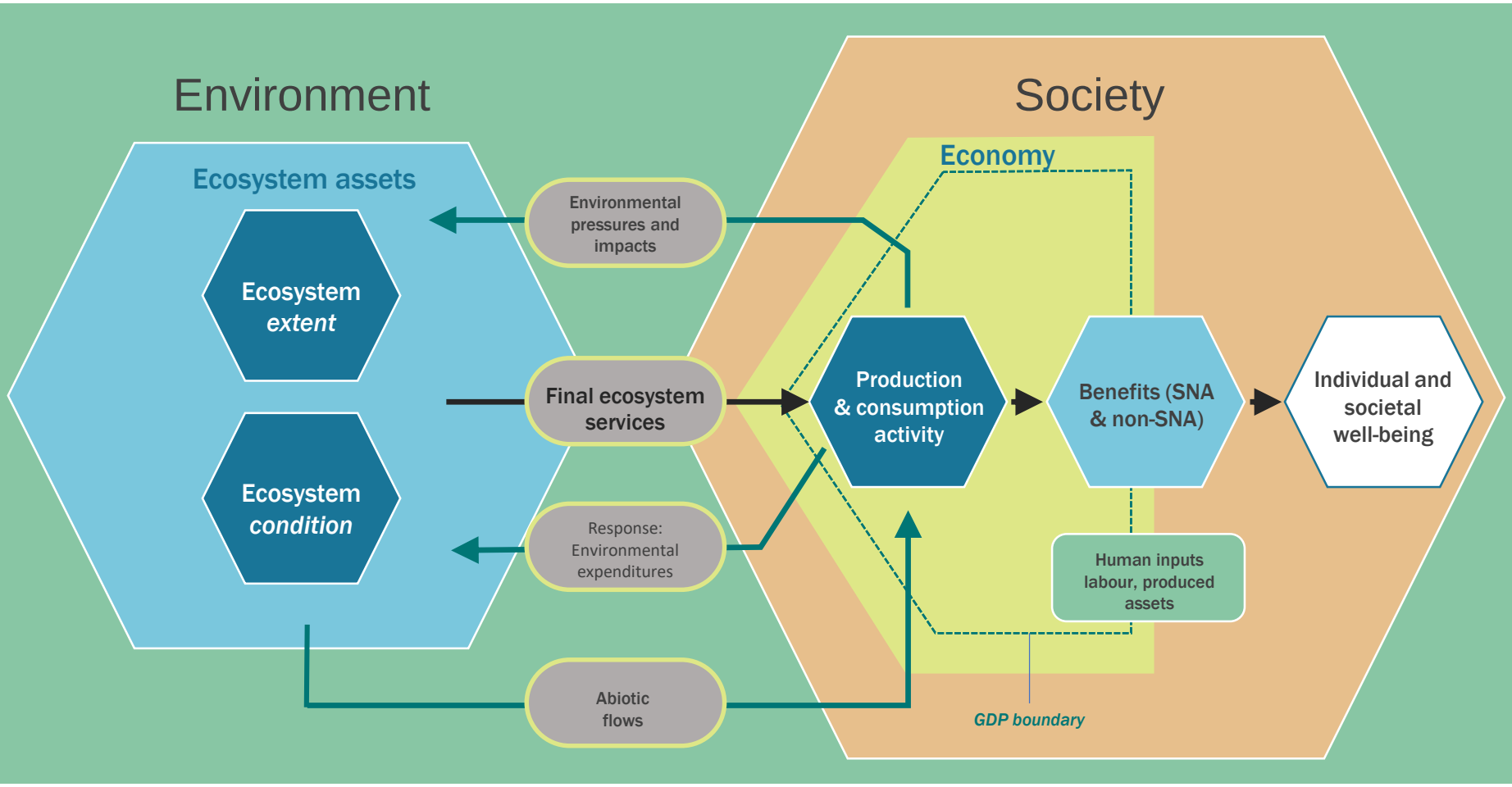
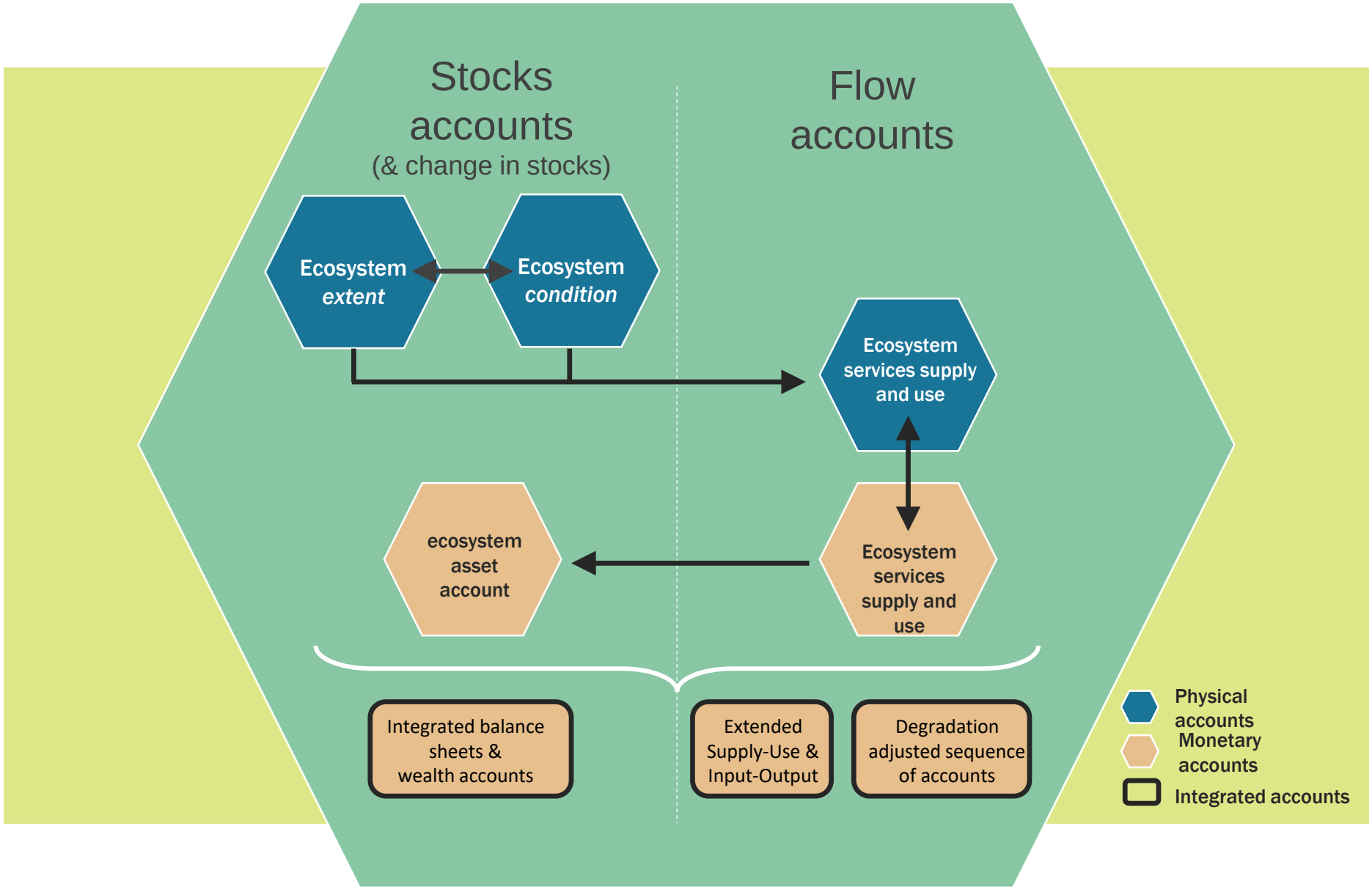
System of Environmental Economic Accounting

