



EUROCLIMA

EUROCLIMA-CEPAL

# Políticas públicas frente al **cambio** climático





EUROCLIMA-CEPAL

**Políticas  
públicas**  
frente al **cambio  
climático**

## Curso teórico-práctico:

“Metodologías para la valoración económica del medio ambiente”

*Valoración Económica del Ambiente  
Marco Conceptual*

*Sergio Orrego*

15 y 16 de mayo de 2017

Santiago de Chile



NACIONES UNIDAS

CEPRL



UNION EUROPEA

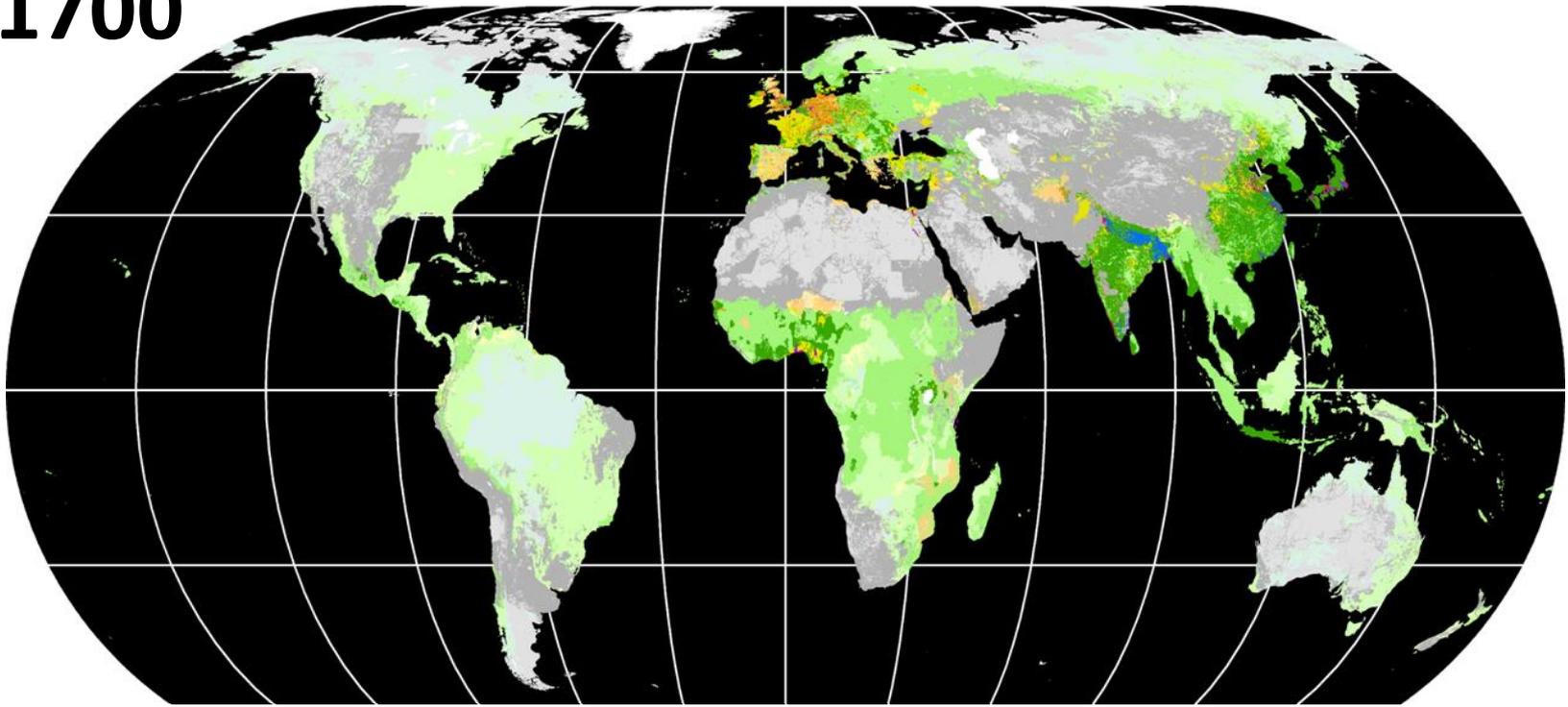
---

# **Modificación antrópica del ambiente**

---

# How did the *biosphere* become anthropogenic?

## 1700



**Dense Settlements**

Urban Dense settlements

**Villages**

Rice Irrigated | Rainfed Pastoral

**Croplands**

Residential Populated | Remote

Irrigated Rainfed

**Rangelands**

Residential | Remote

Populated

**Seminatural**

Woodlands | Treeless & Barren

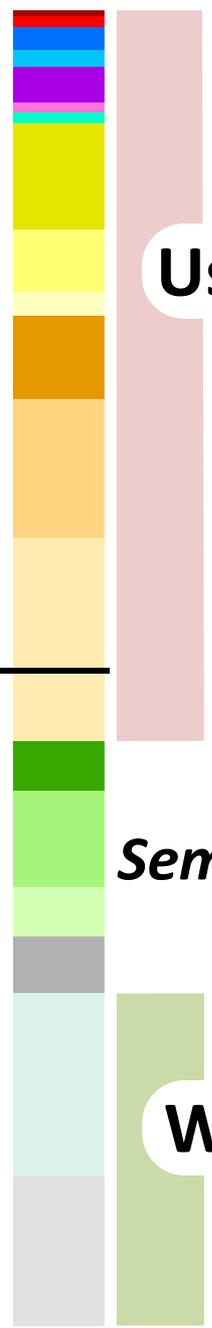
Residential Populated | Remote

**Wildlands**

Woodlands | Treeless & Barren

1700 1800 1900 2000 Global Land

50%



Used

*Seminatural*

Wild



## Dense Settlements

- Urban
- Dense settlements

## Villages

- Rice
- Irrigated
- Rainfed
- Pastoral

## Croplands

- Residential Irrigated
- Residential Rainfed
- Populated
- Remote

## Rangelands

- Residential
