



UNITED NATIONS
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SUSTAINABLE DEVELOPMENT GOAL 9
INDUSTRY, INNOVATION AND INFRASTRUCTURE

Training Session on Economic Valuation – Session 2 Subsession 2 „Preparation of a Tier 1 EV: Setting the Scene and Scoping”



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





Context

- Introduction into the first steps for conducting a tier 1 economic valuation, according to the Guidance Document.
- The first steps entail the “set-up” of the whole exercise: the “scoping”.
- Meaning: you define the spatial boundaries, i.e. the area, you identify the ecosystems present, and the ES they provide.
- You may want to exclude some ecosystems or ES, or concentrate on others (depending on actual - significant – presence, data availability etc.).





Context

- This is all supported by a “Checklist” for tier 1 (www.iwlearn.net/learning/manuals/economic-valuation/accompanying-documents-and-training-materials)
- Example:

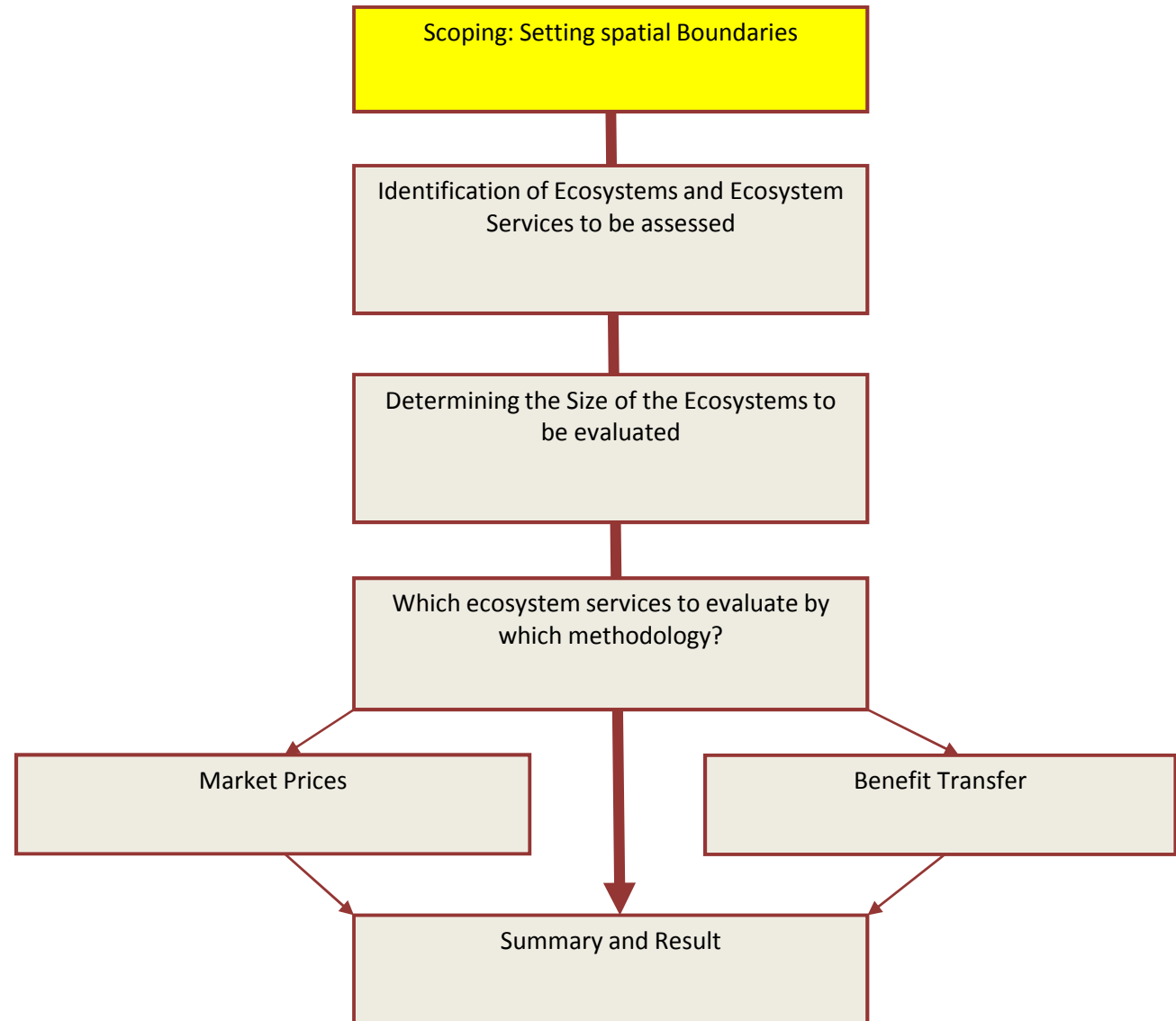
MATRIX C2 - Marine Ecosystems

Ecosystems services/Ecosystem	Marine/open sea	Estuaries/ marshes	Salt ponds/lagoons	Mangroves
Food	Y	Y	Y	Y
Genetic Resources	Y	Y	Y	Y

