

OPTION, INSURANCE AND BEQUEST VALUES IN ECOSYSTEM ACCOUNTING

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Discussion topic

- Discussion on the monetary valuation of ecosystems can readily incorporate discussion of option, insurance and bequest values.
- It is less clear exactly how these values can be linked to the ecosystem accounting approach that focuses on valuation of individual ecosystem services.
- This discussion will consider possible ways forward including links to the role of biodiversity and concepts of resilience and capacity.

Option & Bequest Values

- **Option Value:** Elements of biodiversity which may not provide ecosystem services at present could be needed to provide valuable services in the future.
 - For example: A currently rare fish species might greatly increase in abundance and replace a commercial species impacted by climate change (uncertainty over future biodiversity benefits)
 - For example: Conservation of ecosystems can maintain generic material with significant commercial value (e.g., as medicines). If these ecosystems are lost so are these options (irreversibility of biodiversity loss)
- **Bequest value:** Preferences for maintaining options for future generations to enjoy ecosystem services
 - For example, maintaining healthy populations of iconic species for future generations to experience
- Some typologies treat option value as an ecosystem service

IPBES	CICES Final Ecosystem Service
Maintenance of future options (Natures Contribution to People)	Characteristics or features of living systems that have an option or bequest value (cultural service)

Insurance Values

- A diversity of organisms (e.g. multiple species) performing given *functions* within an ecosystem boosts the capacity of that system to maintain functionality in the face of environmental change
 - Different species may contribute to particular ecosystem functions in similar ways
 - Yet different species respond to environmental changes or disturbances differently.
 - In this way, they may be substituted for one another as conditions change.
- The ability of ecosystems to tolerate shocks and disturbance while maintaining the same level of functioning is often referred to as **ecosystem resilience**
- This resilience of ecosystems to function and deliver ecosystem services when stressed or shocked is desirable and has an **insurance value**
- Thus, resilience links to “*the **capacity** of the ecosystem asset to continue to generate ecosystem services into the future*” (SEEA EEA 2012), particularly in the face of uncertain environmental change

Challenges

- These forward-looking perspectives on biodiversity with respect to the capacity of ecosystems, in terms of resilience and options for services supply, are often missing from ecosystem services assessment
 - Indicators of the overall biological diversity present within an ecosystem are often used as proxies for option or insurance values (e.g., IPBES Selected indicators for 'Maintenance of Future Options' are: Species' survival probability & Phylogenetic diversity)
- Part of this stems from the focus on final ecosystem services and avoiding double counting in ecosystem service accounts
 - For example, when using conservation expenditure as a lower bound for different ecosystem service options
- Part stems from the difficulties in measuring option, bequest and insurance values
- Yet the capacity of ecosystems to deliver services into the future should be a fundamental concern when accounting for the value of ecosystems

Questions:

- How should the link between individual ecosystem services and the maintenance of options for supplying ecosystem services in the future be considered?
- What is the role of option, insurance and bequest values in valuing individual ecosystem services and assets?