



The Economics of Ecosystems and Biodiversity for Water and Wetlands

Ramsar COP11, Bucharest, June 2012

Dr Andrew Farmer



Director of Research

Institute for European Environmental Policy (IEEP)



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra



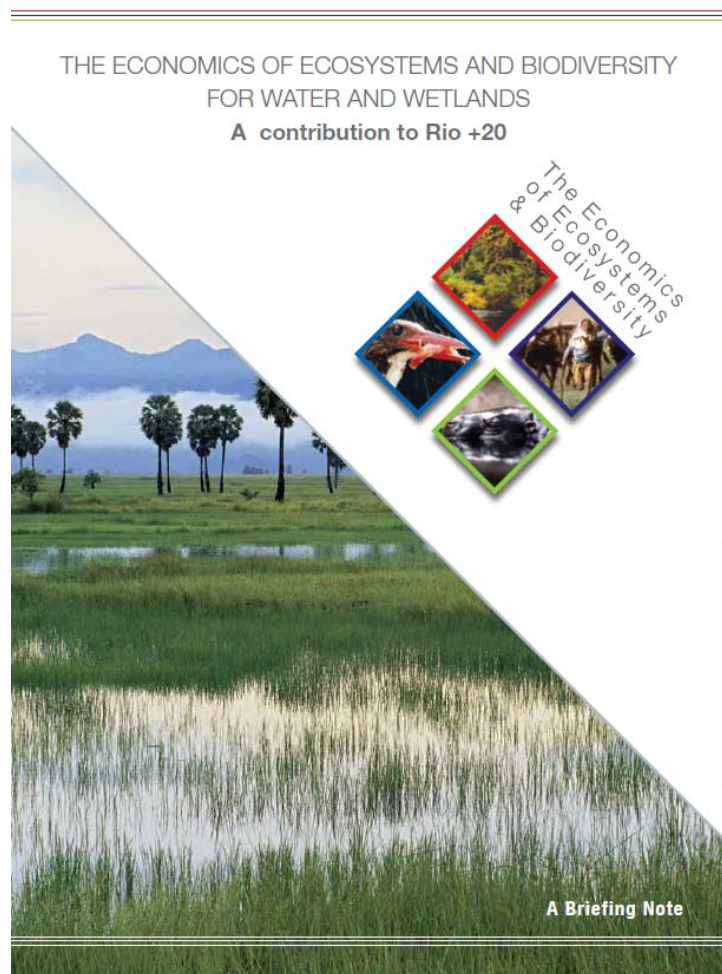
Rijksoverheid





TEEB For Water and Wetlands

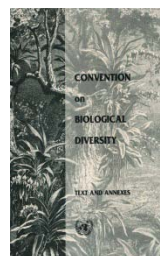
Presentation overview



1. **TEEB & the TEEB for Water and Wetlands Project**
2. **Water and wetlands: what benefits do we derive and what do we risk losing?**
3. **Measuring to manage better**
4. **Integrating the values of water and wetlands into decision making**
5. **Working recommendations: transforming our approach to water and wetlands**
6. **Next steps**



TEEB's Genesis, Aims and Progress



**G8+5
Potsdam**

"Potsdam Initiative – Biological Diversity 2010"

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



**Interim
Report**



**CBD COP 9
Bonn 2008**

**Climate
Issues Update**



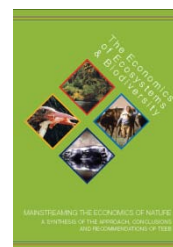
**Input to
UNFCCC 2009**

**TEEB End User
Reports Brussels
2009, London 2010**



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

**TEEB
Synthesis**



**BD COP 10
Nagoya, Oct 2010**

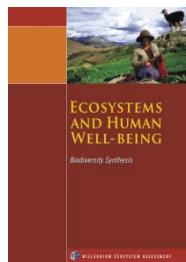
**TEEB
Books**



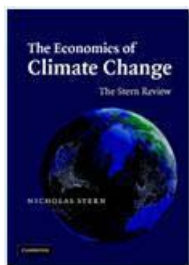
**TEEB W&W
Nature & GE
TEEB Oceans**



**TEEB studies
The Netherlands,
Germany, Nordics,
Norway, India, Brazil**



**Ecol./Env.
Economics
literature**





Critical issues

The “nexus” among water, food and energy is crucial for society.

Biodiversity and particularly wetland ecosystems are at the core of this nexus.

The wise use of water and wetlands should be at the foundation of human wellbeing across the globe.