- Populated
- Remote

## Seminatural

- Residential Woodlands
- Populated Woodlands
- Remote Woodlands
- Inhabited Treeless & Barren lands

## Wildlands

- Wild Woodlands
- Wild Treeless & Barren lands

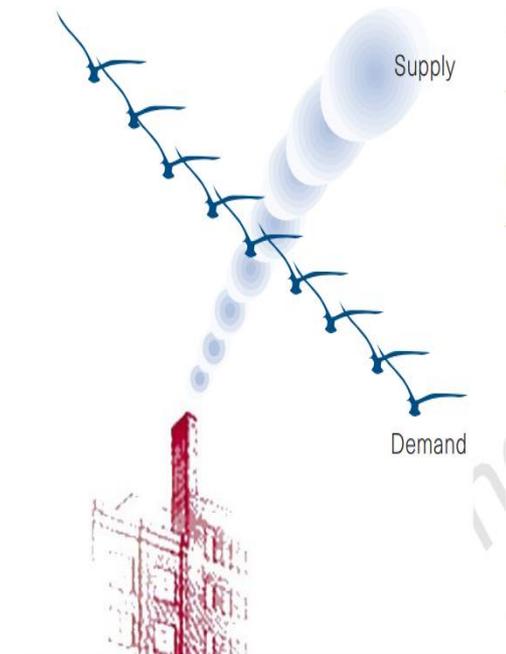
# Cómo ven los economistas el ambiente?

**commentary**

## How economists see the environment

**Economists and ecologists misunderstand each other about the environment. Improving interdisciplinary communication should enable natural scientists to take economic analysis and prescriptions more seriously.**

**Don Fullerton and Robert Stavins**



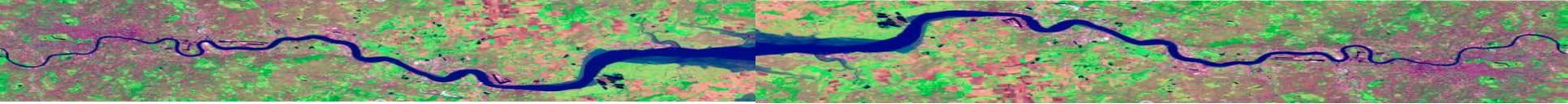
Nature (1998)

---

# Cómo ven los economistas el ambiente?

*En el dominio de ambiental, **mercados que funcionan perfectamente son la excepción y no la regla***

***No siempre es posible que una falla de mercado se solucione mediante la creación de otro mercado**  
(contaminación atmosférica y derechos negociables)*



# Cómo ven los economistas el ambiente?

***Análisis costo-beneficio*** de políticas ambientales no puede supeditarse sólo a precios de mercado. Sin embargo, la conversión de valores disímiles a una métrica monetaria facilita la comparación y la agregación de beneficios y costos.

