



DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS
STATISTICS DIVISION
UNITED NATIONS

SEEA Revision

**SEEA Experimental
Ecosystem Accounting**

Comment form

Comment form for the Consultation Draft

Deadline for responses: 1 January, 2013
Send responses to: seea@un.org

Your name:	Bram Edens
Your country/organization:	Statistics Netherlands
Contact (e.g. email address):	b.edens@cbs.nl

The comments below were obtained from the following agencies / departments within the Netherlands:

- LEI (agricultural economics institute) part of Wageningen University & Research Centre;
- National Institute for Public Health and the Environment – RIVM;
- PBL – Netherlands Environmental Assessment Agency;
- Ministry of Economic Affairs;
- Ministry of Finance;
- Ministry of Infrastructure and Environment;
- CPB Netherlands Bureau of Economic Policy Analysis;
- VoFF (‘Society for Field Research in Flora and Fauna’).

It should be mentioned that the length and detail of these responses varied greatly, some respondents seem to have taken more time than others for a detailed analysis of the documents. Nonetheless, all agencies/departments responded to our request.

The comments have been rearranged, anonymised and – in most cases – translated. In doing so we have tried to keep as much of the original response as possible, some comments have been summarized.

It is important to notice that the responses below not necessarily reflect the views of Statistics Netherlands. Statistics Netherlands is currently reflecting upon the outcomes of this consultation in combination with its own views, as a preparation for the UNSC in February.

Part I: General comments

As a general summary, the consultation draft is received very well by the agencies/departments, but a number of methodological issues is raised that may be further improved. Opinions differ with respect to valuation.

General reactions:

-We welcome the overall approach of the report, especially the challenging task to focus on the valuation of ecosystem accounting that permits integration with the standard national accounts (Section 5.13).

- It is an interesting report, and in some places also an eye opener, especially the distinction between value for welfare analysis and for accounting systems;
- We would like to stress the policy relevance of this report.
- We do not have expertise in this area;
- We welcome the idea to embed the economic accounting system in a broader system of ecosystem accounting. In this way material metabolism in the economic system can be linked to flows of environmental goods and services and to the available stocks of natural resources. Such an effort is very ambitious and one should learn from earlier attempts e.g. by Odum (1956), Hueting (1970) and the Genuine Savings approach of the Worldbank (1995). Recent work on an integrated set of Life Cycle Indicators (EC/JRC) can offer inspiration and relevant information to make the proposed accounting system operational. The feasibility of the undertaking can be increased with a stepwise approach that starts with developing accounting systems for vital materials flows e.g. the carbon cycle, the nutrient cycles and/or the water cycle.
- We are enthusiastic about this report. The report describes the characteristics of ecosystems and ecosystem services which can and should be measured (if we want a more complete set of national accounts), in a careful and quite comprehensive manner. The report makes a clear distinction between biotic and abiotic ecosystem services flows, environmental flows (such as wind, or extraction of minerals). Also a clear distinction is drawn between ecosystem services and the result thereof, the benefit for humans. Food is the benefit, the supply of water, nutrients, pest control etc. Most important thing is that the report makes clear that these are ecosystems and services nationwide, and that it therefore involves much, much more than just nature. The issue of rare species is properly included, not in dominant way, as often in national discussions on this topic. The report provides a sound basis for measuring and reporting on this issue. The report is very comprehensive in naming the relevant aspects (scale, ecosystem classification, measurement units, etc.) and gives practical tools for prioritization. The report is clear when it comes to considering the spatial units. For the Netherlands it seems practically feasible, because we are a small country but also because of the large amount of spatial information that we already have. An important role that the report can play is in the international harmonization and coordination of methodologies and indicators to facilitate international comparison. One point on which, among other things in the CBD there is much disagreement. This report enables prioritization and standardization easier. Dutch expertise is well recognized. The Netherlands will start soon with the Dutch National Ecosystem Assessment (NEA). This SEEA report provides a great base for developing a sound program based upon a clear conceptual framework. In short, an important report that the Netherlands should support. It would be good if the Netherlands is properly involved in the further development (especially Statistics Netherlands), we can really use this report for the elaboration of the NEA.
- It is an interesting report, but there is a need to put it into perspective. Economic processes are of a different category than ecological processes.

Valuation:

- We are against a correction of GDP for environmental effects. We want to keep existing economic indicators pure. In this experimental ecosystem accounting system this step seems not to be made, but the issues are discussed. We do not see the added value, in fact contaminated concepts may arise, but rather favor a satellite accounting approach as in SAMs or NAMEA's.
- The note that ecosystem services such as water, clean air, natural resources etc. are an essential share of wealth and essential for a well-functioning economy is elaborated in various studies TEEB (The Economics of Ecosystems and biodiversity) and connects well with the OECD green growth model. Major challenge is to actually place values on this: what do we have, how much does it generate and what would we lose when losing some ecosystems? We need to be better able to measure this in order to assign a value and know what that natural capital is what we are talking about and want to protect in order to secure

future welfare. This study addresses that question in a well-founded, clear and robust manner.

