



Payments for ecosystem services and the commodification process

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International Conference on Payments for Ecosystem Services and their Institutional Dimensions

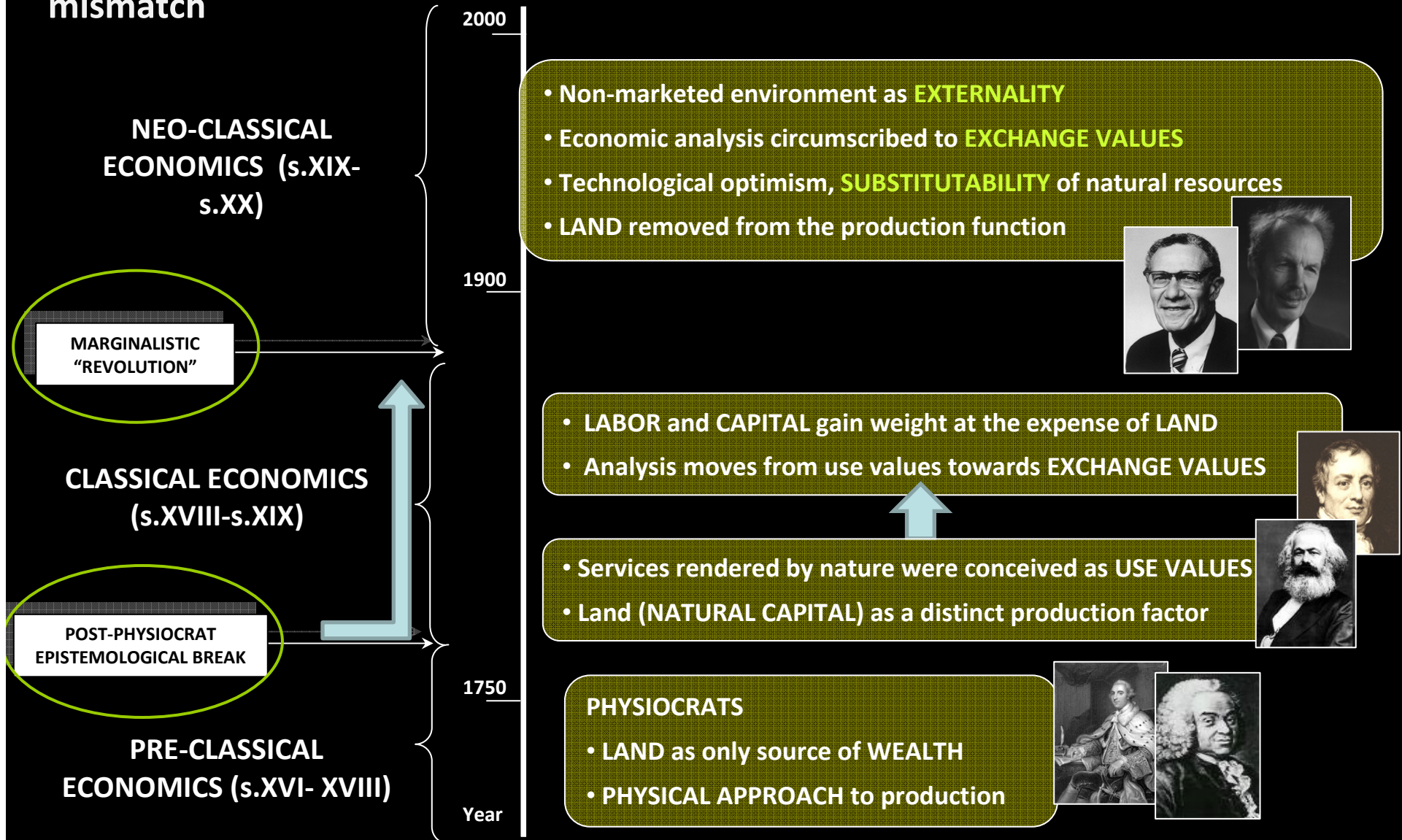
November 10-12, 2011. Berlin, Germany

Outline

- **The ecological blindness of conventional economics**
- **Ecosystem services: from metaphor to commodity**
- **The commodification process**
- **Final remarks**

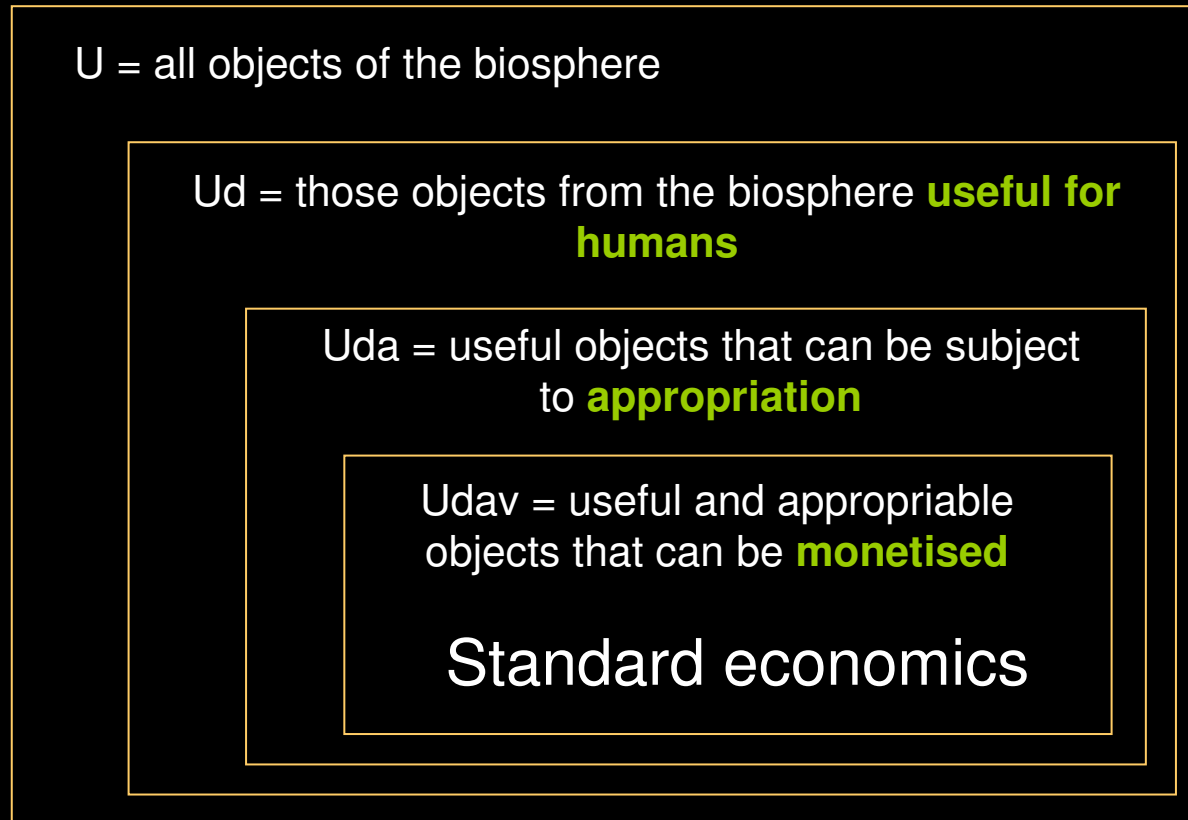
The ecological blindness of conventional economics