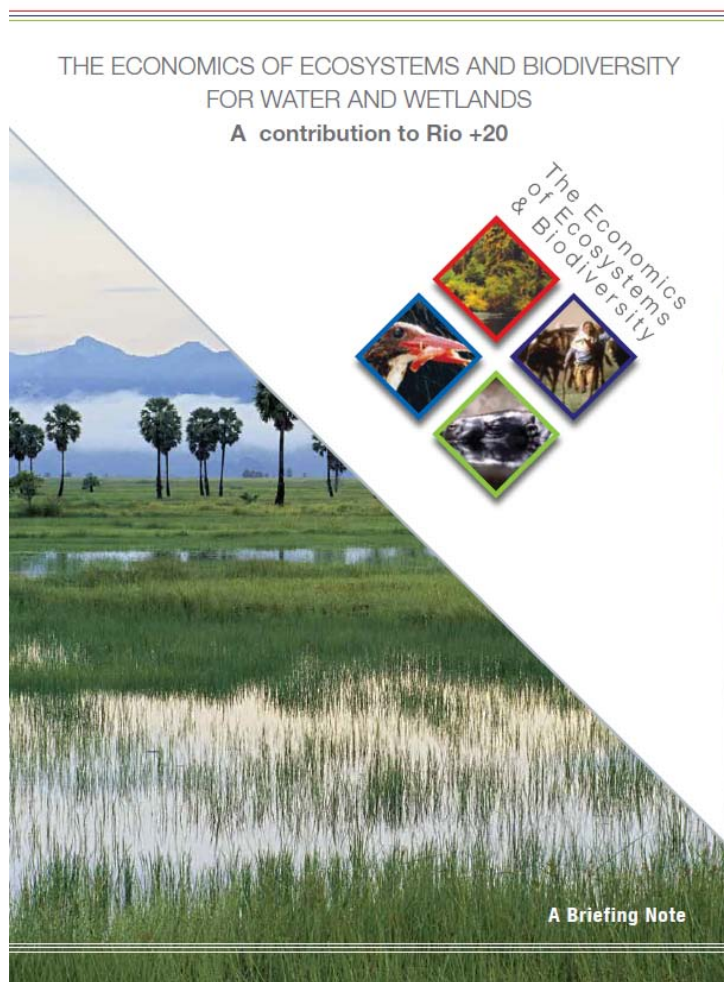
Critical issues – the need to appreciate the values of W&W

The value of biodiversity and ecosystem services is not fully reflected in policies, markets and investment decisions

- **Decision making** still too often fails to take into account the local to global benefits → loss of biodiversity and ecosystem services.
- **Assessing ecosystem service benefits (and links to biodiversity and ecosystem functions) and identifying who benefits** is critical for decision making.
- **There is a need to improve the economic signals to help take the values of nature into account in:**
 - positive incentives
 - reforming subsidies harmful to the environment
 - regulatory and governance solutions.



TEEB For Water and Wetlands



1. **TEEB & the TEEB for Water and Wetlands project**
2. **Water and wetlands: what benefits do we derive and what do we risk losing?**
3. **Measuring to manage better**
4. **Integrating the values of water and wetlands into decision making**
5. **Working recommendations: transforming our approach to water and wetlands**
6. **Next steps**

2. Wetlands & ecosystem services

- Wetlands provide many benefits and ecosystem services
- Meeting water management objectives can cost less by protecting wetlands ecosystem services
- Impacts of wetlands degradation on human well-being and biodiversity

Q: What are the key benefits of water and wetlands? And which are easier or more difficult to demonstrate?

- Despite their benefits, the loss of wetlands continues

Q: What do you see as the main threats to water and wetlands (including coastal areas)? Are there particular ecosystems which are at greatest risks?





