



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 8: Principles of valuation for Ecosystem Accounting

Chapter 9: Accounting for ecosystem services in monetary terms

Chapter 10: Accounting for ecosystem assets in monetary terms

**Chapter 11: Integrated and extended accounting for ecosystem services and
assets**

Comments Form

Deadline for responses: 6 July 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 twelve 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

Questions related to Chapter 8

Question 1: Do you have comments on the principles proposed to underpin monetary valuation for the revised SEEA EEA, including the use of exchange values and net present value approaches?

Covers all the essentials with nuanced points expressed succinctly and clearly, with good use of examples.

Section 8.1.2 - It could also be pointed out that welfare values are not readily applicable to provisioning or marketed services so an exchange value approach enables the different types of ecosystem services to be accounted for on a consistent basis.

Doesn't mention that exchange values imply, by definition, that supply and use values are identical, and encourage identification of use / beneficiary. Typically, welfare valuation does not imply a transaction and a user. Some experimental sub-national accounts in the UK tend to include welfare values but do not identify user groups.

Question 2. Do you have any suggestions for topics to include in Annex 8.1?

Could note that the welfare value approach becomes more conceptually challenging when total or average values are used. For example, it does not make sense to ask what the welfare value is of the stock of a country's housing, because we can't do without housing. Reference Diamond-Water.

Also worth noting that welfare values can be negative – exchange values must be positive.

It would be helpful to say something about corporate natural capital accounting in the annex, if only to make the point that the same concepts of stocks and flows, and the same boundaries between the ecosystem and the economy, can readily be applied even if the applications and valuation methods differ.

Question 3. Do you have any other comments on Chapter 8?

Section 8.1. helpfully sets out the purposes of monetary accounting. We cover many of these in our [ENCA](#) guidance. We also include some other points which could be usefully considered. Accounts generally:

- Encourage balanced attention upon asset condition, current flow of services and expectations of future service flow
- Highlight key trends over time (as accounts are repeated) and, therefore, priorities for investment
- Enable clearer exposure of evidence gaps (“what we know least about”) and the incentive to fill them through developing new measurement and valuation methods and data sources
- Support systems-based thinking, identify new lines of inquiry linking previously disconnected spheres of operation or data, and support identification of priority areas of investment

- Provide a means of monitoring outcomes of strategies to make better use of natural capital, and encourage greater accountability
- Generate physical and monetary indicators, which may be derived directly from the accounts in combination with other socio-economic information
- Facilitate accountability and transparency relating to the use and benefit and funding of public natural capital assets

These are the more general points. As far as valuation is concerned, we note that monetary valuation in natural capital accounts offers particular advantages. It can:

- Provide a common metric through which services can be aggregated and compared within and across ecosystems, and at national level, can be compared and in time integrated with economic data in the National Accounts
- Highlight the value of non-market ecosystem services, and what is driving that value (or lack of value). It can be helpful to understand the relative differences in value (and hence potential trade-offs) between different services
- Demonstrate that natural assets are not simply a financial liability or a constraint, but offer real value to people and the economy (for every £1 spent, the asset generates a minimum of £x of benefit / service)
- Clarify who benefits from ecosystem services and by how much, potentially generating discussion of developing new equitable mechanisms to fund nature;
- Provide a base for scenario analysis, in which different forward projections of service flow can generate different estimates of net present value.

Questions related to Chapter 9

Question 4. Do you have comments on the range of valuation methods proposed for use in estimating exchange values of ecosystem services?

Table 9.2 presents a wide range of valuation options, and is moving in the right direction of a full listing of recommended methods for valuing each of the different services.

However, despite a general acknowledgement of the exchange value criterion, the exchange value justification for particular methods is tenuous or not explicit. For non-market ecosystem services, this justification could be strengthened by reference to clear principles (rather than assertions) such as :

(a) a clear description of the users and beneficiaries;

(b) the logic that the loss of the ecosystem service would increase monetary costs elsewhere in the economy, for government, businesses or households, either because of damage or mitigation (whichever are the lower);

(c) whether government may be posited as a (monopoly) buyer, especially of regulating or cultural services as a means of meeting public policy objectives (e.g. investing in urban parks to save on health costs; or in forestry to reduce carbon and pollutants).