Historical roots of the ecology-economy mismatch



The ecological blindness of conventional economics

The scope of conventional economic analysis: the COMMODITY

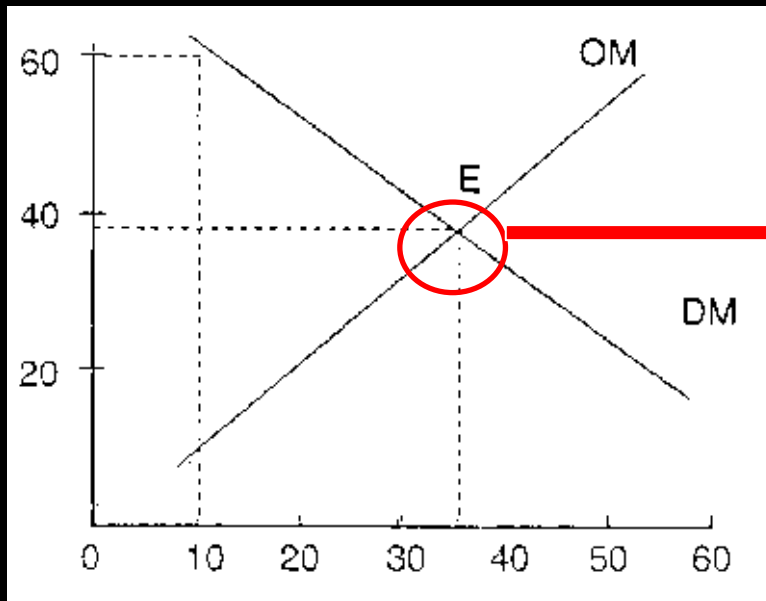


Conventional economics leaves most ecosystem processes and components outside its scope of analysis

Solution by market-based conservation: get the prices right, turn ecosystem services commodities and let the markets work for sustainability

Ecosystem services: From metaphor to commodity

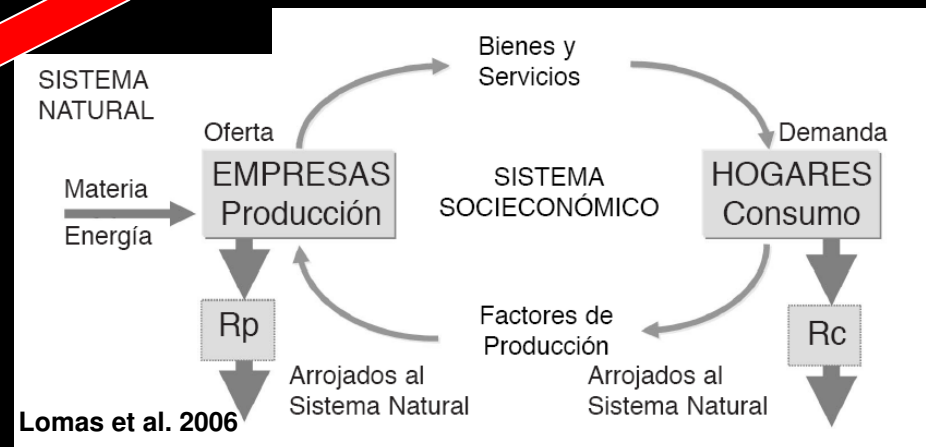
HOW TO TACKLE THE ECONOMIC VALUE OF THE ENVIRONMENT?



PRICE AS THE BEST
INDICATOR OF MARKET
VALUE

**MOST ECOSYSTEM SERVICES
LACK MARKETS AND HAVE
NO PRICE**

**THIS DOES NOT
MEAN THEY DO NOT
HAVE VALUE**



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Ecosystem services: From metaphor to commodity

ECOSYSTEM SERVICES:

“benefits that humans derive from ecosystems” (*Millennium Assessment 2005*)

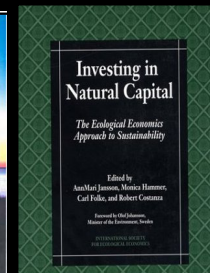
1) 1970s Metaphorical use

- 1970s: Economic role of ecosystem functions
- 1980s: Use of ecosystem services as illustrative metaphor



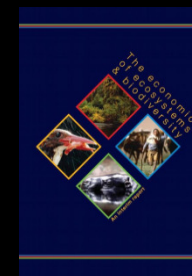
2) 1990s: Mainstreaming in science

- 1992: ES and natural in the peer reviewed literature
- 1997: First estimation of nature's TEV at the global scale

