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SUSTAINABLE DEVELOPMENT GOAL 9  
INDUSTRY, INNOVATION AND INFRASTRUCTURE

# Training Session on Economic Valuation – Session 3 Subsession 1: „Aim and Scope of a Tier 2 EV- Policy Appraisal Context“



Training on the systematic integration of economic valuation  
of "wet" ecosystem services into the TDA/SAP process





## Context

- Two Guidance Documents, less resource-intensive („tier 1 projects“) and more resource-intensive („tier 2 projects“) combined into one document (including an introduction).
- The Tier 2 Guidance Document contains:
  - a **guidance** for conducting an EV in a tier 2 IW project area, including a proposal for **an outline of a tier 2 EV report** and an **accompanying toolbox/methodology fiches** depicting various EV-methods; ([www.iwlearn.net/valuation](http://www.iwlearn.net/valuation));
  - a **Checklist** to work with ([www.iwlearn.net/learning/manuals/economic-valuation/accompanying-documents-and-training-materials](http://www.iwlearn.net/learning/manuals/economic-valuation/accompanying-documents-and-training-materials)), and
  - a **ToR-template** for an economic expert to conduct such a valuation (same www-link).





## Context

- In this Subsession, we will discuss the possible aims of a tier 2 EV, and the scope, methodologies to be used, and outcomes.

But first: an overview of the tier 2 EV approach...





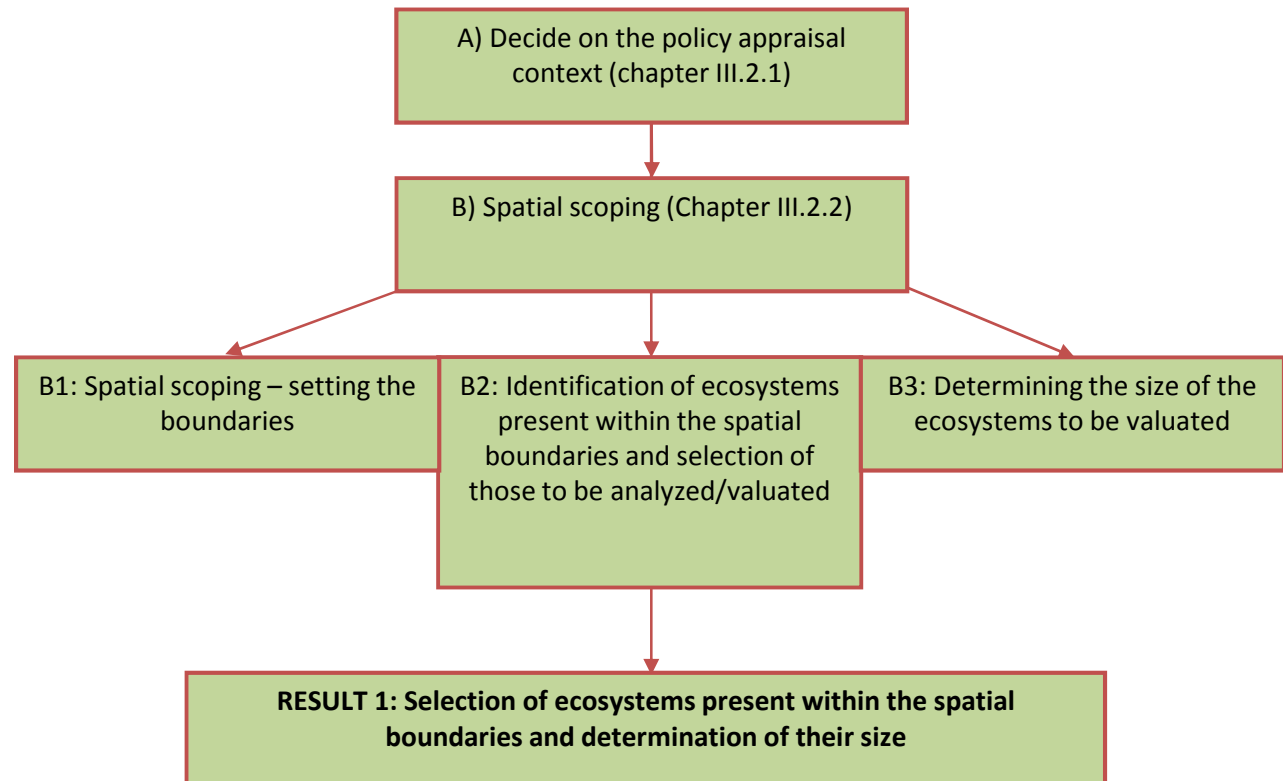
## Overview of the Tier 2 EV approach

The tier 2 step-by-step guidance entails the following steps – in the beginning, these are similar to a tier 1 valuation:

