Session 2: An Accounting Structure for Ecosystems

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Papers

- "Towards an integrated structure for SEEA ecosystem stock and flow accounts"
  - Vardon, Eigenraam, McDonald, Mount & Cadogan-Cowper
- "Issue paper on an experimental framework for simplified ecosystem capital accounts"
  - Weber

Overview

- Definition and objective of an accounting structure
- Areas of general agreement
- What is the starting point?
  - Two characterisations of ecosystems in a national accounts framework
- Other issues

Objective of Accounting Structure

- Organise data comprehensively with given boundaries
- Systematically reflect changes over time

  - Must provide a relationship between stocks and flows that permits all stocks and flows of interest to be recorded
  - Do not need to imply judgement on whether a particular state or type of flow is good or bad
  - Generally all information will be needed to make an assessment of future trends (i.e. judgement is applied in the interpretation of the information)
  - Choice of scope and relationship can impact on the way in which information is considered

Areas of Agreement

- General objective of integrating ecosystems into the general economic model contained in the SNA.
- Accounting structure to cover both ecosystem flows to the economy/humanity and changes in ecosystem capacity
  - Production account / supply and use table
  - Asset account
  - Sequence of accounts (link to income)
- Ecosystems can be proxied using land cover related areas (units)

Starting Point: Model A

- Ecosystems as fixed assets providing capital services to economic units
  - Ecosystem services as output of a production function using traditional fixed assets, labour and ecosystems
  - Ecosystems effectively "owned" by the economy – or by government on behalf of society
  - The ecosystem asset can be degraded or restored (as per depreciation and investment) and there might be catastrophic loss
  - Concept of value embedded in the future stream of services

Model A: Implications

- Individual assets embedded within ecosystems (timber resources, fish stocks, etc) – all becomes one asset within a given spatial area
- Lack of clarity in how services delivered to multiple users at the same time
- Dealing with "remote" ecosystems – what is the production function
- Ignores supporting services – thus how to recognise flows relating to soil formation and biodiversity, for example
- Not a perspective from an ecosystem standpoint

Starting Point: Model B

- Ecosystem as an institutional and producing unit
  - Perspective from the standpoint of ecosystems
  - Ecosystem operates using all individual environmental assets and other environmental factors to generate ecosystem services (akin to a corporation)
  - Ecosystem effectively sells outputs of ecosystem benefits to economic units for their use as inputs to production or for final consumption (multiple users)
  - Account for supporting ecosystem services (own-account production) and trade in ecosystem services and link to notions of ecosystem structure, functions and processes

Model B: Implications

- No individual environmental assets within the balance sheet of traditional economic units – instead on the balance sheet of ecosystems
- Point of recognition of ecosystem services less clear
  - In Model A effectively vertical integration so point of recognition less important
  - In Model B may imply no human involvement in the production of ecosystem services (focus on the growing of the trees rather than the timber produced)
- Different notion of an asset account compared to SEEA Volume 1 and Model B.

Model Requirements

- Flows to the economy must be considered independently of changes in assets
  - A flow of ecosystem services does not imply degradation
  - Nor do lower (or higher) flows of ecosystem services imply degradation (or restoration)
- Must recognise that ecosystems can renew or regenerate themselves without human intervention

Other issues

- Ecosystem services
  - Or “goods and services”; Or “benefits”; Or “contributions”
- Treatment of sub-soil assets
- Importance of distinction between cultivated and natural
  - Are ecosystems produced?
- What are the accounting entries and the relevant aggregates
  - Degradation
  - Accessible resources
- Links to EPEA