System of Environmental Economic Accounting

Refresher on SEEA EA extent and services accounts and their role in the headline indicators of the GBF

SEEA webinar series: Implementation of the SEEA Ecosystem Accounting: Recent Country Experiences and the Pathway to Synergies with the Global Biodiversity Framework

20 May 2024

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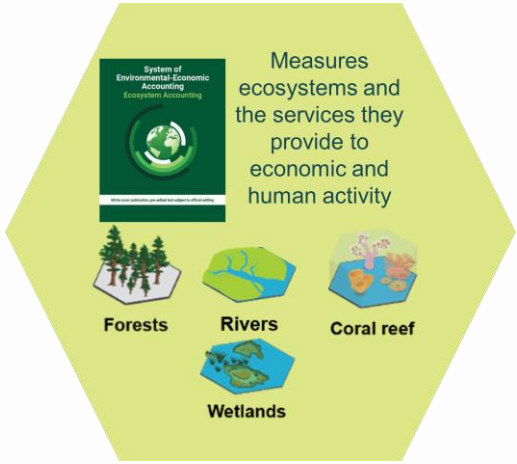
Outline

- Refresher on the SEEA and the GBF from the first webinar on Using the SEEA for Monitoring and Informing the Global Biodiversity Framework, where you can watch the video on:
  - Introduction to the SEEA Ecosystem Accounting framework (starting at 21:29)
  - Headline indicators of the GBF based on SEEA Ecosystem Accounting (starting at 43:49)
- In this webinar:
  - SEEA Ecosystem Accounting and the GBF indictors
  - Ecosystem extent accounts
  - Ecosystem services flow accounts

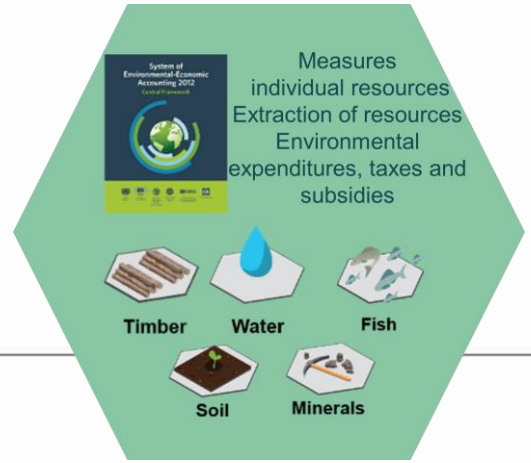
SEEA-related indicators in the GBF

Headline indicators were adopted to monitor each Goal and Target. Indicators related to the SEEA:

- Extent of natural ecosystems (Goal A)
- Services provided by ecosystems (Goal B and Target 11)
- Sustainable Management of Wild Species (Target 9)
- [Integrating Biodiversity in Decision-Making (Target 14)]

