The Economics of Ecosystems & Biodiversity

WELCOME
DAY 3

Mainstreaming the values of water and wetlands into decision-making

TEEB Professional training workshop
Kampala,, Uganda
24-27th November 2013

Organized by:
UNESCO-IHE, Netherlands and
UNEP TEEB Office, Geneva, Switzerland

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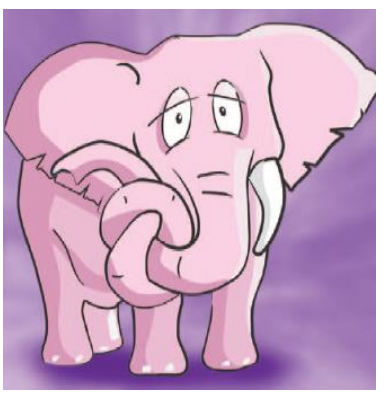
RECAP
Module 2



Objectives of Module 2

- To **explain why it is important to measure** the ES provided by wetlands
- To **present the main categories of indicators** that are available to measure and value wetlands' ES , in order to contribute to their wise management
- To explain the **uses, advantages and limitation of monetary valuation**
- To give **some examples** to illustrate these points
- To **practice** the choice of methodologies

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MODULE 3.

Integrating the value of water and wetlands into decision-making

Objectives of Module 3

- To present the **most important policy tools** that can be used to promote a wise use of wetlands
- To discuss **advantages and disadvantages** of each of them
- To give **some examples** to illustrate how the policy tools are used to improve wetland management
- To practice the use of some of these policy tools
- To discuss dissemination and next steps
- To evaluate training

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Training Programme (3)

MODULE 3. **Integrating the value of water and wetlands into decision-making**
Recap, knowledge check and objectives *Mathew Parr (IUCN NL)*
Policy Design and Instruments for specific Policy Decisions *Andrew Farmer and Thierry De Oliveira*
Exercise and Work groups
Closing Discussion, dissemination strategies and Outreach *Ken Irvine and Mathew Parr* **Lunch**
Recap – TEEB Quiz Evaluation

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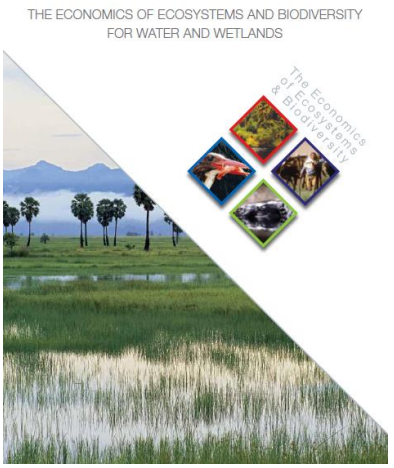

Policy design and instruments for wise management of wetlands

For more information: Chapters 4 and 5 of the TEEB W&W report

By Dr Andrew Farmer
Director of Research, Institute for European Environmental Policy, IEEP

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The presentation will cover

- Taking decisions
- TEEB Six Step Approach
- Scales of decision making/ policies
- Regulation, spatial/basin planning
- Engaging with stakeholders
- Restoration of wetlands
- Market-based instruments
  - Subsidies
  - Payment for ecosystem services
- TEEB and business

Why do TEEB?

- Because we need a decision or a policy to change as the current situation is bad
- Because a decision or policy is to be made
- Because a plan is being developed
- As an academic exercise

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Making Decisions - policy

- Water and wetlands provide important ecosystem services
- The values of these services can be captured in different ways – choose the valuation technique appropriate to the decision
- How do we use this information in making decisions?
- What policy design allows for ecosystem service values to be taken account of?
- Important for design of policy and implementation of policy

What decisions do we take? Policies we develop

- Many different scales – each with own policies:
  - **Local** – managing a site, restoration, decision on construction, individual regulatory decisions, interaction with local community
  - **Hydrological scale** (river basin, coastal area, etc.) – wide water management plans, dams, larger planning issues, broader range of stakeholders
  - **Regional/national** – designing regulation, economic instruments, subsidies, policy prioritisation, sectoral policy planning, etc.
  - **Transboundary** – rivers and coasts – joint understanding of values in decisions
  - **International** – water, climate, etc., negotiations, decisions and implementation