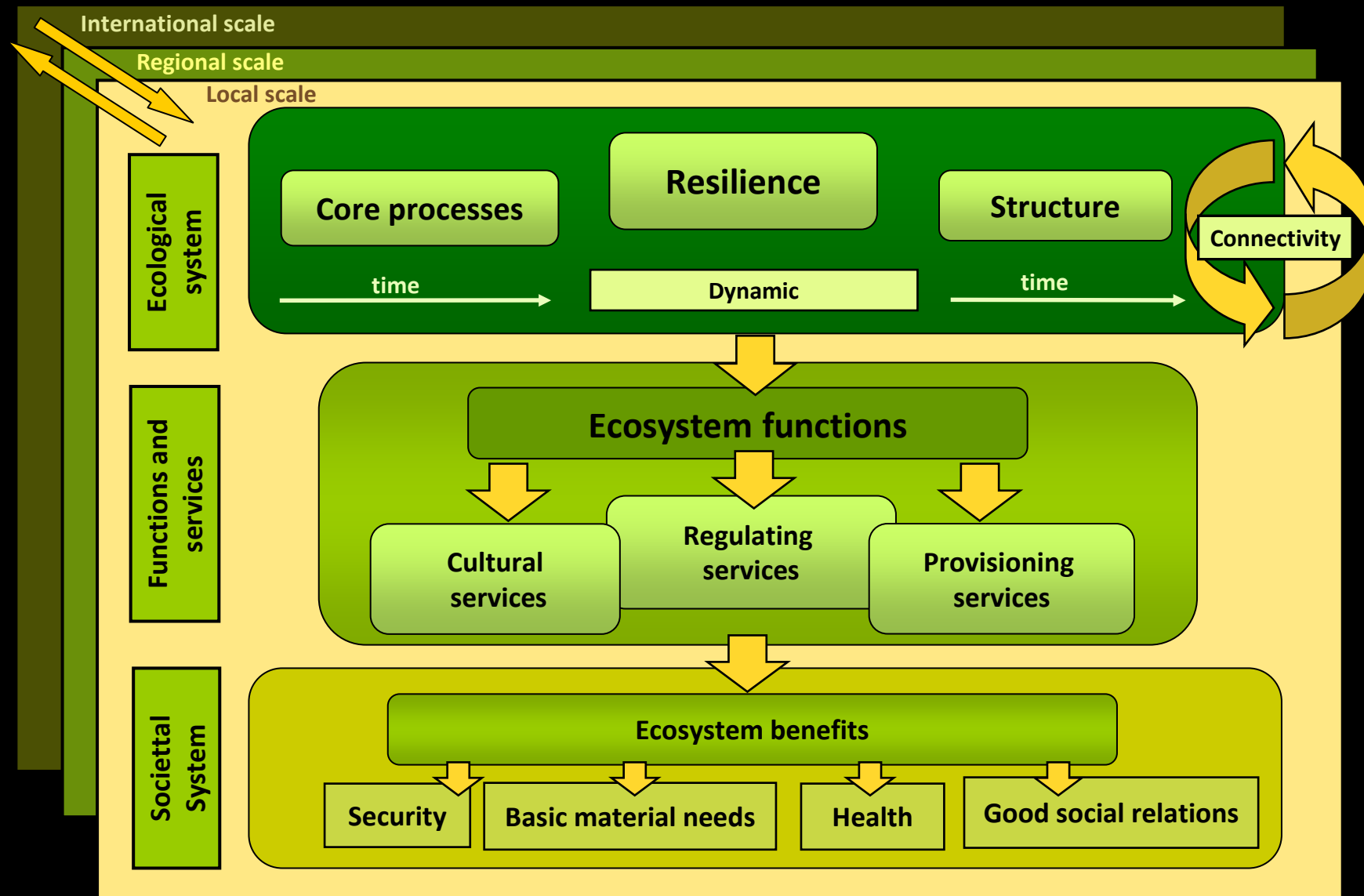


3) 2000s: Articulation in policy agenda

- Ongoing revision of economic accounting systems (SEEA)
- Market mechanisms for ecosystem services (MES and PES)

