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Summary of Discussion paper 5.4: Issues and options in accounting for ecosystem degradation and enhancement

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Context and approach



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Accounting for degradation

- Long history of considering the capital cost of using up the environment
 - > Adjusted GDP / Beyond GDP
 - > Wealth accounting and genuine savings
 - > SEEA 1993
- Capital costs bundled within consideration of
 - > Degradation and depletion
 - > Ecological debts and liabilities
 - > Restoration costs and damage costs
 - > SNA balance sheets including other changes in volume

Approach to the paper

- Bring together relevant materials from the SEEA and the SNA:
limited discussion to date
- Framing of degradation from an accounting rather than economic perspective
- Consider:
 - > The link to capacity and condition
 - > Accounting for enhancements
 - > Accounting for liabilities
- Integration with the SNA
 - > Accounting boundaries
 - > Ownership and allocation
 - > SNA examples: Treatment of public goods and assets
 - > Sequence of accounts



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Key findings



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Defining degradation

- Five options in terms of choice of term
 - i. Depletion for natural resources; Degradation for ecosystems
 - ii. Depletion for non-renewable; Degradation for renewable
 - iii. Depletion for provision services; Degradation for other services
 - iv. Only one term either depletion or degradation
 - v. Only one term for accounting e.g. consumption of natural capital

Scope of degradation

- SEEA EEA definition is not precise but relates to the decline in an ecosystem asset's condition due to economic and human activity and the changing flow of ecosystem services.
 - > Question 1: Can the scope of economic and human activity be defined in terms of influence on ecosystem condition?
 - > Question 2: Can the combinations of condition change and ES changes be reconciled with a definition?

		Rise in expected ES flows	Fall in expected ES flows
Decline in ecosystem condition	Due to human activity	Degradation?	Degradation
	Due to natural influences	Appearance?	Catastrophic loss, Disappearance
Rise in ecosystem condition	Due to human activity	Enhancement	Enhancement?
	Due to natural influences	Appearance	Disappearance?
No change in ecosystem condition		Appearance?	Obsolesence?

Specific treatments in accounting

- Special cases that will need discussion
 - > The treatment of ecosystem conversions when, over an accounting period (i.e. between opening and closing balance sheet positions), a given spatial area changes ecosystem type
 - Could consider marginal and non-marginal changes
 - > The treatment of delayed impacts of human activity on ecosystem condition
 - > The treatment of remote ecosystem assets, e.g. intermediate ecosystem services

Linking degradation and capacity

- Consider the potential to see degradation as the decline in ecosystem capacity

$$Capacity(EA_i) = \sum_{j=1}^n ES_j^{sust} = f(\text{condition}(t)|\text{regime}(t))$$

- Three advantages of taking this route:
 - > Estimating V_{cap} (based on future sustainable flows) may be more straightforward than V_{act} (based on future expected flows)
 - > Direct link to condition
 - > Closer identification with notion of renewability

Accounting for ecosystem enhancement

- SEEA EEA 4.36: “Ecosystem enhancement is the increase and/or improvement in an ecosystem asset that is due to economic and other human activity.”
- Four cases described for increases in ecosystem asset values
 - > Change in asset prices only (Proposal: Revaluation)
 - > Due to natural changes (Proposal: either part of “net increment” or natural regeneration depending on context)
 - > Due to human activity (Options: either cost of activity or change in NPV)
 - > Only change in future ES (Proposal: Appearance of asset)
- Consider link to ecosystem capacity as for degradation

Recording ecosystem related liabilities

- Four cases described
 - > Unpaid ecological costs
 - > Liabilities in corporate NCA
 - > Recognising liabilities under Australian accounting standards
 - > Liabilities in capital (economic) accounting
- Key points
 - > Determining role of social preferences, policy and legal settings
 - > Criteria of expected cash outlays / loss of cash income
 - > Boundary between assets and liabilities in accounting
 - Consider the distinction between the value of a dwelling (incl land) and an associated mortgage

Determining accounting boundaries

- Boundaries are the cornerstone of accounting systems
- For national accounting focus is on production and asset boundary: establishes the scope of benefits recorded in the system
- Paper notes key criteria for production boundary concerning the feasibility of measurement and overall usefulness of accounts for analysis
 - > Within general principles the boundary is a choice
 - > Recognise the potential for imputations
- For assets key criteria is control and management of the resources: economic ownership
- Challenge is to work through the link between ownership and associated benefits

Allocating degradation in the accounts

- Various options have been proposed revolving around
 - > A new ecosystem “sector” (Model A)
 - > Ecosystems as assets owned by current types of economic units (business, government, households) (Model B)
- A sequence of accounts is possible however choices on ownership will be critical to recommended treatments
- Issue may revolve around narrative to be told from the accounts
 - > Consider costs borne and costs caused (polluter pays) perspectives
 - > Standard accounting allocates capital costs to economic owner, i.e. using a costs borne perspective
 - > Redistributions of costs across sectors are possible
- Using SNA based analogies will be important: e.g. wrt natural resources and public assets/infrastructure



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Conclusions



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Key issues

- Paper identifies 10 key issues
- Top 3
 - > Scope of degradation with respect to human activity
 - > Linking condition, capacity and future flows of ecosystem services
 - > Approaches to ecosystem ownership, benefits and allocation of degradation
- Challenge is to establish a clear and measurable accounting approach that can be the basis for supporting policy discussion recognising that improvements and refinements will continue to occur



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Thank you



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