These possibilities are not mutually exclusive.

9.27. **Similar markets method.** This in theory could apply to many recreational assets, e.g. where there is a large sample of sites involve parking or entrance charges. One problem is though, similar to SEV, that if you applied those prices to all comparable sites, visitor demand would go down, and the relationship between actual physical use of the service and the modelled use at the assumed market price would need to be properly accounted for. The same would apply with the mushrooms example, where use of non-marketed wild mushrooms would fall if a price were charged.

9.35. **Replacement** vs current park is an odd example, it seems to be replacement of the asset rather than the service. It's not clear where the word 'consumption' comes in. If replacing the asset with a similar asset (which may or may not provide the same range, quantity and quality of services) is a viable method then we need to work it through systematically.

The two options as currently understood seem to be: i) to replace one current flow with another (e.g. hand pollination instead of natural pollination) or ii) to make a capital investment to replace the service (e.g. flood barriers in place of flood protection), noting that in order to get flow values, the investment needs to be decapitalised and more than one service may be replaced.

Generally the replacement cost concept seems to be very widely applicable. It would be useful to have a much wider ranges of examples for different services. For cultural services in particular more guidance is required – how do we determine least cost for recreation services, for example?

9.38. **Damage cost approach.** More text needed here to highlight potential divergence from exchange values. Take for example flood regulation. A replacement cost approach (if applied correctly) that say values the cost of man-made replacements to forests, saltmarsh etc will provide a lower bound to welfare values, and provides an exchange value; but a damage costs approach would value the likely damages to properties etc that would occur in the absence of a replacement. This necessarily will be higher than the replacement cost (e.g. we build flood defences to avoid damages that are much greater than the cost of flood defences), so it is not a "least cost" approach if a replacement cost approach is available (although the latter may not be as robust). And it is problematic to posit that potential flood victims would actually pay up to the full extent of the potential damage.

Note that the focus won't be on services which "are lost due to human activity impacting on environmental condition, particularly through pollution" (second sentence refers): the focus will be on current services that would not be there if there were no ecosystem.

Note also that the description of services needs to be aligned with Chapter 6.

Generally, the Technical Recommendations said much more about the damage cost approach – this section appears to have been edited down a bit too much.

9.39. **Defensive expenditures.** Care needs to be taken that the alternatives are not simply a matter of taste (e.g. bottled water) or represent a bundle of benefits (e.g. double-glazed windows maintaining temperature as well as reducing noise).

9.43 - **Opportunity Cost approach.** Should address criticism of circularity i.e. it assumes the value of something by an alternative that might replace it, when the point at issue is whether it is worth more than its alternative. So if that alternative does arise, then there is no change in value in theory, when in fact it would have been based on a view that the value was less than the alternative. It can't inform you whether changing the use is preferable or not. Makes more sense where there is a strong social / political commitment not to convert e.g. central London parks have huge developmental value in theory.

Another issue is potential bundling and double-counting with other services.

9.44. **SEV method.** What if the manager does charge visitors? Later text suggests that these charges can be taken into account in the SEV, which would produce both a resource rent to the manager and (to the extent that the SEV is higher), a value to the household which are additive.

As noted above, one of the challenges with the SEV method is that the actual supply/demand in physical terms doesn't line up with the supply/demand used to determine the price.

9.49. **TC Method.** Also need to net off non-ecosystem costs / inputs which will be part of the output of recreational sites (e.g. playgrounds, visitor attractions, maintenance, signage, paths etc). This also applies to the caveat noted in the consumer expenditure approach (9.41).

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

9.11. It seems odd to cite use of resource rent for biomass provisioning when we are not recommending it. NB Clarity on the appropriate metric for amenity values would also be desirable.

9.12. An example for a specific sector would be helpful to clarify e.g. a farmer might benefit from biomass production and recreational opportunities.