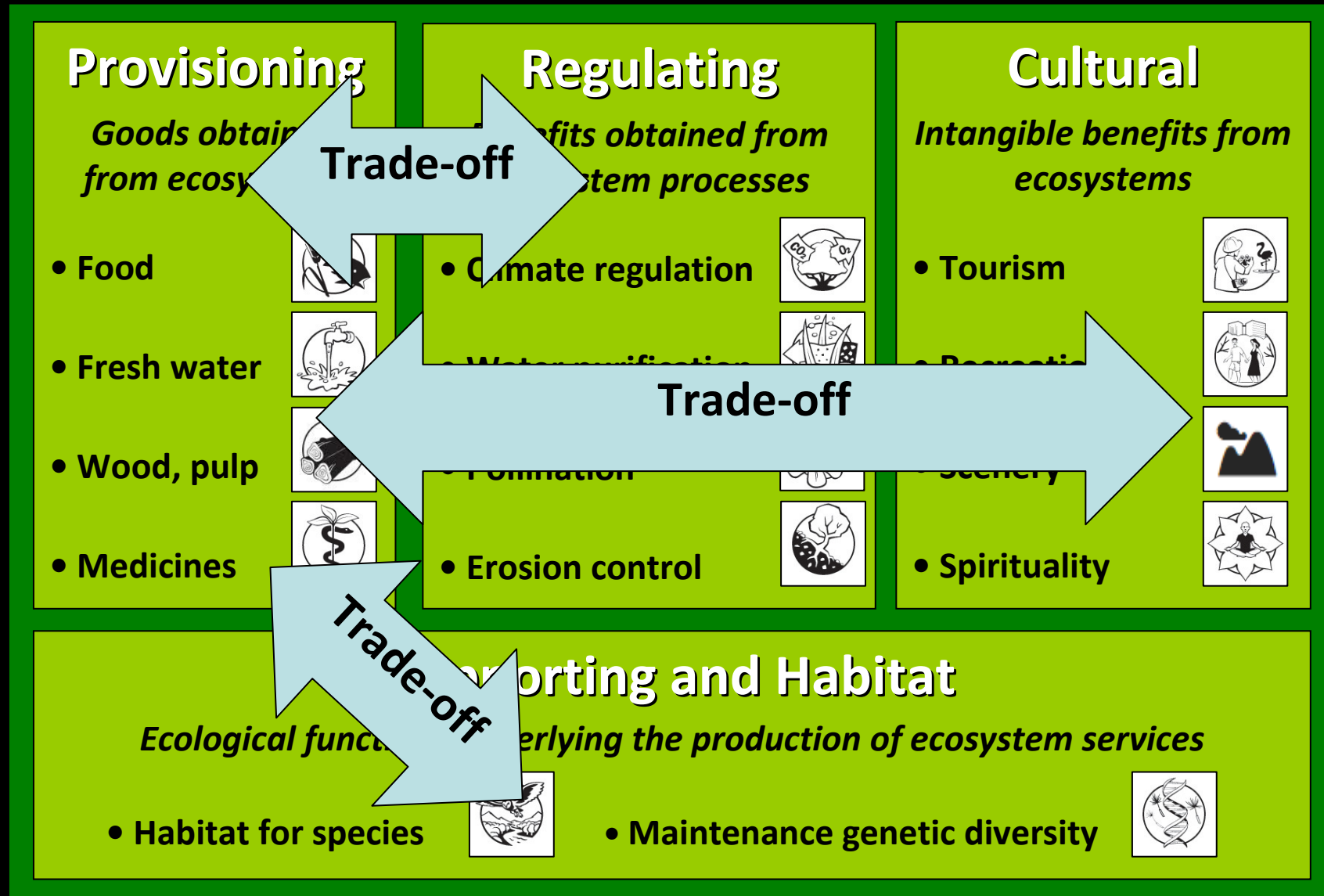


Ecosystem services: From metaphor to commodity



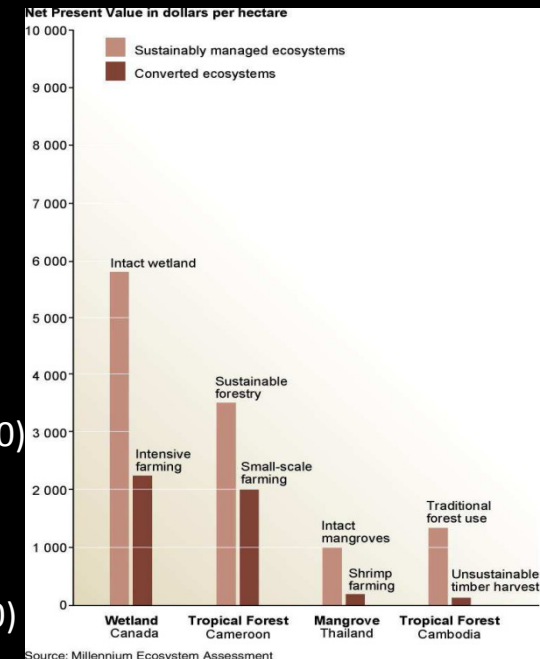
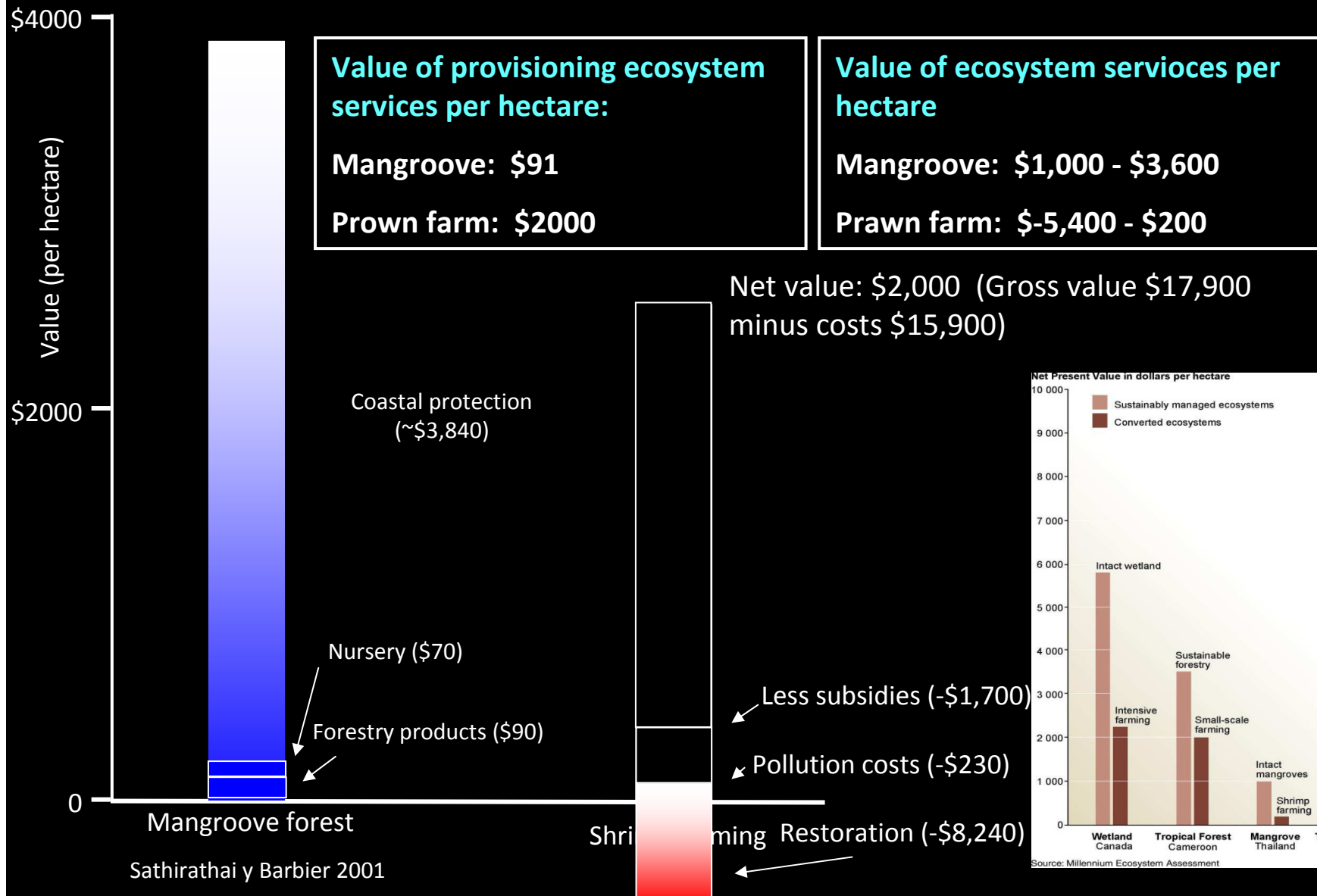
Ecosystem services: From metaphor to commodity