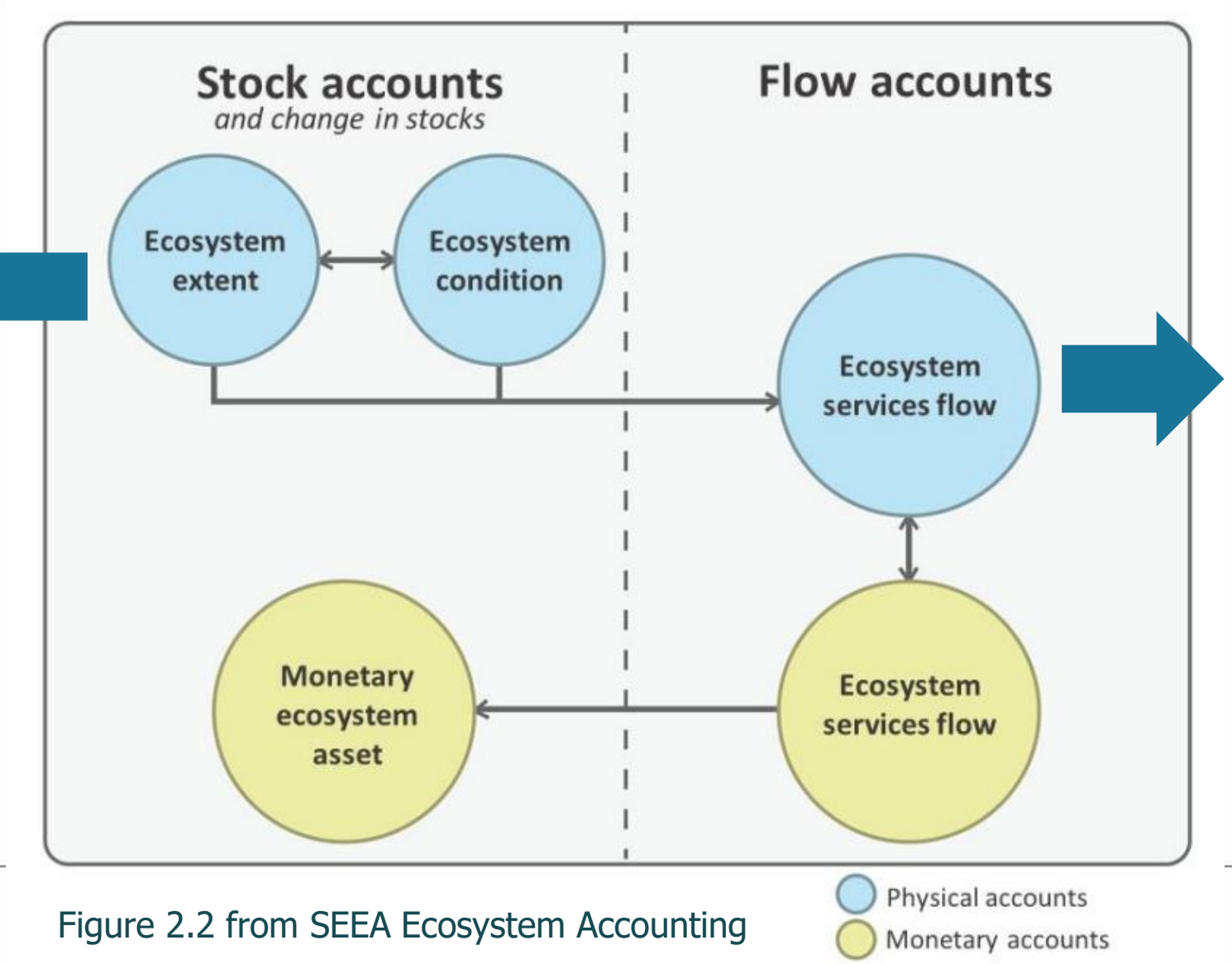


- Domestic public funding, and private funding on conservation and sustainable use of biodiversity and ecosystems (Goal D and Target 19)



SEEA Ecosystem Accounting – core accounts and the GBF

Ecosystem extent account provides the basis for **Indicator A.2 Extent of natural ecosystems**



Ecosystem services account (physical) provides the basis for **Indicator B.1 Services from ecosystems**