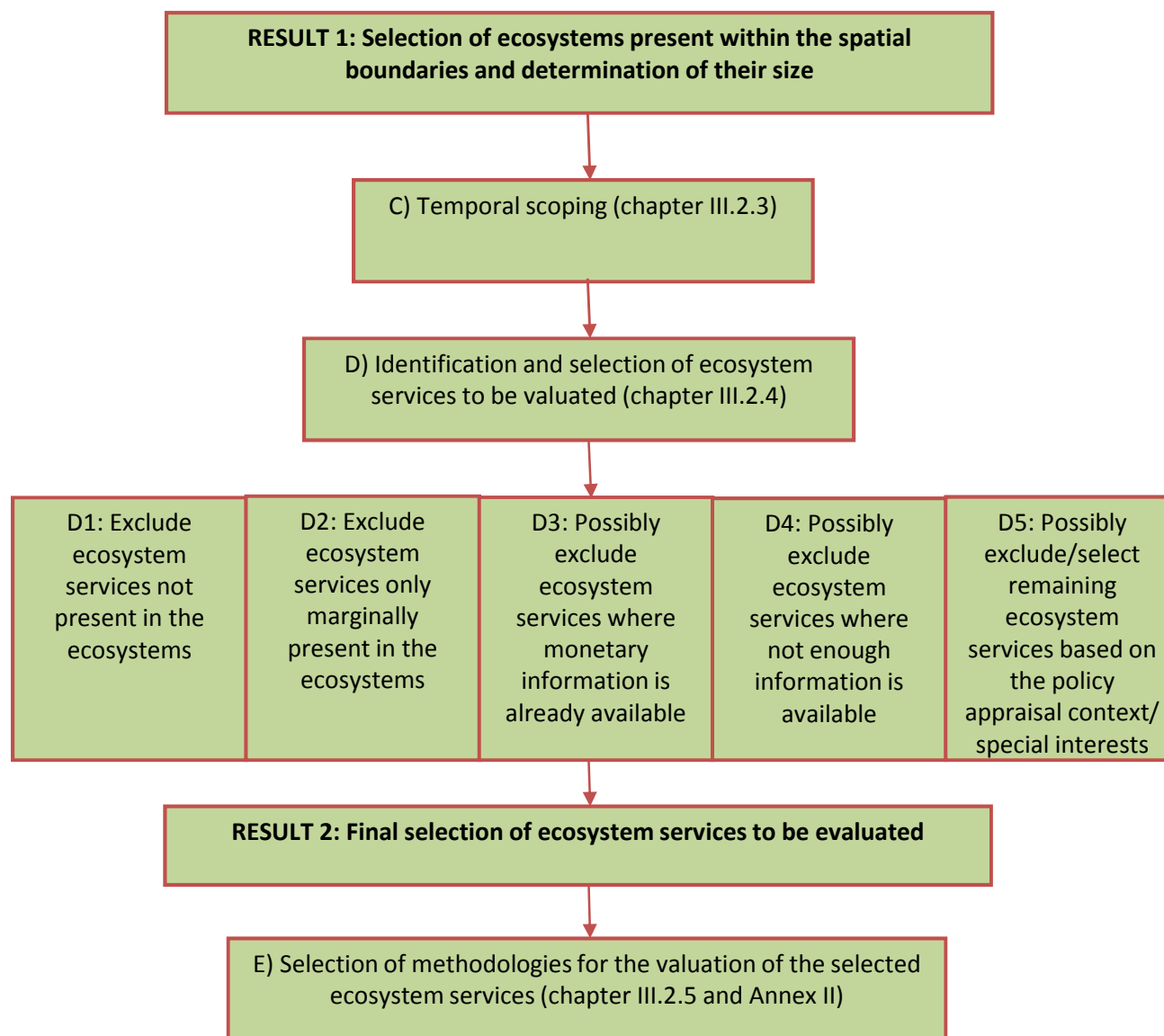
- Decide on a “policy appraisal context”.
- Determination of the spatial boundaries, identification of ecosystems and ES present in the site to be studied/assessed, determination of the size of the ecosystems present in the area under investigation.
- Then, you need to choose which in-depth methodologies you will use, assessing the Toolbox /methodology fiches in the Tier 2 Guidance Document
- Application of the selected methodology/methodologies.
- Summing up the values and determining the Total Value (of more than one method used).