ECOSYSTEM SERVICES CATEGORIES



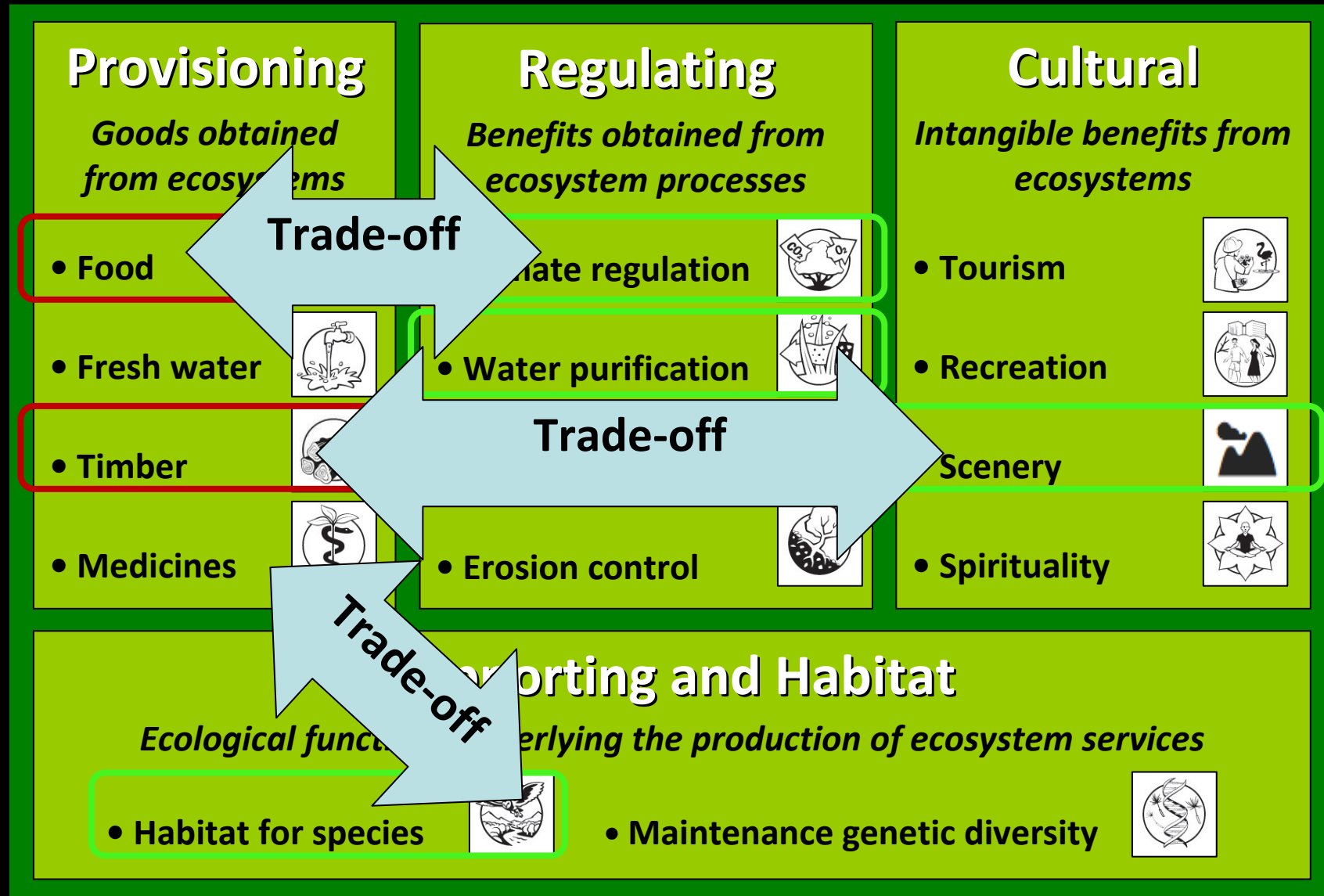
Source: Millennium Ecosystem Assessment, 2003; TEEB for Local and Regional Policy, 2011 (Jan Sasse)

