

**Specific comments on “SEEA Experimental Ecosystems Accounts”,
exposure draft January 1.**

Paragraph (Par) 1.4. Monetary terms are required if there is to be a link to the economy. Also the boundary has to be better defined. The point needs to be made that a non-economic approach to ecosystem may be of benefit but inasmuch as the topic at hand is within the context of environmental economic accounts, the focus has to be on the intersection between ecosystem accounting and economic accounting. The implication is that not all of ecosystem accounting is relevant to the national accounts.

Par 1.6. This paragraph is too broad

Par 1.7. What is the meaning of the first sentence? See comment above on par 1.4.

Par 1.8. Remarkably compatible? From what perspective?

Par 1.10. Last sentence. It is not true that the money valuation depends on physical quantities. Much of the national account quantity measures are derived via deflation.

Pars 1.13 through 1.15. Here would be a good place to place some of the caveats mentioned in chapter 6. Furthermore the “holistic” view may not be compatible with economic accounting—it may have more to do with ecosystem accounting that is not applicable to the national accounts.

Paragraph 1.13 states “It is not intended that SEEA Experimental Ecosystem Accounting constitutes an international statistical standard but rather it is to provide an accounting framework for multidisciplinary research.” A stronger statement that the SEEA-EEA is not and will not be a standard is required.

Par 1.16 and 1.17. These talk of the policy relevance of ecosystem accounting—but this volume is about economic ecosystem accounting and these are not necessarily the same.

Par 1.18. Tradeoffs cannot be assessed without valuation. Simple ratios of quantities are not tradeoffs unless they come from some general equilibrium setting.

Pars 1.21-1.23. These do not necessarily involve any economic issues—concern environmental statistics

Par 1.25. What does statistical perspective mean? Surveys? Parts iii and iv are not done—possibilities are listed—it sounds as though something definitive is provided. Valuation techniques should be defined or principles established—what does explained mean?

Par 1.26-1.29. Ecosystem accounting is not dependent on economics so the task is to determine what part of ecosystem accounting ties to an environmental economic accounting that focuses on ecosystems.

Section 1.5. It seems to be assumed that NSOs are entities that include more environmental statistics. Is this generally true?

Par 1.40. A sentence should be added: Economics focuses on production and consumption and so the challenge is to define what can be applied to economic accounting.

Par 1.43. All of a sudden ecological economics appears. Is the idea that this is field is the basis for tying economic and ecosystem accounting? If so, how?

Par 1.45. Ecology and ecosystem do not connote the same thing; the latter is a subset of the former.

Par 2.1. Why the difference in definitions between this paragraph and 1.40?

Paragraph 2.8 defines ecosystem resilience as "The propensity of ecosystems to withstand change, or to recover to their initial condition following disturbance". In 2.30 the indicators are to be selected based on their ability to reflect resilience. This appears to mean that the condition of the ecosystem - and hence the measurement of the ecosystem asset - is dependent on its ability to withstand a potential shock. But this bears no relationship to the ecosystem's ability to provide services.

Par 2.11. Fourth sentence. But the focus of economics is on production and consumption so how will these be reconciled? How about putting paragraph 2.22 around here?

Figure 2.3: It is curious that there are no abiotic flows into ecosystem assets, given the discussion of solar energy in photosynthesis earlier, for example.

Par 2.28. Where do expected ecosystem service flows come from?

Par 2.30. What kind of characteristics—scientific or the price determining kind as in hedonics?

Par 2.34. The analogy is with the measurement of capital and capital services—not with multifactor productivity.

Paragraph 2.36 Does the paragraph mean "ecosystem assets in terms of their capacity to generate **expected** ecosystem services". There is a future-tense aspect to the statement that is missing. The paragraph also says nothing of disentangling the relationship between ecosystem condition and future services. As stated earlier, this is likely to be a highly non-linear relationship, but in the absence of any caution it is likely that a one-for-one relationship will be imputed, which may over- or under-state the actual effect on future flows.

Par 2.38 and 2.39. Investment and Enhancement should be mentioned earlier because these are important economic activities and help to tie economic and ecosystem accounting.

Par 2.42. Because this paragraph suggests aggregation a sentence should be added about where aggregation will be discussed.

Par 2.74. What is the nature of the trade off? This paragraph describes a bilateral comparison but for the notion of trade off to make sense economically then either the whole economy has to be considered or it has to be specifically stated that these services cannot be traded outside of the area. The latter will have implications for aggregation.

