The role of TEEB in assessing the socio-economic benefits of protected areas

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The next 15 minutes…

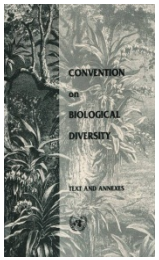
I. What is 'TEEB'?

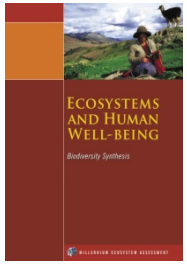
II. TEEB approach to valuation & protected areas

III. Current and upcoming in the world of TEEB

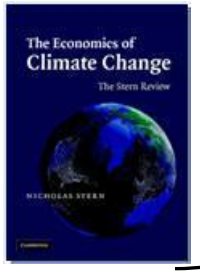
The Economics of Ecosystems & Biodiversity

TEEB genesis and development …





Ecol./Env. Economics literature



G8+5 Potsdam

"Potsdam Initiative – Biological Diversity 2010"

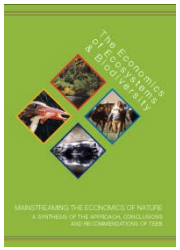
1) The economic significance of the global loss of biological diversity

Importance of recognising, demonstrating & responding to values of nature

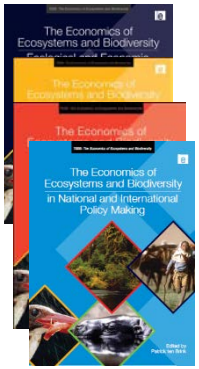
Engagement: ~500 authors, reviewers & cases from across the globe

TEEB End User Reports Brussels 2009, London 2010

TEEB Synthesis



TEEB Books

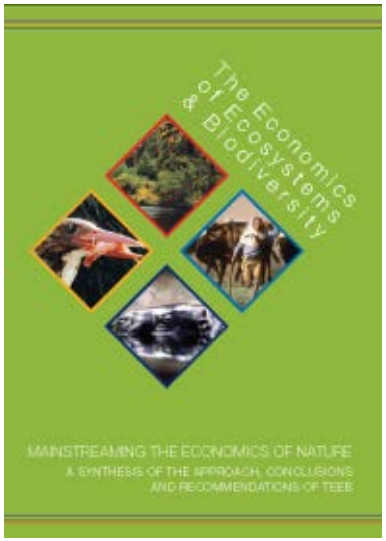


- National/sub-national/regional studies
- Thematic studies
- Natural Capital Accounting
- Capacity-building & outreach