9.23. **Directly observed prices.** These might be observable but only in a minority of cases, especially where the market is an infant one. So although the price could be applied to that particular service in that particular location, it can't readily be applied more widely within the EAA as a whole. Forest carbon prices are another example, where the market is fledgling and won't be representative of prices in a more mature market. This needs to be explained. It seems to be a different concept to "economically insignificant prices".

9.24. **Land rentals.** We believe land rentals is the preferred method for valuing agricultural biomass. Using farm incomes may be OK. Not keen on using resource rents.

Table 9.2. A lot of the boxes for different services are ticked! Does this mean that anything goes? It would be helpful to rank the different methods (e.g. Tier I entry level, Tier 2 standard, Tier 3 Gold standard) and also to separate out some of the individual services for which certain methods are more appropriate than others.

Questions related to Chapter 10

Question 6. Do you have comments on the definitions of entries for the ecosystem monetary asset account including ecosystem enhancement, ecosystem degradation and ecosystem conversions?

This chapter has come on well, it now sets out some important steps in understanding and measuring changes in asset values. In particular, we very much welcome the clarity on the measurement of enhancement and degradation, and the importance of unit prices of services in the decomposition of asset values.

Some work is still needed to make clear that the measurement of enhancement and degradation needs to be consistent with the changes in condition recorded in the condition account, for example:

10.9. Replace “that improve or are expected to improve” with “that have improved” [and as recorded in the condition account].

10.12. Although interesting, this para is almost redundant, and could lead to an expectation that compilers should take into account future improvements in condition as a result of these activities and record the resulting changes in asset value as enhancement.

10.15. “reductions in condition that can be reasonably anticipated”. This is ambiguous. Does it refer to future reductions in condition, or to reductions in future returns that can be reasonably anticipated? If the first, again it will be unrelated to the changes reported in the condition account.

10.32. This isn’t quite clear. First, by quality, we are referring to the quality of ecosystem services, not to the quality of the asset. Second, the effect of changes in condition will be recorded as volume changes, but specifically as enhancements or degradation; other changes in quality (not as a result of changes in condition) will be recorded as volume other changes.

Other comments, on conversions:

10.28. This convention doesn’t sound right. If conversions in physical terms are to be consistent with the recording of conversions in monetary terms, then updated information about the expected future extent of EAs will not be shown in the physical

account and will therefore have to count as a reappraisal. Is there a reason for the proposed convention?

Question 7. Do you have comments on the recommendations concerning the selection of discount rates for use in NPV calculations in ecosystem accounting?

We very much welcome the proposal to provide for the use of social discount rates for services which contribute to non-SNA benefits.

We also welcome the recognition implicit in para 10.67 that the assumptions behind the social discount rate should be consistent with the assumptions made in projecting future service flows. Specifically, this may mean that assumptions about future income growth underlying the social discount rate will need to be consistent with assumptions about the impact of future income growth on the level of services (e.g. through the demand for future recreation services or the future value of health benefits from air filtration services).

Question 8. Do you have comments on Annex 10.1 describing the derivation and decomposition of NPV?

It's very welcome, as it demonstrates that such decomposition is in theory viable. It's not an easy read and some further simplification may be required. Having said that, we don't actually have any experience of estimating the impact of current changes in condition on the future flow of services at an aggregate level (as it requires a lot of science), so for the time being estimates of degradation and enhancement will remain aspirational.

We have three concerns.

First, as footnote 12 confirms, decomposition is exact but not unique. The alternatives can all be averaged; or the order of the decomposition can be the subject of conventions. Table 10.5 seems to be, slightly arbitrarily, tending towards the latter. That is, that although condition decreased (line 3), and it would be possible to estimate what effect this would have on future services, because the change in demand more than offset the reduction due to condition, no degradation is recorded. It follows that following this convention, we would be failing to record the impact of actual degradation.