Es muy difícil combinar en un análisis unificado tanto ***eficiencia*** como ***distribución de beneficios y costos*** de políticas ambientales entre miembros de la sociedad. Se hace énfasis en eficiencia por que un mejoramiento de ésta se mide por un aumento en los beneficios netos totales.

# Valoración económica de cambios en la cantidad y calidad de recursos y bienes ambientales



## Making Nature Useless?

Conservation experts explore the innovations that allow humankind to produce more from natural resources while consuming less and the implications of “decoupling” conservation from consumption.

---

*Valoración económica de bienes y servicios ambientales:  
un asunto de finanzas públicas*

- Costos y beneficios de la regulación ambiental
  - Estimación de daños ambientales
  - Estimación de beneficios de programas de entidades públicas
-

---

## *Cambios en Atributos y Bienestar*

Los cambios en los atributos de los bienes se deben reflejar en cambios en el comportamiento y en el bienestar de los individuos

Mejoramiento de la calidad del agua, menos horas dedicadas a hervir el agua y menos enfermedades gastrointestinales

Desafío en la valoración económica de ecosistemas: una discernible relación entre cambios en el ecosistema, y cambios en el comportamiento y el bienestar de los individuos

---

---

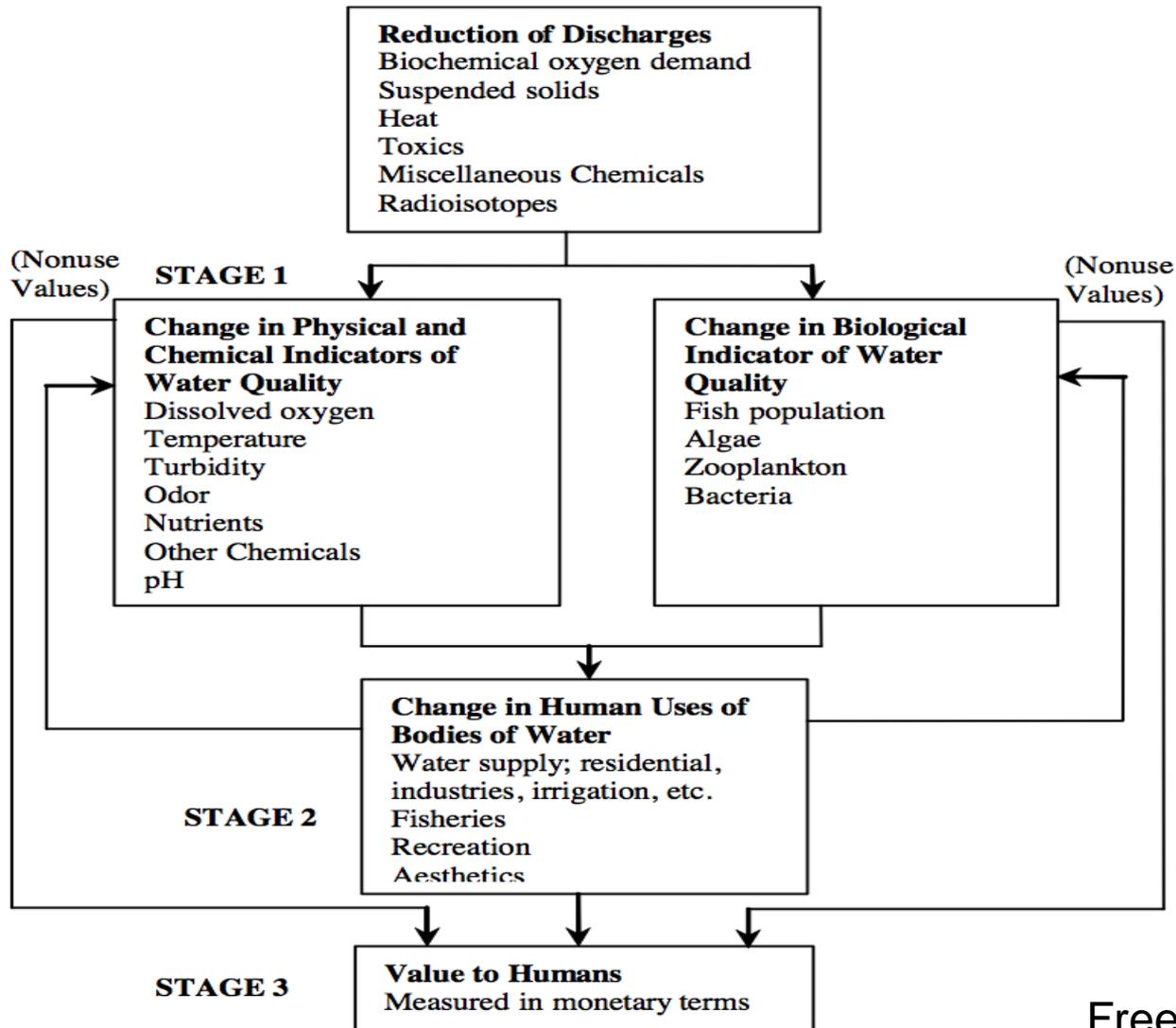
# Valoración económica

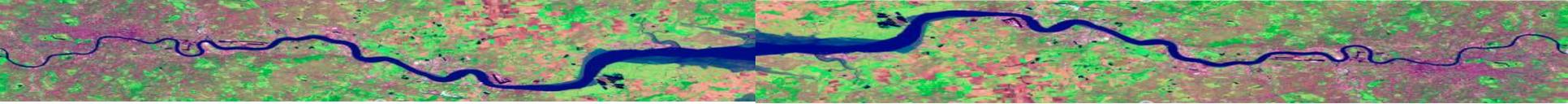
- Cambio en atributos ( $\Delta A$ )
  - Cambio en comportamiento ( $\Delta C$ )
  - Cambio en bienestar ( $\Delta B$ )
-

# *Bases filosóficas de la valoración*

- La valoración económica es un proceso antropocéntrico
- La valoración económica mide en términos monetarios los cambios en el bienestar de los individuos
- La valoración económica depende significativamente del contexto en que se realiza
- Es crucial la relación entre cambios en el atributo de un bien, cambios en el comportamiento de los individuos y cambios en el bienestar