Figure 2.2 from SEEA Ecosystem Accounting

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Ecosystem extent accounts

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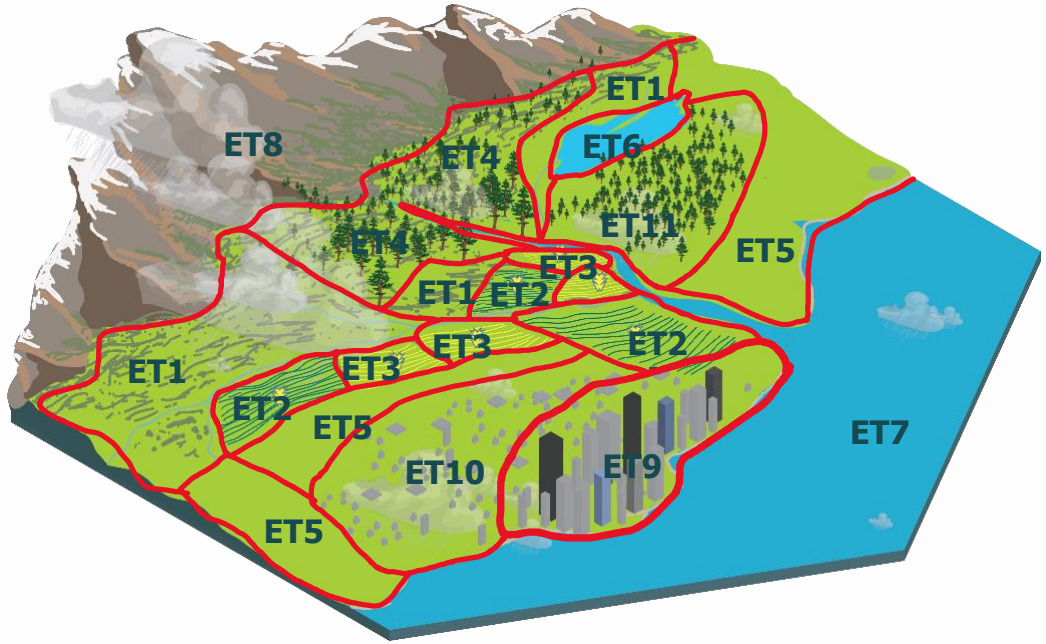
Ecosystem assets

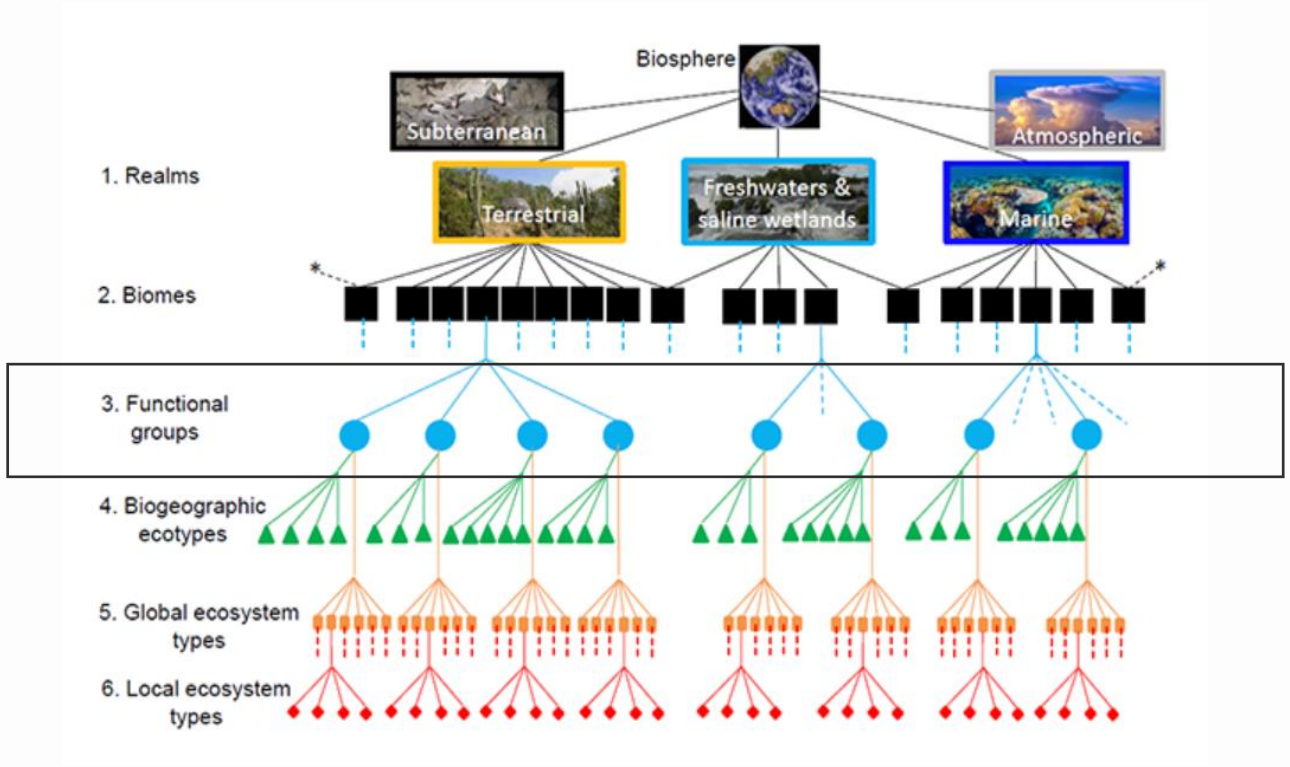
- **Ecosystem assets (EAs)** are contiguous spaces of a specific ecosystem type characterized by a distinct set of biotic and abiotic components and their interactions

