The Economics of Ecosystems and Biodiversity (TEEB) - Policy applications of ecosystem accounts

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Expert Meeting on Ecosystem Accounts

5 - 7 December 2011, London, UK

Hosted by the Office for National Statistics and the Department for Environment, Food, and Rural Affairs of the United Kingdom.
Organised in collaboration with the European Environment Agency, the World Bank and the United Nations Statistics Division
Presentation overview

❖ Quick background to TEEB

❖ Policy Demand for valuation and accounts

❖ Issues around measurement
  – experimentation & precision,
  – needs for policy making

❖ Summary
TEEB’s Genesis, Aims and progress

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

G8+5 Potsdam

“Potsdam Initiative – Biological Diversity 2010”

Interim Report

Climate Issues Update

TEEB End User Reports Brussels 2009, London 2010

TEEB Synthesis

Input to UNFCCC 2009

TEEB Books

CBD COP 9 Bonn 2008

CBD COP11 Delhi

National TEEBs

Brazil

India

Nordics Norway

Norway

Brazil

Sectoral TEEB work

Water

Ag

Rio+20 Brazil

India, Brazil, Belgium, Japan & South Africa Sept. 2010

BD COP 10 Nagoya, Oct 2010
“I believe that the great part of miseries of mankind are brought upon them by false estimates they have made of the value of things.”

Benjamin Franklin, 1706-1790

“There is a renaissance underway, in which people are waking up to the tremendous values of natural capital and devising ingenious ways of incorporating these values into major resource decisions.”

Gretchen Daily, Stanford University
Critical issues

The value of biodiversity and ecosystem services are not fully reflected in the markets, in price signals, and policies

- **Decision making** (at company, policy & citizen level) still too often fails to take into account the local to global benefits, contributing to a loss of biodiversity and ecosystem services.

- Assessing ecosystem service benefits (and links to biodiversity and ecosystem functions) and identifying who benefits from what natural capital is critical for policy focus, interest and instrument choice, design and implementation.

- There is a growing recognition of the need to improve and invest political capital in natural capital accounts and integrated environmental and economic accounts. This is seen as a ‘slow fuse’ investment, but one that can lead to a paradigm shift in governance.
From (policy) drivers to impacts to values

Drivers
(Human) Drivers
Natural Drivers
Policies e.g. Natura 2000, Habitats & Birds Directives

Pressures
E.g. changes in land use, climate change, pollution, water use, invasive alien species (IAS)
Changes in site protection and management

State
Biodiversity e.g. Change in conservation status
Ecosystem functions

Impact
Ecosystem Services

Valuation
Human welfare / wellbeing

Response

Range of data and indicators
Already useful and evolving range of tools

Reporting / accounts
Economic Values & other measures of value

Understanding data & interactions helps policy decisions

Source: Adapted from Braat and ten Brink et al (2008)
The Global Biodiversity Crisis

- Nature’s assets & biodiversity loss
- Economic values and loss
- Social dimension

Available Solutions

- Markets/pricing/incentives: PES
- Regulation: standards
- Regulation: planning, protected areas
- Investment (man-made & natural capital)

Transforming our approach to natural capital

Measuring what we manage

- Indicators
- Accounts
  - Valuation
  - Assessment

Book announcement: The Economics of Ecosystems and Biodiversity in National and International Policy Making now available from Earthscan
Instrument: Mexico PSAH: PES to forest owners to preserve forest: manage & not convert forest

Result
Deforestation rate fell from 1.6 % to 0.6 %.  
18.3 thousand hectares of avoided deforestation
Avoided GHG emissions ~ 3.2 million tCO2e
CBD COP 10 Nagoya: Strategic Plan 2011-20
5 strategic goals & 20 headline targets ....extracts...

Strategic goal A: Address the underlying causes of biodiversity loss by mainstreaming biodiversity across government and society

Target 1: ... people aware of the values of biodiversity ..... 

Target 2: .... biodiversity values have been integrated ....into strategies... planning ... national accounting.... reporting systems.

Strategic goal D: Enhance the benefits to all from biodiversity and ecosystem services

Target 14: ... ecosystems that provide essential services.... restored and safeguarded

Target 15: ... contribution of biodiversity to carbon stocks has been enhanced...

Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from their Utilization;

Evidence on values of biodiversity can also support many other targets e.g. On sustainable fisheries, agriculture, forestry, sustainable use ...
A 2050 VISION
European Union biodiversity and the ecosystem services it provides – its natural capital – are protected, valued and appropriately restored.

A 2020 HEADLINE TARGET
Halt the loss of biodiversity and ecosystem services in the EU and restore them insofar as feasible, and step up the EU’s contribution to averting global biodiversity loss.

