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INDUSTRIAL DEVELOPMENT ORGANIZATION



SUSTAINABLE DEVELOPMENT GOAL 9
INDUSTRY, INNOVATION AND INFRASTRUCTURE

Training Session on Economic Valuation

Session 3 Subsession 2:

„Preparation of a Tier 2 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 key steps for conducting a tier 2 economic valuation, according to the Guidance Document.
- These entail the “set-up” of the whole exercise: the “scoping”, which is similar to a tier 1 scoping.
- Meaning: you define the spatial boundaries, i.e. the area, you identify the ecosystems present, and the ecosystem services they provide.
- You may want to exclude some, or concentrate on others.





Context

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

Example:

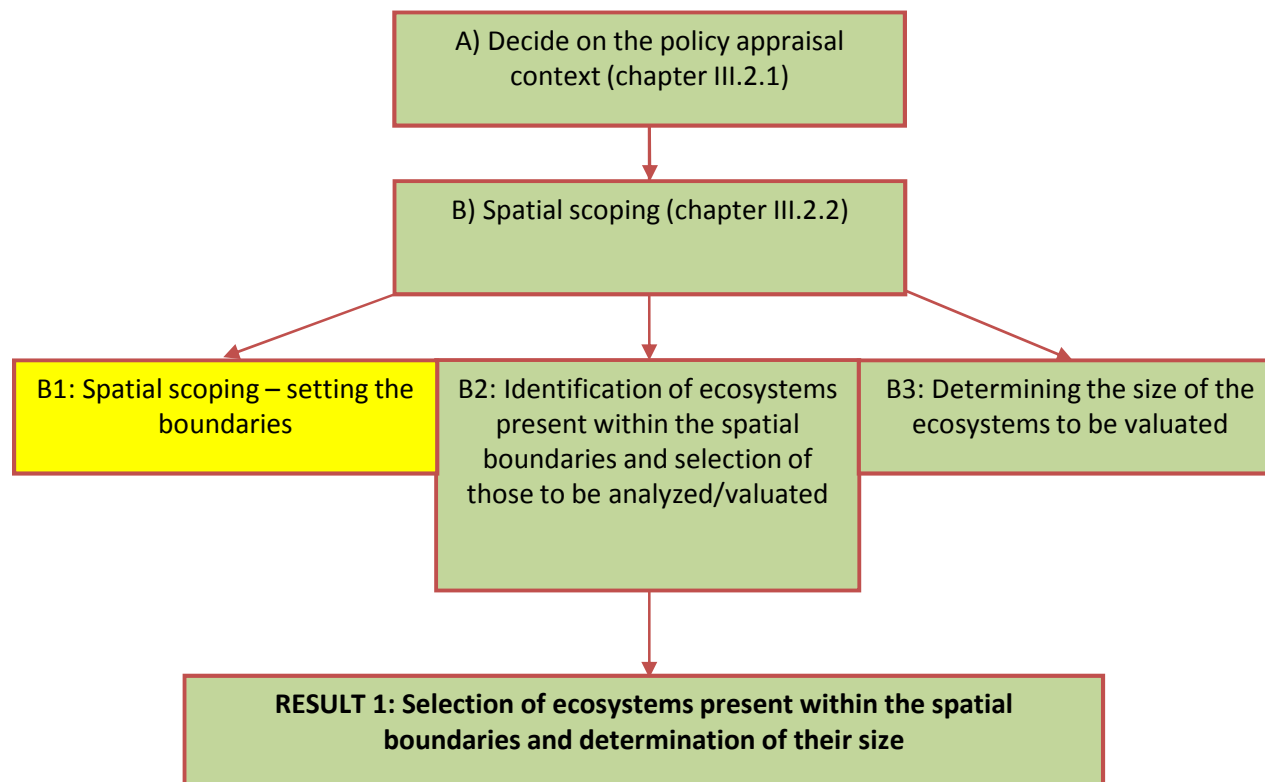
MATRIX C2 - Marine Ecosystems

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 methodologies you will use to value the chosen ecosystem services, using the Toolbox in the Guidance Document



