Monetary Accounts in the SEEA Experimental Ecosystem Accounting

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Ecosystem services and the SNA

Market ecosystem services—those explicitly in the SNA because there are transactions (most of the provisioning services)

Non-market ecosystem services— not explicitly identified in the SNA because of 'missing markets', but may be implicitly included in the value of market goods and services (regulating services)

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Concepts of value

SNA: based on transactions prices—observed or imputed—not economic welfare

Note: some ecosystem services generate only 'consumer surplus' and, thus, are outside the scope of the accounts, e.g, value of clean air to health or some aspects of cultural services

Environmental Economics: economic welfare in a cost-benefit analysis context, not market transactions

→Most of the techniques for non-market valuation of the environment measure welfare

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Approaches to valuation for non-market ES (regulating services)

- Market-based 'revealed preference'—production function approaches, simulated exchange value
- Hypothetical 'stated preference' – intended to measure welfare
- New markets for ecosystem services—observed transactions, economic value?
- Replacement cost approach, cost of treatment
- Benefits transfer—critical for scaling up

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Aggregation challenges

Can values of individual ES simply be summed up to derive the value of the ecosystem as if they are separable?

Values are often highly site-specific, so data requirements can be very high. Can values for one ecosystem be applied across others?

Asset valuation: estimating the flow and value of ES over time is highly complex and uncertain

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Uncertainties affecting valuation

Physical measurement

- Information about flow of regulating services not systematically collected, ability to model varies considerably across ES
- Dynamics of ecosystems and changes over time not well understood—thresholds, irreversibilities, sudden extreme events

Valuation

- Estimating demand is difficult, also highly site specific
- Uncertainty regarding future prices, values

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Where do we go from here?

Engage the broader scientific community to test out different approaches

- Priority setting:
  - Start with ecosystems that are relatively well understood—e.g., watersheds, wetlands
  - Don't try to cover everything--start with a few critical, priority ES where there is relatively greater certainty, e.g., carbon storage, hydrological flows
  - Need to demonstrate the value of the accounting approach vs CBA or other assessment
- Work with 'ecological production function' approach
- Asset valuation: scenario approach

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