



DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS  
STATISTICS DIVISION  
UNITED NATIONS



System of  
Environmental  
Economic  
Accounting

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## 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](mailto:seea@un.org)**

Name:	Per Arild Garnåsjordet
Organization & country:	Statistics Norway

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](mailto: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](mailto: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?**

Based on our recently submitted comments to Eurostat, on the proposal to initially start with ecosystem extent accounts, as ecosystem condition accounts require further development and are foreseen to be added at a later stage, Statistics Norway emphasizes, based on research in the Research Department in Statistics Norway, and in cooperation with the Norwegian institute for nature research (NINA), the urgency of developing ecosystem condition accounts. Data on ecosystem condition, combined with ecosystem extent, are important for assessment of ecosystem services and to capture urgent impacts on ecosystem condition that may reduce the capacity for provision of ecosystem services.

In dialogue between the Norwegian Environment Agency and Statistics Norway, the idea of clear boundaries for each ecosystem asset has been discussed, and we emphasize that in practical applications such boundaries may be difficult to establish. Norway officially applies a definition of ecological regions based on natural gradients, in the system “Nature in Norway (NiN)”, but this not used to classify main ecosystems.

There is, however, ongoing work in order to define borders for the main ecosystems and the IUCN typology will be evaluated in this work.

For ecosystem accounting in urban areas the definition of ecosystem asset as the basis for accounting is not very applicable. Land use and different kinds of urban green areas and urban trees are much more of interest for environmental management, and it is especially important that this information can be linked to ownership of land and public accessibility.

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

Norwegian Environmental Agency <https://www.environmentagency.no> is responsible for developing a national mapping of “good ecological condition” of ecosystems, and the IUCN typology considered to be of interest in this development. The term “good ecological condition”, used in the current work by Norwegian Environment Agency to conceptualize and operationalize policy targets, reflects the capacity of ecosystems and biodiversity to provide future ecosystem services, i.e. reflecting ecological condition, and it is crucial that development of an ecosystem accounting framework under consideration in Norway reflects the classifications and delineations of ecosystems that will be applied by the Norwegian Environment Agency.

**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?**

The national land use statistics produced by Statistics Norway is presently limited to built-up areas, but the objective for research and statistical development is to establish a national land use account, i.e. Statistics Norway is closely following the international work on ecosystem accounting in order to improve integration of relevant research results and statistics and be prepared for possible future statistical development of ecosystem accounts, conceptualized and operationalized as area accounts and a nature accounts, to be followed up in close cooperation with Norwegian Environment Agency and Ministry of Climate and Environment. Combined area accounts and nature accounts will be an important tool for recording changes in ecosystem extent and condition as basis for assessing their impacts.

**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?**

Norway has since 2010 developed the Nature Index (<https://naturindeks.no/>) as knowledge base for biodiversity condition accounts, i.e. to be included in ecosystem condition accounts. This approach could be implemented in other countries. However, due to spatial resolution of species abundance data, and/or species moving in the landscape, the Nature Index will not meet needs for local ecosystem condition accounts. The Nature Index will only meet needs for biodiversity conditions accounts for larger areas within countries. The Nature Index is based on an index method similar to the methods proposed in Chapter 5. Reference levels and reference condition are basic concepts also in the Nature Index for Norway, and the proposed methods for weighting and aggregation of indicators as well. The Nature Index for Norway gives more importance, however, to measures of uncertainty in data and assessments.

Norwegian Environment Agency emphasizes that the proposed development of ecosystem condition accounts in SEEA EEA has clear parallels to the work in Norway of development of a system for “good ecological condition” as basis for setting management targets. The Norwegian framework applies an index protocol method, with common features to the work on ecosystem condition accounts, with regard to aggregation of indicators to indices, reference levels, and references conditions. There are also important differences between the framework for “good ecological condition” and SEEA EEA, especially with regard to differences in the categories of indicators, which is important for interpretation and weighting of indicators in comprehensive assessments of ecological condition. In SEEA EEA, each indicator expresses only one ecosystem quality, in contrast to the Norwegian system where an indicator can represent different ecosystem qualities, a difference that is important for interpretation of the ecological representativity of indicators. The importance of uncertainty will be tested out by different approaches in the Norwegian system. It is emphasized that the Norwegian system uses a more pragmatic approach to 'spatial units' than SEEA-EEA, and the indicators are representative for a specific geographical region. This is important for the approach to mapping of indicators, as mapping in terms of fixed spatial units is currently not possible for most indicators in Norway, where representativity of indicators for ecological qualities, and development over time, has been emphasized rather mapping to specific spatial areas. Yet the key for further development is to extend this work to a comprehensive *ecosystem accounting* with high resolution mapping on a scale relevant for management purposes.

**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?**

It is crucial to have both natural and anthropogenic reference conditions, in order to represent both the reference conditions of natural ecosystems, e.g. intact mountain, forest and wetland areas, and semi-natural ecosystems, e.g. semi-natural grasslands that need to be maintained by grazing and mowing, as both types of ecosystems represent the basis for biodiversity and potential for ecosystem services.

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

It is particularly important that the Ecosystem Condition Typology includes a conceptualization and operationalization of the term ecosystem capacity, as proposed in earlier work on SEEA-EEA, rather than ecosystem service potential, reflecting current use of ecosystem services. The concept ecosystem capacity reflects the future option value of good ecosystem condition and that future societal values and needs for ecosystem services may be different than ecosystem service flows considered most important today. Ecosystem capacity can be directly related to sustainable use and ecosystem condition (and not an arbitrary gap between demand and use in the current situation).

A paradoxical result may follow if “potential” is interpreted in short-term sense only, related to ecosystem service flow: the ecosystem service “potential” of a forest can be large if all the trees are cut down immediately, while the “capacity” of the forest ecosystem reflects the regrowth that ensures sustainable use of the ecosystem over time.

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

Spatial unit:

It is important that the spatial unit is flexible enough to accommodate building of extent and condition accounts and recognize the interdependency between them. Spatial variation in ecosystem service capacity cannot be mapped without ecosystem extent and condition accounts, and spatial variation in actual ecosystem service flow cannot be attributed to policy interventions without spatio-temporal data on ecosystem extent and condition.

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

Extent accounts:

It is important that ecosystem extent accounts are developed with flexible spatial units, reflecting different types of land use, to capture impacts on land use and trade-offs and potential synergies between land use and ecosystem services, and that the interdependency between extent and condition accounts is recognized.

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

Condition accounts:

It is important that ecosystem condition accounts are implemented at the outset, together with extent accounts, that the conditions accounts are based on biodiversity index approaches such as the Nature Index for Norway, and that condition accounts are linked to conceptualization and operationalization of ecosystem capacity, as basis for long-term sustainable management of biodiversity of natural and semi-natural ecosystems as basis for provision of ecosystem services.