- In the end, you determine which methodology you use to value the chosen ecosystem services – market prices or benefit transfer.



Overview of the Tier 1 EV approach





Scoping: Setting spatial Boundaries

- Aim: determining the exact area for the EV.
- Result: a map with clear boundaries.
- May seem logical and not necessary in some areas...
- ...but in others, circumstances might not be as clear – e.g. a part of a river basin or LME might be outside a cooperation agreement...
- ...or you might want to exclude certain areas (e.g. urban areas)...
- ...or small tributaries in a large river basin.
- Can be done through a participative approach with stakeholders and local groups.



Source: Ruanda Agung Sugardiman¹





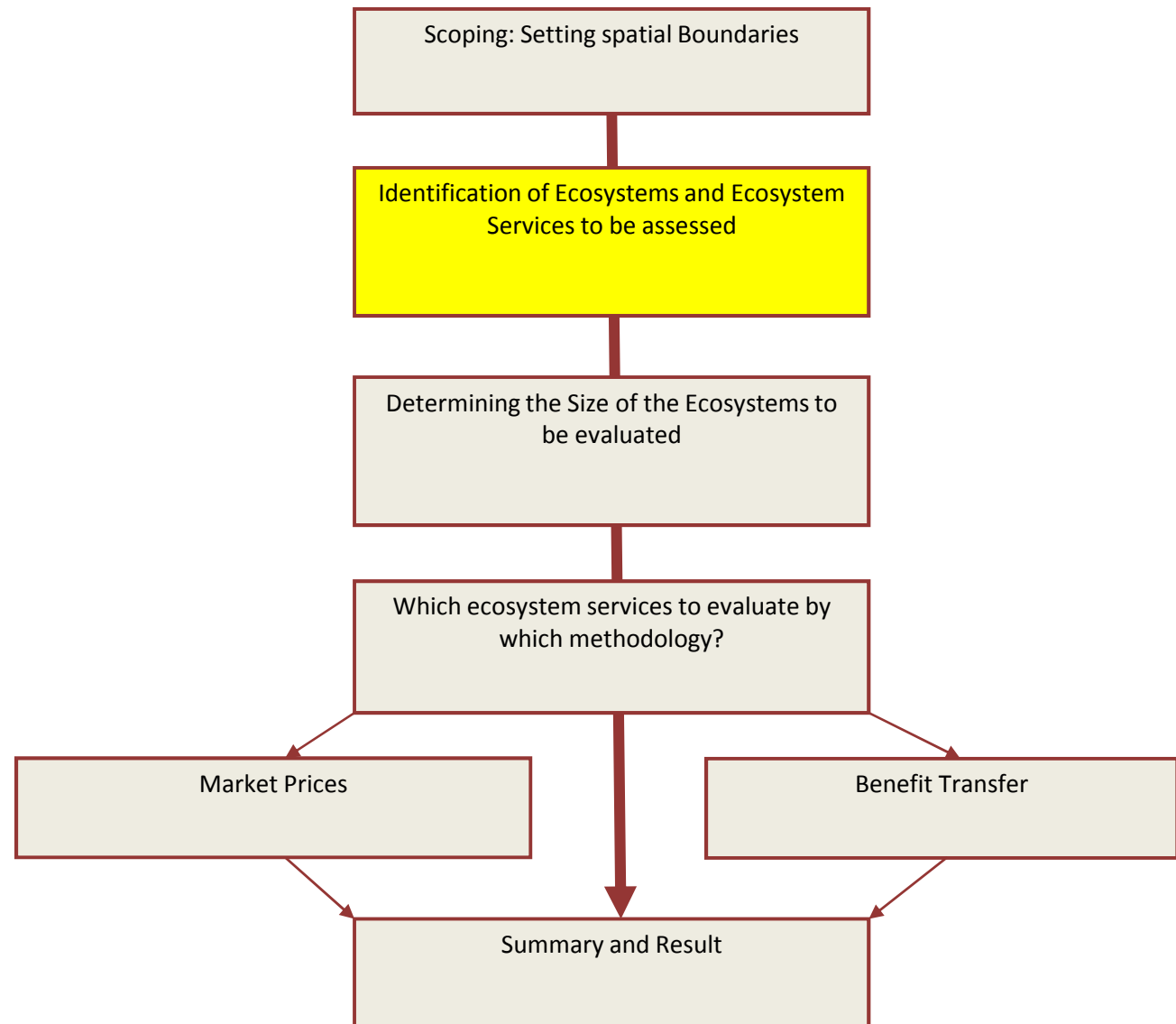
Scoping: Setting spatial Boundaries

Guiding Questions (A simplified GIS map or textual description can act as "basis" for the whole analysis):

- Do you want to demonstrate the value of the natural and undisturbed ecosystems in your project area/focus on them?
- Are there significant urban agglomerations in the study area which provide ES (e.g. recreation benefits of an urban park)?
- Are there other areas that are very strongly affected by human activities (such as intensive agriculture, military bases, etc.)?
- How are the relations with regard to size between natural ecosystems and heavily impacted areas, i.e. is the size of strongly impacted regions significant? If yes, this fact should be communicated clearly, and the respective areas should be excluded or treated separately.



Overview of the Tier 1 EV approach





Scoping: Identification of Ecosystems and Ecosystem Services to be assessed



Source: Terry Sunderland/CIFOR²

- Aim: identification of ecosystems present in the project area, and the ES they provide.