Aggregates and indicators from the SEEA EEA

United Nations Statistics Division

United Nations


Environment
Society
Economy
Ecosystem assets
Ecosystem extent
Ecosystem condition
Environmental pressures and impacts
Final ecosystem services
Response: Environmental expenditures
Abiotic flows
Production & consumption activity
Benefits (SNA & non-SNA)
Individual and societal well-being
Human inputs labour, produced assets
GDP boundary


Stocks accounts
(& change in stocks)
Flow accounts
Ecosystem extent
Ecosystem condition
Ecosystem services supply and use
ecosystem asset account
Ecosystem services supply and use
Integrated balance sheets & wealth accounts
Extended Supply-Use & Input-Output
Degradation adjusted sequence of accounts
Physical accounts
Monetary accounts
Integrated accounts

Potential key aggregates for extent and condition

Ecosystem extent

- (per ET) area changed (opening - reductions) [hectares and as % of opening]
- (per ET) turnover (additions + reductions) [hectares and as % of opening]

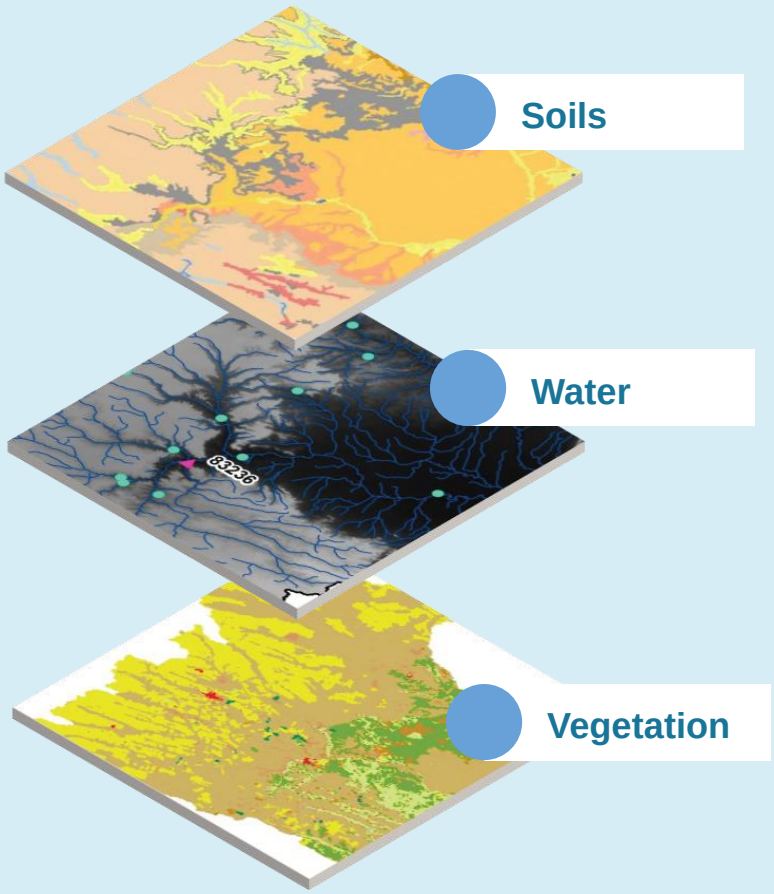
Ecosystem condition

- (across ETs) Overall ecosystem condition index [expressed as a number between 0 and 1]
- (per ET) Ecosystem condition index [expressed as a number between 0 and 1]
- (per ECT group) Condition [e.g. ecosystem fragmentation; species abundance]

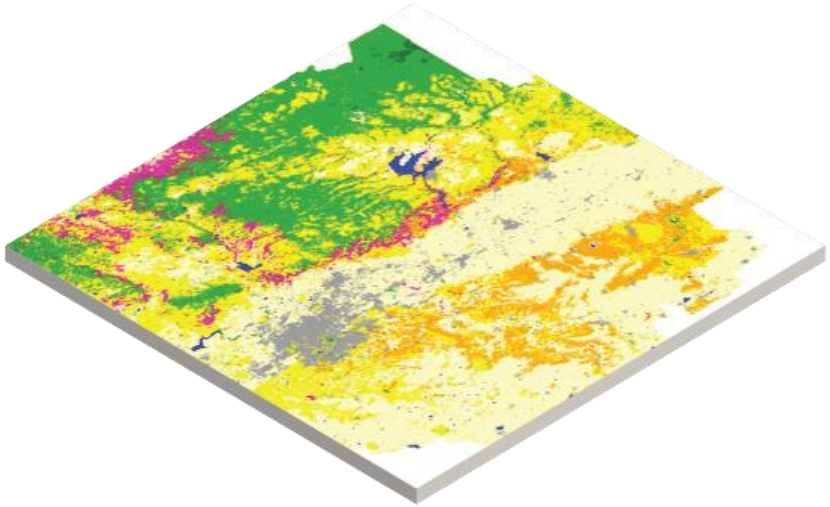
Table 5.1: The SEEA Ecosystem Condition Typology (SEEA ECT)

	ECT groups	ECT classes
Ecosystem condition	Abiotic ecosystem characteristics	1. Physical state characteristics (including soil structure, water availability)
		2. Chemical state characteristics (including soil nutrient levels, water quality, air pollutant concentrations)
	Biotic ecosystem characteristics	3. Compositional state characteristics (including species-based indicators)
		4. Structural state characteristics (including vegetation, biomass, food chains)
		5. Functional state characteristics (including ecosystem processes, disturbance regimes)
	Landscape level characteristics	6. Landscape and seascape characteristics (including landscape diversity, connectivity, fragmentation, embedded semi-natural elements in farmland)

Extent Account



Layers



	Grassland	Forest Areas	Herbaceous Crops
Opening Extent	1,332	645	420
Additions	15	0	64
Reduction	37	42	0
Closing Extent	1,110	603	484
Net Change in Extent	-22	-42	64
Turnover	52	42	64