Ecosystem services: From metaphor to commodity



Ecosystem services: From metaphor to commodity

Protecting regulating services through the Costa Rica PES program



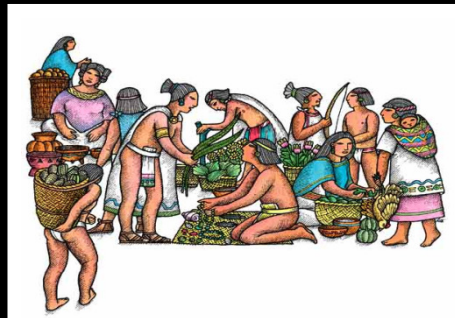
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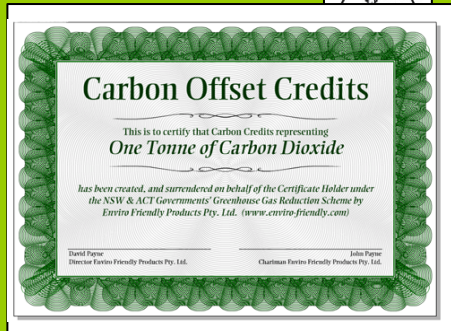
The commodification process

- Commodification
 - Refers to the **expansion of markets** to previously non-marketed areas, and to the treatment of things or process as if they were tradable object
 - Describes a **modification of relationships**, formerly unaffected by commerce, into commercial relationships
 - Refers to the **inclusion of new ecosystem functions into pricing systems** and market relations

The commodification process



Food



Regulating

Benefits obtained from ecosystem processes

- Climate regulation
- Water purification
- Pollination
- Erosion control



Tourism



Supporting and Habitat

Ecological functions underlying the production of ecosystem services

Habitat for species



Maintenance genetic diversity



The commodification process

- **David Ricardo (1772-1823)**

“Natural agents are serviceable to us by adding to value in use; but as they perform their work gratuitously, as nothing is paid for the use of the air, of heat, and of water, the assistance which they afford us, adds nothing to value in exchange” (1817 [2001], p. 208)



- **Jean Baptiste Say (1767-1832):**

“the wind which turns our mills [...] and even the heat of the sun, work for us; but happily no one has yet been able to say, *the wind and the sun are mine, and the service which they render must be paid for*” (1829, p. 250)



The commodification process

Commodification takes place in four main stages

Stage I: UTILITARIAN FRAMING

<i>Tentative period</i>	<i>Stage</i>	<i>Conceptualization</i>	<i>Action</i>	<i>Value</i>	<i>Influential publications</i>
1960s- 1990s	Utilitarian framing	Ecosystem functions as services	Ecosystem functions framed in utilitarian terms	Use value	Daily, 1997 De Groot et al. 2002 MA, 2003

Ecosystem function
(biocentric)



Ecosystem service
(anthropocentric)

The commodification process

1992

1994

1997

2000

2002

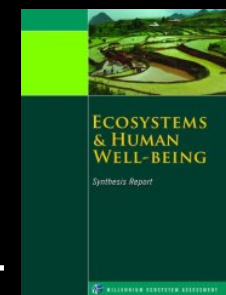
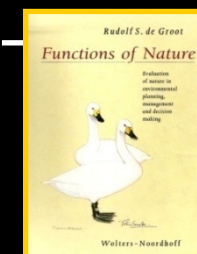
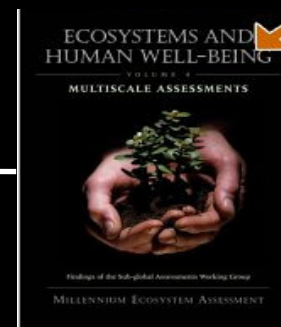
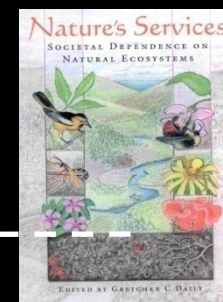
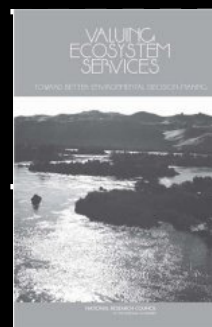
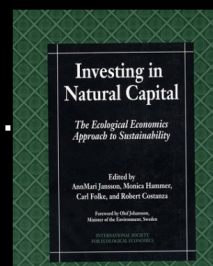
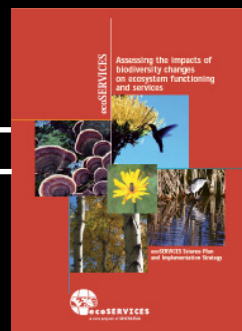
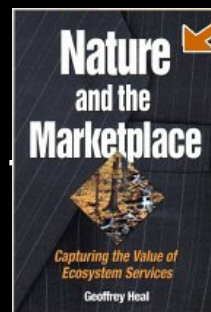
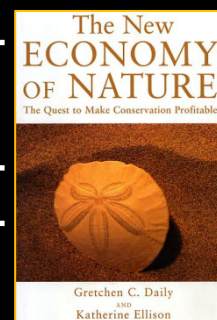
2003

2005

2006

2007

2010



Courtesy of Berta Martín-López

The commodification process

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Stage II: MONETIZATION

<i>Tentative period</i>	<i>Stage</i>	<i>Conceptualization</i>	<i>Action</i>	<i>Value</i>	<i>Influential publications</i>
1960s- 1990s	Utilitarian framing	Ecosystem functions as services	Ecosystem functions framed in utilitarian terms	Use value	Daily, 1997 De Groot et al. 2002 MA, 2003
Starting in 1960s, boosts in the 1990s	Monetization	Ecosystem services as valuable / monetizable	Refinement of methods to value ecosystem services in monetary terms	Exchange value	Costanza et al., 1997 Stern, 2006 EC, 2007