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TEEB Six Steps

1. Specify and agree on the problem
2. Identify which ecosystem services are relevant
3. Define the information needs and select appropriate methods
4. Assess the changes in the flow of ecosystem services
5. Identify and assess policy options
6. Assess distribution impacts

- Effectively a simple logical approach to addressing a problem or potential problem
- This presentation is focused on Step 6 – policies, decisions

Policy instruments – Regulations and Plans

- **Regulations that reduce pressures** on wetlands (e.g. regulation of water discharges, emissions standards) – do these ensure protection of ecosystem services?
- **Regulation of products** – restrictions on product use (e.g. re: endangered species)
- **Land-use planning**, including the establishment of **Protected Areas** and
  - **Integrated Water Resource Management (IWRM)**
  - **Integrated Coastal Zone Management (ICZM)**
  - **Marine Spatial Planning (MSP)**

slide by Patrick ten Brink and Daniela Russi

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LUP, IWRM, ICZM, MSP

- May set plan for development consent – need to ensure values of ES maintained in this framework
- Focused on landscape scale (e.g. river basin, coastal area, marine region) – can examine flow of ES in that landscape
- Multi disciplinary
- Engaging various stakeholders
- Allow policy makers to discuss and formulate multiple objectives, identify synergies among them, discuss trade-offs

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Engaging with stakeholders

- Critically important
- Stakeholders are important sources of valuation knowledge – defining ES, values
- Must have buy-in for assessments of ecosystem service values and also for how these are to be incorporated into relevant decisions
- Can provide foundation for subsequent decisions
- Each type of decision making (local to national) has different types of stakeholder interaction – ensure ecosystem service values addressed in the interaction
- Techniques for stakeholder engagement explored elsewhere – local, national, varying across countries

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The Pangani River Basin IWRM (Tanzania)

- The Pangani River Basin provides livelihoods to over three million people, mainly from agriculture and fisheries
- The IUCN Water and Nature Initiative (WANI) carried out a IWRM:
  - participatory governance
  - increased institutional capacity at basin level
  - increased knowledge about water resources
  - conflict resolution and platforms for stakeholder dialogue
- Integrated Environmental Flow Assessment undertaken of ES in river basin, who benefits an values per household from harvesting aquatic resources
- Used to help planning in situation of assumed increase in water demand

Source: TEEBcase by Cross and Förster, mainly based on PBWO/IUCN (2009) and Turpie et al. (2005)

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Restoration – An important policy

- **Restoration and rehabilitation of degraded ecosystems** can bring considerable benefits to people, also economic:
  - **Climate change mitigation** and **adaptation**
  - **Flood risk prevention**
  - **Livelihood** for local communities
  - And many more…
- Important where natural systems present cheaper option than man-made systems for a service
- "**Passive restoration**" or **active interventions**
- If thresholds of irreversibility have been passed, the level of biodiversity won't be restored completely, but it is still possible to restore some ecosystem functions and ES

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An example of restoration: Essex Marshes, UK

- Over 25 years the Essex coast lost ca 50% of its 30,000 ha of salt marshes, and 1% still lost every year
- In 2002, the Essex Wildlife Trust created a coastal re-alignment project to restore the salt marshes
- Over next 20 years monetary benefits expected to be £500,000/ year through savings and income generation
- Additional benefits include: sea wall maintenance, improved water quality, flood defence, and ecotourism opportunities

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Source: http://www.natura.org

Policy instruments – Market–Based Instruments

- Several MBIs. In this presentation:
  - Taxes, fees, charges, including Environmental Harmful Subsidies (EHS) reform
  - Tradable permit schemes, water banks/water funds
  - Payment for Ecosystem Services (PES)

