System of Environmental Economic Accounting

# *Discussion paper on valuation 1: Key issues for SEEA EEA revision with respect to valuation*

*for the* Forum of Experts in SEEA Experimental Ecosystem Accounting 2018

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# 1 Issue 4: Valuation concepts for ecosystem services and ecosystem assets

(reference numbers relate to the Revision Issues Note)

## 1.1 Valuation approaches

| Revision Issue Note: challenges | Scope of issue and relationship to other issues | Priority |
|---|---|---|
| Need to place relevant valuation concepts within the broader framework of potential environmental values (and wider welfare concepts, plural values)<br><br>Clarity on the purpose of valuation and links to the choice of valuation methods | Further work is necessary to recognise the alternative policy and analytical uses of values and to clarify the role of exchange values.<br><br>Discussions should focus on<br>i) Which valuation methods are SEEA accounting compatible?<br>ii) What criteria should be used for this assessment?<br>iii) What scope is there to include complementary accounts which incorporate welfare values? Which valuation methodologies would these accounts embrace? What kind of policy analysis questions could such accounts address? | H |
| Appropriate assumptions concerning institutional arrangements that should underpin the estimation of exchange values | Should exchange values be estimated with an assumption of perfect markets, monopoly markets or some other institutional arrangements?<br><br>What is the nature of the market that would have to be posited in order to generate market values for non-market services? What should be the relationship between this posited market and the institutions that currently exist within a country?<br><br>Some generic answers to these questions would be welcome, although it's likely to be necessary to consider this question service by service (and possibly country by country): a strong link with Issue 5 below. | H |

## 1.2 Additional conceptual issues on service valuation

| Issue | Scope of issue and relationship to other issues | Priority |
|---|---|---|
| Relationship between definition and measurement of ecosystem services in physical terms, the service that can be measured in monetary terms, and the distinction between services and benefits | This issue mainly concerns the treatment of cultural services, where the service tends to be measured in terms of use rather than the service actually delivered.<br><br>What is the ecosystem contribution to the benefit?<br><br>How do non-use values conceptually fit in with the accounting system? | M? |

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| | Links with Issue 3. Some consideration of the need for a classification of benefits might also be required. | |

### 1.3 Asset valuation

| Revision Issue Note: challenges | Scope of issue and relationship to other issues | Priority |
|---|---|---|
| Applying NPV requires the selection of discount rates and the estimation of the pattern of future flows relative to capacity | How should such choices be made in an accounting context, taking into account the potentially infinite asset lives and the reality that most ecosystem assets will generate a basket of services?<br><br>How do SEEA EEA based valuation methods relate to the valuation of ecosystem assets as public goods?<br><br>Four main issues:<br>i) How best to take into account expected changes in, condition and extent? Over what time frame?<br>ii) How can such projections be made reliably at a more detailed spatial level?<br>iii) Which discount rates are appropriate? When is it appropriate to use social rather than private rates and which rates should be used in the near, medium and long term?<br>iv) How best to measure and report the inherent uncertainty in such valuations? | M? |
| Extent to which there is an overlap in the NPV valuations and those present in the standard accounts. How might market values of land assets be used to estimate prices of ecosystem services? | Two related issues:<br>i) For agricultural land, the values will mainly be influenced by capacity to generate farm incomes but could be influenced by other factors such as economic development potential<br>ii) For property prices near areas of green space, hedonic pricing could be used to estimate the value of a combination of ecosystem services, primarily recreation and landscape values<br><br>Are there other instances that need to be considered?<br><br>Are the methods for converting capital value into annual flows of services sufficiently well established? | L? |

## 2 Issue 5: Valuation methods for key ecosystem services

| Revision Issue Note: challenges | Scope of issue and relationship to other issues | Priority |
|---|---|---|
| *Estimation of exchange values for ecosystem services* | | |

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| Appropriate valuation approaches in the situation of low or negative resource rents | Important in respect of agricultural biomass production, timber and fisheries. Water is separately considered below.<br><br>What alternative methods are available, and how appropriate are the assumptions underpinning their use in an accounting context?<br><br>How do we best assess the sustainability of the resource rents over time?<br><br>How should negative externalities associated with the production of provisioning services best be accounted for? | H |
| Approaches to the valuation of water | Water provisioning is an abiotic flow. The flow of clean water depends upon a range of both supporting and intermediate services, with inherent risk of double counting service values.<br><br>Would it be better to recognise that water is generated by the atmosphere, and that ecosystems simply regulate its flow and quality in a variety of ways? | H |
| Use of cost-based approaches such as restoration costs | See Issue 6. Discussions at the workshop in Bonn in April 2018 concluded that restoration costs do not tell us much about the value of individual services. | H |
| Use of data from PES schemes | See Issue 4 and the discussion of appropriate markets and institutions. | L |
| The conceptual basis for the inclusion of cultural services in an accounting system | See Issue 4 on the treatment of cultural services. | |

*Additional issue on individual service valuation*

| **Issue** | **Scope of issue and relationship to other issues** | **Priority** |
|---|---|---|
| Determining a list of key ecosystem services | Is it possible/desirable to establish a list of key ecosystem services from a valuation perspective, along with clarity on the nature of the service and the appropriate valuation methodology?<br><br>Links with Issue 3. | H |

## 3 Issue 6: Accounting for ecosystem capacity, degradation and enhancement

| **Revision Issue Note: challenges** | **Scope of issue and relationship to other issues** | **Priority** |
|---|---|---|
| Clarity on concept of ecosystem capacity and the basket of goods and services that would | Relevant to the calculation of NPV (Issue 4) and to measures of condition (Issue 2). | H |

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| underpin the measurement of capacity | The Technical Recommendations (Paras 7.33 *et seq*) set out a number of issues to be considered when attempting to measure changes in ecosystem capacity. The conclusion is that it should be a topic of on-going research, as a high priority. | |
| Connection between ecosystem condition and expected flows – clarity on the type of ecological considerations needed to develop estimates of capacity | Links with above issue, and with Issues 2 and 3. | H |
| Means by which measures of ecosystem degradation can be attributed to economic units<br>- allocation to multiple economic units<br>- connection to the treatment of restoration costs | This issue is linked to the above, but can be viewed as a refinement and hence of lower priority. | L? |
| Treatment of activity that maintains, restores or enhances ecosystem condition<br>- is that activity a good measure of the level of investment in the ecosystem asset?<br>- is the increase in NPV of the asset resulting from the expenditure a better measure of investment? | Restoration costs have high policy relevance, driven in part by the concern about emissions of greenhouse gases from degraded peatland. Hence this issue is related to the treatment of negative externalities within the accounting framework.<br><br>As far as restoration costs are concerned, initially the focus may need to be on clarifying the treatment of different types of actual, expected and aspirational spending (maintenance, restoration, enhancement) and associated costs (e.g. opportunity costs).<br><br>Additionally, clarity is needed on the extent to which restoration costs may be seen as replacement costs and used in the valuation of (a bundle of) ecosystem services. | H |