- Esta relación es mucho más discernible en ciertos tipos de bienes ambientales (agua)
- Pero la relación es más complicada de establecer en ecosistemas

# *Beneficios de mejor calidad del agua*





# Valoración económica de servicios ecosistémicos: **intentos desde las ciencias naturales**

## Economic and Environmental Benefits of Biodiversity

*The annual economic and environmental benefits of biodiversity  
in the United States total approximately \$300 billion*

David Pimentel, Christa Wilson, Christine McCullum, Rachel Huang, Paulette Dwen,  
Jessica Flack, Quynh Tran, Tamara Saltman, and Barbara Cliff

---

# Valoración económica de servicios ecosistémicos: **intentos desde las ciencias naturales**

## The value of the world's ecosystem services and natural capital

**Robert Costanza<sup>\*†</sup>, Ralph d'Arge<sup>‡</sup>, Rudolf de Groot<sup>§</sup>, Stephen Farber<sup>||</sup>, Monica Grasso<sup>†</sup>, Bruce Hannon<sup>¶</sup>, Karin Limburg<sup>#☆</sup>, Shahid Naeem<sup>\*\*</sup>, Robert V. O'Neill<sup>††</sup>, Jose Paruelo<sup>‡‡</sup>, Robert G. Raskin<sup>§§</sup>, Paul Sutton<sup>|||</sup> & Marjan van den Belt<sup>¶¶</sup>**

**The services of ecological systems and the natural capital stocks that produce them are critical to the functioning of the Earth's life-support system. They contribute to human welfare, both directly and indirectly, and therefore represent part of the total economic value of the planet. We have estimated the current economic value of 17 ecosystem services for 16 biomes, based on published studies and a few original calculations. For the entire biosphere, the value (most of which is outside the market) is estimated to be in the range of US\$16–54 trillion ( $10^{12}$ ) per year, with an average of US\$33 trillion per year. Because of the nature of the uncertainties, this must be considered a minimum estimate. Global gross national product total is around US\$18 trillion per year.**