Overview of the Tier 2 EV approach – part 1





Scoping: Setting spatial Boundaries

- Aim: determining the exact area for the EV.
- Result: a map with clear boundaries.
- May seem clear 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 the 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





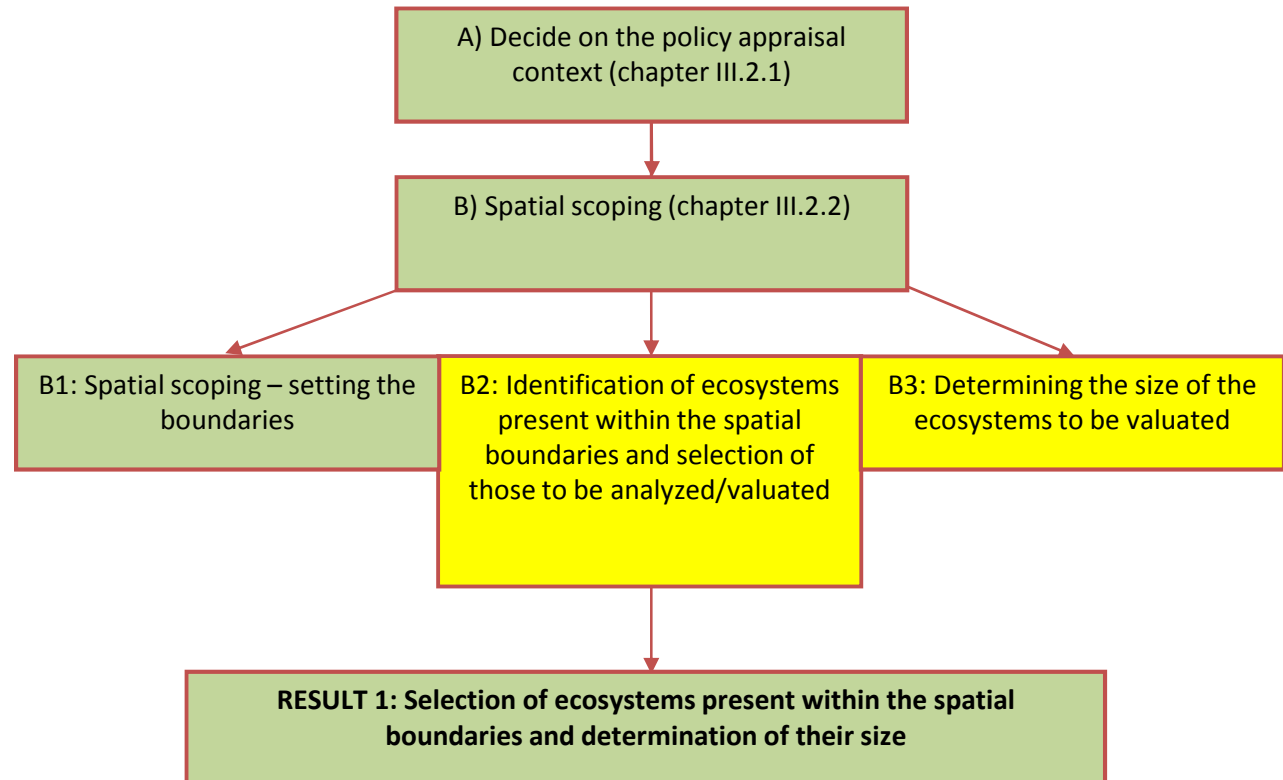
Scoping: Setting spatial Boundaries

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 2 EV approach – part 1





Scoping: Identification of Ecosystems to be assessed

- Aim: identification of ecosystems present in the project area & of the ones to be assessed.
 - Should any ecosystems be prioritized?
 - Should any ecosystems be excluded?
- **Result:** a list of ecosystems for the valuation (in the “Checklist for Tier 2” in tables C1/C2: ecosystems not selected are to be deleted).
- Can also be through a participative approach – can be well done with stakeholders and local groups.