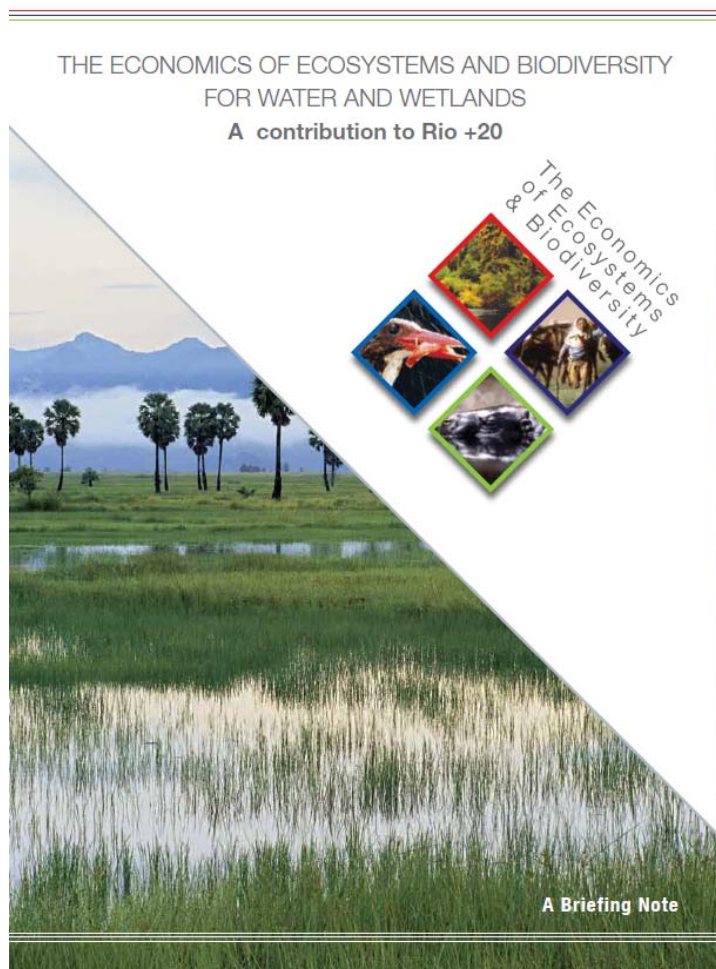
Evidence base - Assessing values and actions

Assessing the value of working with natural capital has helped determine where **ecosystems can provide goods and services at lower cost than by man-made technological alternatives** and where they can lead to significant savings

- **USA-NY:** Catskills-Delaware watershed for NY: PES/working with nature saves money (~5US\$bn)
- **New Zealand:** Te Papanui Park - water supply to hydropower, Dunedin city, farmers (~\$136m)
- **Mexico:** PSAH to forest owners, aquifer recharge, water quality, deforestation, poverty (~US\$303m)
- **France & Belgium:** Priv. Sector: Vittel (Mineral water) PES & Rochefort (Beer) PES for water quality
- **Venezuela:** PA helps avoid potential replacement costs of hydro dams (~US\$90-\$134m over 30yr)
- **Vietnam** restoring/investing in Mangroves - cheaper than dyke maintenance (~US\$: 1m to 7m/yr)
- **South Africa:** WfW public PES, avoids costs and provides jobs (~20,000; 52%♀)
- **Germany :** peatland restoration: avoidance cost of CO₂ ~ 8 to 12 €/t CO₂ (0-4 alt. land use)



TEEB For Water and Wetlands



1. **TEEB & the TEEB for Water and Wetlands Project**
2. **Water and wetlands: what benefits do we derive and what do we risk losing?**
3. **Measuring to manage better**
4. **Integrating the values of water and wetlands into decision making**
5. **Working recommendations: transforming our approach to water and wetlands**
6. **Next steps**