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An EHS: low price for irrigation in Italy and Spain

- Irrigation is responsible for a large share of total water consumption (≈ 68% of total water use in Spain and 57% in Italy)
- Low water availability, but low water prices
- Water tariffs are based (with few exceptions) on the irrigated area and not on water use ⇒ farmers are not encouraged to save water
- In Italy, cost recovery rates vary between 20-30% in the south and 50-80% in the north
- Total subsidies to irrigated agriculture in the most important Spanish basins have been calculated at €906 - €1,120 M/yr, including capital and O&M costs

Sources: Arcadis et al. (2012), Berbel et al. (2007), Calatrava and Garrido (2010), OECD (2010), Zoumides and Zachariadis (2009)

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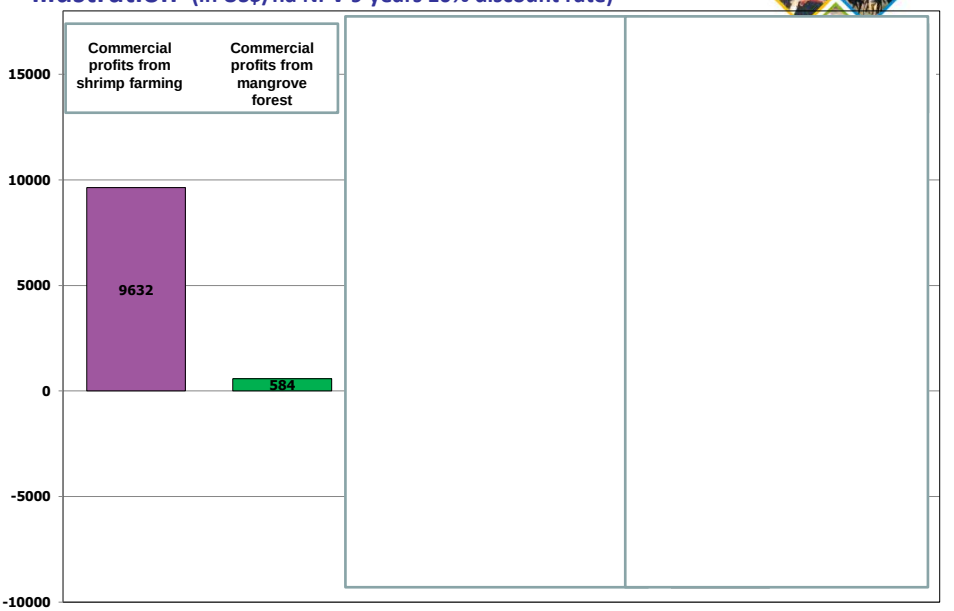
Benefits provided by mangroves & shrimp farms: an economic illustration (in US$/ha NPV 9 years 10% discount rate)



Source: drawn from data from Barbier et al., 2007 and Hanley and Barbier, 2009

All values are NPV over 9 years and a 10% discount rate, given in 1996 US$.

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The salinity credits in Bet Bet, Australia

- Salinization threatens agriculture in the area, damages infrastructure and has a negative impact on the river ecosystems
- It is caused by the reduction in aquifer recharge produced by a reduction in permanent vegetation with deep roots
- The Bet Bet tradable salinity credits auction: farmers could offer their commitment to undertake actions to reduce salinity in exchange for a certain payment
- The farmers who won the auction could fulfil the obligations by reducing salinity in their fields or by buying salinity credits from other farmers who had achieved higher reductions than those established in their contracts

Source: Connor et al. (2008)

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Payment for Ecosystem Services

- a voluntary transaction where a well-defined ES or a land use likely to secure that service is being 'bought' by a service buyer from a service provider if and only if the service provider secures service provision (conditionality)
- Payment usually based on the **opportunity costs** of conservation and not on monetary evaluation ⇒ long process of negotiation

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It works when:

