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

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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?

We find that Chapter 3 on 'Spatial units for Ecosystem Accounting' is generally very well-written and clear.

We also agree with the main principles and definitions put forward.

One specific comment:

Para 3.26 : Only natural areas are mainly governed by natural ecological processes (that is why they are 'natural'), whereas semi-natural areas are influenced by ecological processes and (extensive or traditional) human land use – which makes them semi-natural.

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

We support the proposal of the IUCN Global Ecosystem Typology as SEEA ecosystem type reference classification. At the same time we note that at least down to level 2 this classification seems to under-represent semi-natural and modified ecosystem types that are often found in Europe and are linked to extensive and/or traditional human land use. However, we think that cross-connections between the ecosystem types employed by the EEA for European ecosystem extent accounts and the IUCN Global Ecosystem Typology can be established.

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?

We generally agree with the proposal for recording of ecosystem extent changes as described in chapter 4. However, the chapter does not discuss sufficiently the opportunities arising from tracking connections between changes in ecosystem extent, which can give important insight into patterns of change and their underlying causes. EEA has established a terminology for such land cover change patterns, which are called 'land cover flows' in the EEA land and ecosystem accounting system (LEAC). This approach is described in 'Land accounts for Europe 1990–2000. Towards integrated land and ecosystem accounting'; EEA Report, No. 11/2006 (see 2006). The basic elements of this system are publicly accessible through the EEA website, which provides users with a ready-made tool for extracting their own customised land and ecosystem accounts.

This system is under review and will be updated via a forthcoming EEA report (in 2020) but we recommend that the analytical opportunities from looking at different types of land cover flows in a matrix approach are more comprehensively discussed.

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?

Overall we think that the three-stage approach to accounting for ecosystem condition is quite clear and structured. We have concerns, however, regarding the recommendation to develop ecosystem condition indexes as presented in this chapter – see below. Furthermore, this chapter takes a more prescriptive approach than others it seems, on a subject that is actually particularly complex and less researched. We are not confident that this is appropriate and recommend in particular to look at options for presenting choices more clearly, in particular with regard to necessary differences in approach between more natural landscapes and those which are more strongly modified by human land use or influences.

Sections 5.2.5 and 5.3.4: Our main point of concern here is that the quantitative way of developing an index for the Tier III condition account can potentially hide critical declines in certain condition variables as these are potentially cancelled out by positive trends in other variables. So we think there should be a discussion on combining this with clear thresholds related to ecosystem resilience or planetary boundaries and/or red flags for strong declines etc. This issue was discussed already some years ago at the EU-level and it is documented in the attached document (published on the 'Natural Capital Accounting library' of the EEA). Please look at p 8 in particular as it discusses other means of developing a summary index (counting the number of positive and negative trends, for example). We consider that adding a para on the potential pitfalls of straight arithmetic or geometric averages to develop a condition index would be an important complement to the current text, eg. after para 5.68.

So while the fundamental issues in accounting for ecosystem condition are well described we would propose to better highlight the risk of including trade-offs in the aggregated condition index, which would then be hidden, e.g. soil carbon levels and species richness can be negatively correlated. The point is implicit e.g. at the beginning of Annex 5.3 where it is stated

- Defining the scope and the purpose of the study (ecosystem, accounting goals...),
- Identifying key characteristics (ecosystem components and processes),
- Selecting the best indicators for the selected characteristics.

but it would be important to highlight the risk of including trade-offs in the aggregation process.

As another example, an aggregated forest condition indicator could be composed by species richness, productivity etc. But productivity could also imply the use of non-native fast growing species which are not supporting biodiversity.

This issue could be also addressed in the “Parsimony” section.

Annex 5.6 is clearly a place where some material in the attached paper could be meaningfully integrated.

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?

Reference condition: some of the text in section 5.2.4 (e.g. para 5.31) retains emphasis on comparing to a 'natural reference condition' (even if that is not so easy to identify in many places as humans have influenced ecosystems or at least selected species populations for tens of thousands of years, across all continents, minus Antarctica). We understand the interest in showing the impact of human activity on the decline of natural habitats but ecosystem accounting is primarily an analytical tool which looks at the interest of maintaining ecosystems for their benefit to human society and not one which aims to record biodiversity decline primarily (which is done through other complementary and very important exercises / international processes). So our preference is for presenting it as one of the options (as it is actually done in annex 5.5). This view is informed by our assessment that ecosystem accounting will have a particularly important roles in landscapes that are already modified as that is where interactions with ecosystems primarily take place, both in terms of further pressure and modifications but also in terms of ecosystem management and restoration and benefits for human societies.

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

We support the proposal for an SEEA ecosystem condition typology (ECT). We also found the approach to identifying and categorising ecosystem condition variables in section 5.2.3 very convincing.

EEA supports also the selection criteria for ecosystem characteristics and their metrics presented in Table 5.2.

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

Para 3.50 and annex 3.3: We find it useful that the importance of establishing an underlying national data infrastructure is being discussed. However, GIS systems are in our view an important but not the only one option for establishing the processing environment for ecosystem accounts. The EEA's system for calculating land and ecosystem extent accounts, for example, builds on a raster approach, which facilitates very fast processing. GIS tools are in this case only employed in some cases for preparing input data sets that are then rasterised in EEA's cube processing environment. The system is called Joint Environmental Data Infrastructure (JEDI) and facilitates geo-spatial environmental accounting for a wide range of ecosystem (or environmental accounting areas), e.g. EU Natura 2000 sites, Riparian Zones, River Floodplains etc. Technical descriptions of this system will become available over the summer 2020.

