Virtual Technical Expert Forum on Ecosystem Accounting

Day 2: 24 June 2020

Breakout group on Aggregation

Our focus is on aggregation related to the **ecosystem condition account**

- Using Chapter 5 as a starting point
  - Annex 5.6 deals with aggregation
- Purpose of aggregation is to generate summarized information from a high number of data points

Types of aggregation distinguished in Chapter 5

- Spatial aggregation – effectively three steps
  - From Basic Spatial Unit (BSU) and/or Ecosystem Asset (EA) to Ecosystem Type (ET)
  - From Ecosystem Type to Ecosystem Accounting Area (EAA)
  - From smaller EAA nested within larger EAA
- Thematic aggregation
  - Across variables or indicators
  - Some ambiguity in Chapter 5 about whether it's appropriate to aggregate variables before they've been converted to indicators
- Temporal aggregation
  - Across years
  - Follows the same principles and methods used in System of National Accounts (SNA)

Possible aggregation methods

Mentioned in Chapter 5:

- Area-weighted arithmetic mean (for spatial aggregation)
  - Emphasis on this as the default method
- Weighted arithmetic mean (for thematic aggregation)
  - Suggested to use equal weights unless clear rationale to do otherwise
- Geometric mean
- One-out-all-out (e.g. single declining indicator → overall decline)

Additional methods mentioned yesterday:

- Bayesian network modelling
- Expert-based scoring
- Median score
- …

Other key points from Chapter 5

- Not a good idea to aggregate across different realms (terrestrial, freshwater, marine)
- Not a good idea to aggregate across natural/semi-natural ecosystems and anthropogenic ecosystems

Suggested approach to our discussion

- Several aggregation **steps** in a typical condition account
- Several aggregation **methods** available

→Different methods might be appropriate for different steps

→Not useful to talk about aggregation in general / in abstract

This gives us a possible matrix

	Aggregation steps		
Aggregation methods	Within BSU/EA (temporal aggregation of V or I to SI and/or ECI)	Across EA within one ET (spatial aggregation of I, SI and/or ECI)	Across ET within EAA (spatial aggregation of I, SI and/or ECI)
Mean (equal weighting)			
Mean (area weighted)			
Geometric mean			
One out all out			
Bayesian network			
Expert rating/scoring			
…			

Acronym alert!

V = variable

I = indicator

SI = sub-index

ECI = ecosystem condition index

Key points of feedback:

1) Indicator selection & aggregation to be underpinned by clear conceptual framework (=> learn from others, e.g. consumer price index v PPP & OECD/Eurostat handbook on composite indicators, IUCN conceptual model per ecosystem type)
2) Need to understand the nature of the data that underpin your condition measurements (uncertainty, spatial scale, representativeness etc) – can they be aggregated ?
3) Ecological thresholds need to be considered, use a system of red flags when these are surpassed in addition to an index ?
4) Complement overall index with selection of condition variables or sub-index linking to critical ecosystem service flows (thus underpinning ES capacity)?
5) Important to achieve coherence across scales but consider that 'no-one-size-fits-all' (i.e. take account of national and local conditions and priorities)