- The monetary valuation of ecosystem services (chpt 5) seems to be focused on the current economic value, while the real value of ecosystems lies in their potential to support future welfare: e.g. the value of the stock of a natural resource at the current 'market price' per unit used is much lower than the price would be when the stock is almost depleted. The risk is that efforts to monetize ecosystem services will draw away from vital ecosystem services that cannot be monetized. E.g. available ecosystem service valuations don't price the main ecosystem service, i.e. the production of oxygen, while oxygen production is vital for human existence and priceless when this service would decline. But also other vital functions of ecosystems, e.g. to sustain nutrient and water cycles, are for the future more relevant than the willingness to pay for its current recreational value. Different methods to value such 'minor' ecosystem services show large differences. But from available inventories it is shown that the willingness to pay for 'biodiversity' or 'nature protection' is considerably lower than the willingness to pay for health protection (e.g. through cleaning air or drinking water, or protection against flooding). Therefore we recommend to include environment related health risks (and costs made to reduce such risks) more explicitly in the system.

- Chapter 2 refers to benefit transfer methods and meta-analysis of ecosystem services (also chapter 5.5.2.) There may still be something more to be said about when such transfers do or do not work. WTP values can vary from situation to situation and studies also show that the errors made by such studies can be enormous. The theory is not so far that transfers can be widely used (although this happens already). First, more valuation studies need to be done (so that for a given situation values are really estimated on the basis of extensive stated or revealed preference methods and not on the basis of indicators) before benefit transfer studies can be used properly. This issue is already mentioned, but could be stressed more. It now seems as if there is almost more attention in the literature (not so much in this report) for meta-analysis than for specific valuation studies of certain concrete situations.

- The distinction made between value for welfare analysis and accounting could be discussed even more extensively. For compilers of national accounts this is perhaps obvious, but to the average environmental / ecological economist and ecologist, it is not clear. The question which valuation methods of environmental economics is or is not useful may also be discussed in greater detail. It is now said that one has to be careful with a number of methods because there are also elements of consumer surplus in it. But what should you do then? In which elements is the consumer surplus included, is it possible to omit certain parts of the study???? What is exactly the relationship between on the one hand direct use, indirect use, option and non-usevalue and on the other hand the value you estimate with the travel cost, hedonic pricing, CVM and conjoint methods? Many valuation studies also look at bundles of ecosystem services. How should one disaggregate towards individual ecosystem services?

- Nothing is said about estimating opportunity costs of ecosystem services as a method of valuation. I feel that this is also consistent with the values required for accounting and that in principle no elements of consumer surplus would be included. Para. 5.84-5.88 discuss the simulated exchange value approach to estimating the production function. I think you can do the same with the opportunity costs method, although I'm not quite certain how this may be accomplished

- The distinction between stocks and flows may be more extensive. In several places something appears about it while I think it is an important issue. Services are basically a flow, but how are they related to the stock behind it, what is the stock, and how do you deal with degradation? It is being discussed, but it's not clear to me.

- Experience from the UK with wetland banking showed that it was possible to manipulate the value of ecological systems in such a way that the quality degraded. The conversion in monetary values was not value free because you could manipulate by buying wetlands dumping them on the market or by organizing a 'bank run'. Translations and conversions are always ideologically colored.

Other methodological issues:

- For integrated modelling of economic-ecological relationships data are required at (at least) the level of economic sectors.
- The challenge is not only to link ecosystem stocks and flows to National Accounts at the national scale, but also to provide data on the interlinkages between countries, e.g. ecosystem services that are exported abroad (the distribution of the ecological footprint via trade relationships) and transboundary air and water pollution flows.
- Additional value of the Consultation Report is to identify linkages with systems of national accounts. Here, we envisage methodological difficulties in case the Consultation Report is going to link health benefits from nature, by assessing the reduction in expenses of the health sector. It is agreed long ago not to link national accounts with the prevention of expenses in the national economy. This would make systems of national accounts to be highly subjective.
- A main challenge will be to link the delivery of ecosystem goods and services with systems of national accounts. Section 5.13 clarifies that the focus of the report is on the valuation of ecosystems that permits integration with the standard national accounts. We appreciate this objective of the report, but would like to highlight some of the main methodological concerns related to this. Ecosystem services (e.g. ecosystem assets, as expressed in section 2.28) largely have a territorial dimension. However, national accounts have a sectoral approach. Some of the key methodological concerns remain undervalued in the report, and could be improved from some additional literature on ecosystem services for accounting. We therefore also welcome the plan to include an appendix with the approaches to define units for ecosystem accounting.
- Ecosystem accounting, presented in the Consultation Report, is an important topic to understand linkages between nature and the economy. We claim ecosystem accounting is part of a broader concept; it is part of a system to link (i) national accounts with external effects related to economic activities (e.g. waste, emissions of pollutants like CO₂ and SO₂), and (ii) the use of natural resources with economic activities (e.g. water, energy, minerals). These two topics are covered in the Central Framework, and quantify the external effects from economic activities (item i) as well as the use of natural resources in the economy (item ii). Well accepted approaches are available in environmental and resource economics to link the two items with national accounts. In conclusion, methods and tools are therefore needed to link the use of natural resources and ecosystem assets with economic activities. This is clarified by several documents from World Bank to link the use of natural capital with greening economies. In doing so, we are keen to extend the use of ecological capital (expressed in the Consultation Draft) towards natural capital. The Consultation Draft therefore builds on the Central Framework. We envisage further methodological advancements are needed to improve and agree on sound ecosystem accounting methods. Here, the input from academic research will be critical.
- We appreciate the current report does also emphasise the critical role of the biophysical features of ecosystems. We therefore recommend to clarify topics like resilience, tipping points, thresholds, response functions. Although it is mentioned in the report, we like to emphasise the importance of recent advancements in the scientific ecological literature.
- The majority of ecosystem services are delivered in a territorial context. They include common-pool resources (with high degrees of rivalry and difficulties to exclude others from use). Examples are grasslands, lakes and forests. However, the demarcation of the spatial scale is complicated in the delivery of some ecosystem services. See for example pollination by bees, with the ecosystem service being delivered across regions.
- Beneficiaries of the ecosystem services are not always clear. Accepted methodologies are available in national accounts to identify the beneficiaries and their mutual relations. This is similarly important in ecosystem accounting. Because of the indivisibility of some ecosystems and the lack of market prices, methodologies are needed to link ecosystems with the beneficiaries in a system of national accounting. To the best of our understanding, this is still largely unknown.