Par 2.78. How is the specific recording of inter ecosystem flows to be recorded?

Par 2.113. In the second sentence “many” should be changed to “most”. Accordingly, monetary valuation without market data is important.

3.4. The list should reference academic literature from whence these classifications came. Presumably it is De Groot et al. (2002). See also 3.37.

Par 3.24. Joint production should be emphasized more—this is key for relating to economics.

Par 3.26. How would this understanding be accomplished?

Par 3.31. The potential for double counting should be mentioned here and there should also be some discussion about setting a boundary.

The sub-section beginning at 3.31 discusses the importance of connecting the location of beneficiaries to the ecosystem measurement units. The section has little to say on how unused ecosystem services are to be treated, although 3.31 states “This information is needed to ensure that changes in the population of beneficiaries are taken into account in measuring the volume of ecosystem services.” Is the implication that areas with zero beneficiaries have zero ecosystem services? It needs to be stated explicitly that unused services are not part of final ecosystem services.

Paragraph 3.34: Many of the regulatory services may entail rather large cross-boundary flows, such as carbon sequestration or water filtration. The paragraph seems to be focusing on tourism, whereas there are huge cross border flows of regulatory services elsewhere in the accounts.

Par 3.56. It is not clear how this gets around the need for aggregation.

Paragraph 3.58: More detail on the third method of aggregation is needed. How can we express water filtration and carbon sequestration in terms of a common

“currency”? A reference for the third method of aggregation would be very useful here.

Par 3.59. The use of weights requires separability—is that being assumed? If not, then how is double counting avoided?

Par 3.60. Where do the prices or monetary values come from? It is not as easy as this paragraph makes it sound.

Paragraph 3.71: The wording needs to be careful here, so as not to give the impression that the majority of cultural services are beyond the production boundary. Many cultural services – e.g. nice views – are likely to be embodied in property values and hence housing services – or otherwise in purchases of intermediate inputs – e.g. gas to drive to the national park.

Section 4: Using “condition” and “extent” as the two dimensions of ecosystem asset measurement is perhaps a bit short-sighted. Again, the point, as will be made clear below, is that the connection to beneficiaries must be considered in the measurement of assets. For example, how can population changes can be incorporated into the ecosystem asset measurement framework suggested here? Suppose that a city’s population doubles, and that the surrounding ecosystems have sufficient excess capacity to deliver the same amount and quality of a given ecosystem service (water provision, say) to the residents. Clearly the current and expected ecosystem services have increased, without a change in either the condition or the extent of the ecosystem assets.

Section beginning 4.27 on degradation: There is no mention of beneficiaries in relation to ecosystem degradation. Ecosystems that are being used are subject to degradation; ecosystems that are not being used are not.

It is unclear how section 4.4 (Carbon stocks) fits into the chapter on accounting for assets in physical terms. First, are carbon stocks unused ecosystem services? Second the measuring framework in table 4.1 suggests that the asset is not to be measured by using indicators. But all of the chapter is devoted to indicators, rather than direct measures of stored services.

Paragraph 4.101. This chapter is about accounting for assets in physical terms through the use of indicators of condition and extent. The interest in biodiversity is thus connected to how it can tell us about ecosystem condition or extent. However, the following suggests that biodiversity is a measurement objective in-and-of-itself: “Biodiversity accounts can be used to track progress towards policy targets such as those concerning the protection of threatened species or ecosystems (or habitats), the sustainable use of harvested species, the maintenance and improvement of ecosystem condition and capacity, and where the benefits of use of biodiversity accumulate.” Why does biodiversity get singled-out as a particularly useful indicator? The section should make this case if this section is to be included. Is it important for regulatory services? Provisioning services?

Paragraph 5.1: "Valuation is therefore involves the estimation of "missing prices"

Paragraph 5.6: It may be instructive to discuss valuation of government services at cost in the SNA here. It is likely that a set of ecosystem service monetary accounts would involve reclassification of some transactions already covered in the SNA. In some cases, this reclassification may involve government spending (for example, on the up-keep of national parks).

Par 5.8. Why general "accounting framework"? The motivation has always been for economic accounts not some general accounting framework that may have other measurement targets. More specifically the tie to the national accounts has been made repeatedly.