Example: Summary of the condition of UK woodlands 2020

Table 1: Summary of the condition of UK woodlands

Type	Indicator	Condition	Long term trend	Short term trend
Biodiversity	Butterfly index UK	Long term decline 1990 to 2018	Declining	Little or no change
	Woodland bird index UK	Decrease of 29% between 1970 to 2018	Declining	Declining
	Tree age structure GB	NFI first assessment 42% area unfavourable		
	Regeneration GB	NFI first assessment 0% area unfavourable		
	Veteran trees GB	NFI first assessment 99% area unfavourable		
	Tree health GB	NFI first assessment 85% area favourable		
	Deadwood GB	NFI first assessment 77% area unfavourable		
	Herbivores & grazing GB	NFI first assessment 49% area favourable		
	Invasive plant species GB	NFI first assessment 92% area favourable		
Certified woodlands	Area FSC certified woodlands UK	Improvement 32% from 2001 to 2019	Increasing	Increasing
Space for people	Access to woodlands UK	Improvement 0.1% from 2012 to 2016	Increasing	Increasing
Protected sites	Scotland SSSIs/SACs	51% favourable in 2018		
	England SSSIs	37% favourable 2018/19		
Pressure indicators	Wildfires UK	2019-20 29,396 hectares affected (EFFIS data)	Increasing	Increasing

Source: Department for Environment, Food and Rural Affairs; British Trust for Ornithology; Royal Society for the Protection of Birds; Joint Nature Conservation Committee; Butterfly Conservation Society; Centre for Ecology and Hydrology; Forest Research; Woodland Trust; and European Forest Fire Information System

Potential key aggregates for ecosystem services

- The amount of carbon stored in an Ecosystem Accounting Area [tons]
- The amount of biomass generated in an Ecosystem Accounting Area [tons]
- The number of visits (nature-based recreation)

Table 12. Total carbon (CO_2-eq) stocks as vegetation in Sumatera and Kalimantan peatlands 1990–2015
Tabel 12. *Total cadangan karbon (CO_2-eq) sebagai vegetasi di lahan gambut Sumatera dan Kalimantan tahun 1990–2015*

Indicator *Indikator*	**Peatland in** *Rawa*	**Mt CO_2**				
		1990	1995/1996	2005/2006	2009/2010	2014/2015
Carbon stock (Vegetation) *Stok karbon (Vegetasi)*	Sumatera	2707	2148	1980	1819	1770
	Kalimantan	2107	1759	1702	1628	1770

Source: The World Bank and BPS. 2019. [Pilot Ecosystem Account for Indonesian Peatland Sumatra and Kalimantan Island]: Washington DC: World Bank

Apex indicator for monetary ecosystem services

- **Apex indicators:** Gross Ecosystem Product, the economic value added of all ES generated in an EAA [in local currency]
  - > The consistency of the SEEA facilitates aggregation for communication and awareness raising.
  - > The Gross Ecosystem Product indicator in China provides an example for ecosystem services contributions to society.
- Expressed as % of GDP of a country: Country examples
  - > Netherlands (2020 publication) 1.9% of GDP
    - *Source: https://www.cbs.nl/en-gb/background/2020/04/monetary-valuation-of-ecosystem-services-for-the-netherlands*
  - > UK (2019 published figures): 0.9 % of GDP
    - *Source:https://www.ons.gov.uk/economy/environmentalaccounts/datasets/uknaturalcapitalaccountssupplementaryinformation*
  - > South Africa (2017 publication): 7% of GDP
    - *Source: Turpie et al. (2017): Mapping and valuation of South Africa's ecosystem services: A local perspective*

Potential aggregates and indicators for monetary ecosystem assets

- Monetary economic asset value of [local currency, absolute, or relative as % of natural capital in a countries overall wealth]
- Cost of degradation [local currency, absolute, or expressed as % of value natural capital or as % of GDP of a country]

Table 17: Woodland ecosystem asset values, £ million (2018 prices), UK, 2017

Service	2017
Timber	7,306
Wood fuel	1,656
Carbon Sequestration	54,620
Pollution removal	31,673
Urban woodland cooling	4,608
Flood prevention GB	6,513
Noise reduction	833
Recreation	22,534
Total	129,743

Source: Office for National Statistics – Woodland natural capital accounts

Dashboards and combined presentation

- **Dashboards:** The SEEA allows coherent indicators across ecosystems, economic sectors and beneficiaries to be derived to support more holistic decision-making.

- **Combined presentation**
  - > Information on environmental activities
  - > Information on environmental pressures
  - > Linking ecosystems and ecosystem services to socio-economic activity
  - > Treatment of payments for ecosystem services

THANK YOU

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