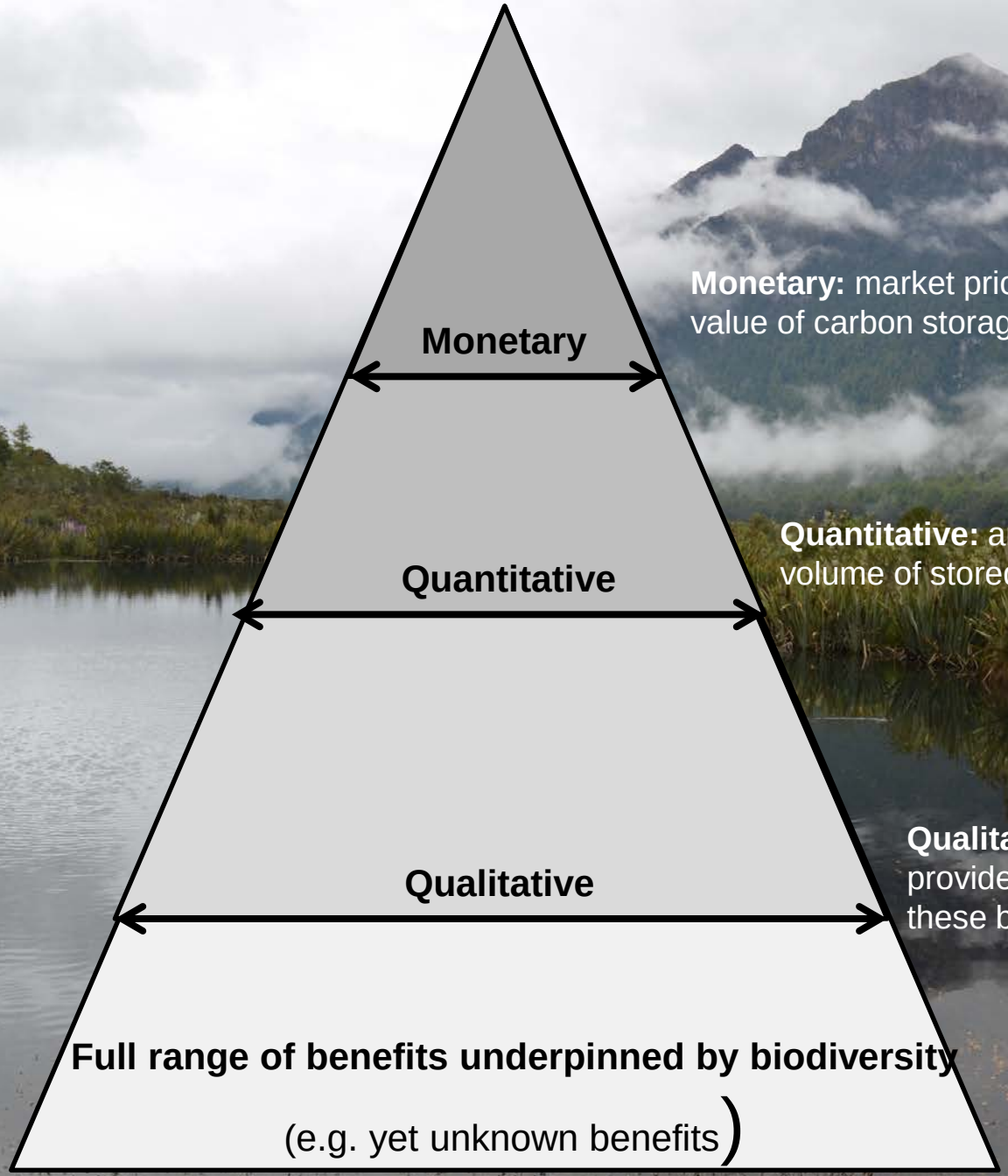
1. *Recognizing* **value**

2. *Demonstrating* **value**

3. *Capturing* **value**



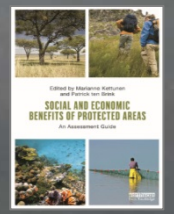
Sukhdev, P., Wittmer, H., and Miller, D. (2014) 'The Economics of Ecosystems and Biodiversity (**TEEB**)**: Challenges and Responses**', in D. Helm and C. Hepburn (eds), *Nature in the Balance: The Economics of Biodiversity*. Oxford: Oxford University Press.



Monetary: market price of products from PAs, value of carbon storage, avoided costs of water purification etc.

Quantitative: amount of people enjoying products from PA, volume of stored carbon, volume of purified water etc.

Qualitative: range of various benefits provided by PA, dependency of people on these benefits etc.



Source: Kettunen and ten Brink (2013)

SOMETIMES RECOGNIZING SOCIO-ECONOMIC VALUE IS ENOUGH.

- **Situation:** business initiative for a private hydro plant in a small water catchment (San José, Costa Rica)
- **Recognition:** water quality and availability depends on the landuse within the catchment
- **Outcome:** integrity of the catchment's water circulation sustained by payments to landowners as compensation for sust. management practices.

SOMETIMES DEMONSTRATING (ECONOMIC) VALUE IS / COULD BE BENEFICIAL.

- **Situation:** Plans to drain the Nakivubo Swamp (Kampala, Uganda) (>40 km^2) for agriculture.
- **Assessment:** Waste water treatment & nutrient retention capacity of the swamp was assessed. Maintaining wetland (vs. manmade solutions) resulted in benefits worth ~1 – 1.75 million $ / year. Also ~2 million $ / year avoided costs of running a sewage treatment facility.
- **Outcome:** Plans for draining the wetland were abandoned and Nakivubo Swamps gazetted as protected area.

CAPTURING (ECONOMIC) VALUE IN POLICIES & VIA INSTRUMENTS.

- **Situation:** Vittel natural mineral water (FR) depends on high quality water from Vosges Mountains (no pre-treatment allowed by law).
- **Assessment:** Costs of managing upstream ecosystems in a manner that guarantees continued supply of clean water are lower than the costs of moving the sourcing of water elsewhere.
- **Outcome:** Farmers upstream are paid to adopt best low-impact farming practises.

Start with a question – define your purpose

- **What is the motive for / purpose of assessment ?**

→ This helps to determine scope, methods, communication etc.

- **Possible motive(s)?**

→ Understanding, awareness and advocacy

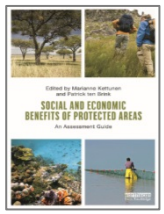
→ Support to decision-making and management

(PA zoning, optimising benefits from multiple sites etc.)

→ Identifying and assessing social impacts

(Benefits with non-market value, equity between beneficiaries etc.)

