



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:	Michael Vardon and Heather Keith
Organization & country:	ANU and Griffith University Australia

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 originally supplied comments in a different form by the due date and these are appended to this submission. Several comments spanned issues and chapters so did not neatly fit into the format provide. We have endeavoured to fit into the form and this has resulted in some duplication of comments within the 9 questions.

The accounting framework probably need to have the capacity to accommodate alternative views of the same area or areas in terms of their classification of extent and condition. This has been included in the revision by using definitions of natural or anthropogenic reference conditions and an explanation about conversions of ecosystem types, although the details are only in the discussion papers. However, in developing accounts, careful description and definitions are required in the revised SEEA EEA.

An example of potential differences in definition of an ecosystem type include a particular area that could be an agricultural ecosystem at 0.85 condition viewed one way or a woodland ecosystem at 0.10 condition (with the higher the number the better the condition). These indicators of condition need to be assessed against a clearly-defined reference condition, which would be anthropogenic or natural, respectively. Selecting an appropriate reference condition depends on questions like, does putting a fence around an agricultural ecosystem and excluding livestock then make it a woodland ecosystem? This could be seen as a change in area or extent of two different ecosystem types, or a change in condition of one ecosystem type.

Area defined in 1D, 2D and 3D – how will surface area be accounted for? The issue arose in accounting for land in Himachal Pradesh of India, which from the “sky” is 55,000 km² a grid but the mountains and slope means that the actual surface area is larger by around 50% more. This issue relates to river lengths as well.

BSU – polygons mentioned (but not seemingly the cadastre, see Annex 3.3). Overlay of different data sets using different types of BSU is a compilation issue.

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

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Definition of ecosystem types is a related issue. For example, the FAO definition of forests, in which a cleared area can be a forest because it is zoned to be used for forestry and can grow into a forest, confounds characteristics of land cover and land use. Whereas the SEEA EEA should, and does, have a clearer definition of ecosystem type as the extant characteristics of the area. For example, an area could have a forest with 0.85 condition, it is then cleared and reverts to a 0.01 condition. Or the area could have a forest with 0.85 condition, which is transformed to a grassland with 0.50 condition,

and over time transitions through various ecosystem stages and corresponding conditions. In the work in the Central Highlands (Keith et al 2017) we settled on forest condition being measured in terms of time since disturbance (fire or harvest).

Ecosystem types. The ecosystem type change matrix (Table 4.2) and accompanying maps have been found very useful in case studies and hopefully can be incorporated into the SEEA EEA. Recommendations are needed about clear definitions to identify a change in ecosystem type.

It is important that the Ecosystem Type classification used in the SEEA EEA can be used by, and easily related to, other international systems, for example the FAO Global Ecological Zones and their use by the IPCC in classifying default values. Hence, a more appropriate highest level of classification (Biome) could be: Tropical, Subtropical, Temperate, Boreal. Some classes of forest appear to be omitted from the IUCN GET: Boreal deciduous and Temperate conifer.

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?

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The relationship between condition and services is not explored. The purpose of accounting for ecosystem condition is defined more clearly than previously in terms of the characteristics and quality of ecosystem assets and how these change over time. Accounting for ecosystem condition provides information about the state of ecosystem integrity, and can additionally provide information about the capacity to supply ecosystem services.

The section on the relationships between ecosystem condition, ecosystem capacity and supply of ecosystem services (5.4.6) is critical to explain what accounts are recommended and the links between them. This explanation should be set in the context of the definition of condition. These relationships refer to individual services, groups of services, and some services that emerge at different scales (e.g. water supply, flood mitigation, air filtration)

Reference condition is a key area as there are different ways it can be interpreted. Reference condition is a key and Annex 5.5 is a very useful summary of the different ways condition can be measured. The fact that nine different ways reference condition can be measured have been identified is a sign that there is a variety of views and situations. It would be advantageous for the SEEA EEA to provide recommendations about the selection from this list of reference conditions and provide some assessment of pros and cons. For example, the statement that a reference condition that 'incorporates aspects concerning policy targets may not fully reflect the conceptual basis for reference conditions used in the SEEA' (5.36) is ambiguous as to whether it should be used or not.

It will be important for reference condition to reflect biodiversity measures and the relationship between biodiversity and condition accounts will need to be well explained (and hence the work on biodiversity accounting is an important area).

Measures of condition should all be better the higher the number (i.e. a universal good direction). This will also help with the calculation of indices.

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?

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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?

