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SOLUTIONS



# Training in Payments for Ecosystem Services

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# Training in Payments for Ecosystem Services

## PART I

The environment and the Economy: conflict or cooperation?

- Ecological footprint: Global, Danube watershed, Romania
- Payments for Ecosystem Services: Governance for conflict resolution?

# Ecological Footprint

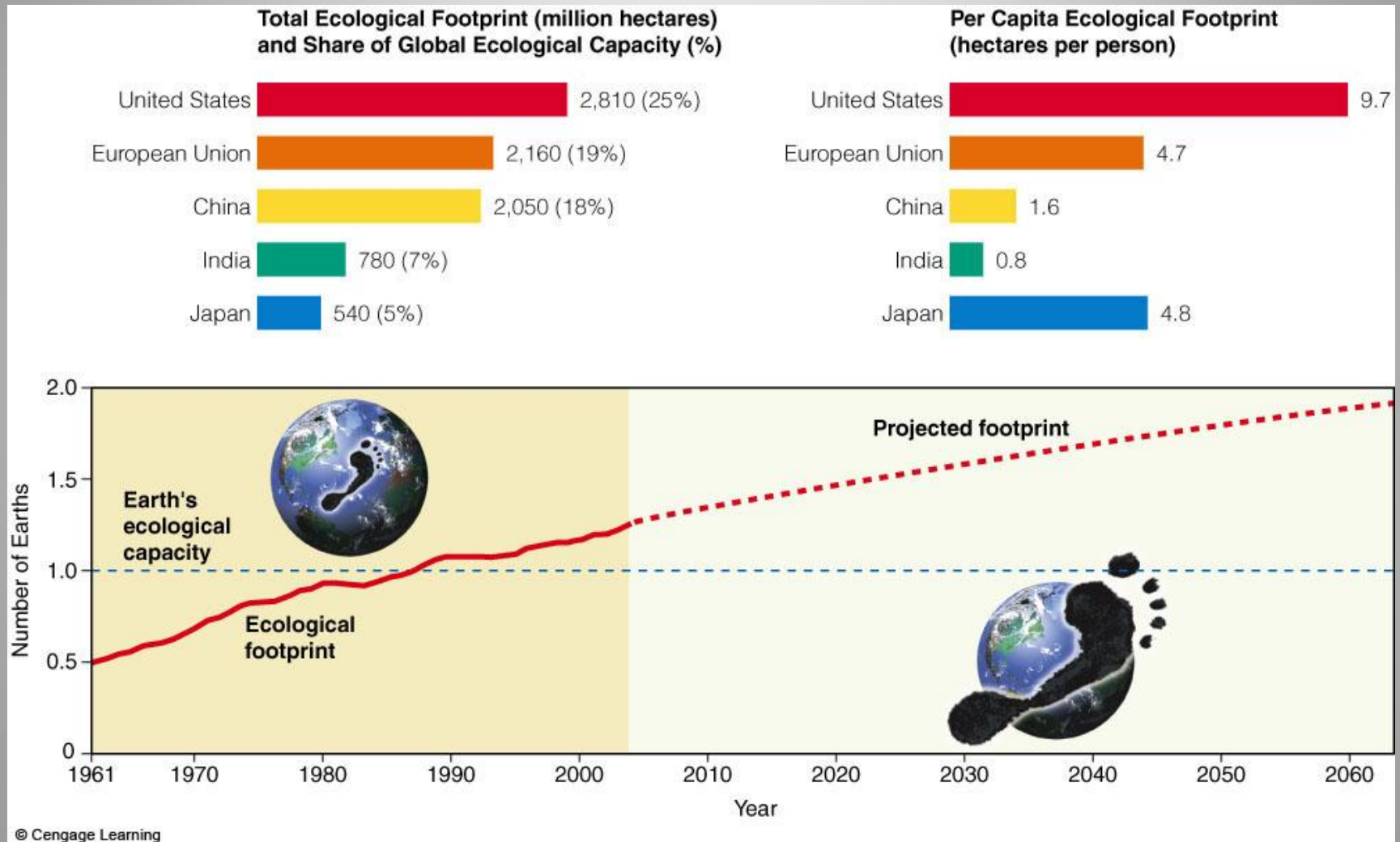
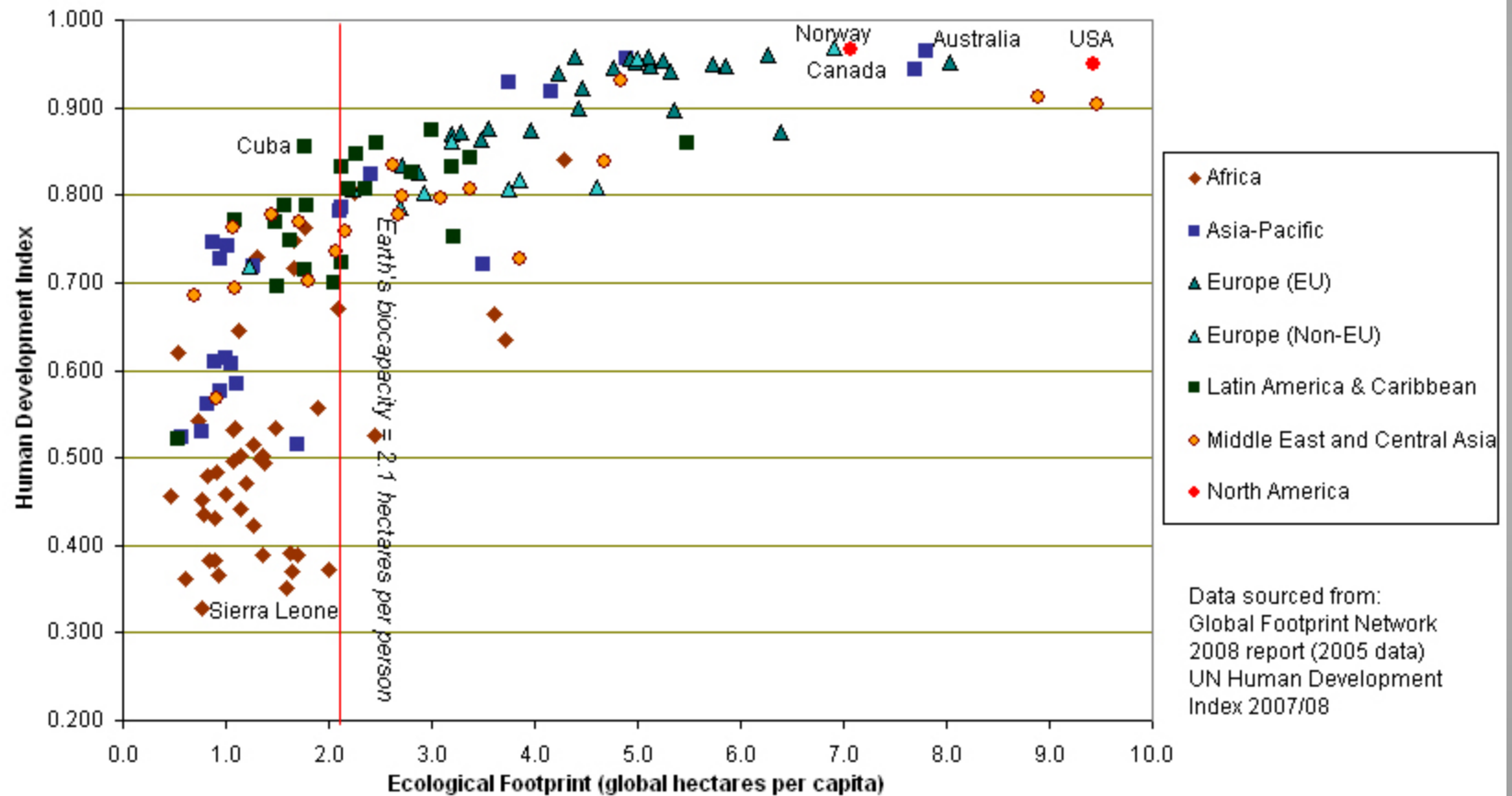


