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?

The definition of ecosystem assets used in this chapter is very useful for the purposes of ecosystem accounting. The fundamental principle is that the assets are the biotic and abiotic components, which when interacting in a complex and systemic way make up a particular ecosystem. Therefore, assets must be the primary spatial units for analysis and accounting in the SEEA EEA. Unlike the SEEA Central Framework, the SEEA EEA covers all the assets of the ecosystem, both those that generate direct benefits and those that do not generate direct benefits, but their biophysical existence is directly and systemically related to the overall functioning of the ecosystem, therefore, they are important.

Although considering all the assets of the ecosystem is recommended to have a global vision of the ecosystem and its operation, it is necessary to establish clear limits for accounting purposes. For example, in Chapter 3 it is mentioned that the atmosphere is a very important abiotic asset for the ecosystem and its functioning. There is no doubt about this premise; however, seeking consistency with the System of National Accounts, the atmosphere is not considered as an asset, so it should also be excluded from the accounting of ecosystems. In the case of marine assets, they were excluded at this stage of the project in the case of Mexico. Under this approach, and as Chapter 3 postulates, by excluding the atmosphere we are establishing a vertical limit, while by excluding the seas we are establishing a horizontal limit.

If ecosystem assets are the fundamental spatial units for accounting established in the SEEA EEA, the Ecosystem Accounting Area (EAA), where multiple assets coexist and interact, is the critical geographic area for which to compile and record an ecosystem account. EAAs can be very varied and their choice will depend on various interests, these EAAs can be national, supranational and sub-national jurisdictions, administrative areas such as Natural Protected Areas (NPA) and defined environmental areas, such as hydrographic basins or ecoregions. In Mexico, the project is being developed at the national level with sub-national georeferencing (state, municipal, hydrographic basin, ecoregion and NPA)

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

To facilitate communication and comparisons of the ecosystem accounts of the different countries, it is desirable to have a reference classification on the types of ecosystems, which is the product of a general consensus between the experts and the organizations responsible for implementing the manual. Chapter 3 proposes a reference classification of ecosystem types based on the IUCN Global Ecosystem Typology, which classifies ecosystems based on the different realms and biomes that are contained within those kingdoms.

This classification can be very useful, however, it does have some drawbacks. First, it can be difficult to cover each of the four realms raised by this classification. For example, in the pilot project in Mexico now only the terrestrial realm is being considered, while the realm of fresh waters is grouped into a single ecosystem called “water bodies”. The marine realm and the realm of transition areas are excluded.

Secondly, the biomes that are contained within each of the realms proposed by this classification, may turn out to be limited when we are dealing with a mega-diverse country like Mexico. In this sense, in the pilot project of Mexico the “types of land use and vegetation” used as the proxy for ecosystem types. This classification used encompasses 32 types of land use and vegetation, and is used to report projects such as National Communications, being internationally comparable. With this classification, Mexico is in line with the postulate of Chapter 3, which emphasizes that the IUCN classification is used when a country does not have an existing national classification scheme that satisfies international principles

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?

Extension

Extension accounts are the first step in building ecosystem accounts, as they provide the basis for discussion about the composition and changes in ecosystem types that exist within an EAA. Indicators of deforestation, desertification, agricultural conversion, urbanization and other forms of ecosystem change can be extracted from this account. These indicators can be used by stakeholders for the formulation of public policies, elaboration of cost-benefit analyzes and other types of interventions.

In the case of the Mexican pilot study, we started from the INEGI Land Use and Vegetation Charts to prepare the ecosystem extension accounts for the years 2002, 2007, 2011 and 2014, respectively. These charts contain surface geospatial information covering the different land and vegetation types for the entire country. Based on this information, the balances are prepared in which conversions or extension changes that the different types of ecosystem undergo between the years mentioned are recorded, recording the opening stocks, additions and reductions, as well as the closing stock. To register these extension accounts, the structure of Table 4.1 is used, which is presented in Chapter 4.

As mentioned this chapter, within extension accounts there are up or down revaluations, which do not represent a conversion between ecosystem types, but are changes that are mainly due to the use of updated geographic information derived from new or reinterpreted satellite images. In the case of the pilot study in Mexico, these revaluations are recorded in the respective line and an additional line is added in which it is calculated in net accounting adjustment. We consider that this variable can be included in the final version of SEEA EEA.