6 TARGETS
- Enhance implementation of nature legislation
- Restore ecosystems est. Green Infrastructure
- Sustainable Agriculture & Forestry
- Sustainable Fisheries
- Combat Alien Invasive Species
- Contribute to averting global biodiversity loss

Actions

**Action 5: Improve Knowledge of ecosystems and their services in the EU.** Member States, with the assistance of the Commission, will map and assess the state of ecosystems and their services in their national territory by 2014, assess the economic value of such services, and promote the integration of these values into accounting and reporting systems at EU and national level by 2020.
Biodiversity: The (information on) Benefits Pyramid

Effort of assessing values generally increases up the benefits pyramid

**Monetary**: eg food provisioning (e.g. fish), avoided water purification costs, carbon storage, medicines

**Quantitative**: eg increase in carbon store, # of avoided health impacts; number of visitors

**Type of benefits**: health benefits, social benefits, security, wellbeing.

‘Knowns’ and unknowns

- Full range of ecosystem services from biodiversity
- Full value of ecosystem covers all levels
- Non-Specified / assessed Benefits
- Increasing up the benefits pyramid

**Biodiversity ‘value’:** anthropocentric and intrinsic

**Monetary Value**

**Quantitative Review of Effects**

**Qualitative Review**

**Non-Specified / assessed Benefits**
The Evidence Base and Demand

- There are different audiences, and different messages are needed for each.
- Different types of messages have different power and different reach.
- Policy needs a solid quantitative foundation as well as insights on costs and benefits.

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<th>Available information</th>
<th>Press interest</th>
<th>Policy needs</th>
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<td>Quantitative / qualitative</td>
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<tr>
<td>Monetary</td>
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Source: P. ten Brink: presentation at March 2008 workshop Review of Economics of Biodiversity Loss, Brussels
Lessons from Evaluation – Tools, their application and evolution, the use of results and road map for development

<table>
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<th>Nature of result</th>
<th>Method and its application: robustness and use</th>
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| Experimental             | Experimental methods; useful to explore ways forward; help learning.  
*Do not use the results for decision making;*                                                                                                                                                                                                                                                                     |
| Indicative/illustrative  | Valuable illustrative/indicative numbers to give order of magnitude results.  
*Helps scale an issue and identify importance. Already useful for policy reflections.*                                                                                                                                                                                                                               |
| Robust in part; not yet  | Fairly robust tools leading to Illustrative/indicative – useable with due caveats, Valuable in impact assessment, with transparent presentation of limits and what the numbers mean. Wide ranges                                                                                                                                                                                                 |
| precise                  | Robust method – should lead to robust numbers, fine for publication, citation, without need for significant context. Ranges more precise (though still ranges)                                                                                                                                                                                                 |

**Road Map**

- **Over time**
  - More physical data
  - Better monitoring (e.g. GIS)
  - Better indicators & time series
  - More valuation cases
  - Method evolution
  - Learning from others

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<th>Now (2011)</th>
<th>2014 (Biodiversity strategy target)</th>
<th>2020 (BD strategy and CBD Strategic Plan target year)</th>
<th>2030</th>
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Fit for purpose: what level of precision is needed?

- **EU Policy Making** – if it is clear that benefits are an order of magnitude larger than costs (or vice versa), then a very clear signal for need for policy action (or not). Precision less critical in **Impact Assessment (IA)** where a clear order of magnitude can be established. **Robust order of magnitude can suffice.**

- **Instrument Design** – eg PES, REDD+, ETS – greater precision needed to get the design right (e.g. what level of payments, defining additionality & conditionality) and have confidence in the instrument

- **In project and permit assessment** – as precise an answer is needed where possible, but whole picture also needed

- **In compliance checking** (e.g. performance under PES/REDD) – as precise an answer as possible is needed. **Verifiability.**

**Fit for purpose:**

Policy needs & context defines the level of robustness and precision needed

Good governance only requires answers fit for purpose – proportionality principle
Summary

- **Measuring better to manage better**: from indicators to mapping to accounts – physical accounts and integrated economic and environmental accounts.

- **Fit for purpose**: precision valuable for some decisions; order of magnitude results for others.


- **Growing political commitment**: CBD Strategic Plan, Biodiversity Strategy
  - Clear need for natural capital accounts and fuller SEEA

- **Learning by doing / learning from others** - key for realising a road map and reaching objectives. Solid foundation for improved policy
Thank you

TEEB Reports available on http://www.teebweb.org/

See also www.teeb4me.com

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See also IEEP’s award winning Manual of European Environmental Policy