- **Ecosystem assets** are classified by **ecosystem type (ET)**

- **IUCN Global Ecosystem Typology** is the SEEA Ecosystem Type reference classification
  - UN Statistical Commission endorsed it as an international statistical classifications, and recommended it be included in the international family of classifications



IUCN Global Ecosystem Typology



5 Realms (level 1)

25 Biomes (level 2)

110 Ecosystem functional groups (level 3)

National ecosystem classifications typically at level 5/6

Of the 110 ecosystem functional groups, 98 are natural and 12 are anthropogenic

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What is an ecosystem extent account?

- Tracks the area of different **ecosystem types** within an ecosystem accounting area (such as a country) for successive **accounting periods**
- In physical units – i.e., ha, km^2, etc.

Stylised example of an ecosystem extent account for one accounting period

Accounting entries	Ecosystem functional groups (examples)						Total
	T2.6 Temperate forests and woodlands	T4.5 Temperate subhumid grasslands	F2.3 Seasonal freshwater lakes	T7.1 Annual croplands	T7.4 Urban and industrial ecosystems	…	
Opening extent							
Additions to extent							
Reduction to extent							
Closing extent							

Values for opening and closing extent and change in extent can be used to derive a range of indicators and presented in a range of forms (e.g., summary tables, maps, graphs)

ET change matrix

The ET change matrix shows :

- the area of different ecosystem types at the beginning of the accounting period;
- **the increases and decreases in this area according to the ecosystem type it was converted from or to;**
- the area covered by different ecosystem types at the end of the accounting period.

Realm	Biome	Selected Ecosystem Functional Group (EFG)		Selected ecosystem types (ba						
				Terrestrial						
				T1 Tropical-subtropical forests				T2 Temperate-boreal f and woodlands		
				Tropical-subtropical lowland rainforests	Tropical-subtropical dry forests and scrubs	Tropical-subtropical montane rainforests	Tropical heath forests	Boreal and temperate high montane forests and woodlands	Deciduous temperate forests	...
				T1.1	T1.2	T1.3	T1.4	T2.1	T2.2	...
obal Ecosystem Typology)	T1 Tropical-subtropical forests	Tropical-subtropical lowland rainforests	T1.1							
		Tropical-subtropical dry forests and scrubs	T1.2							
		Tropical-subtropical montane rainforests	T1.3							
		Tropical heath forests	T1.4							
strial	rate-boreal woodlands	Boreal and temperate high montane forests and woodlands	T2.1							
		Deciduous temperate forests	T2.2							

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Ecosystem services flow accounts