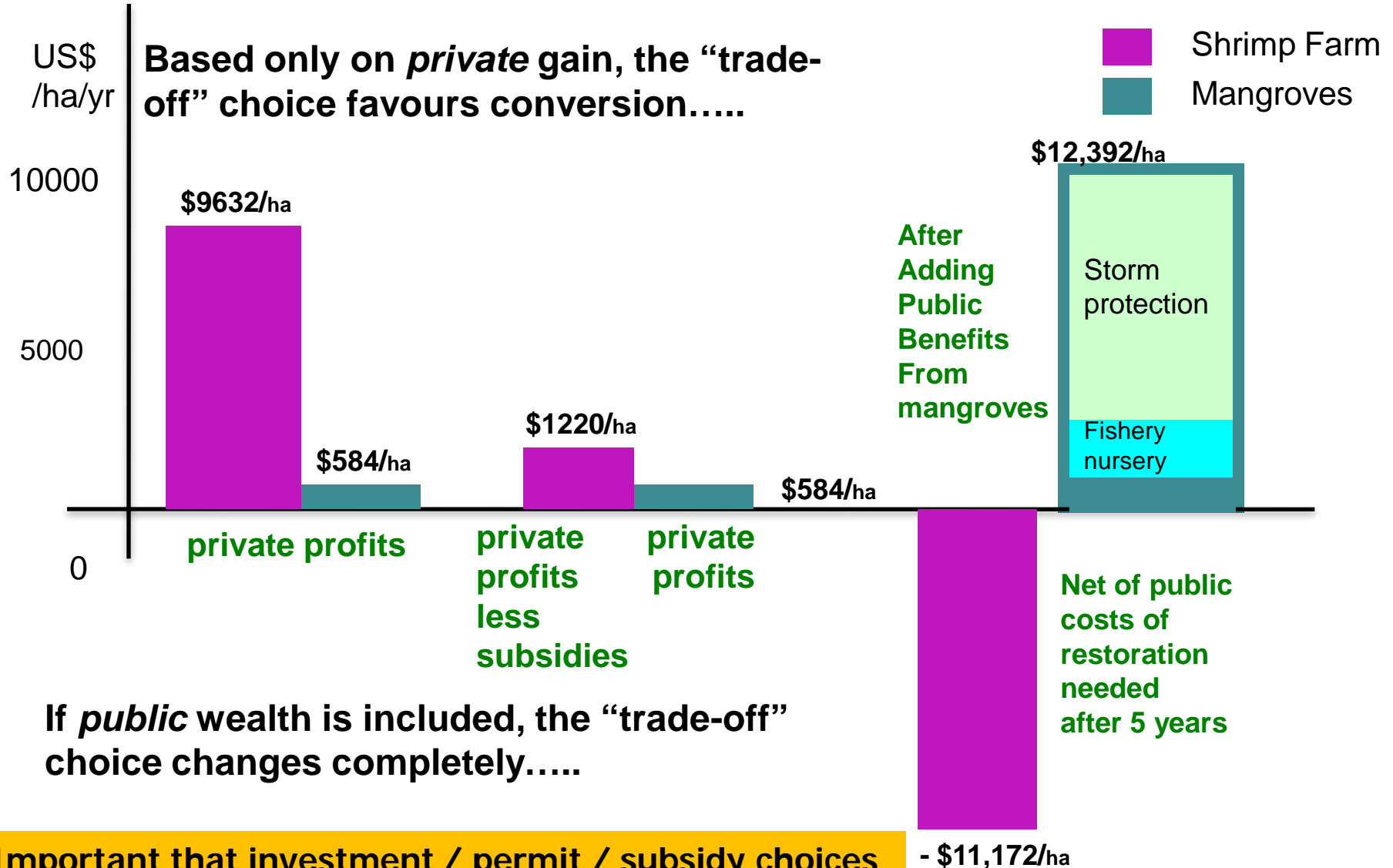
3 Measuring to manage better

- **A diverse range of tools help identify, demonstrate and take account of the benefits of water and wetlands**
- **Bio-physical assessments**
 - **Measurement and indicators**
 - **Mapping the interrelationships**
- **Assessing the value of nature**
 - **Plurality of tools**
 - **Mix of economic and non economic**
- **Natural capital and environmental-economic accounts (SEEA, WAVES et al)**
- **Useful to have mix of qualitative, quantitative and monetary insights**

Q: Are you aware of any initiatives to improve the measurement of the contributions of wetland ecosystems to society and the economy ?

Taking account of public goods

...can change what is the “right” decision on land/resource use





Valuation of ESS from Kampala wetlands, Uganda

Services provided by the Nakivubo swamp include natural water purification and treatment & supporting small-scale income activities of poorer communities

Problem recognition: Plans to **drain the Nakivubo Swamp** (>40sqkm) for **agriculture**
→ **Waste water treatment capacity** of the swamp was assessed (Emerton 2004)

Assessment: **Maintaining the wetlands:** ~235.000\$ p.a.
Running a **sewage treatment facility** of equivalent capacity: ~2Mio. US\$ p.a.

