Draft
Concept Note
SEEA-EEA Expert Meeting
November 18-20, 2013
New York, NY

Background

1. The SEEA Experimental Ecosystem Accounting (EEA) was developed to provide a coherent accounting framework for evaluating ecosystem assets, their associated ecosystem services, and their linkages with the economic and human activity. By using standard definitions and concepts, the SEEA EEA will permit comparability of ecosystem asset and services data across countries.

2. At its 44th session, the United Nations Statistical Commission considered the SEEA-EEA as an important step in the development of a statistical framework for ecosystem accounting and encouraged its use by international, regional agencies and countries wishing to test and experiment in this new area of statistics. The Commission also considered a draft research agenda to advance the SEEA-EEA and requested the United Nations Committee of Experts on Environmental-Economic Accounting (UNCEEA) to develop a medium-term programme of work in this area.

3. The research agenda outlines four broad areas for investigation: (1) geospatial data, land classifications and statistical units; (2) Physical measurement of ecosystem conditions and services; (3) valuation techniques and approaches to aggregation; and (4) presentation and policy linkages. Proposed short- and medium-term priorities under the SEEA EEA research agenda include: (1) delineation and classification of land and spatial units; (2) investigation of methods for measuring different ecosystem services and ecosystem condition; (3) presentation of accounts, indicators, and maps; (4) investigation of methods for geospatial linking of environmental and socioeconomic data; and (5) further research into valuation methods for ecosystem services.

4. The SEEA-EEA provides the conceptual accounting framework for ecosystem accounting. However, it provides little guidance on how to implement the accounts. Several issues identified in the research agenda are closely related to measurement issues; therefore the advancing of the research agenda and the testing of the SEEA-EEA will proceed simultaneously.

5. Several side meetings were held with countries during the Seventh Trondheim Conference and the Conference on "Global Implementation of the SEEA and Supporting Statistics" to obtain a better understanding of countries interest in testing and experimenting on the SEEA EEA. Several countries indicated their interest in moving forward in testing the SEEA and in advancing the research agenda. A few countries already have already started to implement selected parts of the SEEA-EEA.

6.   The Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES) has identified a fast-track thematic assessment on "value, valuation and accounting of biodiversity and ecosystem services" as a priority in its draft initial work program for 2014-2018. IPBES was established as an independent intergovernmental body in Panama in April 2012 and is a global assessment mechanism designed to bring together,

synthesise and analyse biodiversity information for decision making. The IPBES work program is expected to be negotiated and endorsed at the next IPBES meeting (IPBES-2) in Antalya, Turkey from 9-14 December 2013. The assessment explicitly mentions the SEEA and seeks to move the SEEA from "theory to practice" in relation to biodiversity accounting.

Purpose

7. The expert meeting is intended to provide a technical evaluation of models for characteristics of ecosystem condition and ecosystem services, with a particular focus on biodiversity, carbon, and water quality/quantity. The reason for initially choosing selected aspects of the SEEA-EEA has to do with the specialized nature of the models and the associated experts involved in their development. Biodiversity, carbon, and water quality (characteristics of ecosystem condition in the SEEA EEA) will be considered across different ecosystem types. Water ecosystems will be a particular focus, with review of models for both ecosystem characteristics and ecosystem services. The objective of the meeting is to reach an agreement on a small number of models and techniques to be used for the testing of selected characteristics of ecosystem condition and ecosystem services.

8. The meeting will be to bring together experts from different communities (e.g., scientists, statisticians, economists, and geospatial experts) from international agencies, countries currently engaged in measurement of ecosystem condition and services in the context of the SEEA EEA, potential pilot countries for future work on SEEA EEA, and experts in the relevant models and biophysical and spatial components to discuss and share expertise related to several key areas of the SEEA EEA research agenda.

9. Specifically, the meeting will begin to develop practical guidance for SEEA-EEA testing through: (1) review of existing tools and models (e.g., GLOBIO, InVEST, ARIES, MIMES, LUCI, Nature Index) based on specified criteria, including their technical requirements, spatial scales (site, regional, national, global), scalability, and data requirements, resulting in agreement on a small number of models for the measurement of, in particular, biodiversity, carbon and water ecosystems in the context of the SEEA-EEA; (2) a mapping of pilot country policy priorities to tools and models for assessment of ecosystem condition and related ecosystem services; and (3) a discussion of the use of these models for possible development of a global baseline for measures of ecosystem condition (including biodiversity) by 2016.