- The barrier to conservation is mainly **economic** in nature
- A **small fee** may change the individual decisions of the owners or managers of natural resources
- **Property rights** are well defined and the environmental services are definable
- **Buyers** and **suppliers** can be identified, and a transaction between these two categories of actors is possible
- It should not be regarded as a panacea or blueprint for environmental conservation
- Can be governmental or private business relationship

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TEEB and Business

- Businesses may rely on services from ecosystems
- So they can be allies
- Need to help businesses realise the role of ecosystem services in their business planning
- Businesses can contribute to protecting these services out of self interest, e.g. Drinking water, tourism

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Vittel, France

- PES programme to preserve the quality of Vittel's bottled water, threatened by the presence of nitrates and pesticides due to the intensification of agricultural and livestock raising practices upstream

- 10 years of negotiations
- Package of incentives available to farmers:
  - 18 and 30 year-contracts to ensure continuity
  - abolition of the debt associated with the purchase of land by farmers
  - an average of €1000/ha to cover the costs related to the transition
  - a lump sum of up to €150,000 per farm to meet the initial costs
  - Technical assistance
- Success: protection of 92% of the water catchment area

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Institute for European Environmental Policy

Limitations of MBI

- Are complementary – not substitutes – of environmental regulation
- Not advisable to protect high-value ecosystem or ecosystem services or where failures can lead to severe/irreversible impacts
- Only effective when the cause for environmental degradation is mainly economic (e.g. not useful in case of corruption, or to prevent illegal water abstraction)
- Crowding-out of moral motivations?

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Scope of MBI – they are useful to

- Internalise part of environmental externalities
- Engage new stakeholders
- Improve funding opportunities
- Allow more flexibility to private actors
- Act as an educational tool

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Transforming our approach to water and wetlands

- Wetlands protection/improvement should be integrated in water management at all levels in order to progress towards their wise use
- In order to do that, the ES provided by wetlands need to be assessed – using qualitative, quantitative and monetary methodologies, depending on the objectives, the available information, time and resources
- A variety of policy tools can contribute to wise use, including regulation, establishment of PAs, integrated management and MBIs – ensuring value is captured and used in the decisions

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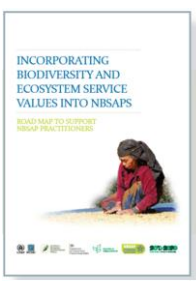
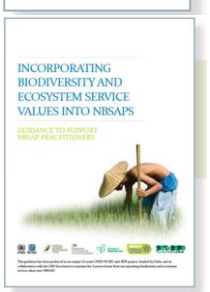
Further readings





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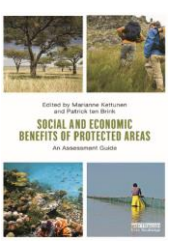
- The **TEEB initiative's website**, which includes the main TEEB reports, published since 2010: www.teebweb.org
- The **CBD Technical Series no. 28** focuses on economic valuation's methodologies
- **Social and Economic Benefits of Protected Areas: an Assessment Guide,** The report synthesises wide-ranging global evidence on benefits provided by PAs and provides guidance on how to identify, asses and communicate the various benefits



HOW TO COMMISSION A WATER ECONOMICS STUDY

- *This section summarises the previous sections into a set of broad guidelines on how to commission and assess an ERE study.*

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Formulating the problem statement and Terms of Reference

- The problem statement captures the conflict or trade-offs that emerge from the development proposal or policy or programme issue that have precipitated the need the ERE study.
- The terms of reference embody the issues to be resolved by the decision-taker.
- Methodology must be indicated.