- Plus: selection of ecosystems/ES to value (or: selection of some that will not be included...).
- Result: a list of ecosystems and ES for the valuation.
- Can also be done through a participative approach with stakeholders and local groups.



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Scoping: Identification of Ecosystems and Ecosystem Services to be assessed

...according to the TEEB Report

...and the TEV framework



	Main service-types
	PROVISIONING SERVICES
1	Food (e.g. fish, game, fruit)
2	Water (e.g. for drinking, irrigation, cooling)
3	Raw materials (e.g. fiber, timber, fuel wood, fodder, fertilizer)
4	Genetic resources (e.g. for crop improvement and medicinal purposes)
5	Medicinal resources (e.g. biochemical products, models & test organisms)
6	Ornamental resources (e.g. artisan work, decorative plants, pet animals, fashion)
	REGULATING SERVICES
7	Air quality regulation (e.g. capturing (fine)dust, chemicals, etc.)
8	Climate regulation (incl. C-sequestration, influence of vegetation on rainfall, etc.)
9	Moderation of extreme events (e.g. storm protection and flood prevention)
10	Regulation of water flows (e.g. natural drainage, irrigation and drought prevention)
11	Waste treatment (especially water purification)
12	Erosion prevention
13	Maintenance of soil fertility (incl. soil formation)
14	Pollination
15	Biological control (e.g. seed dispersal, pest and disease control)
	HABITAT SERVICES
16	Maintenance of life cycles of migratory species (incl. nursery service)
17	Maintenance of genetic diversity (especially gene pool protection)
	CULTURAL SERVICES
18	Aesthetic information
19	Opportunities for recreation & tourism
20	Inspiration for culture, art and design
21	Spiritual experience
22	Information for cognitive development

