

Trends in the economic valuation: moving from a biodiversity perspective towards an ecosystems services based approach

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Contents

- Background and motivation
 - ✓ Biodiversity as an environmental resource
 - ✓ Definition of the total economic value
- Recent stylized facts
 - ✓ Corporations as strategic players
- Ecosystems services approach
 - ✓ Millennium Ecosystem Assessment
 - Biodiversity, ecosystems, ecosystems services and human well-being are linked
- Proposal for reflection

Biodiversity requires our attention for two reasons.

First, it provides a wide range of benefits to mankind, which occur on both local and global scales.

Second, many human activities contribute to unprecedented rates of biodiversity loss, which threaten the stability and continuity of ecosystems as well as their provision of goods and services to mankind.



Biodiversity and human Welfare





Definition of the total economic value of an environmental resource

TOTAL ECONOMIC VALUE	USE VALUES	direct use value indirect use value option value
	NONUSE VALUES	bequest value existence
		value



adapted from Pearce and Moran (1993)

Definition of the total economic value of an environmental resource

		direct use	recreation benefits
		value	e.g. sight-seeing, fishing, swimming
	USE	indirect	ecosystem functional benefits
TOTAL	VALUES	use value	e.g. watershed protection, timber production
ECONOMIC		option	safeguard of use benefits
VALUE		value	e.g. pharmaceuticals, future visits
		bequest	legacy benefits
	NONUSE	value	e.g. habitat conservation for future generations
	VALUES	existence	existence/intrinsic benefits
		value	e.g. knowledge of continued protection of
			wildlife diversity



adapted from Pearce and Moran (1993)

Definition of the total economic value of an environmental resource



Levels of biodiversity				
Types of diversity	Physical expression			
Gene	Genes, nucleotides, chromosomes, individuals			
Species	Kingdom, phyla, families, genera, subspecies, species, populations			
Ecosystem	Bioregions, landscapes, habitats			
Functional	Keystone process species, ecosystem resilience, and ecological services			

Source: Turner et al. (1999).



Biodiversity values

Biodiversity value category	Biodiversity benefits	
Genetic and species diversity	Inputs to production processes (e.g. pharmaceutical and agriculture industries)	
Natural areas and landscape diversity	Provision of natural habitat (e.g. protection of wilderness areas and recreational areas)	
Ecosystem functions and ecological services flows	Ecological values (e.g. flood control, nutrient removal, toxic retention and biodiversity maintenance)	
Nonuse of biodiversity Fondazione Eni Enrico Mattei	Existence or moral value (e.g. guarantee that a particular species is kept free from extinction)	

Economic valuation of biodiversity values: background

- Cost-benefit-analysis and analysis of environmental policy instruments
 - ✓ Investment in pollution abatement technologies✓ Protection of the natural areas



Recent stylized facts

- Economic valuation of biodiversity is no longer of 'exclusive' domain of academic/research areas
 - ✓ European Commission (DG Environment, TEEB)
 - European Environmental Agency (EUREKA, satellite accounting system)



TEEB: Stern like review on biodiversity

- COP9, May 2008, Bonn
 - FEEM Nunes & Markandya has been the study leader of the review contract with DG Environment, Review on the economics of biodiversity loss – phase 1 (scoping) – Economic analysis and synthesis - a project under the Framework contract for economic analysis ENV.G.1/FRA/2006/0073
 - FEEM Nunes & Markandya has been the study leader of the European Environment Agency project on scaling up biodiversity values.
 - FEEM Nunes and Markandya has been partner of the consortium COPI - The Cost of Policy Inaction (COPI): the case of not meeting the 2010 biodiversity target, ENV.G.1/ETU/2007/0044(4)
- Now phase 2 (2008-2010)





Federal Ministry for the Environment, Nature Conservation and Nuclear Safety



The Economist, 15th October 2008

Fewer creatures great and small

What does the loss of other species cost humans? Many congress-goers talked about valuing "ecosystem services": natural processes that benefit people, such as the pollination of crops, the purification of water in wetlands and the sequestration of carbon in soil and forests. A study released this year said the world was losing €50 billion (\$68 billion) in ecosystem services each year because of damage to nature.





Recent stylized facts

2. Environmental reporting

- ✓ Satellite national accounting system
- ✓ National sustainable indicators (FEEM)

✓ Corporate social responsibility reports



IUCN World Conservation Congress, Barcelona, 2009

IUCN latest report, sponsored by SHELL.

"Bu Bio

Building Biodiversity Business

Joshua Bishop, Sachin Kapila, Frank Hic Paul Mitchell and Francis Vorhies





Biodiversity as a business opportunity



Chapter 4

The biodiversity business landscape

This chapter reviews a range of sectors and business models that can generate benefits for biodiversity through the conservation of biological diversity, sustainable use of biological resources, and equitable sharing of the benefits of using biodiversity.



Recent stylized facts

- 1. Economic valuation of biodiversity is no longer 'exclusive' domain of academic/research areas
- 2. Environmental accounting



Recent stylized facts

3. Adoption of the Ecosystems services based approach, as proposed by the Millennium Ecosystem Assessment



Millennium Ecosystem Assessment

- The Millennium Ecosystem Assessment (MA) was called for by the United Nations Secretary-General Kofi Annan in 2000.
- The MA has involved the work of more than 1,360 experts worldwide.
- Their findings provide a state-of-the-art scientific appraisal of the condition and trends in the world's ecosystems and the services they provide, as well as the scientific basis for action to manage and use them sustainably.





ECOSYSTEMS AND IUMAN WELL-BEING



The Working Group assessment reports are between 500-800 pages in length, with a volume of summaries of about 120 printed

pages. 🗳 Learn more Current States & Trends Scenarios Policy Responses Multiscale Assessments

Statement of the MA Board

Synthesis Reports



The first set of assessment reports consists of an overall synthesis and 5 others that interpret the MA findings for specific audiences. El earn more

Overall synthesis Biodiversity Desertification Business & Industry Wetlands and Water Health

A Framework for Assessment

About the Millennium Assessment

The Millennium Ecosystem Assessment assess the consequences of ecosystem change for human well-being. From 2001 to 2005, the MA involved the work of more than 1,360 experts worldwide. Their findings provide a state-of-the art scientific appraisal of the condition and tre in the world's ecosystems and the services the provide, as well as the scientific basis for actio conserve and use them sustainably. Read More

Useful Links



ECOSYSTEMS AND HUMAN Well-Being

Synthesis

Biodiversity, ecosystems, ecosystems services and human well-being are linked

Ecosystem services: ecosystems provide vital goods and services



Focus: Ecosystem Services The benefits people obtain from ecosystems

ECOSYSTEM SERVICES



22

Biodiversity matters, but people matters too





Changes in ecosystem condition

Biophysical

Chemical

Biodiversity













Source: MEA (2005), adapted.



Economic Valuation



Economic valuation: a road map



Proposal: a corporate strategy for valuing ecosystem services



Reflection





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31



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