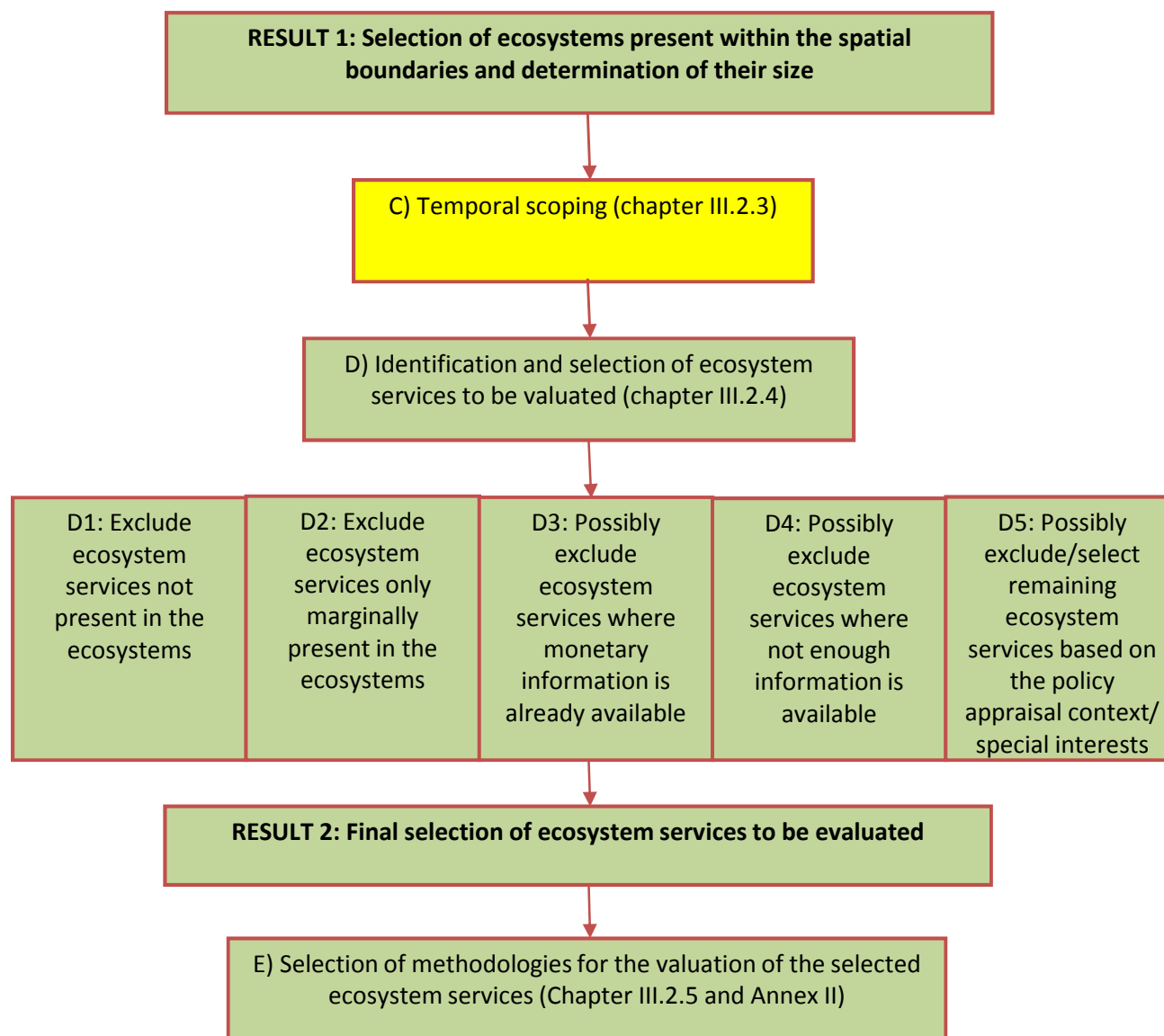
Scoping: Determining the Size of the Ecosystems to be evaluated

- Aim: straightforward – establish how big the ecosystems you want to evaluate are.
- Result: a list of the ecosystems to be evaluated, with the respective area information (in the “ Checklist for Tier 2” in tables C1/C2 in row 2).
- Best done in hectares, but all size information can of course be calculated/changed to hectares.

FIRST RESULT: Selection of ecosystems present within the spatial boundaries and determination of their size.