The total economic value of ecosystems

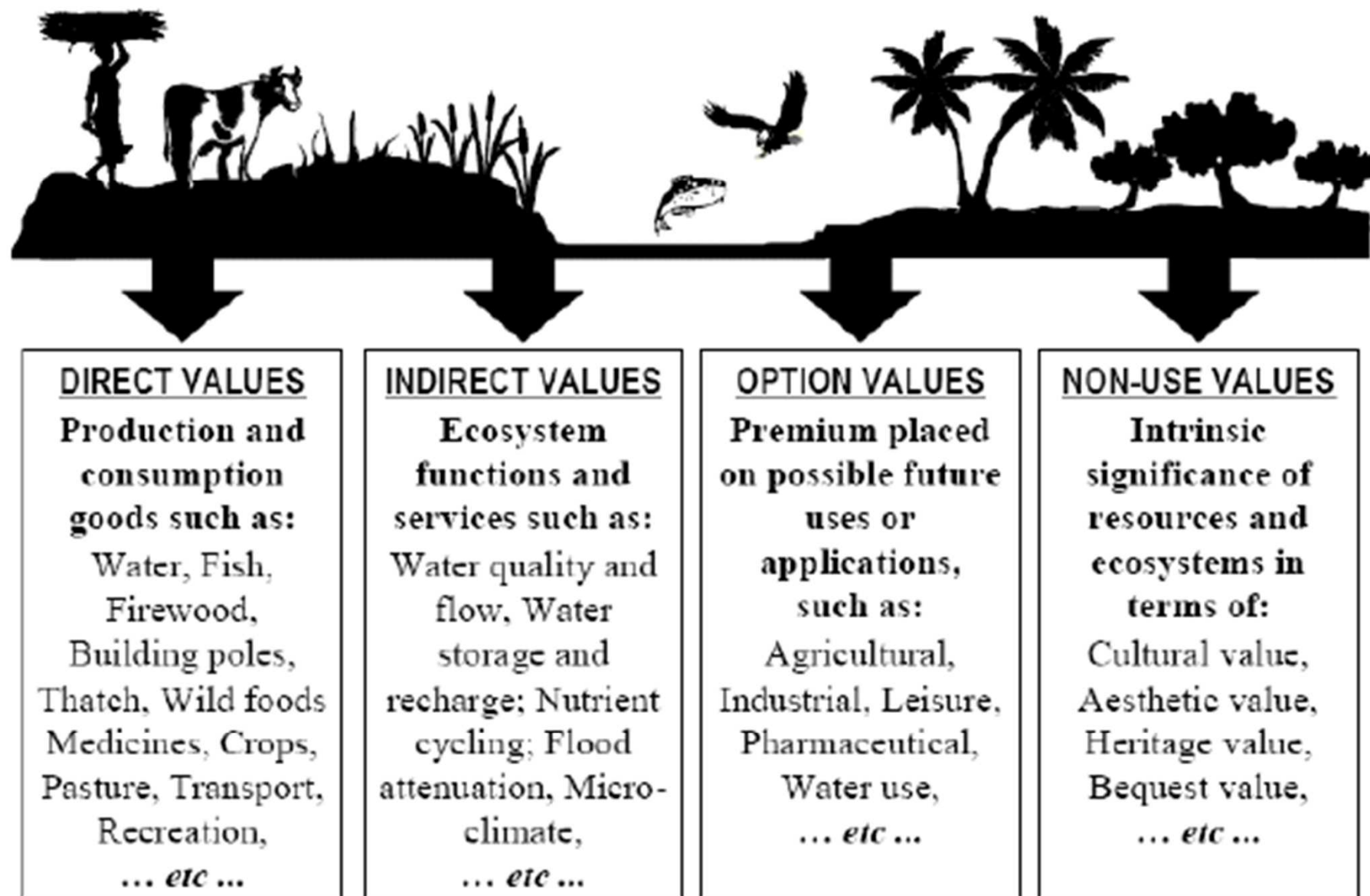


Figure 2: The total economic value of ecosystems (source: Emerton, 2005)



Scoping: Identification of Ecosystems and Ecosystem Services to be assessed

- In the Guidance Document, there are tables for marine and freshwater ecosystems, listing the ES that are (in literature) normally attributed to the different ecosystems.
- Yet: you may want to exclude some ecosystems or ES, depending on significance, data quality/situation, policy appraisal context/focus...





Scoping: Identification of Ecosystems and Ecosystem Services to be assessed (marine)

Type of Ecosystem Service (TEEB)	Ecosystem Service	Category (TEV) (direct/indirect; use value/non-use value)	Provided by which ecosystems (MEA and Naber/Lange/Hatzioelos 2008)
Provisioning Services	Seafood Products	Direct Use	Marine; estuaries/marshes; salt ponds/lagoons; mangroves; beaches/dunes; seagrass beds/meadows; coral reefs and atolls.
	-Fish/fisheries		
	-Other Seafood Products (e.g. shellfish, molluscs)		
	-Cultured Products/Aquaculture		
	Fiber, timber, fuel	Direct Use	Estuaries/marshes; salt ponds/lagoons; mangroves.
	Water (drinking,	Direct Use	Estuaries/marshes;



Scoping: Identification of Ecosystems and Ecosystem Services to be assessed (marine)