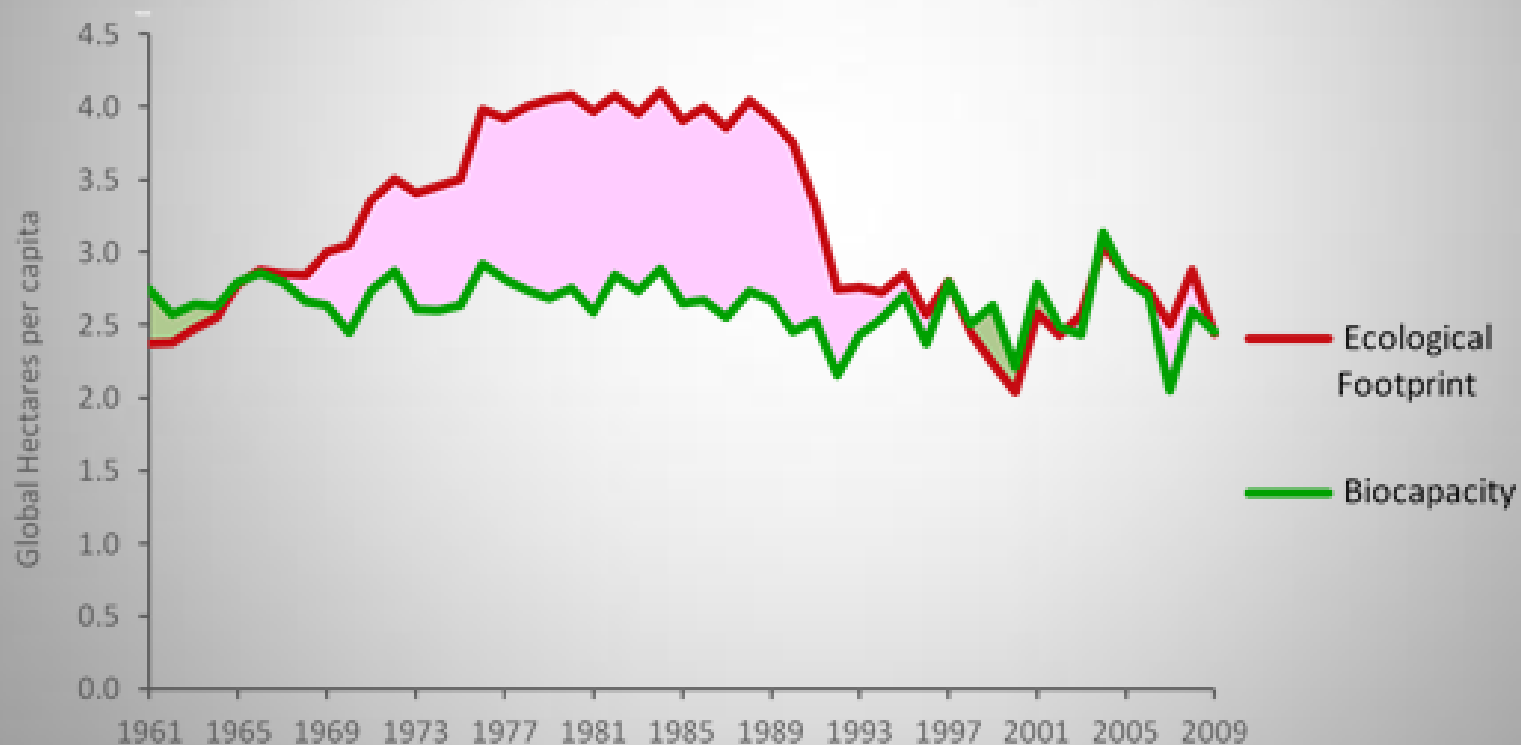
Fig. 1-8, p. 13

## Human Welfare and Ecological Footprints compared



# Romanian ecological footprint

It represents the amount of biologically productive land and sea area necessary to supply the resources a human [population](#) consumes, and to assimilate associated waste



# Danube Basin

Area: 800,000 KM<sup>2</sup> (10% Continental Europe) the Danube Extends into the territories of 19 countries. It is considered the most international river basin in the World.  
Population: 165 million

Environmental impact of the Danube River Basin: serious problems with water quality and quantity, and significant reductions in biodiversity

Country	Code	DRB (km <sup>2</sup> )	of DRB (%)	DRB in country (%)	Pop.in DRB (Mio.)
Albania	AL	126	< 0.1	0.01	< 0.01
Austria*	AT	80,423	10.0	96.1	7.7
Bosnia and Herzegovina*	BA	36,636	4.6	74.9	2.9
Bulgaria*	BG	47,413	5.9	43.0	3.5
Croatia*	HR	34,965	4.4	62.5	3.1
Czech Republic*	CZ	21,688	2.9	27.5	2.8
Germany*	DE	56,184	7.0	16.8	9.4
Hungary*	HU	93,030	11.6	100.0	10.1
Italy	IT	565	< 0.1	0.2	0.02
Macedonia	MK	109	< 0.1	0.2	< 0.01
Moldova*	MD	12,834	1.6	35.6	1.1
Montenegro*	ME	7,075	0.9	51.2	0.2
Poland	PL	430	< 0.1	0.1	0.04
Romania*	RO	232,193	29.0	97.4	21.7
Serbia*	RS	81,560	10.2	92.3	7.5
Slovak Republic*	SK	47,084	5.9	96.0	5.2
Slovenia*	SI	16,422	2.0	81.0	1.7
Switzerland	CH	1,809	0.2	4.3	0.02
Ukraine*	UA	30,520	3.8	5.4	2.7
Total		801,463	100		81.00



A map of the Danube River Basin showing the river's course from its source in the Alps to the Black Sea. The map includes labels for countries such as Germany, Poland, Czech Republic, Austria, Hungary, Romania, Bulgaria, Croatia, Bosnia and Herzegovina, Serbia, Montenegro, Italy, Slovakia, Ukraine, and Moldova. Major cities like Prague, Vienna, Budapest, Belgrade, Bucharest, and Sofia are marked. A legend in the top right corner identifies the Danube River basin and international boundaries, and includes a scale bar and a compass rose.