Nature (1997)

# Valoración económica de servicios ecosistémicos: crítica de los economistas ambientales

*Environ. Sci. Technol.* 2000, 34, 1384–1389

## On Measuring Economic Values for Nature<sup>†</sup>

NANCY E. BOCKSTAEL,<sup>‡</sup>  
A. MYRICK FREEMAN, III,<sup>§</sup>  
RAYMOND J. KOPP,<sup>⊥</sup>  
PAUL R. PORTNEY,<sup>⊥</sup> AND  
V. KERRY SMITH\*.<sup>||</sup>

*Department of Agricultural and Resource Economics,  
University of Maryland, College of Agriculture,  
College Park, Maryland 20742, Department of Economics,  
Hubbard Hall, Bowdoin College, Brunswick, Maine 04011,  
Quality of the Environment Division, Resources for the Future,  
1616 P Street, NW, Washington, DC 20036, and  
North Carolina State University, Campus Box 8109,  
Raleigh, North Carolina 27695-8109*

quality. [There was an already extensive literature on the application of benefit–cost analysis for water projects dating to early contributions by Eckstein (1) and Krutilla and Eckstein (2). However, this research focused on the marketed outputs from public investment projects as the “tangibles” and enumerated, but did not attempt to estimate, the economic value for the changes in environmental amenities or quality attributed to these projects. For a history, see ref 3. Discussion of the early work on environmental valuation can be found in refs 4 and 5. For a presentation of valuation methods developed during this period, see refs 6 and 7.] Second, the focus of federal environmental protection gradually shifted during this period from an exclusive preoccupation with human health toward concerns about ecosystem integrity (see ref 8). The result has been a kind of “forced marriage” that has regulators, ecologists, and other biological scientists, as well as economists, thinking about the costs and benefits of protecting ecosystems and the services they provide.

From the perspective of many natural scientists as well

---

# **Valoración económica de servicios ecosistémicos: la necesidad de aclarar conceptos con diálogo interdisciplinar**

POLICY FORUM: ECOLOGY



## **The Value of Nature and the Nature of Value**

**Gretchen C. Daily,\* Tore Söderqvist, Sara Aniyar, Kenneth Arrow, Partha Dasgupta, Paul R. Ehrlich, Carl Folke, AnnMari Jansson, Bengt-Owe Jansson, Nils Kautsky, Simon Levin, Jane Lubchenco, Karl-Göran Mäler, David Simpson, David Starrett, David Tilman, Brian Walker**

Science (2000)

# Valoración económica de servicios ecosistémicos: **reconsideración desde las ciencias naturales**

SCIENCE'S COMPASS



• REVIEW

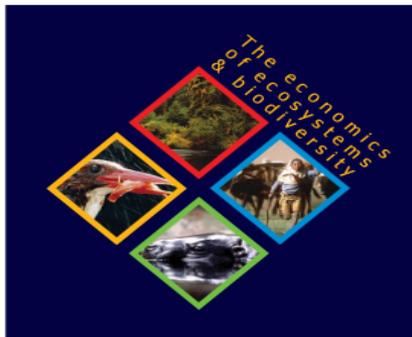
REVIEW: ECOLOGY

## Economic Reasons for Conserving Wild Nature

Andrew Balmford,<sup>1\*</sup> Aaron Bruner,<sup>2</sup> Philip Cooper,<sup>3</sup> Robert Costanza,<sup>4†</sup> Stephen Farber,<sup>5</sup> Rhys E. Green,<sup>1,6</sup> Martin Jenkins,<sup>7</sup> Paul Jefferiss,<sup>6</sup> Valma Jessamy,<sup>3</sup> Joah Madden,<sup>1</sup> Kat Munro,<sup>1</sup> Norman Myers,<sup>8</sup> Shahid Naeem,<sup>9</sup> Jouni Paavola,<sup>3</sup> Matthew Rayment,<sup>6</sup> Sergio Rosendo,<sup>3</sup> Joan Roughgarden,<sup>10</sup> Kate Trumper,<sup>1</sup> R. Kerry Turner<sup>3</sup>

Science (2002)

# Valoración económica de servicios ecosistémicos: **esfuerzo interdisciplinario y de varios países**



## The Economics of Ecosystems and Biodiversity (TEEB)

The Economics of Ecosystems and Biodiversity (TEEB) study is a major international initiative to draw attention to the global economic benefits of biodiversity, to highlight the growing costs of biodiversity loss and ecosystem degradation, and to draw together expertise from the fields of science, economics and policy to enable practical actions moving forward.