In addition to the balance of the extent of ecosystems, the exchange matrix is a very useful accounting representation, since it shows the extent of opening of the types of ecosystems that became other types of ecosystems for the period of closure. In the pilot project in Mexico, the structure of Table 4.2 described in Chapter 4 is used, with a small modification since the adjustments or revaluations for each type of ecosystem are added. We consider this proposal to be very useful and can also be included as part of the final version of SEEA EEA.

Condition

Condition accounts are the next step in building ecosystem accounts, as they provide the basis for discussion of the state of the different assets for each of the ecosystem types that exist within an EAA. From this account it is possible to extract asset degradation indicators which can also be used by stakeholders for the formulation of public policies, preparation of cost-benefit analyzes and other types of interventions.

As in extension accounts, condition accounts include entries for opening and closing conditions related to observations on the state of the ecosystem at the beginning and end of an accounting period. However, the process for recording changes in the condition of ecosystem assets is usually a little more complex than for extension accounts. It begins with the variables that describe different areas of the condition of the ecosystem assets, variables that have different magnitudes and that cannot denote if the changes in the condition are positive or negative. Subsequently, these variables have to be converted into indicators based on reference values or levels, this in order for the variables to be comparable with each other and thus be able to determine the magnitude of the change. Finally, it is necessary to construct sub-indices that describe the general condition of each of the ecosystem's assets and that when added to an index denote the condition of each one of the ecosystem types.

In this sense, in the pilot case of Mexico, we agree that the way in which changes in the condition of ecosystem assets are recorded must be structured in the way they are presented in Chapter 5. Obviously there may be certain adaptations according to the information available at the national level and with the reference levels taken as a starting point. Currently we are working under this premise with information from different sources such as INEGI, CONABIO, CONAGUA, and INECOL. The team of experts from these institutions is very clear about the need to arrive at indices to determine the direction in which the condition of ecosystems is going over time.

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?

The three stages for the construction of an ecosystem condition account are structured according to the SEEA ecosystem condition typology (TEC) proposed in Table 5.1 of Chapter 5.

Stage 1. We agree that the recording of variables must be done explicitly neutral, since each metric value is not compared with a normative baseline and there is no implicit judgment of relative importance, for example, interpreting a value as high, mean or low.

Stage 2. In this stage the variables selected in stage 1 become indicators. Once you have the indicators of ecosystem condition, you can compare the variation of the registered value with the immediately previous period and thus have a description of the trend in the condition of an ecosystem asset. We agree that the indicators for the condition of the ecosystem should be structured as in Table 5.4.

Stage 3. It is mentioned that it is possible to make a more general aggregation of the indices of each type of ecosystem in a Global Condition Index. However, many types of ecosystems may be incompatible with each other, which would imply that the Global Condition Index does not have an ecological meaning. In Mexico, we consider that, due to these reasons, for the moment it is not feasible to have a Global Condition Index.

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?

In Mexico we are applying these approaches to establish regency levels for condition accounts. The natural reference levels apply for the following types of land use and vegetation: Coniferous forest, Oak woodland, Mountain cloud forest, Evergreen tropical forest, Semideciduous tropical forest, Deciduous tropical forest, Woody xerophytic shrubland, Non-woody xerophytic shrubland, Woody hydrophytic vegetation, Non-woody hydrophytic vegetation. Anthropogenic reference levels apply for the following types of land use and vegetation: Aquaculture, Annual crops, Perennial crops, Human settlements, Cultivated forest, Water bodies, Other land, and Grassland.

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

To facilitate communication, as well as comparisons and aggregation across ecosystem types, an ecosystem condition typology should be universal. This universal typology is applicable above all as regards the three groups and the seven classes. In the case of a pilot project in Mexico, we are starting from these groups and classes. With regard to the content of each class, subclasses, difficulties arise when making a classification that is equally applicable to all countries. This is mainly due to the different types of ecosystem assets that are present, the availability of data and the specific interests of each country. In the Mexico project for the abiotic characteristics of the ecosystem we are mainly considering the chemical and physical characteristics of water and soil, excluding air. For the biotic characteristics of the ecosystem we are considering vegetation, biomass, and biodiversity. Finally, for the characteristics of the landscape level we are considering factors such as connectivity and fragmentation

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

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

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?

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