DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS
STATISTICS DIVISION
UNITED NATIONS

System of Environmental Economic Accounting

System of Environmental-Economic Accounting 2012 – Experimental Ecosystem Accounting Revision

First Global Consultation on:

Chapter 3: Spatial units for Ecosystem Accounting

Chapter 4: Accounting for Ecosystem Extent

Chapter 5: Accounting for Ecosystem Condition

Comments Form

Deadline for responses: 30 April 2020
Send responses to: seea@un.org

Name:	Pekka Hurskainen1, Petteri Vihervaara1, Peter Kullberg1, Pasi Piela2, Sami Hautakangas2, Jukka Muukkonen2
Organization & country:	1 Finnish Environment Institute (SYKE), 2 Statistics Finland

The comment form has been designed to facilitate the analysis of comments. There are nine guiding questions in the form, please respond to the questions in the indicated boxes below. To submit responses please save this document and send it as an attachment to the following e-mail address: seea@un.org.

All documents can be also found on the SEEA EEA Revision website at: https://seea.un.org/content/seea-experimental-ecosystem-accounting-revision

In case you have any questions or have issues with accessing the documents, please contact us at seea@un.org

Question 1: Do you have any comments on the definition and description of ecosystem assets and ecosystem accounting areas and the associated measurement boundaries and treatments?

Click here and start typing (The length of your response is not limited by this text box.)

The system described in chapter 3 seems to follow an approach of ecological diversity and environmental sustainability, taking special attention in ownership, where the link to SNA comes: *establishing the economic ownership of ecosystem assets and attributing benefits is required for the integration of ecosystem accounting data with economic accounts*. However, EA are independent from their links to national accounts. In Biome T7 (Intensive land use systems) economic well-being and people's attitudes are mentioned, which have an effect on ecosystems. Otherwise the social connections are not clear.

In the document, some recommendations on grid size are given: "*In general, grids ranging in size from, typically, 25 m x 25 m to 100 m x 100 m can be recommended as a good starting point for accounting purposes".* It is very difficult to give exact recommendation on grid sizes, as it depends on several factors including the character of ecosystem to be mapped, the geographical size of the country, resolution of the primary source data (e.g. MODIS 1 km pixels vs. Sentinel-2 10 m pixels). For the case of Finland, various grid sizes are used to produce national spatial data sets (20 x 20, 250 x 250 and 1000 x 1000 meters). However, it is currently not feasible to produce national-level accounts for Finland in these kinds of high resolution grids.

Currently there is a strong focus on developing spatial products with considerably high resolution. Our view is that it should be considered carefully whether achieving high spatial resolution is always reasonable priority. For example, it might be that spatially explicit data about some of the most important condition variables might not be available and might be replaced with something less relevant or reliable variable of which spatial data is available. For example, amount of dead wood in commercially managed forests is one of the most significant factors describing condition of forests in Finland. Information on amount of dead wood in forests in Finland is measured on several thousands of sample areas during the national forest inventories. This information can be used to derive very accurate estimates of condition at national or regional scale that are based on explicit field measurements. Nevertheless, currently there is no reliable method for extrapolating, modelling or remote sensing the dead wood amounts at small grids. Therefore this important piece of information could not be used if fine spatial resolution is required.

Question 2. Do you have any comments on the use of the IUCN Global Ecosystem Typology as the SEEA Ecosystem Type Reference Classification?

The use of the IUCN global ecosystem typology is supported by Finnish experts. Probably, the sub-global ecosystem type is the most relevant category on national level. Ecosystem functional group might be also important in particular for accounting regulating services if it could be downscaled to relevant national scale.

In addition, last year we examined the suitability of the map of ecosystem types (EUNIS) for national ecosystem extent accounting. In Finnish forest ecosystems, it is important to know the habitat type of the forest as it is important for many ecosystem services. In the EUNIS typology, forested peatlands (mires and bogs) and forests on mineral soil are not separated, and data on habitat types (herb-rich to barren) for forests is not in the typology. This information should be also considered in the IUCN Global Ecosystem typology (e.g. by allowing national modifications to the global typology).