## Overview of the Tier 2 EV approach



Overview of  
the Tier 2 EV  
approach –  
stakeholder  
involvement in  
these steps is  
of great  
advantage!





## Tier 2 EV: Policy Appraisal Context

- Any EV will be embedded in a local and very specific context – the “policy appraisal context”.
- All policy appraisal contexts can form a part of a TDA/SAP process.



Policy appraisal contexts and methodologies/ approaches:

Screening Analysis of ecosystem services

Tier 1 methodology (benefit transfer and market prices)

In-depth Analysis of all or some ecosystem services in the LME/river basin

Hotspot Analysis (e.g. the Great Barrier Reef)

Analysis of the impacts on ecosystems and ecosystem services of a planned, concrete project (e.g. a dam, a MPA)

Economic valuation focusing on a single ecosystem type of special interest (e.g. mangroves)

Economic valuation of one specific ecosystem service of relevance (e.g. carbon sequestration)

Economic valuation of a single pressure or an impact resulting from a pressure, and the resulting loss in ecosystem services (e.g. eutrophication)

Economic valuation to determine the value of ES for a market-based financing scheme, e.g. PES/PWS or compensation schemes.

Tier 2 methodology/in-depth assessment

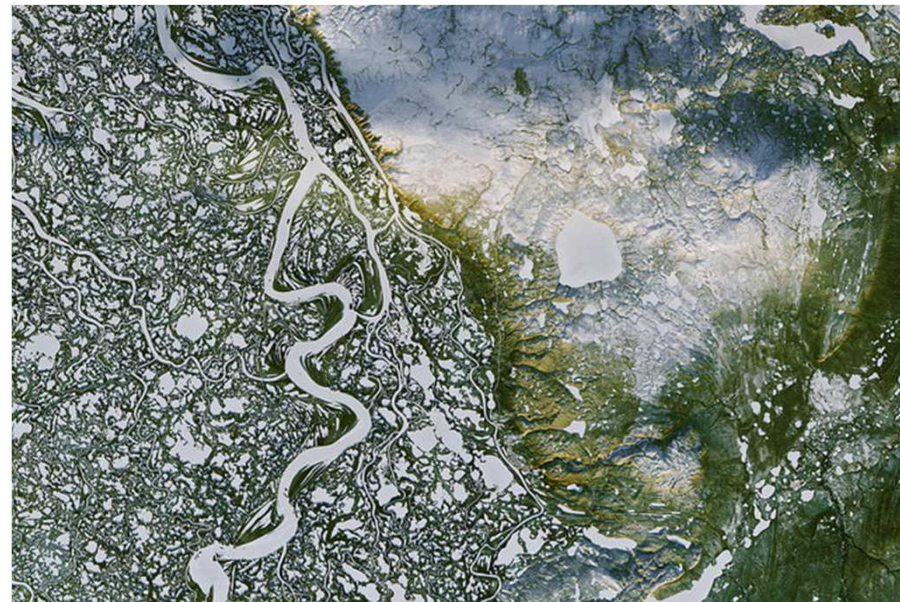




## Policy Appraisal Context #1

# 1: An in-depth analysis, assessing the overall value of all or some ES in the LME/river basin (can also be conducted as part of a TDA or as a follow-up to a screening based on the Tier 1 methodology)

→ Very costly, a “set” of studies needed....



Source: NASA Earth Observatory images by Joshua Stevens, using Landsat data from the U.S. Geological Survey<sup>1</sup>





## Policy Appraisal Context #2



# 2: A "hotspot analysis", i.e. an in-depth analysis of very biodiversity rich and important ecosystems or areas (e.g. the Great Barrier Reef in Australia, or the Stoeng Treng Ramsar site).

Source: Dan Barbus, 2005<sup>2</sup>





## Policy Appraisal Context #2

Example: Stoeng Treng Ramsar site.

- Critical source of food, fuel, medicines and building materials for its inhabitants; important role in maintaining water quality and regulating floods.
- Deep pools and flooded forests provide dry-season refuges and spawning habitats for many important species of fish.
- Chong (2005): EV study of the site as part of the Mekong River Basin Wetland Biodiversity Conservation and Sustainable Use Programme (MWBP).
- The study found that the Stoeng Treng wetland resources are essential to the livelihoods of the villages from Veun Sean: 750 US\$/capita/year!