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

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

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Spatial units and aggregation. The material on spatial units and their categorisation is very important. At present it seems that units will be classified and aggregated on the basis of their physical characteristics and associated biological assemblages. It would also be possible to categorise spatial units on the basis of ecosystem services produced as well (like industry classification as well as sector classification in the business register).

A few other points on spatial units and aggregation:

- Tree cover does not directly equal ecosystems and hence remotely sensed data on tree cover ideally needs to be backed by on-ground data (e.g. on species composition)
- This also relates to the concept of reference condition (i.e. “natural” or anthropogenic as shown in Annex 5.5

Definitions: (para 3.5) EA is biotic and abiotic characteristics but is missing something like “and their interactions”.

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Ecosystem types

The ecosystem type change matrix (Table 4.2) and accompanying maps have been found very useful in case studies and hopefully can be incorporated into the SEEA EEA.

Recommendations are needed about clear definitions to identify a change in ecosystem type.

It is important that the Ecosystem Type classification used in the SEEA EEA can be used by, and easily related to, other international systems, for example the FAO Global Ecological Zones and their use by the IPCC in classifying default values. Hence, a more appropriate highest level of classification (Biome) could be: Tropical, Subtropical, Temperate, Boreal. Some classes of forest appear to be omitted from the IUCN GET: Boreal deciduous and Temperate conifer.

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Good to see ideas on applications of accounts in chapter on condition (section 5.5), but not for chapters 3 and 4. Maybe better in a separate section/chapter of the SEEA EEA or another document)

Submission on SEEA EEA revision chapters 3-5

Michael Vardon (Australian National University, michael.vardon@anu.edu.au) and Heather Keith (Griffith University, h.keith@griffith.edu.au)

Introduction

We congratulate the SEEA – EEA revision team for putting these draft chapters together for comment, as well as the extensive material in the various discussion papers available on the revision website. One of us, Heather Keith, has been involved in the expert working group on ecosystem condition.

The text below addresses five general points plus some of the details of the chapters.

General points

Five general points emerge from the three chapters:

1. There is a relation between ecosystem condition and extent and this allows for transitions between ecosystem types
2. The relationship between condition and services needs to be explained in this chapter
3. Reference condition is a key area as there are different ways it can be interpreted
4. Spatial units and aggregation
5. Ecosystem type classification and change

These are examined in turn below.

1. Relation between ecosystem condition and extent

The accounting framework probably need to have the capacity to accommodate alternative views of the same area or areas in terms of their classification of extent and condition. This has been included in the revision by using definitions of natural or anthropogenic reference conditions and an explanation about conversions of ecosystem types, although the details are only in the discussion papers. However, in developing accounts, careful description and definitions are required in the revised SEEA EEA.

An example of potential differences in definition of an ecosystem type include a particular area that could be an agricultural ecosystem at 0.85 condition viewed one way or a woodland ecosystem at 0.10 condition (with the higher the number the better the condition). These indicators of condition need to be assessed against a clearly-defined reference condition, which would be anthropogenic or natural, respectively. Selecting an appropriate reference condition depends on questions like, does putting a fence around an agricultural ecosystem and excluding livestock then make it a woodland ecosystem? This could be seen as a change in area or extent of two different ecosystem types, or a change in condition of one ecosystem type.

Definition of ecosystem types is a related issue. For example, the FAO definition of forests, in which a cleared area can be a forest because it is zoned to be used for forestry and can grow into a forest, confounds characteristics of land cover and land use. Whereas the SEEA EEA should, and does, have a clearer definition of ecosystem type as the extant characteristics of the area. For example, an area could have a forest with 0.85 condition, it is then cleared and reverts to a 0.01 condition. Or the area could have a forest with 0.85 condition, which is transformed to a grassland with 0.50 condition, and over time transitions through various ecosystem stages and corresponding conditions. In the work in the Central Highlands (Keith et al 2017) we settled on forest condition being measured in terms of time since disturbance (fire or harvest).

2. The relationship between condition and services is not explored.

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3. Reference condition is a key area as there are different ways it can be interpreted

Reference condition is a key and Annex 5.5 is a very useful summary of the different ways condition can be measured. The fact that nine different ways reference condition can be measured have been identified is a sign that there is a variety of views and situations. It would be advantageous for the SEEA EEA to provide recommendations about the selection from this list of reference conditions and provide some assessment of pros and cons. For example, the statement that a reference condition that 'incorporates aspects concerning policy targets may not fully reflect the conceptual basis for reference conditions used in the SEEA' (5.36) is ambiguous as to whether it should be used or not.

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4. Spatial units and aggregation

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categorise spatial units on the basis of ecosystem services produced as well (like industry classification as well as sector classification in the business register).

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