Question 3. Do you have any comments on the recording of changes in ecosystem extent and ecosystem condition, including the recording of ecosystem conversions, as described in chapters 4 and 5?

Recording changes on global level of global ecosystem typology doesn't sound useful as such changes are not relevant on national scale. Also selection of reference conditions (5.25 and Annex 5.5) might be very challenging on (sub-)national scale. Sometimes subnational reference levels might be needed because for example the natural state in northern and southern parts of a country might be very different. This relates partially also to the "normativity" that was seen as a problematic approach for neutral statistics. Whether normativity was seen as problematic or essential part of any indicator system divided opinions among the experts.

Question 4. Do you have any comments on the three-stage approach to accounting for ecosystem condition, including the aggregation of condition variables and indicators?

Three-stage approach, i.e. variable-indicator-index, is difficult to evaluate without testing it with real world examples. Also possible impact of e.g. modelled opening value might be problematic (cf. reference values Annex 5.5).

Currently linear interpolation of condition between reference states and equal weighting of the variables is recommended. We would like to point out that from biodiversity perspective these assumptions are unlikely to hold and implication of selecting even the default options should be considered carefully.

Question 5. Do you have any comments on the description and application of the concept of reference condition and the use of both natural and anthropogenic reference conditions in accounting for ecosystem condition?

See comment on Q3.

Question 6. Do you have any comments on Ecosystem Condition Typology for organising characteristics, data and indicators about ecosystem condition?

Dividing characteristics into physical, chemical, compositional, structural, functional and landscape/seascape characters sounds reasonable, especially if they are at the same time supported by additional biodiversity accounts (cf. the sub-group on that theme). However, further discussion how e.g. functional indicators are defined across different ecosystem typologies/hierarchies would need more testing and practical examples how it might work. Options how remote sensing could be used, needs a special attention also.

Question 7. Do you have any other comments on Chapter 3?

Annex 3.1, p.16: "One of more of these will often be limited,…" should be "One **or** more…" Annex 3.3, p.25. The developers have renamed "QuantumGIS" to "QGIS" already several years ago, the old name should not be used. Annex 3.3, p.25. "Countries generally have a specific reference coordinate system" -> I would prefer term "national" instead of "specific". The national coordinate reference system is one of the key definitions/standards set in a NSDI (which is also discussed in this chapter). Annex 3.3, p.25. The common data models used in GIS are vector and raster. I recommend avoiding "polygons" in "thematic maps often use polygons". A vector data model can as well contain points, polylines, and polygons. Annex 3.3, p.27. "Topography of the country (coastlines, slopes, river basins and drainage areas), as measured by the digital elevation model (DEM)". -> the DEM doesn't measure anything, it is a model. Consider changing the phrasing to something like "…derived from a digital elevation model (DEM).

Annex 3.3, p.27. Instead of "Soil resources and geologic data", "Soil and geological charateristics"
Annex 3.3, p.27. Consider adding to the list of datasets "protected area boundaries". Sometimes it might be relevant to do ecosystem accounting for Natura 2000 areas only, for example, and for that purpose boundaries of such areas are needed for delineating extent (but not condition).
And what about land ownership data, cadasters are also mentioned earlier in the document? It is not entirely clear to me why transport and communication should be included here. Together with population, built-up areas and settlements, they should already be included in land cover / land use maps (point 1).

Question 8. Do you have any other comments on Chapter 4?

Click here and start typing (The length of your response is not limited by this text box.)

Question 9. Do you have any other comments on Chapter 5?

p.2, 5.8 and 5.9: Almost identical sentences are repeated: "Outputs at each stage are relevant for policy and decision making." and "Data from each stage will be of relevance to policy and decision making."

Annex 5.4, p. 28: Pre-aggregated indexes paragraph, "provide" instead of "provides" in "One of the main functions of the ECT typology is to provides a standardized…"

Chapter five could benefit from added discussion about salience, credibility, legitimacy of the selected indicators. Questions like who decides on which variables are selected and how the indicators are communicated and documented, might have large impact on how the accounts are accepted as part of everyday decision-making processes. Further, establishing scientific evidence about assumed impact and reference levels of the selected variables/indicators could be promoted in the guidelines.