## Policy Appraisal Context #3

# 3: An analysis of the impacts on ecosystems and ecosystem services of a planned, concrete project (hydropower plant, MPA etc.), i.e. an in-depth assessment of the ecosystem values in a specific area that will be impacted by the project - positively or negatively. Such an analysis could also support the identification of options and alternatives in a TDA/SAP process (hydropower plant, MPA etc.)



Source: Indigenous Environmental Network<sup>3</sup>





## Policy Appraisal Context #3

### Example: Stoeng Treng Ramsar site - Zoning Plans

- The study by Chong (2005) found out that proposed zoning plans would adversely affect the poorest members of communities within the Ramsar Site, including migrant settlers, the landless, and those depending on income and food security from fishing.
- A follow-up study through the IUCN-Darwin project (Allen et al. 2008) conducted an integrated assessment to evaluate the potential impacts of the proposed zoning on biodiversity, local economies but also livelihoods.
- Some of the conclusions were that some areas should be a semi-restricted zone with access permitted during a specific fishing period as there would be minimal impacts to other biodiversity at that time of year.





## Policy Appraisal Context #4

# 4: An economic valuation focusing on a single ecosystem type of special interest (e.g. mangroves in the Niger basin or urban wetlands) and the ecosystem services it provides.



Source: Chesapeake Bay Program<sup>4</sup>





## Policy appraisal context #4

Example (2017, unpublished):

Ecosystem Services Valuation of mangrove forests in Zambezi delta  
(Project: GEF Blue Forests „small scale interventions“)

- Result: Estimated net household income from the mangrove products and mangrove ecosystem services in the Zambezi Delta
  - Direct use: Charcoal (53) + Timber (105) = 158 USD/ha/yr
  - Indirect use: Shrimp (413) + Crabs (192) + Fish (319) = 924 USD/ha/yr
- Recommendations:
  - “Support income generating agriculture, mariculture and beekeeping as sustainable alternative livelihood for people in the delta” ...
  - “determine the technical and economic sustainability of the suggested alternative livelihoods”



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## Policy Appraisal Context #4

Example: Mahan's 1997 study to specifically value urban wetland amenity services in the Portland, Oregon metropolitan area.

- Wetlands provide recreation and cultural values including scenic views, aesthetics, open-spaces, and leisure opportunities to surrounding residents.
- In an urban setting where wetland resources are extremely limited, wetlands have significant positive amenity effects compared to e.g. suburban or rural areas.
- Result: wetlands positively influence the value of residential property and that the degree of influence varies by wetland type.
- Different influence than through parks, lakes, rivers, and streams.







## Policy Appraisal Context #5



# 5: Similarly, an economic valuation can be dedicated to one specific ES of relevance (e.g. carbon sequestration or water) in the project area.

Source: Yves Laumonier/CIFOR<sup>5</sup>





## Policy Appraisal Context #5

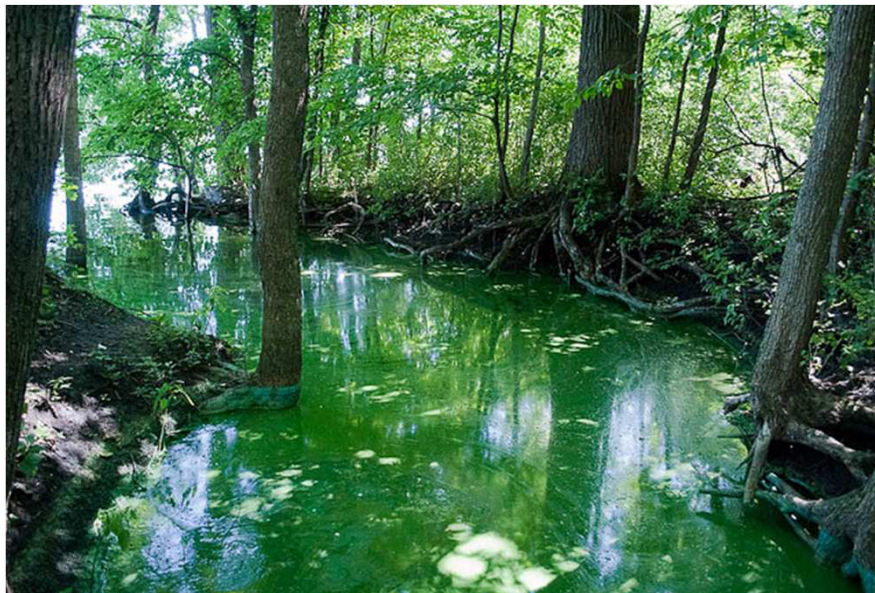
Example: Assessing the value of water in the Great Ruaha River Catchment (GRRC) in Tanzania.