Ecosystem services as use values



Ecosystem services as exchange values

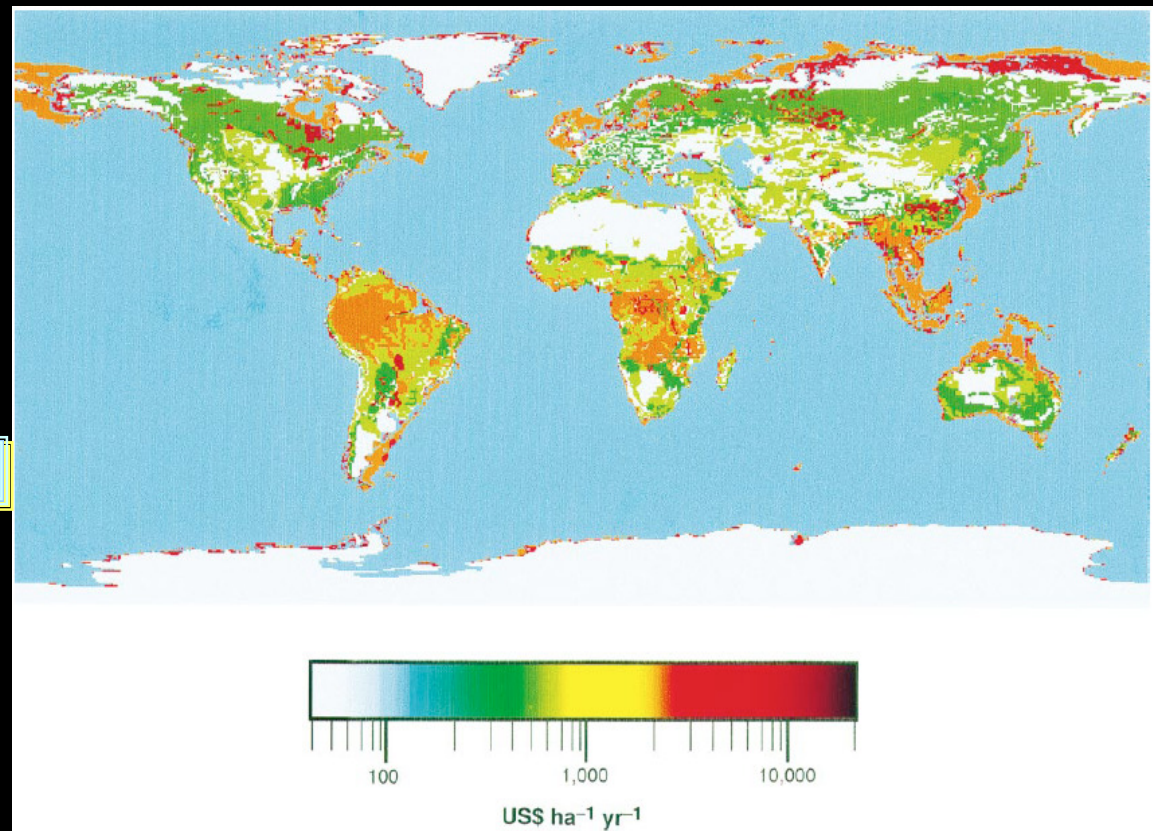
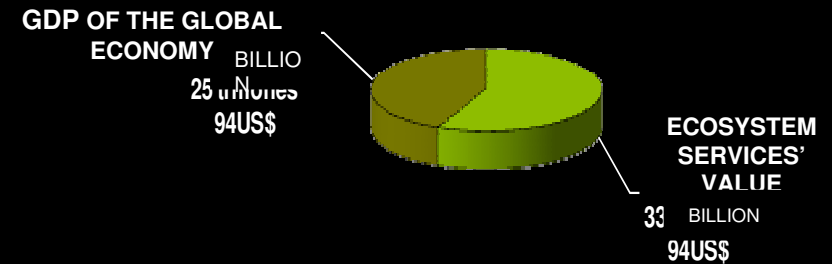
The commodification process

Influential contributions... Costanza et al. 1997

SERVICES	\$ ha ⁻¹ y ⁻¹
* GASES REGULATION	1.341
* CLIMATE REGULATION	684
* DISTURBANCE BUFFERING	1.779
* WATERSHED REGULATION	1.115
* WATER SUPPLY	1.692
* EROSION CONTROL	576
* SOIL FORMATION	53
* NUTRIENT CYCLING	17.075
* WATER PURIFICATION	2.277
* POLLINATION	117
* CONTROL OF ALIEN SPECIES	417
* HABITAT / REFUGEE	124
* FOOD PRODUCTION	1.386
* RAW MATERIALS	721
* GENETIC RESOURCES	79
* RECREATION	815
* CULTURAL SERVICES	3.015
TOTAL	33.266

17 ECOSYSTEM SERVICES
FROM 16 BIOMES ESTIMATED
TO HAVE HIGHER VALUE THAT
THE WORLD'S GDP IN 1994

Costanza et al. 1997



The commodification process

Commodification takes place in four main stages

Phase III: APPROPRIATION

<i>Tentative period</i>	<i>Stage</i>	<i>Conceptualization</i>	<i>Action</i>	<i>Value</i>	<i>Influential publications</i>
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Starting in 1970s, boosts in the 2000s	Appropriation	Ecosystem services as appropriable	Clear definition of ecosystem property rights (e.g. land titling)	Exchange value	Coase, 1960 Hardin, 1968

Public, common property or open access



Clearly defined property rights (often private)

The commodification process

Influential contributions...

1) "The problem of social cost" R. Coase (1960)



Problem : environmental externalities

Recommendation: well-defined property rights

2) "The tragedy of the commons" G. Hardin (1968)



Problem: overexploitation of the commons

Recommendation: privatise (or statalise)



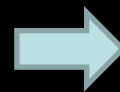
The commodification process

Commodification takes place in four main stages

Phase IV: SALE

<i>Tentative period</i>	<i>Stage</i>	<i>Conceptualization</i>	<i>Action</i>	<i>Value</i>	<i>Influential publications</i>
1960s- 1990s	Utilitarian framing	Ecosystem functions as services	Ecosystem functions framed in utilitarian terms	Use value	Daily, 1997 De Groot et al. 2002 MA, 2003
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Starting in 1970s, boosts in the 2000s	Appropriation	Ecosystem services as appropriable	Clear definition of ecosystem property rights (e.g. land titling)	Exchange value	Coase, 1960 Hardin, 1968
	Exchange	Ecosystem services as exchangeable	Institutional structures created for sale / exchange (PES and MES)	Exchange value	Wunder, 2005 Engel et al., 2008