Type of Ecosystem Service (TEEB)	Ecosystem Service	Category (TEV) (direct/indirect; use value/non-use value)	Provided by which ecosystems (MEA and Naber/Lange/Hatzios 2008)
Regulating Services	Climate Regulation (Carbon Sequestration)	Indirect Use	Marine; estuaries/marshes; mangroves; seagrass beds/meadows; coral reefs and atolls.
	Moderation of extreme Events (e.g. floods, storms)	Indirect Use	Marine; estuaries/marshes; salt ponds/lagoons; mangroves; beaches/dunes; seagrass beds/meadows; coral reefs and atolls.
	Water/sewage treatment	Indirect Use	Marine; estuaries/marshes; salt ponds/lagoons; mangroves; seagrass beds/meadows; coral reefs and atolls.
	Erosion Prevention	Indirect Use	Estuaries/marshes; salt ponds/lagoons; mangroves; beaches/dunes; seagrass beds/meadows; coral reefs and atolls.
	Nutrient Cycling and maintenance of soil fertility	Indirect Use	Marine; estuaries/marshes; salt ponds/lagoons; mangroves; seagrass beds/meadows; coral reefs and atolls.

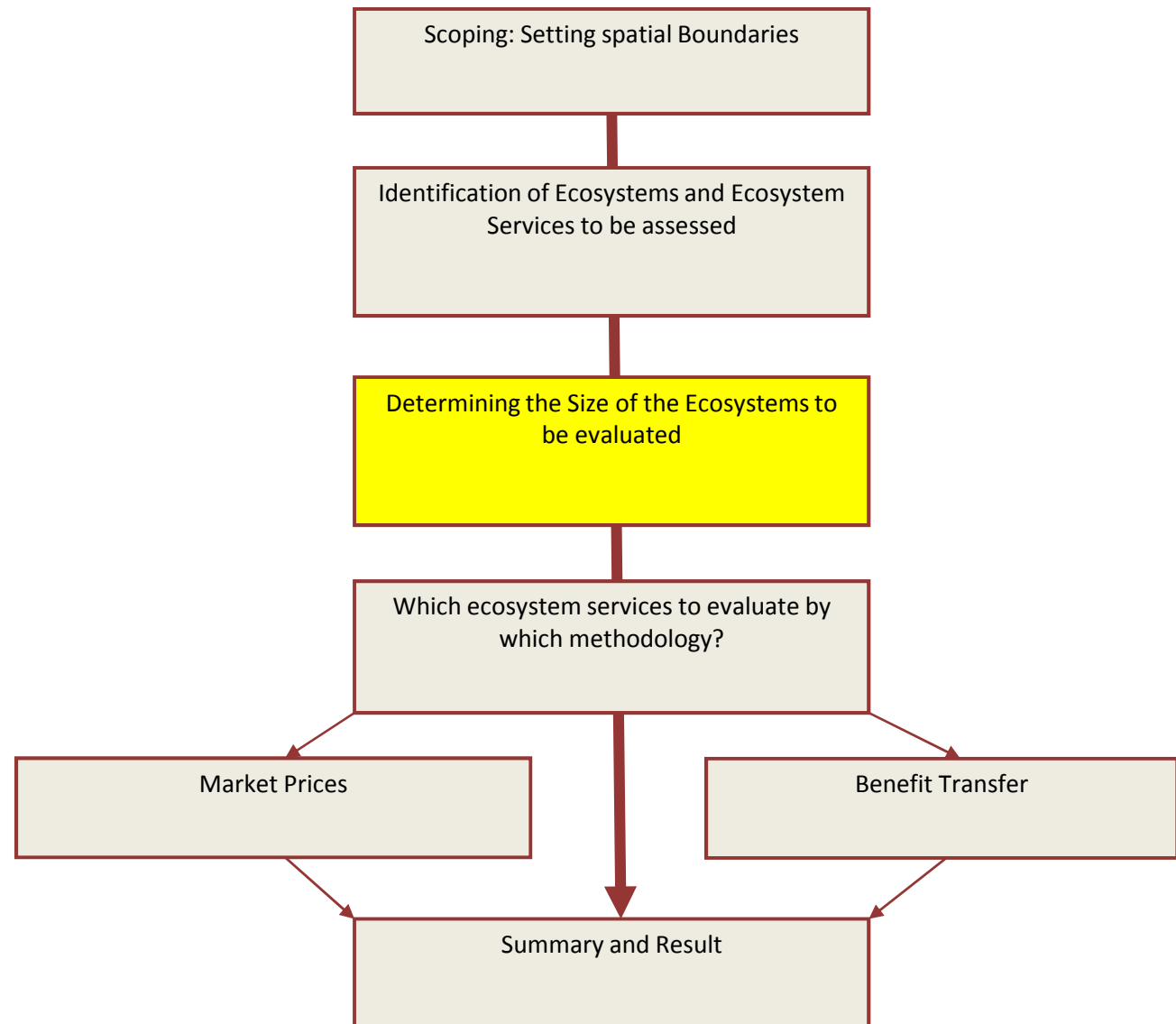


Scoping: Identification of Ecosystems and Ecosystem Services to be assessed (marine)

Type of Ecosystem Service (TEEB)	Ecosystem Service	Category (TEV) (direct/indirect; use value/non-use value)	Provided by which ecosystems (MEA and Naber/Lange/Hatzioelos 2008)