Policy Solution: **draining plans abandoned & Nakivubo Swamps designated as PA**

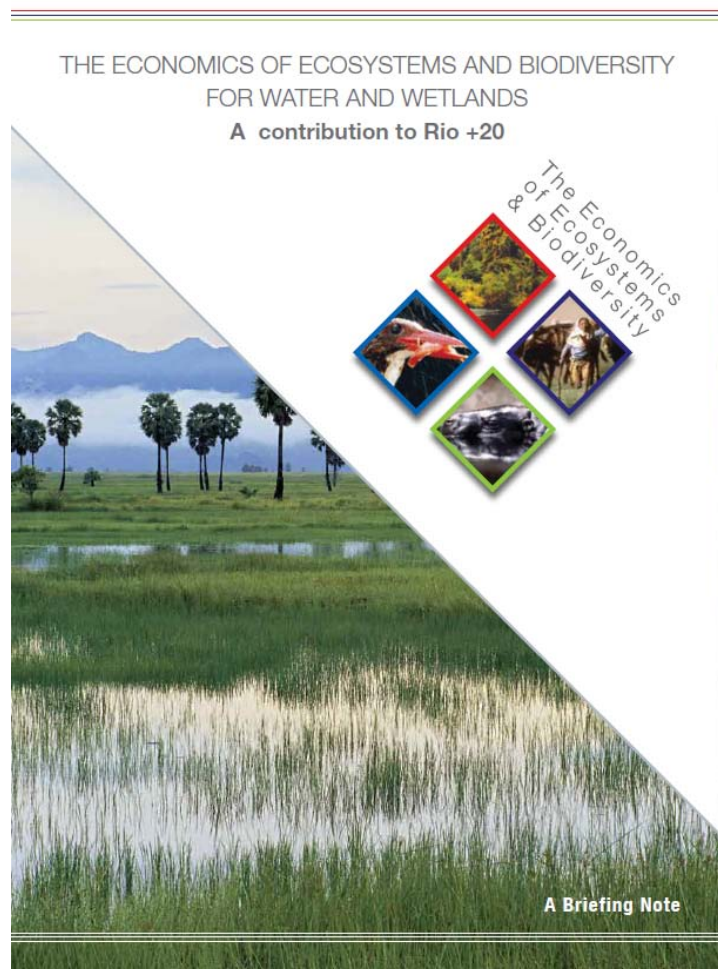


Sources: Emerton et al, 1999





TEEB For Water and Wetlands



1. TEEB & the TEEB for Water and Wetlands project
2. Water and wetlands: what benefits do we derive and what do we risk losing?
3. Measuring to manage better
4. Integrating the values of water and wetlands into decision making
5. Working recommendations: transforming our approach to water and wetlands
6. Next steps



4. Integrating the values of water and wetlands into decision making

- **Policy synergies:** Working with nature can be a cost effective way of meeting policy, business and private objectives.
 - Water, food and energy security, poverty alleviation and meeting sustainable development goals.
- **Integrated decision making :** valuable tools to respond to the value of nature
 - Spatial planning and regulation
 - Investment and management
 - Prices, subsidy reform
 - Payment for ecosystem services (PES)

Q: What instruments have worked, where, how have they been launched and made to work, and what benefits have they brought?

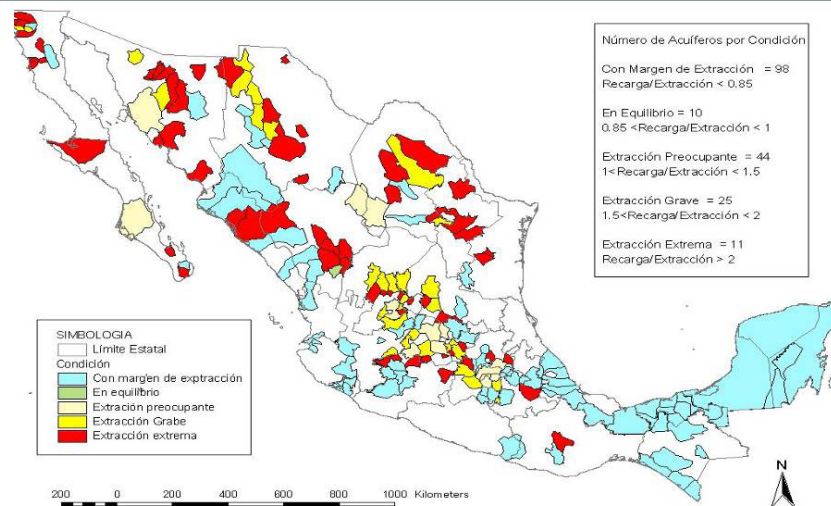


Solution: Mexico PSAH: PES to forest owners to preserve forest: manage & not convert forest

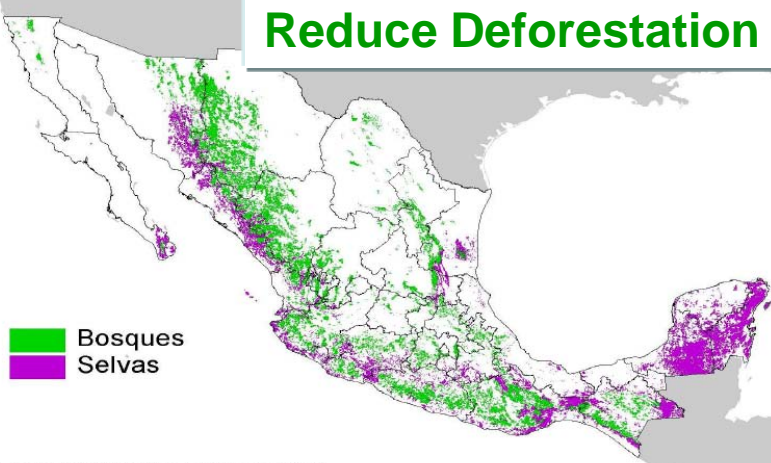
Result

Deforestation rate fell from 1.6 % to 0.6 %.
18.3 thousand hectares of avoided deforestation
Avoided GHG emissions ~ 3.2 million tCO₂e