- Water resources in the Usangu area of the GRCC support local livelihoods through irrigation of about 40,000 ha of rice, grass production in the wetlands for livestock, and fishing in the rivers and wetlands.
- Mtera and Kidatu hydropower plants have a total installed capacity of 284 MW (the largest in Tanzania), the system providing more than 50% of the 559 MW available in the national hydropower grid.
- Kadigi et al. (2008) assessed the value of water in irrigated paddy and in hydropower generation.
- Study showed conflict: notable pro-poor returns (in agriculture) vs. notable economic returns (in the hydropower/industrial sector).





## Policy Appraisal Context #6



Source: Matthew Traucht, 2011<sup>6</sup>

# 6: Consider an important singular pressure or an impact resulting from a pressure. Examples of pressures are e.g. climate change, high levels of nitrates in the water body, whereas sea level rise, increased flood risks and eutrophication (see e.g. Baltic Stern report) could be the resulting impacts.





## Policy Appraisal Context #6

### Example: Sea-level Rise (SLR) in the Caribbean

- Sea level rise (SLR) and related erosion are some of the most serious long-term threats of global climate change with negative impacts to population, coastal ecosystems and economies.
- Simpson et al. (2010) provided an in-depth assessment for all CARICOM Member States of the risks from climate change and SLR
- The results of the study show the magnitude of the threats by CC: displacement, loss of agricultural lands, tourism severely affected.
- The costs of damages resulting from unprotected coastlines and the costs of protecting high-value urban coastlines and strategic infrastructure will have a major impact on both communities and national economies.





## Policy Appraisal Context #7



Source: Wikipedia/NASA

#7 An economic valuation of ecosystem services to determine the value or the price of ecosystem services provided for a market-based financing scheme to protect ecosystems/ecosystem services or to finance conservation measures, i.e. for developing payment schemes. Examples of such schemes include Payments for Ecosystem (or Watershed) Services (PES/PWS, compensation schemes, water banks, and liability schemes.





## Policy Appraisal Context #7

Example: An EV for PWS: Sustainable water management in the Catskill and Delaware watersheds, USA

- Catskill and Delaware watersheds provide New York City's 9 million residents with 90% of their drinking water supply.
- In 1989, the US Environmental Protection Agency (EPA) initiated a requirement that all surface drinking water supplies had to be filtered, except if there were existing treatment processes or natural watershed services that provided safe water.
- In 1992, the City of New York decided to invest in protecting watersheds rather than new water filtration facilities, saving millions and millions of Dollars until today.





# Deciding on the policy appraisal context is key!

## Considerations:

- Expectations from the policy/relevant decision-makers;
- Projects are planned/ongoing of relevance in your context;
- Consider current environmental situation/status and significant risks/opportunities for conservation;
- If a pressure/impact-related policy appraisal context (# 6) of relevance, specify which one you want to consider (i.e. pressure or impact) concretely.

## At the end, focus on:

- overall estimation of several (or even all) ecosystem services present in the region/project area?
- Specific assessment, either on a spatial level (e.g. for a hotspot ecosystem), specific project level, or on another level (e.g. by focusing on pressures or impacts, or specific ecosystems or ecosystem services)?







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## Aims and Objectives of a Tier 2 EV

Aims and Objectives of a tier 2 EV will differ from project area to project area...

...and be strongly dependent on the policy appraisal context.







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# Questions?





## Discussion

- In which policy appraisal contexts do think economic valuation can have the biggest impacts?
- Do you have examples from your work where valuation studies had an impact?

Exercise on the selection of a policy appraisal context for a tier 2 valuation in the Bakul Case





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# Thank you!

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5. A view of swamp forests in Danau Sentarum National Park, Tekenang hill, Kapuas Hulu, West Kalimantan, Indonesia; photo by Yves Laumonier, CIFOR / Creative Commons Attribution NonCommercial-NoDerivs 2.0 Generic (CC BY-NC-ND 2.0) | Flickr
6. Agriculturally-derived algal bloom (eutrophication), stream, Sakatah-Singing Hills State Park, near Warsaw, Minnesota; photo by Matthew Traucht, 2011 / Creative Commons Attribution NonCommercial-NoDerivs 2.0 Generic (CC BY-NC-ND 2.0) | Flickr