To join the TEEB community, follow us on Twitter and Facebook:



We took 10,000 years  
to turn from "hunter-gatherers" to "farmers" on land.



We now need to take no more  
than 10 years to do the same at sea.



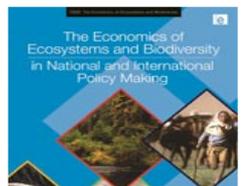
### TEEB for Citizens




TEEB has launched the Bank of Natural Capital, a website designed to communicate the TEEB Study findings to citizens.

Visit it here: <http://bankofnaturalcapital.com>

### Released February 2011



- Home
- About TEEB
- Information Material
- Ecological and Economic Foundation
- For Policymakers
- For Local and Regional Policy
- For Business
- For Citizens
- TEEB Synthesis Report
- Earthscan Volumes
- TEEBcases

TEEB (2010)

# Valoración económica de servicios ecosistémicos: **esfuerzo interdisciplinar**

**TED**

Watch Read Attend Participate About

Search...



Log in Sign up

Pavan Sukhdev:

## Put a value on nature!

TEDGlobal 2011 · 16:31 · Filmed Jul 2011  
Subtitles available in 27 languages

[View interactive transcript](#)



Watch later



Favorite



Download

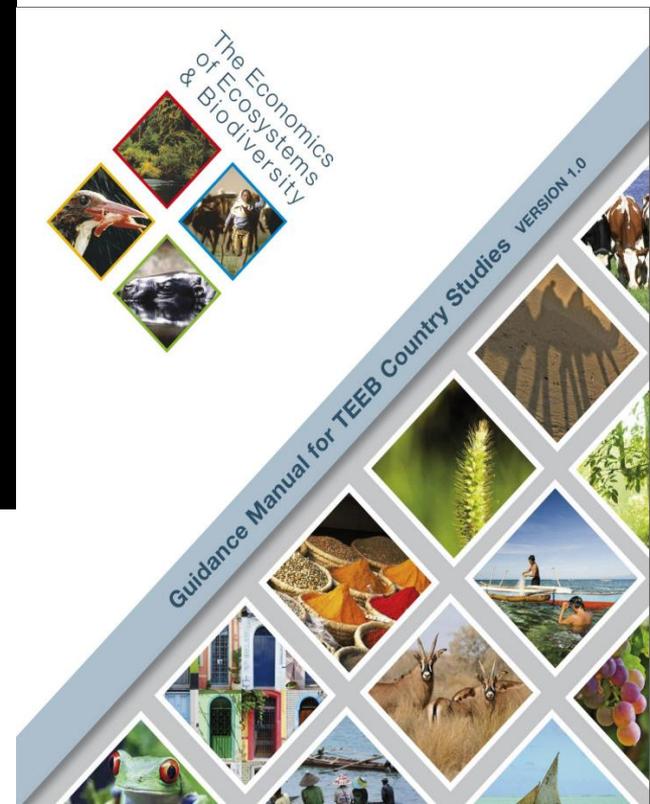


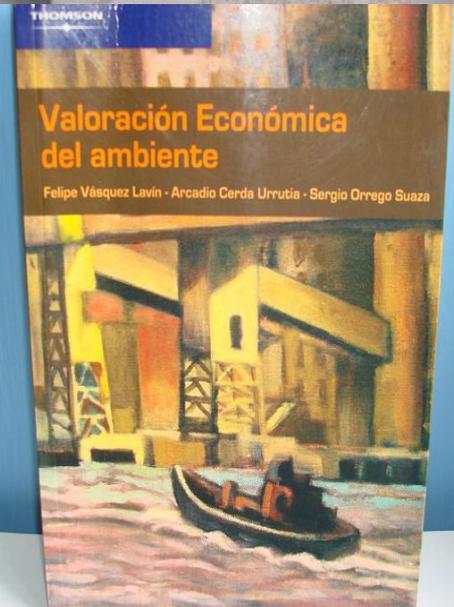
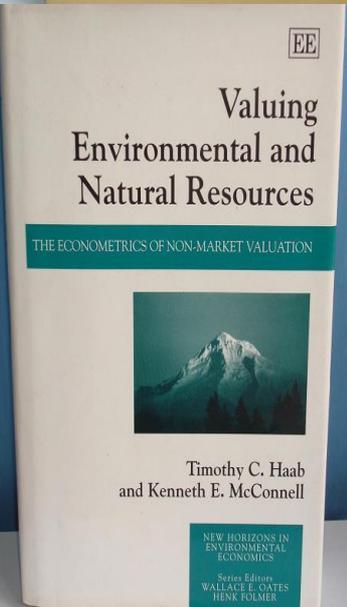
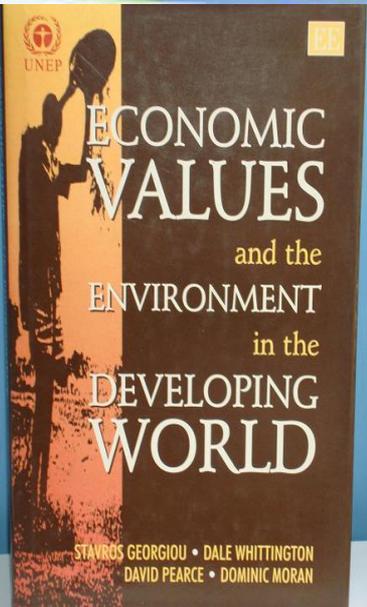
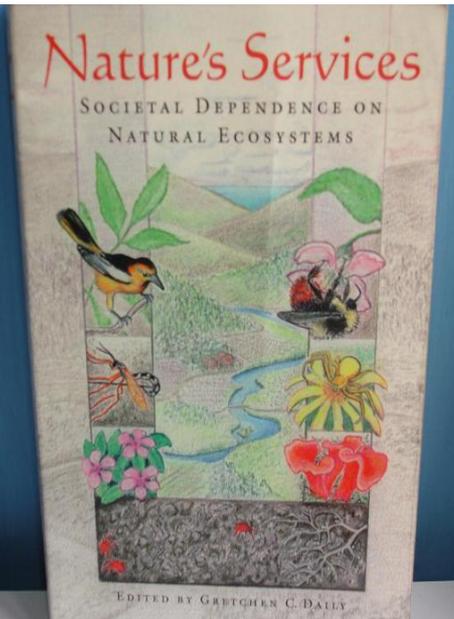
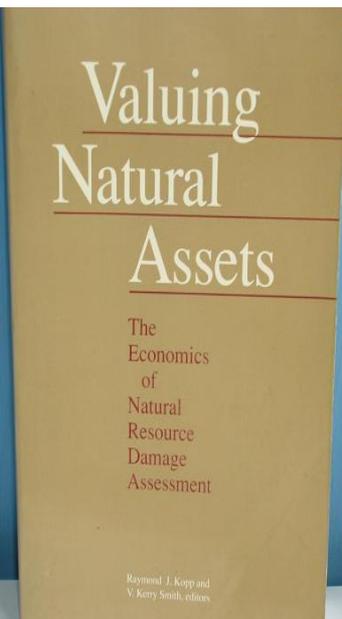
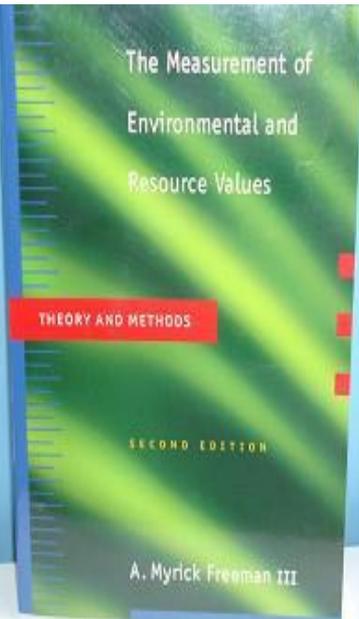
Rate

Share this idea     

456,875 Total views

 Share this talk and track your influence!







EUROCLIMA

EUROCLIMA-CEPAL

# Políticas públicas frente al **cambio** climático