Hydrological services: Aquifer recharge;
Improved surface water quality, reduce
frequency & damage from flooding`



Reduce Deforestation



Address Poverty



Fuente: CONAPO

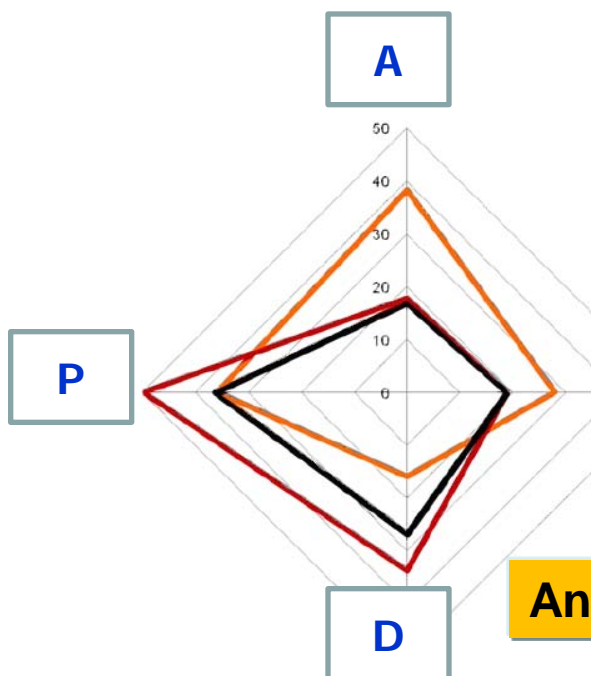
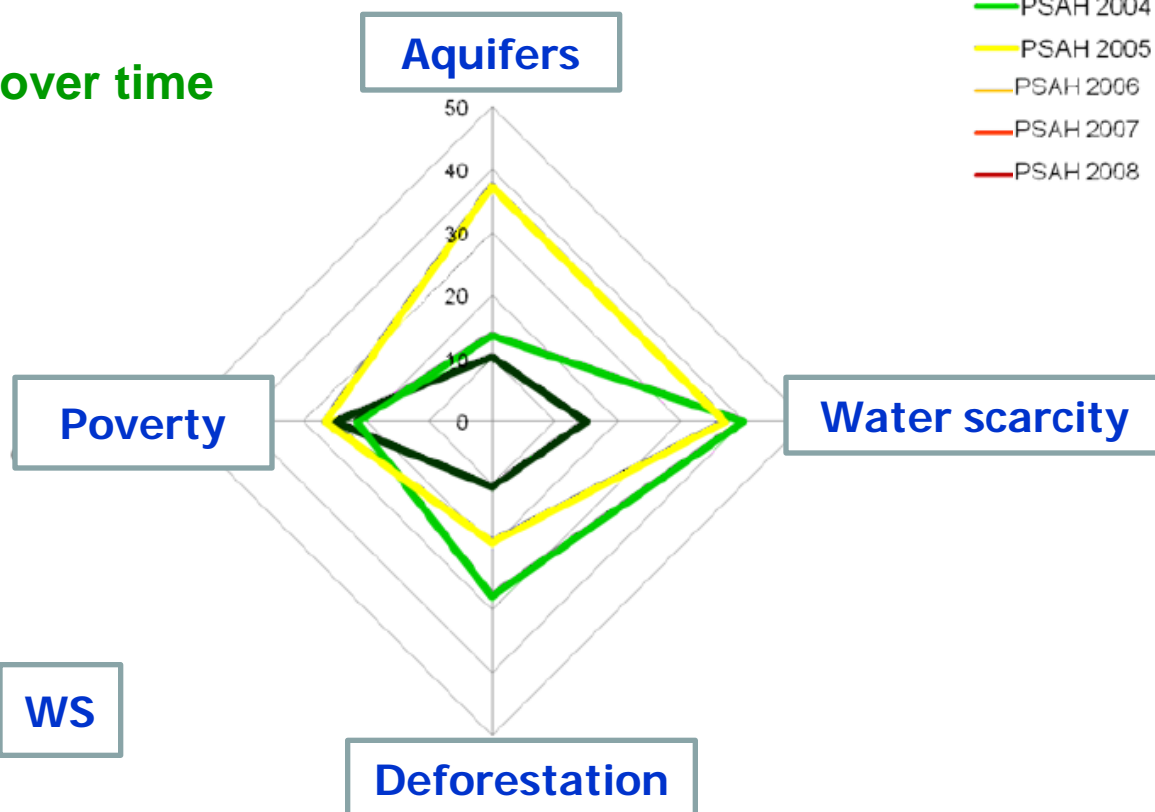


