What is an ecosystem account?

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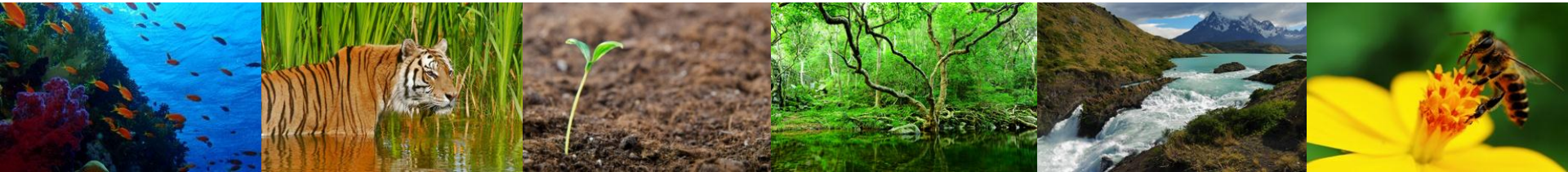

Overview of presentation

- Definition of ecosystem accounting and ecosystems
- Tables in SEEA - Experimental Ecosystem Accounting
- Overlaps of ecosystem accounting with the SNA and SEEA Central Framework

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Definition of Ecosystem Accounting and Ecosystems

"Ecosystem accounting is a coherent and integrated approach to the assessment of the environment through the measurement of ecosystems, and measurement of the flows of services from ecosystems into economic and other human activity."
SEEA-Experimental Ecosystem Accounting

"Ecosystems are a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit."
Convention of Biological Diveristy (2003), Article 2, Use of Terms.

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Key Characteristic of Ecosystem Accounting

Spatially referenced data

Spatially nested data (i.e. can be spatially aggregated or disaggregated)

Areas may be divided into non-overlapping ecologically based areas (e.g. river basins or biomes) or administrative areas (e.g. states and provinces).

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Other Characteristics of Ecosystem Accounting

- Ecosystem services are identified in relation to the production boundary of the SNA/SEEA Central Framework
- Ecosystem assets are identified in relation to the asset boundary of the SNA and SEEA
- Physical and monetary information on ecosystems can be matched (but valuation is not necessary for an ecosystem account, there can just be physical measurers)
- Ecosystems (asset accounts), and in particular condition of ecosystems/assets, is related to supply of ecosystem services
- Explicit identification/separation of values currently hidden in SNA/SEEA

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12 Ecosystem Accounts are described

- Physical flows of ecosystem services
- Measures of ecosystem
- Expected ecosystem service flows
- Generation and use of ecosystem services
- Physical account for land cover
- Physical asset account for water resources
- Changes in ecosystem condition
- Carbon stock account
- Biodiversity account: species abundance
- Accounts for threatened species
- Stylised ecosystem accounts asset account entries
- Simplified sequence of accounts for ecosystem accounting

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Table of physical flows of ecosystem services

Table 2.2 Physical flows of ecosystem services for an EAU

	Type of LCEU				
	Forest tree cover	Agricultural land*	Urban and associated developed areas	Open Wetlands	…
Type of ecosystem services					
Provisioning services	e.g. tonnes of timber	e.g. tonnes of wheat			
Regulating services	e.g. tonnes of CO_2 stored/released	e.g. tonnes of CO_2 stored/released	e.g. tonnes of CO_2 stored/released	e.g. tonnes of P absorbed	
Cultural services	e.g. number of visitors/hikers		e.g. hectares of parkland	e.g. hectares of duck habitat	

* Medium to large fields rainfed herbaceous cropland

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Table of ecosystem condition

Table 2.3 Measures of ecosystem condition and extent for an EAU at end of accounting period

	Ecosystem extent	**Characteristics of ecosystem condition**				
		Vegetation	Biodiversity	Soil	Water	Carbon
	Area (proportion of EAU)	Indicators (e.g. Leaf area index, biomass index)	Indicators (e.g. species richness, relative abundance)	Indicators (e.g. soil fertility, soil carbon, soil moisture)	Indicators (e.g. river flow, water quality, fish species)	Indicators (e.g. net carbon balance, primary productivity)
Type of LCEU						
Forest tree cover						
Agricultural land*						
Urban and associated developed areas						
Open wetlands						

* Medium to large fields rainfed herbaceous cropland

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Some areas of overlap between SNA, SEEA-CF and SEEA-EEA

- Provisioning services
- Land and ecosystem accounting
- Carbon, CO2 emissions and energy accounting
- Water accounting (water quality)
- Valuation
- Type and classification of statistics units (e.g. scaling up and down)
- SNA tourism satellite accounts (~cultural and recreation services)

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Bonus material follows

- Provisioning services
- Land and ecosystem accounting
- Carbon, CO2 emissions and energy accounting
- Water accounting (water quality)
- Valuation
- Type and classification of statistics units (e.g. scaling up and down)
- SNA tourism satellite accounts (~cultural and recreation services)

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Provisioning services

All (?) provisioning services are in the Central Framework. So:

- Provision of water = water supply use tables (physical and monetary)
- Provision of timber = timber supply use tables (physical and monetary)
- Provision of food = not specifically addressed in the Central Framework but would also be supply use tables (to be addressed in SEEA Agriculture?)

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Land and ecosystem accounting

The starting point for most ecosystem accounts are land cover maps. So

- Land cover accounts of Central Framework can provide a starting point ecosystem accounts
- Primary data sources for land cover accounts are also data sources for ecosystem accounts
- Land cover classification in Central Framework is high level.
- Soil, carbon and forest/timber associated with land are in Central Framework and can be indicators of condition of ecosystems

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Carbon, CO2 emissions and energy accounting

Carbon is in the SEEA EEA

CO2 emissions, energy SUT (physical and monetary) and subsoil energy assets are in the SEEA CF

CO2 emissions are a component of the carbon asset accounts (change in stocks)

Water accounting

SEEA-Water covers water quality (a component of ecosystem condition)

Water supply and use tables (monetary) = water provisioning service

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Valuation

Approaches to valuation in the SEEA CF and SEEA EEA both rely on exchange values

Scaling up (and down) values are likely to rely on similar data sources and methods

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Tourism satellite accounts

~ cultural and recreational services

Thank you!

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