Overview of the Tier 2 EV approach – part 2





Temporal scoping

- Impacts on ecosystems and ES may extend well beyond a standard time period – temporal issues might play a role.
- For example “degraded mangroves”: the services they provide are lost for many decades.
- Hence, even a minimal ES value would be much higher than any economic value that could be generated by any economic undertaking, which always will have a limited lifetime.
- Taking into account such temporal dimensions is important – and normally done through “discounting”...



Source: soma-samui.com, 2008²





Temporal scoping

- Discounting is done with a proper "discount rate", which converts all costs and benefits to "present values",
- Discounting is essentially the inverse of applying a normal interest rate.
- It gives values relatively less weight the further into the future they accrue - i.e. the same value is less worth in 20 years than today.
- But: choosing the "right" discount rate is a very difficult undertaking, and can strongly influence the overall outcomes of any economic valuations: a high discount rate (e.g. 2 or 3 percent) gives much less weight to future values, while a low rate (zero or even negative values) may overestimate the future value, or at least make the study vulnerable to critique.



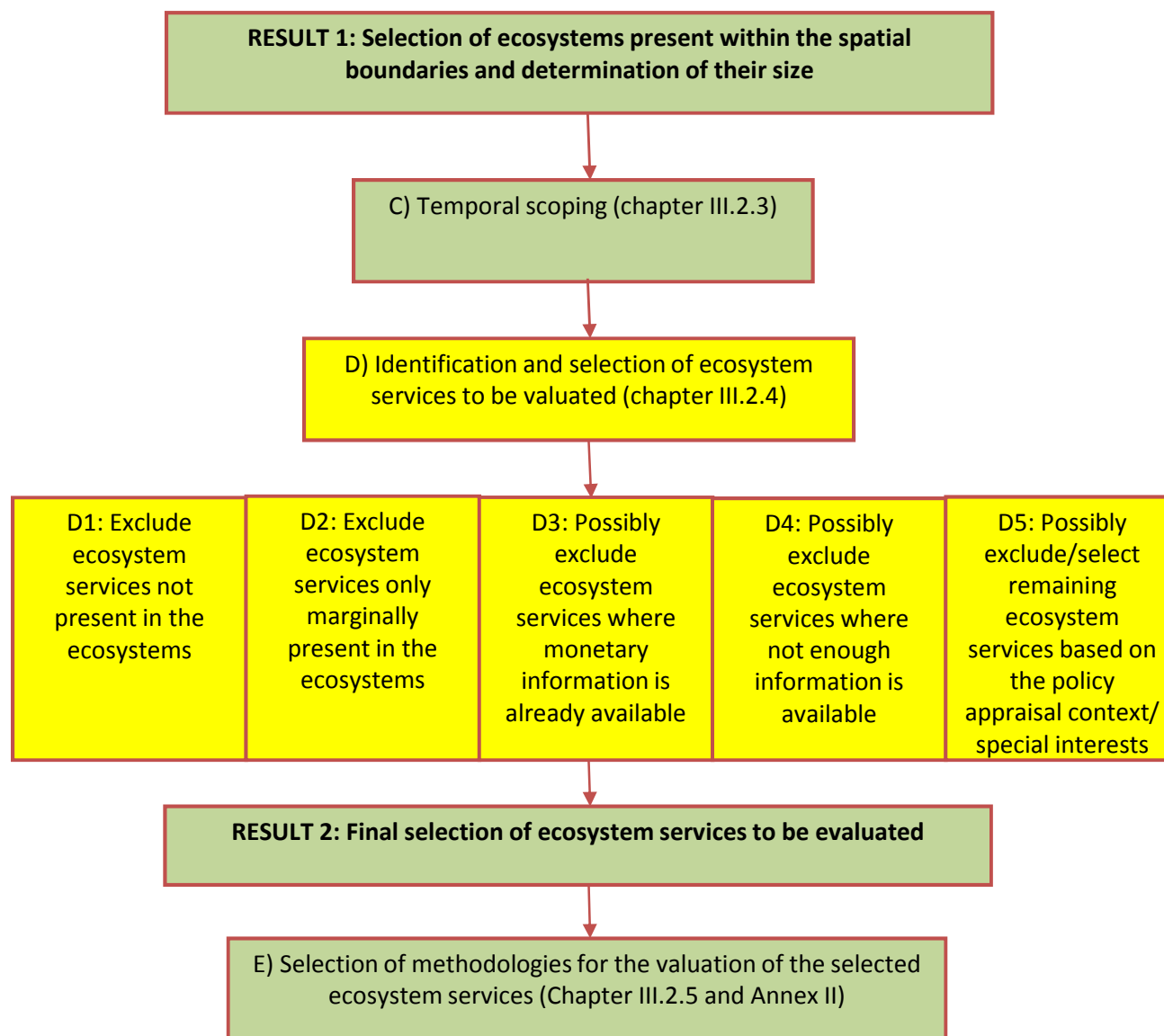


Temporal scoping

- In some tier 2 EV policy appraisal contexts, this is not central, as a fixed, present day determination of the value is desired (e.g. “500 Dollars/ha/year”)
- When results are projected into the future, or if compared to the overall economic benefits of e.g. an infrastructure/economic project (e.g. a hydropower dam) – as in policy appraisal context # 3 - are a discount rate and future values needed.
- Recommendation: use several discount rates in such cases, and clearly communicate these!



Overview of the Tier 2 EV approach – part 2





Scoping: Identification and Selection of Ecosystem Services to be assessed

- Aim: identification and selection of ecosystem services present in the selected ecosystems.
- ...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