Multiple Objectives : PSAH Mexico

Balance of priorities varied over time

Targeting Policy Objectives

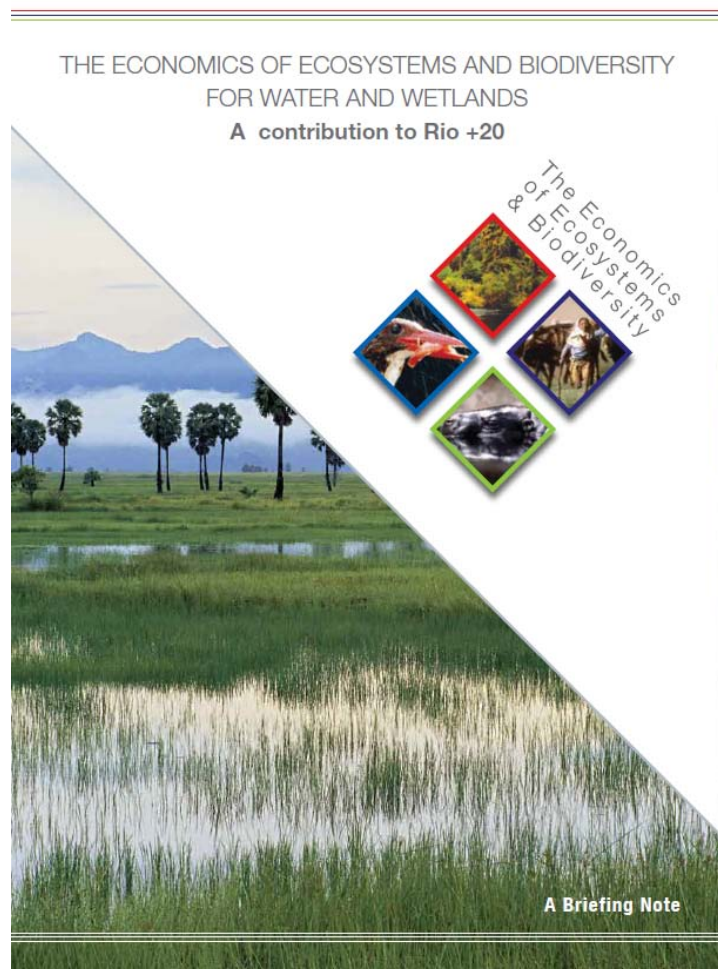
— PSAH 2003
— PSAH 2004
— PSAH 2005
— PSAH 2006
— PSAH 2007
— PSAH 2008



An instrument can evolve and respond to changing needs



TEEB For Water and Wetlands



1. **TEEB & the TEEB for Water and Wetlands project**
2. **Water and wetlands: what benefits do we derive and what do we risk losing?**
3. **Measuring to manage better**
4. **Integrating the values of water and wetlands into decision making**
5. **Working recommendations: transforming our approach to water and wetlands**
6. **Next steps**



5. Working recommendations: transforming our approach to water and wetlands

Need to put water at the heart of the transition to a green economy

- Take account of the values of nature
- Integrated management of wetlands and secure their wise use
- Prioritisation for avoiding loss/conversion
- Restoration
- Ensuring equitable benefit sharing and social and economic efficiency

Need for action at all levels and across stakeholders

Q: What can different stakeholders do to work with nature and people to realise the benefits of water and wetlands?



The water-related investment challenge

- Total costs of replacing aging water supply and sanitation infrastructure in industrial countries alone: ~US\$ 200 billion a year (WBCSD)
- Meeting the MDGs: estimated investment requirements for water infrastructure to meet drinking water and sanitation objectives alone = *up to US\$ 22 trillion by 2030* (Davidson, 2010)
- “Natural infrastructure” maintenance and restoration can contribute to this



What examples do you have of where working with nature offers cost-effective solution and/or wider benefits to communities, society and the economy ?