Second, we're not sure that a 'moving' asset life of 5 years gives results that can be interpreted in the way suggested. The revision of the end of the asset life from year t+5 to t+6 is a significant reappraisal, which needs to be properly accounted for. Of course, ideally we would assume either a finite or an infinite life (or failing that, 100 years, where

the change from t+100 to t+101 has minimal effect). If the example could be reworked with this consideration in mind, we would be more comfortable with the outcome.

Third, we think it's unhelpful to have a discussion on marginal prices per unit of area. Whereas we accept that it is a useful concept in order to decompose changes in extent, we prefer to view the ecosystem asset as an entity with a number of characteristics such as canopy or timber volume. Hence there is a choice of units for such marginal prices and area is just one amongst a number of other options: the concept on its own is not particularly meaningful. A parallel would be an asset such as a printer, where the unit price per cubic metre of printer might be one option, but would be equally meaningless.

Question 9. Do you have any other comments on Chapter 10?

10.13. This is probably wishful thinking. There are time lags between activities and changes in condition which in practice make such connections impossible to determine. There have been attempts to link carbon reduction activities to changes emissions – which should be easier than ecosystem condition – without success. Needs a caveat at least: “in theory”.

10.31. This comes across as too laissez-faire. It would be worth giving some examples of demand-led changes in expected future flows that could reasonably be classified as reappraisals, since this has tended to be the main driver of changes in asset values in the UK accounts to date.

10.35. “characterized by its extent, condition and management regime”. Not actually required for the purposes of the formula, and seems to leave out a host of other characteristics of the asset which are relevant to the provision of services (see the enabling factors in the Logic Chains for more examples).

10.40. We very much welcome the recognition that projections at individual asset level are likely to be challenging and that in practice projections will need to be undertaken at a more aggregated level. Notwithstanding the final sentence, the list of examples of institutional arrangements in para 10.62 suggests that national level arrangements, as well as the availability of national level projections of demand-side factors, will generally be dominant in determining future flows.

10.40, second sentence. It seems likely that most cultural services, and in particular recreation, are also to some extent provided by a combination of ecosystem assets (pending any clarification of this assertion in Chapter 6, of course).

10.50. It would be helpful to have a reference to other factors, such as the expected impact of Government carbon targets commitments on future carbon prices. In general it will be easier (though possibly more contentious) to take these kinds of factors into account, than to model expected future scarcities.

10.52. The three determinants of air filtration services are a subset of the factors that would ideally need to be taken into account: we suggest a minor amendment that the service “will depend in part on” a, b and c.

10.55. We very much welcome the recognition that demand-side factors need to be taken into account. Just to note that future provisioning services also now depend upon climate change (as para 10.58 suggests) and the ‘well-established demand-supply considerations’ may not project far enough into the future for accounting purposes.

Section 10.4. Whilst a section on ecosystem capacity and related concepts is welcome, it’s not clear that it’s needed in this Chapter and a more extensive consideration of the some of the concepts (such as potential supply) would seem to fit better in Chapter 12.

Questions related to Chapter 11

Question 10. Do you have comments on the proposed structure of the extended balance sheet that integrates the monetary values of ecosystem and economic assets?

In general, we agree with the proposal to structure the extended account around ecosystems. We note that this is what the table (almost) does (with the exception of land as provision of space), but is not what is described in the text, which suggests that it’s structured around environmental assets as in the Central Framework. If this were actually the case then timber resources, for example, would be shown separately to ecosystem assets and would be excluded from the value of the ecosystem assets.

Our one concern is with the treatment of urban ecosystems. It’s not exactly clear in Table 11.2 where these assets would be recorded, as they seem to be excluded altogether. But (as noted in our comments on Chapter 3), in practice the accounts for ecosystems in urban areas will distinguish a number of habitat types which are separate to the land under buildings and other produced assets. The argument in 11.24 that “urban areas are separately identified since ... the value of land ... will be the most significant share of the total monetary value” doesn’t make sense from the perspective of a balance sheet structured around ecosystem assets.

Question 11. Do you have comments on the approaches to assigning the ownership of ecosystem assets that underpins the structure of the extended sequence of institutional sector accounts?

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Question 12. Do you have any other comments on Chapter 11?

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