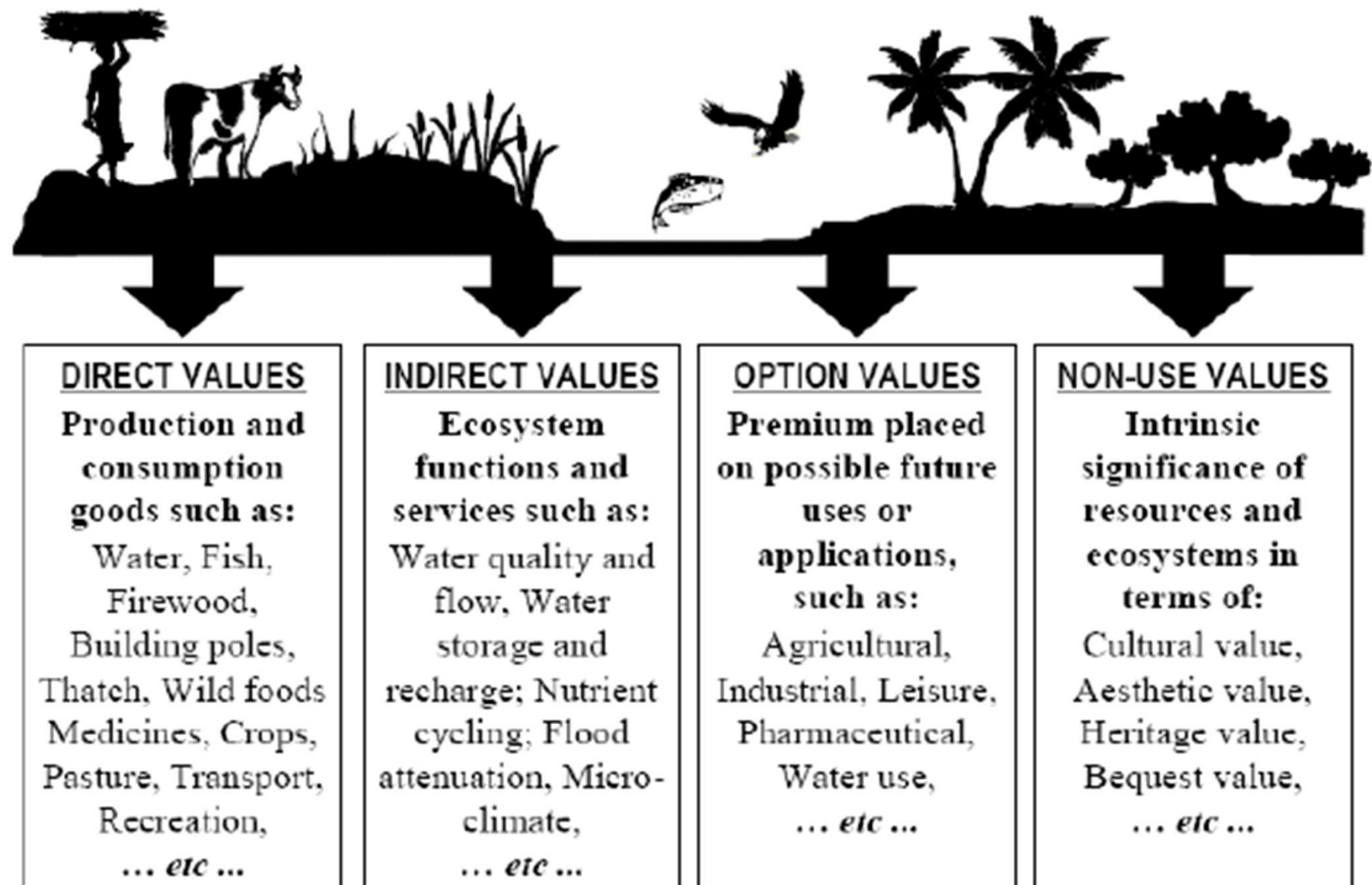


Figure 2: The total economic value of ecosystems (source: Emerton, 2005)



Scoping: Identification and Selection of Ecosystem Services to be assessed

- In the Guidance Document, there are tables for marine and freshwater ecosystems, listing the ES that are in the literature normally contributed to the different ecosystems.
- Hence: a rather straightforward selection process.
- But: you may want to exclude some ecosystems or ES, depending on data quality/situation, policy appraisal context, special interests...

→ Should any ES be prioritized?

→ Should any ES be excluded?

In the Guidance Document, there are five sub-steps to assist you in this process.





Scoping: Identification and Selection of Ecosystem Services to be assessed (freshwater)

Type of Ecosystem Service (TEEB)	Ecosystem Service	Category (TEV): (direct/indirect; use value/non-use value)	Provided by which ecosystems (MAES)
Provisioning Services	Food	Direct Use	Rivers, lakes, other inland wetlands.
	-Fish		
	-Cultured Products/Aquaculture		
	Other Food Products		
	Genetic Resources	Direct Use	Rivers, lakes, other inland wetlands.
	Medicinal Resources	Direct Use	Rivers, lakes, other inland wetlands.
	Fiber, timber, fuel	Direct Use	Other inland wetlands.
	Water (drinking, irrigation, cooling)	Direct Use	Rivers, lakes.



Scoping: Identification and Selection of 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;