Par 5.11. What is the purpose of this paragraph? It suggests that the integration of with the national accounts can include social valuations among other things and that is not the case. It throws out possibilities to the reader that he may not know are actually not possible.

Par 5.14. After this paragraph, another paragraph is needed to talk about market prices versus imputed prices. And then some discussion about the SNA concept of prices that are required for integration with the national accounts.

Par 5.16. There are a lot of "maybe possibles" but unless some concreteness is provided these are meaningless. How can such things be done? The paragraph also treats aggregation in an offhand manner. If dollars are not to be used as the aggregation unit, what would be used?

Par 5.28. Should be perfectly competitive market not perfect market. Second it must be emphasized that transaction prices and market valuation are marginal valuations not total valuations. See Nordhaus (2005, http://nordhaus.econ.yale.edu/CRIW_0120305.doc) on the importance of this difference.

Par 5.46. It is not clear what this paragraph means.

Par 5.50. In the example discussed, how does the institutional arrangement influence the value of the service?

Par 5.52. It would seem then that something like owner's equivalent rent should be used where the private price is the proxy of value instead of focusing on the producer's surplus just because the land is not owned or leased by the beneficiary. Estimating producer surplus would be very difficult.

Par 5.53. Here it needs to be stated that externalities are not included in the national accounts. So this part of the ecosystem accounting cannot be integrated with the national accounts.

Par 5.64. More specificity is needed here and at the very least a reference should be provided.

Par 5.65. What literature?

Par 5.70. Omit "new" and tell the reader where they can find details if they are interested.

Par 5.73. Odd that caveats are put on market prices but not on the other more debatable prices. Again, what if markets are imperfectly competitive or one treats the government as a type of monopolist?

Par 5.74. This section is about estimating the value of ecosystem services not the ecosystem services. It would seem that biodiversity is a way of estimating the service but not the value. Credits could be bought and sold and then the problem could disappear

Par 5.81. None of the last 3 methods mentioned are consistent with SEEA Valuation principles as they related to economic accounts.

Par 5.83. When would they be aligned with the SEEA valuation procedures? This chapter in general oversells the suitability of the presented valuation procedures.

Par 5.86 and Figure 5.2. What validation has this technique received? There is no monopoly supply curve. The discussion of simulated exchange is unclear on the exact valuation approach. The discussion under figure 5.2 suggests that hypothetical prices and quantities are used. But these hypothetical quantities would not match the recorded physical flows? What then?

Par 5.90. Confusing, after devoting a lot of space to total valuation concepts there is this sudden return to marginal valuation.

Par 5.96. Aggregation across ecosystems is more complicated. Given that the ecosystem is location specific and the quality of the services depend on location, what does it mean to sum monetary values, even if they exist? One can sum the sales of produced cars from different auto manufactures because the price captures the differences among the cars. But there is an underlying standardized unit, the car. If however, a car made in Michigan was said to be unique and not comparable to a car made in Ohio, then how can aggregation be achieved?

Par 5.104. For the benefits approach described in the preceding paragraph it would be useful to provide some references and a bit more discussion of the particulars. How is a reader to understand what is being described?

Par 6.6. Is this paragraph talking about environmental protection expenditures for a particular ecosystem?

Par 6.13. If an example cannot be provided then what is the point of the paragraph? Only stating that it is conceptually possible is not informative, unless you are going to provide some context.

Par 6.16. Are such data sets available?

Par 6.21. Is the point that PES would not be considered within the SNA boundary if there was no monetary transaction? If so, that point is not clear.

Par 6.31. If they are being added to the stock why can't they be considered as an offset?

Par 6.33. What is meant by conversions? It needs to be defined or discussed.

Paragraph 6.35. Another concern of the restoration cost approach is that is at odds with the inherent human-centric philosophy of the national accounts, wherein consumption by households constitutes final demand. Degradation of an ecosystem may occur with little-to-no impact on final demand. If the SEEA-EEA is to be integrable with the SNA, it must adhere to the same philosophy. (Now restoration costs may be in-line with other philosophies, such as 'deep ecology' and other notions of the living world having equal value to human life, but that is not the point-of-view of the SNA.)

Par 6.41. The first sentence should read "will certainly require assumptions".

Par 6.45. This is essentially an argument that some number is better than no number, which is counter to the whole notion that government provided statistics must rest on solid foundations.