10. Prior to the meeting, participating countries will be requested to identify the policy priorities to be addressed through the testing of the SEEA-EEA. Experts on tools and models will be requested to evaluate models on the basis of a set of criteria including scalability, applicability to specific ecosystem conditions and services, etc.

Organizers

11. The meeting will be organized by UNSD in close consultation with CBD, UNEP, Australia and Norway.

Participants

12. Participants in the meeting will include statisticians and experts in the area of ecosystem accounting, ecosystem modelling, spatial analysis of ecosystem services, and environmental and ecological economics. Representatives of pilot countries would also be in attendance.

Organization of the Workshop

13. The workshop will be held in New York at the United Nations headquarters from 18-20 November 2013 back-to-back with the workshop on water accounts and statistics (20-22 November 2013). It will consist of two full days on 18-19 November 2013 and a half-day on 20 November 2013. The meeting will be held in English.

14. The workshop will begin with introductions and sharing of expectations by selected pilot countries regarding the SEEA EEA pilot activities. This will include a discussion of their national priorities for biodiversity and ecosystem services, including desired metrics and indicators. Countries will also provide an overview of the institutions engaged in collection of ecosystems-related data and any initial understanding of data gaps. International agencies and countries providing technical or monetary support will then discuss their role in the pilot projects.

15. Following the country presentations, the workshop will consist of expert presentations on the range of tools and models available for analysis of the areas of biodiversity, carbon, and water quality/quantity. These will include site-level models as well as those intended for a national or global level. The models will be evaluated on the basis of a set of criteria (see Annex) and it is expected that an agreement is reached on a small number of tools and models to be tested to answer specific policy questions.

16. The conclusions of the meeting will serve as an input in the drafting of a project document to be submitted to donors and will identify the next steps to test the tools and models agreed in the testing countries.

Annex
Draft Criteria for Review of Models

The November 18-20 expert meeting on models and tools for assessing ecosystem condition and services in the context of the SEEA Experimental Ecosystem Accounting will provide an opportunity for reviewing tools and models to measure selected ecosystem characteristics and services. These models have been selected based on review of the literature, discussions with researchers in the area, and considering the spatial requirements for the SEEA Experimental Ecosystem Accounting (EEA) work.

In preparing the 30-45 minute presentation on the model, the following criteria and associated questions should be considered so that there can be a robust discussion of the strengths and weaknesses of the tools/models in the context of selected characteristic of ecosystem condition as well as ecosystem service measures and the SEEA EEA. The focus of this meeting will be on measurement of biodiversity, the carbon cycle (including fluxes and sequestration), and water ecosystems (including issues of quantity as well as quality of water). The highlighted areas of the tables below indicate the intersections of primary interest for this technical discussion.

 Criteria/questions

(1) Quantitative output

Which characteristics of ecosystem condition and/or ecosystem services are estimated in a quantitative way by the model and how do those estimated measures align with national policy priorities?

What are the units (e.g., tonnes/year, species at risk) generated for the measures of characteristics of ecosystem condition and/or ecosystem services?

Are these output units generated in a consistent and replicable manner?

(2) Rigor of biophysical model(s)

Does the model draw from an underlying biophysical model? How is the model supported by research studies?

What are the underlying biophysical functions assumed for biodiversity, carbon, and water quality/quantity modules (as applicable)?

(3) Adaptability

Can the tool/model and its associated functions be readily modified to account for country-specific conditions, data available, or nationally developed biophysical models?

(3) Scalability and spatial data considerations

What is the spatial unit of analysis for the model? How well does this coincide with the approach of basic spatial units, land cover/ecosystem functional units and ecosystem accounting units as described in the SEEA EEA framework (pages 28-31 in SEEA EEA White Cover)?

What is the spatial scale the model is designed for (local, national, regional, global)?

How is spatial aggregation (or disaggregation) accomplished within the model?