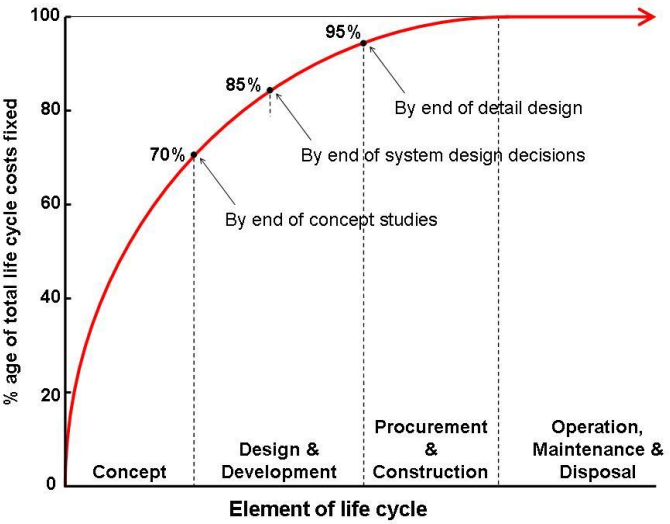
Level of analysis required

- **The level of analysis refers to the depth of scope of study required. The level of analysis determines the level of output precision required.**
- **The level of analysis has a large influence on the project budget and the project duration. The level of analysis is informed by:**
  - **the expected consequences of the development proposal**
  - **the levels of diligence required**
  - **the project life cycle.**

Level of risk of the development proposal or policy or programme issue

- The level of risk is informed by three variables:
  - the identity and number of beneficiaries who stand to gain and lose
  - the likelihood that these beneficiaries would be affected
  - the consequences of the losses or gains to the beneficiaries.
- If the beneficiaries are manifold, or own valuable assets; and if they face high likelihoods of being affected with extreme consequences, the study would require a high level of analysis.

The project life cycle



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Other considerations

- When considering applying a valuation technique several practical considerations need be taken into account. These include:
  - Budgetary restrictions;
  - Availability of data and the selection of an appropriate framework;
  - Consideration of the appropriate technique considering the data and the given context; and
  - Natural assets may produce more than one ecosystem service and each ecosystem service may require more than valuation technique.

UNEP

Methodology

- Three key considerations exist:
  - The methodology must address the problem
  - The data collection requirements may be the single most costly aspect of an ERE study and therefore the project budget would influence the selection of methodology, and
  - Best practices in ERE must be followed.

Case Study 1

- **Yala wetlands, Lake Victoria Basin, Kenya**
- **Ecosystem service evaluated:** water purification function of wetlands
- **Approach:** Production function to model the relation between land use change, wetland area, water quality and damage function estimation and market prices to estimate the effect on fish stock biomass.
- **Policy:** Payments for ecosystem services scheme

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Case Study 2

- Coastal wetlands (estuaries), Southern Africa
- **Ecosystem service evaluated:** nutrient cycling and habitat functions of wetlands
- **Approach:** Production function to model the relation between coastal wetland composition and functionality, dynamic fish stock modelling and market prices to estimate the effect of estuarine biodiversity on fish stock biomass.
- **Policy:** Supporting biodiversity conservation

Practical Exercise Questions – Module 3

- What category of stakeholder can promote which policy tool to address the threats you have identified before?

Stakeholders	Policy tool

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- What results could be achieved using the policy tools that you have identified? What are the challenges?

Policy tool	Results	Challenges

Coffee Break

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Application and Next steps – Group discussions

- How will you apply what you have learnt in the last 3 days?
- Who will be your allies in that process? Who will help?
- What challenges will you face and how will you address them?
- What additional support do you think you will need? Concrete ideas.
- What TEEB projects are you planning? Location; status etc.

Dissemination local to regional

- Communities needs
  - Know the audience/stakeholders
  - Pros and cons, costs and benefits
  - Key valuation arguments
  - Knowing the right questions

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Dissemination local to regional

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Dissemination strategies and outreach

- Key Messages from the tables.
  - Keep it within your "comfort zone"
  - Keep it straightforward
  - Three key messages

Dissemination local to regional

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Dissemination strategies and outreach

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Indicators and Monitoring

- Key Messages from the tables.
  - What are the relevant economic indicators
  - How to measure them
  - What do they tell you

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Lunch

Final Recap
The TEEB for Water and Wetlands Quiz

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Evaluation

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Closing remarks

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Congratulations!

You have completed the TEEB Water and WetlandsTraining

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