→ Mobilising funds



Source: Kettunen and ten Brink (2013)

Practice: advocacy

Advocacy:

Highlighting socio-economic benefits can improve policy / stakeholder support to PAs

Example:

- Regional revenue streams generated by visits to Finnish national parks assessed (Metsahallitus 2011 onwards)
- 1 EUR investment results in 10 EUR return
- Assessment of benefits played an important role in preventing budget cuts at national level (See for example Kajala 2012)

"Pallas - Yllas national park worth EUR 13 mil"
National evening news (MTV3) Finland (2012)

Practice: PA management

Management:

Understanding of benefits can advice designation, zoning, setting conservation goals, updating management methods etc.

Example:

- 80% of drinking water in Quito (Ecuador) is provides by surrounding PAs
- Information on PAs' role in water retention and purification have been used to establish specific objectives, zones and tools for water management within PAs (Canales and Jouravlev 2012 in Kettunen and ten Brink 2013)

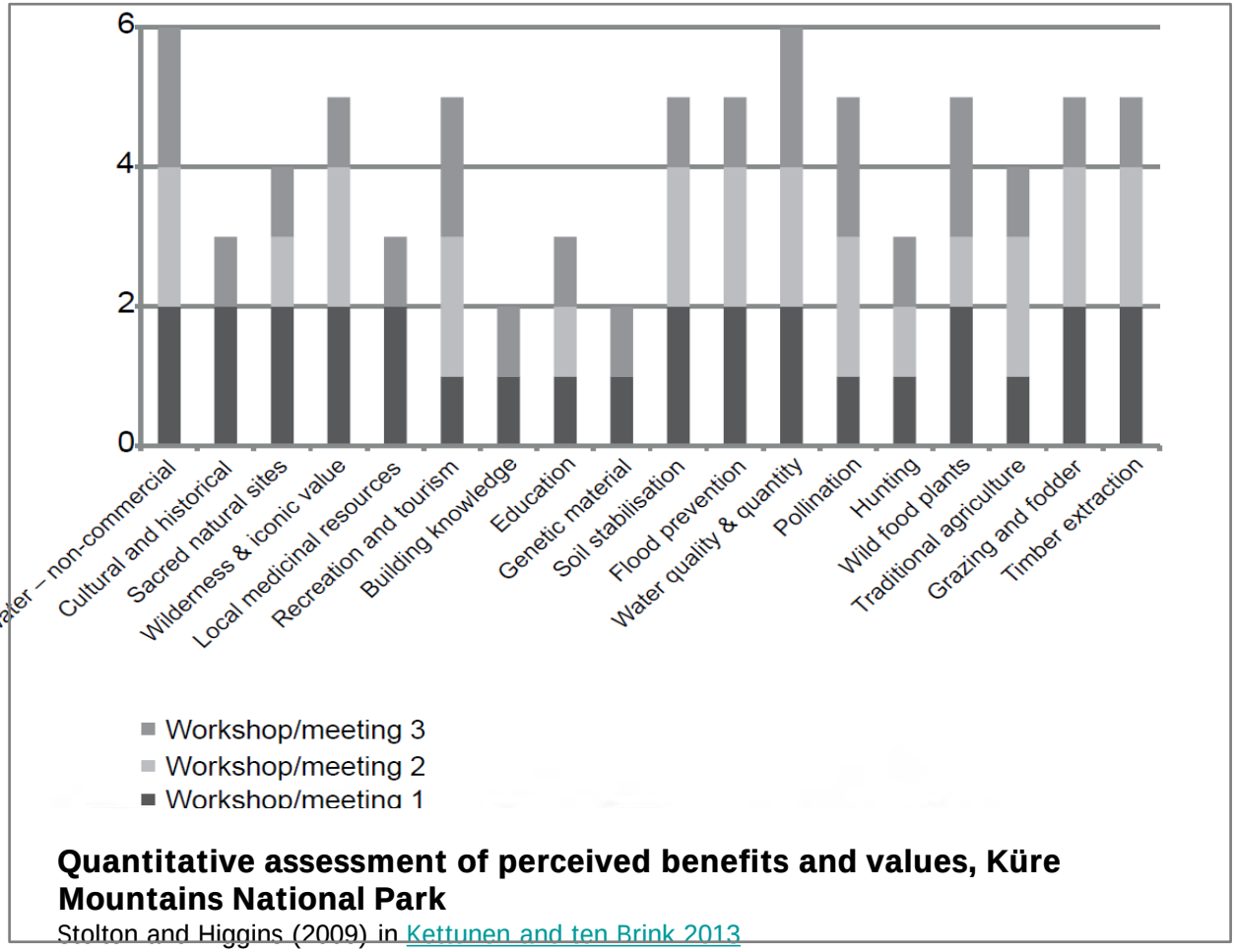
Practice: equity

Equity:

Assessment of benefits helps identify and address all beneficiaries (inc. where there is no market value)

Example:

- Assessment in Küre Mountains NP (Turkey) showed how different stakeholders perceive benefits / values differently
- Used as background information for management planning and basis for park's business plan



Quantitative assessment of perceived benefits and values, Küre Mountains National Park

Stolton and Higgins (2009) in Kettunen and ten Brink 2013

Practice: funding for PAs

Financing:

Understanding of benefits can help attracting funding

- Public funding via increased support
- New types of funding (PES, business partnerships etc.)

Example:

- Public benefits by Burren NP (Ireland) much higher than associated costs

→ 235% min rate of return on government investment (van Rensburgh et al. 2009)

- Assessment played role in securing funding (eg EU agri-env. funding)

- Several PES schemes on PAs exist globally (eg in Quito, see earlier example)

TEEB for Agriculture and Food

STUDY OBJECTIVE

"This study is designed to provide a comprehensive economic evaluation of the 'eco-agri-food systems' complex, and demonstrate that the economic environment in which farmers operate is distorted by significant externalities, both negative and positive, and a lack of awareness of dependency on natural capital. A 'double-whammy' of economic invisibility of impacts from both ecosystems and agricultural & food systems is a root cause of increased fragility and lower resilience to shocks in both ecological and human systems."

The Economics of Ecosystems & Biodiversity

Human (Economic & Social) systems

- Breeding
- Fertilizer
- Machinery
- Irrigation
- Pesticides
- Bio-technology
- Labor

Pollution externality

GHG/climate externality

Energy Appropriation

Health externalities

= Invisible costs

= Invisible benefits

= Visible benefits

= Inputs (science & Technology)

ATMOSPHERE/CLIMATE

CLIMATE

Air

CO_2

O_2

PHYSICAL- CHEMICAL

Agricultural & Food systems

SEED → PLANT → YIELD

- Food
- Raw Materials
- Agro-tourism
- Cultural Heritage

SOIL STRUCTURE

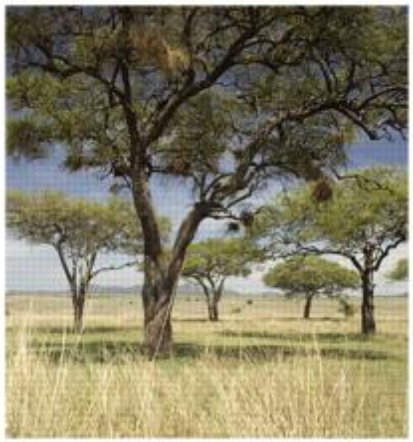
Soil Substrate

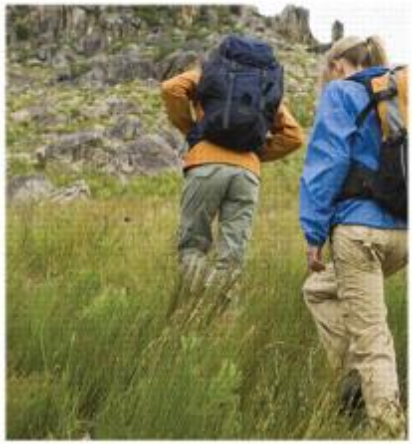
Nutrients

- Habitat encroachment
- Loss of ecosystem complexity
- Species reduction
- Soil erosion
- Other (i.e. unknown) impacts

- Soil creation
- Nutrient recycling
- Genetic variability
- Water purification
- Moderation of extreme events
- Erosion prevention
- Pollination
- Pest control
- Decomposition
- Carbon fixation

Biodiversity & Ecosystems

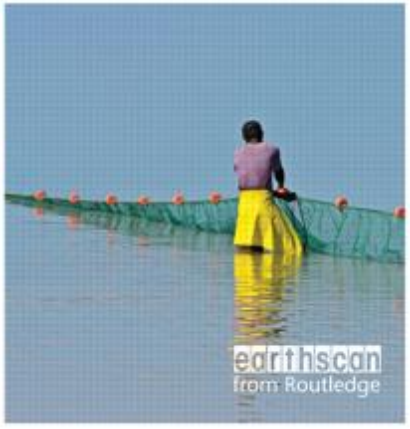




Edited by Marianne Kettunen
and Patrick ten Brink

SOCIAL AND ECONOMIC BENEFITS OF PROTECTED AREAS

An Assessment Guide



Thank you !

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