How does the model deal with attribution to grid cells of data that may be available at different scales (e.g., land cover vs socio-economic/census data)?

How does the model integrate data provided by differing spatial data sources?

(4) Classification system

How are land cover and land use classified in the model?

How are species, ecosystems and ecosystem services classified in the model?

Do the classification systems used in the model align with those described in the SEEA EEA (e.g., CICES)?

(5) Labor and infrastructure requirements

What are the requirements to run the models in terms of technical skills?

How difficult might it be to train national experts to run the model?

Does the model require significant computer and programming skills?

Does the model use open-source or proprietary software?

How many labor-hours are needed to complete the analysis using the model?

(6) Data requirements

What data are required to run the models for biodiversity, carbon sequestration, and water quality/quantity (as applicable)?

Is the model capable of being run in situations where limited country-specific data are available?

How does the model deal with situations of limited country-specific data? Does the model have built-in interpolation/extrapolation to improve data coverage?

(7) Treatment of uncertainty

How does the model address uncertainty in the outputs produced?

(8) Ability to project over time

Is the model able to project future and past scenarios from current data?

(9) Environment-economy linkages

Are interactions with economic activities explicitly included in the model? If so, how do they interact with the biophysical environment?

(10) Linkage to beneficiaries

Are the beneficiaries from selected ecosystem services included in the model? If so, how are they included?

(11) Policy alignment and drivers of change

Does the model have a specific component linking to policy analysis and/or specific drivers of change (e.g., development pressure, climate change) in characteristics of ecosystem condition and ecosystem services?

What are the drivers of change in characteristics of ecosystem condition and/or ecosystem services within the model?

What policy contexts, if any, has the model been applied in? What policy-relevant indicators have been developed?

Has the model been applied at a national level? What were the lessons learned from its application?

Which models contain modules for ecosystem condition, goods and services that overlap with the country priority areas?

Tables Relating Models and SEEA-EEA Conceptual Approach

The tables below are intended to provide more information regarding how the available models correspond to the conceptual structure developed in the SEEA EEA. We would request the tables below be completed by the technical experts in each of the models to determine differing capabilities and gaps across the models. The highlighted areas are of priority interest for this technical meeting and should be the focus of the presentations and discussion. In the intersecting boxes, the experts should indicate whether the model in question does or does not have the ability to generate the measure of interest. The Land Cover/Ecosystem Functional Unit Classes are selected from Table 2.1 on page 30 of the SEEA EEA White Cover; additional classes may be appropriate depending on national policy priorities and geographic considerations.

These tables can also serve as a starting point for discussions with potential pilot countries regarding the overlap of their priority policy areas with models available for estimating the necessary measures of condition and services.

A. Characteristics of Ecosystem Condition by LCEU (in boxes, indicate measure produced as model output (e.g., LAI, species richness)

		Land Cover/Ecosystem Functional Unit Classes						
		Agricultural land	Forest tree cover	Pastures and natural grassland	Natural vegetation associations and mosaics	Open wetlands	Inland water bodies	Coastal water bodies
Characteristics of Ecosystem Condition	Vegetation (LAI, biomass)							
	Biodiversity							
	Soil (fertility, moisture, carbon)							
	Water (quality, fish species, river flow)							
	Carbon (carbon balance, primary productivity)							

B. Measures of Ecosystem Services by LCEU (in boxes, list services and associated units as applicable)

		Land Cover/Ecosystem Functional Unit Classes						
		Agricultural land	Forest tree cover	Pastures and natural grassland	Natural vegetation associations and mosaics	Open wetlands	Inland water bodies	Coastal water bodies
Ecosystem Services	Provisioning services (list service and units)							
	Regulating services							
	Cultural services							

C. Measures of Benefits (indicate units for benefits produced by the model)

		Land Cover/Ecosystem Functional Unit Classes						
		Agricultural land	Forest tree cover	Pastures and natural grassland	Natural vegetation associations and mosaics	Open wetlands	Inland water bodies	Coastal water bodies
Benefits	Crops							
	Livestock products							
	Firewood, logged timber, non-timber forest products							
	Fish for consumption or processing							
	Recreational uses							
	Protection of properties from flooding							
	Cleaner air							
	Climate regulation							
	Drinking water							