## **Major problems affecting aquatic ecosystems in the Danube River Basin**

- **Excessive nutrient loads (particularly nitrogen and phosphorous)**
- **High amounts of organic substances originating from untreated or poorly treated wastewater**
- **Changes in river flow patterns (hydromorphological alterations) and its effect on sediment transportation**
- **Contamination with hazardous substances (including heavy metals, oil, and microbiological toxins)**
- **Accidental pollution from contaminated sites or waste disposal, as well as from navigation**
- **Degradation and loss of wetlands**



# **Environmental problems in Romania**

A photograph of a man in a plaid shirt and dark pants standing next to a brown and white cow in a grassy field. In the background, there is a blue lake and green mountains under a clear sky. The text 'Environmental problems in Romania' is overlaid in white bold font at the top.

**Water supply  
Water services**

Tourism : demand for  
local water  
and wastewater  
(sanitation)infrastructure

Mutually reinforcing

Development of  
SUSTAINABLE  
tourism

Currently Romania lagging behind  
In Europe: water supply/sanitation

Negative impact

Tourism  
Economic growth  
Business prospects

local, regional and the national  
strategy  
of sustainable economic  
development

integrate

Policies for tourism development

Policies for water/wastewater  
Infrastructure development

## Drinking water supply and indoor plumbing

Romania(65%)

98% urban

33% rural

Europe

96-100% urban

87% rural

52% connected to BOTH  
Water and water sewage  
Services.

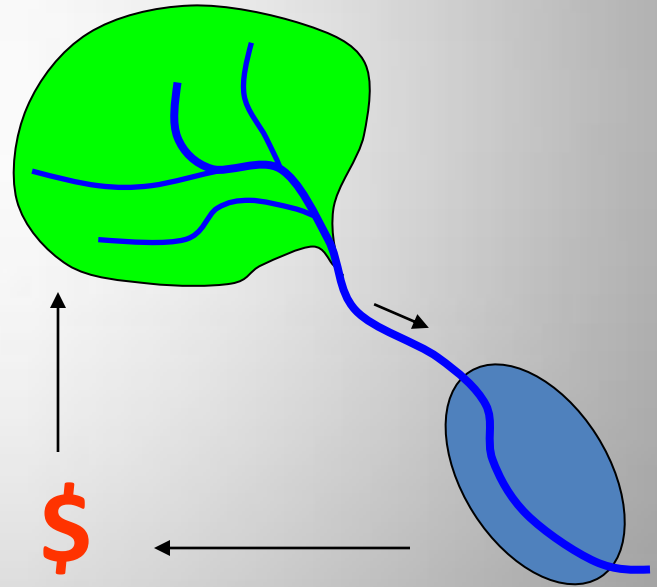
➤ 70% water untreated or  
insufficiently treated



Water pollution one of Romania's largest  
environmental issues, with negative  
impact on fish breeding, irrigation, and  
drinking water supplies.

# Payments for Ecosystem Services

Those who use the  
ecosystem service  
pay those who  
provide the service





- The value of the earth's *ecosystem services* : *US\$33 trillion global GNP*  
*US\$18 trillion* (Costanza et. al.1997)

- Because of human activity the planet is in bad shape.The health of the earth has declined 30% since 1970.

Ecosystems services: air and water filtration, flood protection, carbon storage, pollination for crops, and habitat for fisheries and wildlife.

These values often 'invisible'; not captured in markets. Unknown contribution to the economy and livelihoods. *We often take these services for granted and don't know what it would cost if we lose them.*

## **WHAT IS PES?**

PES can be essentially defined in terms of payments to land managers and others to undertake actions that increase the quantity and quality of desired ecosystem services, which benefit often remotely.

## **TYPES OF PES:**

- Biodiversity
- Water
- Carbon
- Others: Scenic beauty (eco-tourism), bundled services (land trusts, conservation)

# PES: what it is not

- Incentives for Conservation
- Social Corporate Responsibility
- Command and Control
- Payments or compensation?
- Polluters pay