- Ownership of the property rights of ecosystem assets is critically important for national accounts. This is hardly addressed in the report.
- Costs of the management of ecosystems are not adequately addressed in the Consultative Report.
- The report does acknowledge the benefits of ecosystem services is subjective to arbitrary choices, especially when market prices do not exist. This often is the case with ecosystem services, and also complicates international comparisons as they become highly context dependent.
- We want to express the importance of marine ecosystems and their links to national accounting. The interaction between terrestrial and marine environments are vital and recommended to be elaborated in the report.
- There are many initiatives on ecosystems, both nationally and internationally (e.g. UNEP initiative TEEB; national ecosystem assessments). We understand the difference between ecosystem assessments and ecosystem accounting. So far, there is limited experience towards accounting for ecosystem services. Governments would benefit from a proper understanding of the two approaches, and the report could contribute to this. We therefore recommend addressing this distinction in a more explicit manner in the report. The report would also benefit from clarification of the relationships between the numerous ecosystem initiatives.
- The categories of value are divided into physical and non-physical. I find this a strange format because only money is called non-physical while cultural significance is assigned to the category physical (therefore it is actually a division into categories monetary and non-monetary). The point is that the classification should be something that everyone uses, so perhaps better to connect to the existing philosophical categories of value of nature.

Part II: Other comments

In the box below please supply any additional comments including those of a more technical nature.

Please reference your responses with the relevant paragraph number or section number.

- We recommend building upon available integrated economic-ecological system dynamic descriptions e.g. the World-models of Meadows c.s., the IMAGE-model, etc. The system description in the proposal (fig 2.2 and 2.3 on p18 and 20 respectively) is far from complete as it doesn't show the (pollution) flows from economy to environment and the associated reduction in ecosystem services. Also the description of the carbon cycle (fig 4.4.1 on p68) doesn't show relevant parameters that influence ecosystem carbon storage (now and in the future), such as changes in land use, temperature, ocean acidification or the nutrient cycle.
- Chapter 5 very quickly makes the transition to economic valuation and monetizing. The report could describe this transition a bit better by making clear why this step is desirable (and in which cases) before diving into the issues and bottlenecks. Reference could / should be made to the work of the OECD in this area, and to the TEEB study.
- According to item 1.15, the SEEA Experimental Accounting seems to focus on the impacts of economic activities on the environment. To the contrary (item 1.24 (iii)) the report is aimed to support our understanding of the contribution of ecosystem services to economic production, consumption and accumulation. We consider item 1.24 to be closer to the approach adopted in the Consultation Draft.
- The Consultation Report on Ecosystem Accounting seem to identify methods that are currently already used in several international initiatives (mainly TEEB – the economics of ecosystems and biodiversity; MA – millennium ecosystem assessment) are briefly mentioned (Section 3.23). An ecosystem services valuation database (ESVD) is developed in the Netherlands. Drawing from 300 case studies, the database offers monetary values of 1,350 studies. See also The Ecosystem Services Partnership (<http://www.es->

partnership.org/esp).

- The models shown in Chapter (e.g. p.20) are linear. Any ecologist will tell you that a sustainable system should be circular: everything has a function and is re-used.
- The definition of biodiversity (p. 38) is unclear. It comes from the CBD but the problem with the definition is that it encompasses everything and therefore not distinctive and difficult to link to an action perspective. You could state: for this and this application we use the concept of species. Ecologists who try to estimate resilience also do it that way.
- Biodiversity is very much discussed in terms of models, but it also possible as shown by the experiences in the Netherlands to measure biodiversity directly.