Working for Water (WfW): SA

The Manalana wetland (near Bushbuckridge, Mpumalanga)

Restoration within wider PES scheme

- Severely degraded by erosion that threatened to consume the entire system
- WfW public works programme in 2006 to **reduce the erosion and improve the wetland's ability to continue providing its beneficial services**

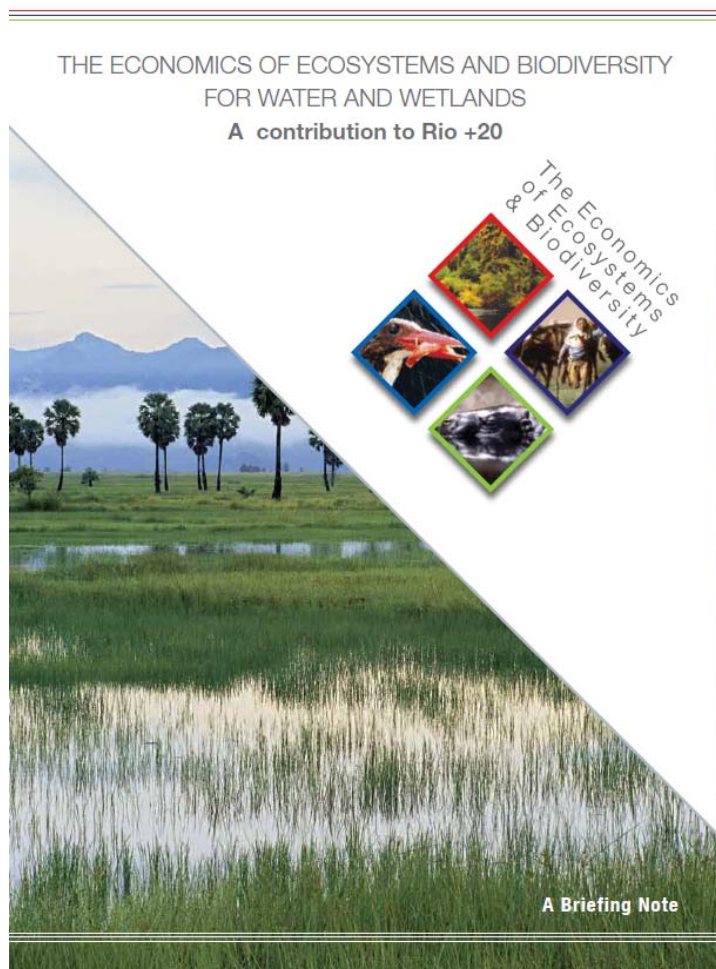
Results

- The value of **livelihood benefits from degraded wetland was just 34 % of what achieved after investment in ecosystem rehabilitation;**
- Rehabilitated wetland now contributes provisioning services at **a net return of 297 EUR/household/year;**
- Livelihood benefits ~ 182,000 EUR by the rehabilitated wetland; **x2 costs**
- The Manalana wetland acts as a **safety net for households.**

Sources: Pollard et al. 2008; Wunder et al 2008a; <http://www.dwaf.gov.za/wfw/>



TEEB For Water and Wetlands



1. **TEEB & the TEEB for Water and Wetlands project**
2. **Water and wetlands: what benefits do we derive and what do we risk losing?**
3. **Measuring to manage better**
4. **Integrating the values of water and wetlands into decision making**
5. **Working recommendations: transforming our approach to water and wetlands**
6. **Next steps**



Next Steps

The TEEB for W&W: launched in Rio, to Ramsar COP11, and synthesis report for CBD COP11 in Hyderabad in October 2012.

Come to our side event this lunchtime!

TEEB for Water and Wetlands initiative **aims to reflect the different perspectives, practice and experiences from across countries and stakeholders** on water and wetlands from around the world.

Call for Case Studies!

Please do communicate case practices and insights as this will help reflect interesting practices from around the globe in this work.

Comments, cases, further information contact Dr Andrew Farmer (afarmer@ieep.eu) or Dr Daniela Russi (DRussi@ieep.eu)



Thank you

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

See also www.teeb4me.com

Andrew Farmer

afarmer@ieep.eu



Institute for
European
Environmental
Policy

IEEP is an independent, not-for-profit institute dedicated to the analysis, understanding and promotion of policies for a sustainable environment. www.ieep.eu

See also IEEP's award winning *Manual of European Environmental Policy*

<http://www.ieep.eu/the-manual/introduction/> <http://www.europeanenvironmentalpolicy.eu/>



Federal Ministry for the
Environment, Nature Conservation
and Nuclear Safety



Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra



Rijksoverheid



NORWEGIAN MINISTRY
OF FOREIGN AFFAIRS



UKaid
from the Department for
International Development



Ministry of the Environment



SWEDISH INTERNATIONAL DEVELOPMENT
COOPERATION AGENCY