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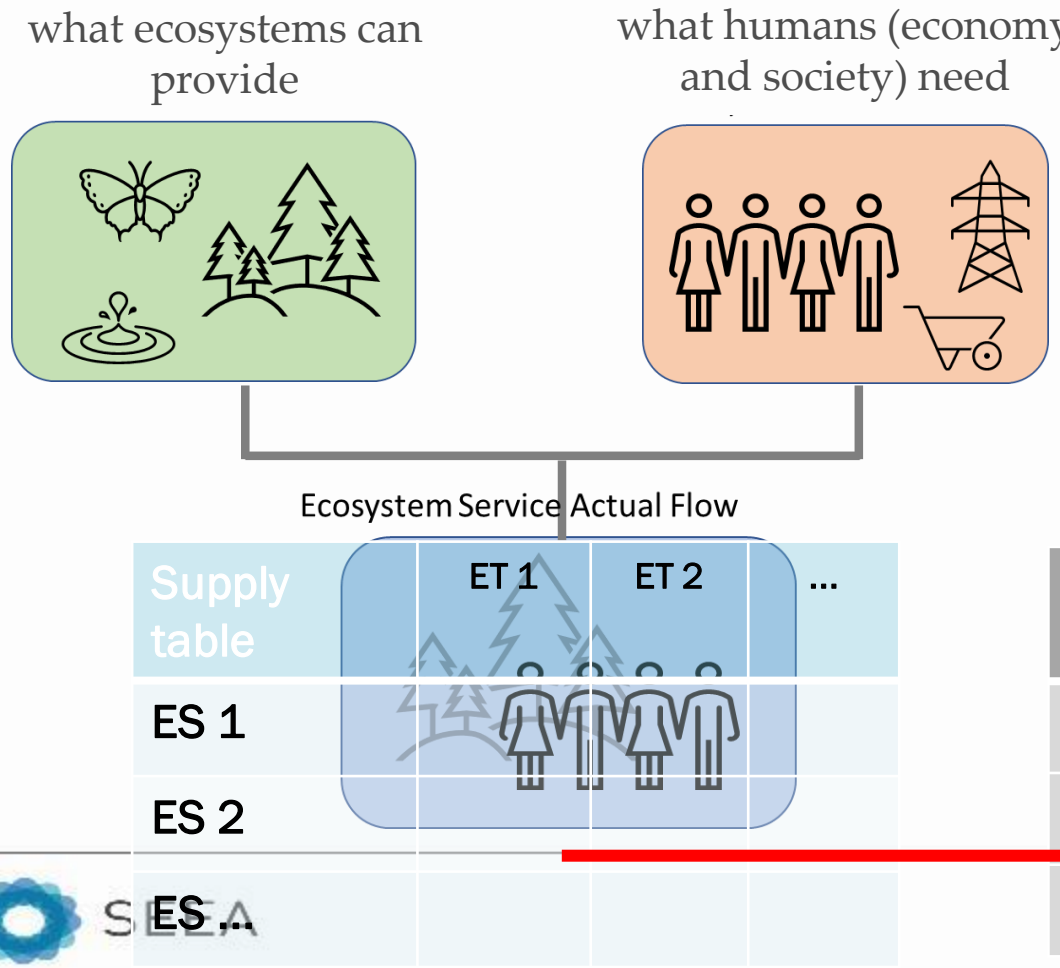
Ecosystem services flow account



- **Flows of ecosystem services** supplied by ecosystem assets and used by economic units (industries, households, government) during an accounting period
- **Alignment between supply and use** (i.e. supply needs to match use of a particular service)
- Both **physical and monetary units**

Ecosystem services

- SEEA EA includes a **reference list** of ecosystem services
- Final and intermediate ES

- Provisioning:
  - > Biomass
    - Grazed biomass
    - Livestock
    - Aquaculture
    - Wood
    - Wild fish + other
    - Wild animals, plants + other
  - > Genetic material
  - > Water supply
- Cultural:
  - > Recreation-related
  - > Visual amenity
  - > Education, scientific and research
  - > Spiritual, artistic and symbolic services
- Other ES
- Non-use

- Regulating and maintenance services
  - > Global climate regulation
  - > Rainfall pattern
  - > Local (micro and meso) climate regulation
  - > Air filtration
  - > Soil quality regulation
  - > Soil and sediment retention
  - > Solid waste remediation
  - > Water purification
  - > Water flow regulation
  - > Flood control
  - > Storm mitigation
  - > Noise attenuation
  - > Pollination
  - > Biological control
  - > Nursery population & habitat maintenance

Biophysical modelling of ecosystem services

- What is biophysical modelling?
  - > Quantitative estimation of biophysical phenomena or processes that are difficult to fully observe directly
  - > Biophysical models are very useful for understanding ecosystem service supply
- Why do we need biophysical modelling?
  - > Data needed for ecosystem accounts not usually captured in regular data sources
  - > Measuring ecosystem services directly is often difficult or costly to measure in situ
  - > Data may only be available for specific locations
- Many modelling techniques are available, including look-up tables, spatial interpolation, geostatistical models, dynamic systems, etc.
- Many platforms are available for modelling ecosystem services, including AIRES, InVEST, INCA/ESTIMAP, etc.

THANK YOU

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