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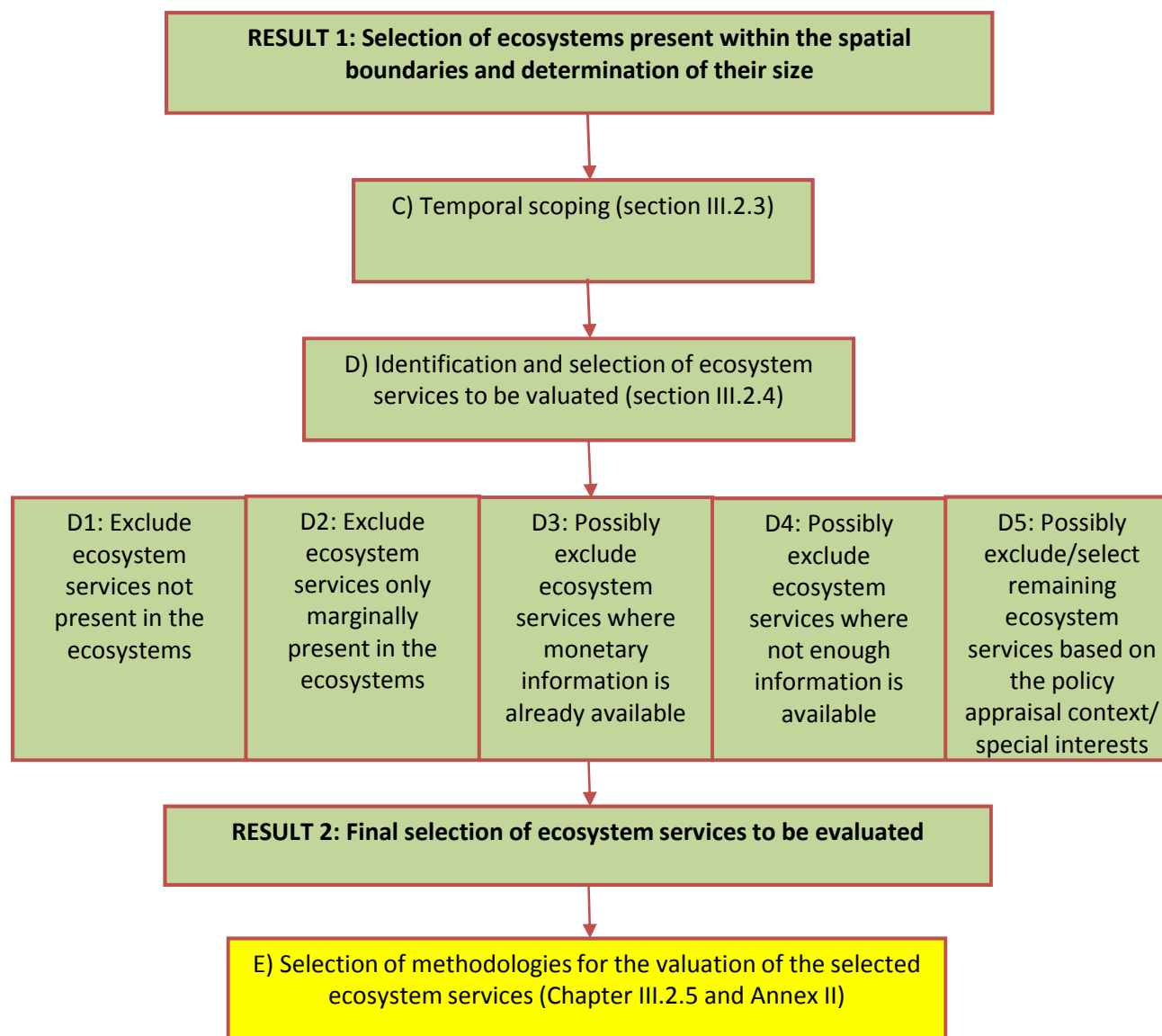
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Scoping: Identification and Selection of Ecosystem Services to be assessed

- **RESULT:** fully filled list of ecosystems, their size, and the ES selected in the “ Checklist for Tier 2” (in tables C1/C2).



Overview of the Tier 2 EV approach





Selection of methodologies for the valuation of the selected ecosystem services

- Final Step: Which ES to evaluate by which methodology?
- Will be discussed in the next session.





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Practical Exercise: Bakul and the Checklist





Practical Exercise: Bakul and the Checklist

- We will work in small groups with the Handouts “Checklist Tier 2”, “Session 3” and the information on Bakul provided (Handout “Introduction to Bakul Country”).
- **Step 1: What could the policy appraisal context in Bakul be?**
→ We could concentrate on a “hotspot”, or make up a large infrastructure project...
- **Step 2: Any spatial boundaries needed for this?**
- **Step 3: Selection of ecosystems (checklist table C1/C2).**
→ Should we prioritize? Should we exclude any?
- **Step 4: Determination of the size of the ecosystems selected (checklist table C1/C2).**





Practical Exercise: Bakul and the Checklist

- **Step 5: Temporal scoping – discounting needed?**
 - **Step 6: Selection of ES (checklist table C1/C2).**
- Should we prioritize? Should we exclude any?
- Exclude ecosystem services not present in the ecosystems.
 - Exclude ecosystem services only marginally present in the ecosystems.
 - Possibly exclude ecosystem services where monetary information is already available.
 - Possibly exclude ecosystem services for which not enough information is available.
- Possibly exclude/select remaining ecosystem services based on the policy appraisal context/ special interests.





Practical Exercise: Bakul and the Checklist

Discussion of the checklist result in the plenary:

- 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!

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