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

To develop the utility of chapter 4 in terms of providing guidance to country practitioners it would appear useful if include references or example boxes to already established practice in ecosystem extent accounts in different continents, for example work in Mexico, experience gathered with using the EEA LEAC methodology to support countries in the European Union Neighbourhood East programme in establishing first ecosystem accounts etc.

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

Para 5.22 – there is in our view more alignment between managed and semi-natural ecosystem types than assumed in the text.

Section 5.2.4: In EEA's view there is no need for ecosystem condition indicators to be rescaled versions of the ecosystem condition variables, which are transformed to a common dimensionless normative scale, with the two endpoints of the scale representing favourable ("good": 1 or 100%) and unfavourable ("bad": 0 or 0%) values.

We disagree with the proposal to make this a standard approach. There are many examples of indicators being informative and influencing policy without having been transformed into a normative scale (for example EU agri-environment indicators or the indicators underpinning EEA analysis on trends in natural capital in support to the monitoring of the 7th Environment Action Programme of the EU (in Annual Indicator Report Series (AIRS) - https://www.eea.europa.eu/airs/2018). Furthermore, indicators that retain their original values are more relatable to ecological thresholds or pressure limits relating to the bio-physical process they track, for example with regard to exceeding a certain level of nutrient enrichment. A related framework is the reporting by Eurostat on behalf of the EU in relation to global SGD targets, see Life on Land as one example: https://ec.europa.eu/eurostat/web/sdi/life-on-land

Para 5.31 and 5.32: It is important to record ecosystems that are still in natural state in (via extent and condition accounts); please note we consider ecosystems as natural that have been exposed to little or no human influence – these provide mainly regulating and cultural ES (which can be important) and should be maintained / protected for their role in maintaining global ecosystem cycles, providing ES, as host areas for endangered biodiversity etc.

However, the principal interaction between humans, and the principal area where ecosystem services enable benefits is the one where ecosystems have been influenced already (often over centuries and millennia) to a larger or smaller degree. These are crucial for maintaining in good condition (natural ones should just be left alone) and for many ES – hence it is not appropriate in our view to consider the natural state as the most logical reference condition.

Table 5.4: Apart from the challenges of establishing a reference condition and normalising to (un)favourable states we do not think that a quantitative measure of distance to the favourable state is always need for condition accounts to be useful. Often

the direction of trend in condition can already be a useful signal in policy discussions and the available (or measurable) data may only allow the estimation of this trend.

Para 5.79 - we agree with the critical discussion of protected area status (or other policy response measures) as potential condition variable; these should ideally not be used.

Para 5.89: The text rightly discusses the potential importance of condition measures for informing environmental impact assessment, agricultural planning and authorization processes, and programmes for ecosystem rehabilitation or restoration. However, in our experience individual measures (or indicators, such as nutrient overload, or over- or undergrazing data are more useful to sectoral or environmental policy makers than overall measures from ecosystem condition accounts (such as an ecosystem condition index). Please see also the examples above in relation to section 5.2.4.

Re Annex 5.2 and the para beginning with 'The class chemical state characteristics contains the variables and indicators related to the chemical composition of the abiotic ecosystem components.' We propose that in this section chemical parameters indicating ecosystem characteristics of the type like "calcareous soils", "eutrophic" "oligotrophic" water bodies etc. are being considered.

<u>Some final reflections on overall purpose:</u>

Para 5.2 states: '*Ecosystem condition is the quality of an ecosystem measured in terms of its abiotic and biotic characteristics*. Quality is assessed with respect to ecosystem structure, function and composition which, in turn, underpin the ecological integrity of the ecosystem, and support its capacity to supply ecosystem services.'

We think it is important to consider the key purpose of condition accounts in the ecosystem accounting framework. If the main purpose is to report on the overall condition and trend of the ecosystem asset (by combining extent and condition) then it could make sense to establish an overall very structured framework that leads to a condition index that one could take as representing trends in natural capital, a kind of 'Green GDP'. This could be an important outcome of ecosystem accounting in its own right and should be highlighted as such in the context of discussing the need and utility of integrated accounts and monetary valuation.

If the focus is on informing policy via ecosystem condition accounts then a convincing and solid measure (in the shape of an index) of decline or rise in natural capital would be an important achievement. However, an index on its own would just signal concern or improvement, ie. a potential need for action. However, an overall signal without clear underpinning components that tell what kind of action is needed, on which ecosystem condition component and how urgent that action is, remains a wake-up call but is less likely to generate policy action within individual policy areas (e.g. forestry, fisheries) and via specific policy instruments (e.g. agri-env. measures) than an approach where individual physical indicators related to specific ecosystem conditions are available to inform policy decisions. Please see also our comments above on this point.

If one looks at the important link between ecosystem condition and ecosystem service accounts then one needs to recognise that the flow of individual ecosystem services is clearly not linked to overall normalised ecosystem condition but to specific physical values of individual ecosystem condition parameters, such level of soil organic carbon, volume of carbon-absorbing biomass, presence of habitats as shelter for crop pollinators

etc. We consider it very important that this crucial connection in the set-up of the entire ecosystem accounting system is properly considered in the design of the condition accounting module.

The key purposes discussed above can be addressed to different degrees by the 3 stages suggested in para 5.8. The overall sense from reading the chapter is, however, that stages 1 and 2 should lead to stage 3, and that this stage is the ultimate goal of an ecosystem condition account. That would not be our emphasis and understanding, and we propose that the purpose of condition accounts and related messages are closely looked at again when revising the chapter.