Ecosystem services

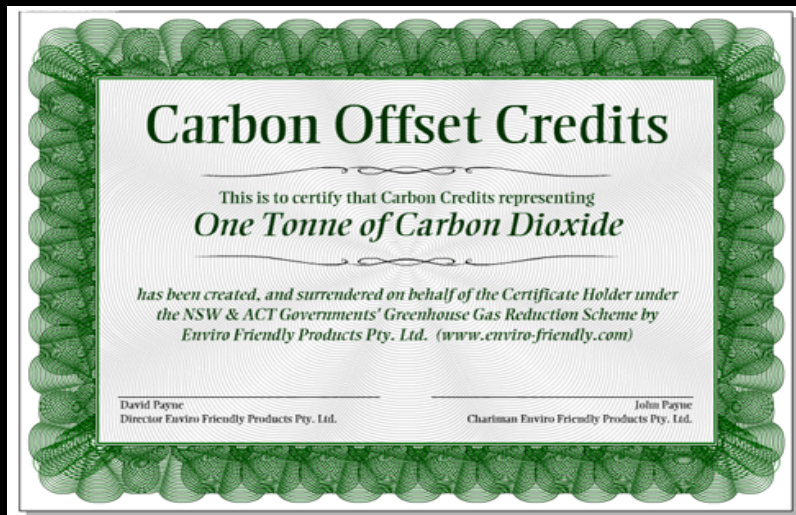
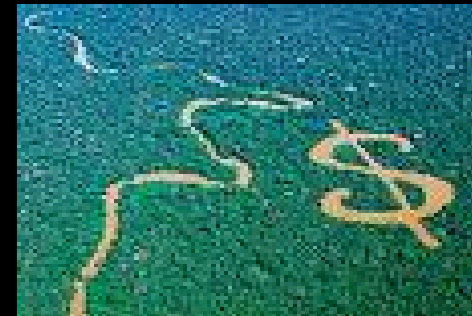


Ecosystem commodities

The commodification process



MES: Polluter pays principle



PES: Stewards earn principle



The commodification process

MERCADOS DE SERVICIOS AMBIENTALES Y PAGOS POR SERVICIOS AMBIENTALES

<i>Mechanism</i>	<i>Commodified ecosystem service</i>	<i>Sites of application</i>	<i>Reference</i>
Markets for Ecosystem Services	Emission trading of greenhouse gases (atmospheric sink functions of CO ₂)	European Union	Barker et al., 2001
		United Kingdom	Bayon, 2004
		Chicago	Bayon, 2004
	Sulphur dioxide emission trading (atmospheric sink functions of SO ₂)	USA through the US Clean Air Act of 1990	Stavins, 1998
	Wetland mitigation banking	USA	Robertson, 2004
Payment for Ecosystem Services	Watershed protection	Central America	Corbera et al., 2007
		Ecuador	Wunder and Albán, 2008
	Carbon sequestration	Costa Rica	Pagiola, 2008
		Ecuador	Wunder and Albán, 2008
	Habitat conservation / wildlife services	Bolivia	Asquith et al., 2008;
		Zimbabwe	Frost and Bond, 2008
	Bio prospecting	Costa Rica	Pagiola, 2008
	Agro environmental measures	European Union	Dobbs and Pretty, 2008
		US	Claassen et al., 2008

Fuente: Gómez-Baggethun et al. 2010

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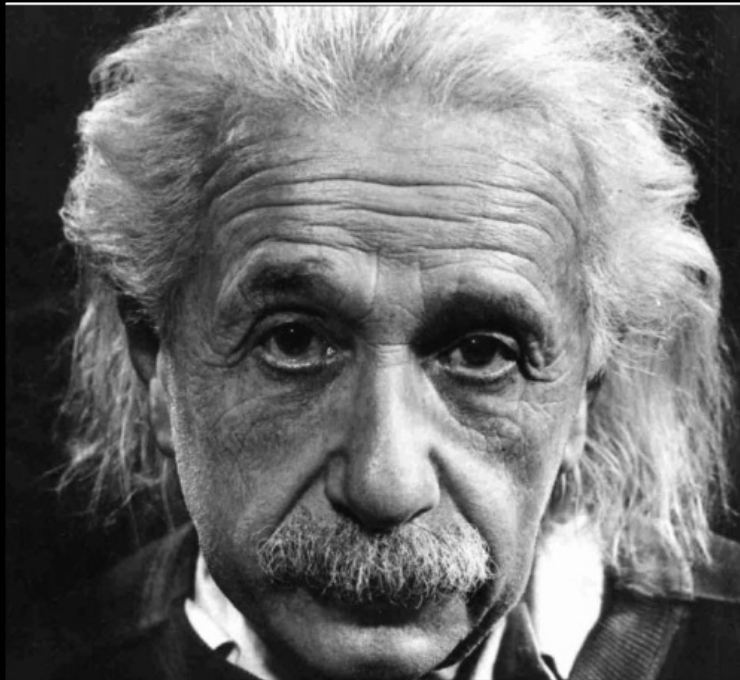
Final remarks

- **Why is commodification an issue?**
 - **Complexity aspect:** blinding of non-economic valuation languages – problem of incommensurability of values
 - **Feasibility aspect:** uncooperative nature of environmental commodities – arithmomorphy of economic goods vs. interrelated nature of ecological processes & components
 - **Political aspect:** commodification involves appropriation-dispossession and brings ecological distribution conflicts
 - **Ethical aspect:** limits to markets (eg, abolition of slavery and of sale of indulgencies - decommodification)

Final remarks

To ecologize economics or to economize ecology?

PES: Reproduction of old logics or bridge towards structural economic transformation?



"We can't solve problems by using the same kind of thinking we used when we created them"
(Albert Einstein)

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