Habitat Services	Maintenance of life cycles of migratory species (including nursery service for commercially valuable fish species)	Indirect Use	Marine; estuaries/marshes; salt ponds/lagoons; mangroves; beaches/dunes; seagrass beds/meadows; coral reefs and atolls.
	Maintenance of genetic diversity (gene pool protection)	Indirect Use	Marine; estuaries/marshes; salt ponds/lagoons; mangroves; beaches/dunes; seagrass beds/meadows; coral reefs and atolls.
Cultural Services	Opportunities for Tourism/Recreation	Direct Use	Marine; estuaries/marshes; salt ponds/lagoons; mangroves; beaches/dunes; coral reefs and atolls.
	Aesthetic Information, Inspiration, Spiritual Experience and Education	Non-use	Marine; estuaries/marshes; salt ponds/lagoons; mangroves; beaches/dunes; seagrass beds/meadows; coral reefs and atolls.



Overview of the Tier 1 EV approach





Scoping: Determining the Size of the Ecosystems to be evaluated

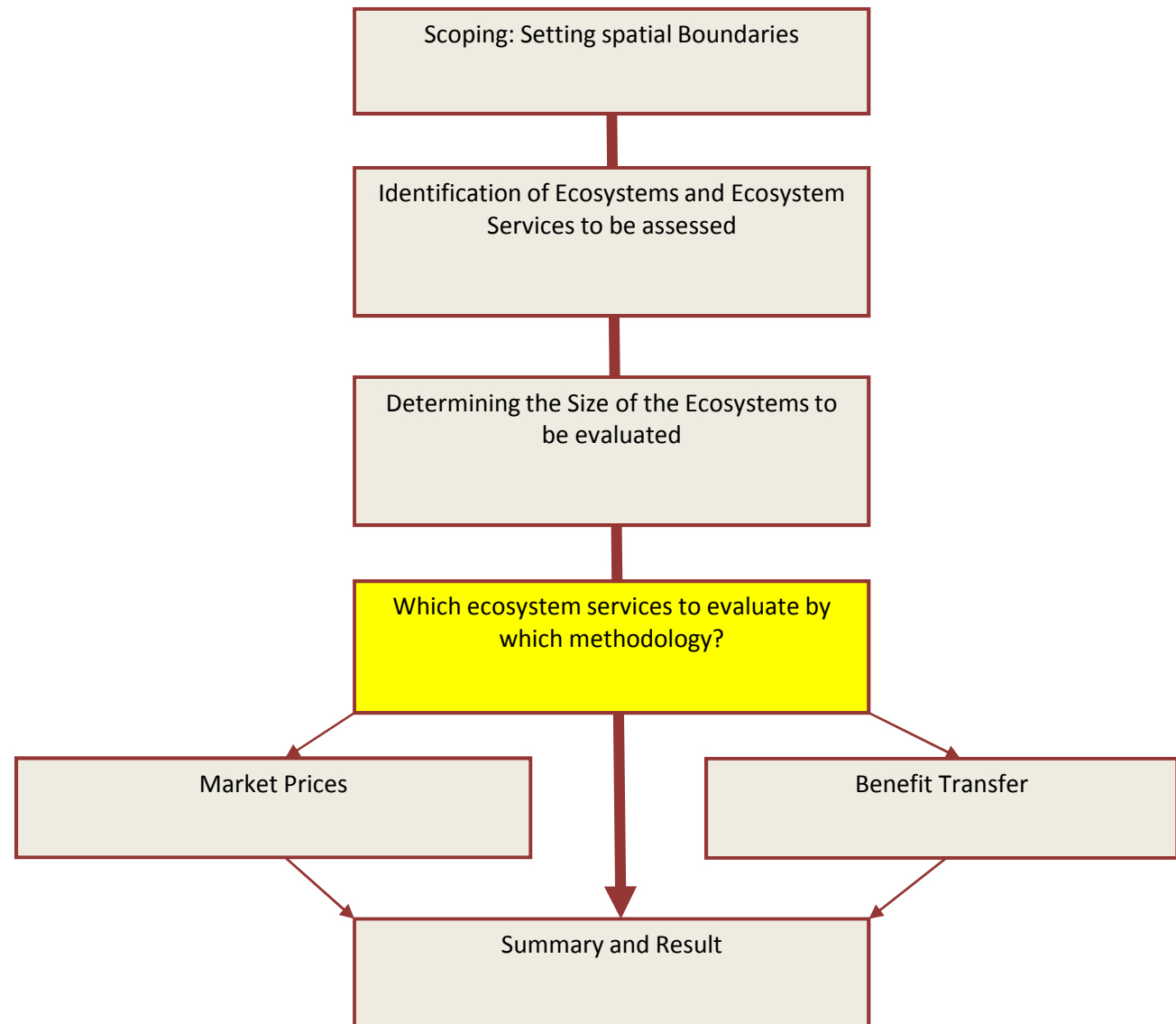
- Aim: investigate and decide on how big the ecosystems you want to evaluate are.
- Result: a list of the ecosystems to be evaluated, with the respective area information.
- Best done in hectares, but all size information can of course be calculated/changed to hectares.



Source: Jeff Fleming, 2012³



Overview of the Tier 1 EV approach





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Final Step: Which ecosystem services to evaluate by which methodology?

In the guidance (and in the Checklist table C3), there are proposals for choosing the appropriate methodology:



Type of Ecosystem Service (TEEB)	Ecosystem Service	Category (TEV) (direct/indirect; use value/non-use value)	Methodology to be used for economic evaluation
Provisioning Services	Seafood Products	Direct Use	Use values/market prices.
	-Fish/Fisheries		
	-Other Seafood Products (e.g. shellfish, molluscs)		
	-Cultured Products/Aquaculture		
	Genetic Resources	Direct Use	
	Medicinal Resources	Direct Use	
	Fiber, timber, fuel	Direct Use	
	Water (drinking, irrigation, cooling)	Direct Use	
Regulating Services	Climate Regulation (Carbon Sequestration)	Indirect Use	Benefit Transfer.
	Moderation of extreme Events (e.g. floods, storms)	Indirect Use	Benefit Transfer.
	Water/Sewage Treatment	Indirect Use	Benefit Transfer.
	Erosion Prevention	Indirect Use	Benefit Transfer.
	Nutrient Cycling and Maintenance of Soil Fertility	Indirect Use	Benefit Transfer.
Habitat Services	Maintenance of Life Cycles of migratory Species (including nursery service for commercially valuable fish species)	Indirect Use	Benefit Transfer.
	Maintenance of genetic Diversity (gene pool protection)	Indirect Use	Benefit Transfer.
Cultural Services	Opportunities for Tourism/Recreation	Direct Use	Use Values/Market Prices or Benefit Transfer.



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Practical Exercise: Bakul and the Checklist

Source: Elisa Alonso Aller, 2014⁴





Practical Exercise: Bakul and the Checklist

- We will work with the Checklist in the Handout “Checklist Tier 1”, and the information on Bakul provided (Handout “Introduction to Bakul Country”).
- Step 1: Any spatial boundaries needed?
- Step 2: Selection of ecosystems (table C1/C2).
→ Should we prioritize? Should we exclude any?
- Step 3: Selection of ES (table C1/C2).
→ Should we prioritize? Should we exclude any?
- Step 4: Fill table C3 with the selected ecosystems/ES and determine the size of the ecosystems (table C3).
→ Which methodologies to be used?





Practical Exercise: Bakul and the Checklist

Discussion of the checklist results in the plenary (if in small groups):

- Are the results similar?
- Did you exclude ecosystems or ES, and why?
- Did you prioritize ecosystems or ES, and why?
- Any difficulties encountered with the checklist?





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Thank you!

For more information, please contact:

- Christian Susan c.susan@unido.org
- Eduard Interwies interwies@intersus.eu





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