Comment form for the Consultation Draft

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

Your name:	Michael Vardon
Your country/organization:	Australia/Australian Bureau of Statistics, Bureau of Meteorology
Contact (e.g. email address):	michael.vardon@abs.gov.au or m.vardon@bom.gov.au

To submit responses please save this document and send it as an attachment to the following e-mail address: seea@un.org.

The comment form has been designed to facilitate the analysis of comments.

In Part I general comments on the structure and content of the draft document are sought. In Part II any other comments, particularly those of a technical nature should be included.

Relevant documents

Before submitting responses you are encouraged to read

Cover Note to the Consultation Draft

SEEA Experimental Ecosystem Accounting – Consultation Draft

Part I: General comments

In the box below please supply any comments on the structure of the document, the balance of material and the coverage of the draft including any thoughts on missing content.

Comments on the style, tone, and readability of the text are also welcome.

Please reference paragraphs numbers or section numbers as appropriate.

Introduction

1. We welcome the opportunity to comment on the draft System of Environmental-Economic Accounting: Experimental Ecosystem Accounting (SEEA - Experimental Ecosystem Accounting).

2. The document provides much needed guidance for the development of ecosystem accounts and all involved in the development of the SEEA – Experimental Ecosystem Accounting to date are to be congratulated.

3. The document is a significant achievement with the concepts outlined providing a clear direction for account construction, and at the same time not hiding the complexity of what is involved conceptually or practically. It will lead to the testing of methods to provide data to match the concepts.

4. Having the ability to experiment within the broad framework of SEEA provides an appropriate balance between the need for theoretical and practical innovation, with the need to keep the approaches as consistent with current international standards of the System of National Accounts (SNA) and the SEEA to allow for effective integration of data to meet real world information requirements.

5. The SEEA – Experimental Ecosystem Accounting reflects significant progress on ecosystem accounting made over the past decade, effectively translating mostly small-scale academic studies into a system that may be regularly implemented at national levels. The course of development within the UN statistical system has been remarkably rapid, given the first Expert Group Meeting on Ecosystem Accounting was held in in Copenhagen in May 2011 and reflects the goodwill and willingness of many disciplines and agencies to come together to reach understanding and agreement. Such goodwill has been evident in meetings of the expert group (Copenhagen, May 2011; London, December 2011 and; Melbourne, May 2012) as well as by the discussions in the London Group on Environmental Accounting (Stockholm, September 2011 and; Ottawa, October 2012) and the meetings of the United Nations Committee of Experts on Environmental-Economic Accounting (UNCEEA).

6. The comments below provide a range of suggestions for improving the document and are based on input from a variety of areas within Australian Bureau of Statistics (ABS) as well as comments submitted to the ABS by other government agencies as well as academics and others. The comments provided also reflect discussions made at workshops held in Canberra Australia in September and November 2012 to discuss the development of this document. The last meeting in November was focused entirely on this draft of the SEEA – Experimental Ecosystem Accounting.

7. While the draft of the SEEA – Experimental Ecosystem Accounting will be a significant milestone in the development of ecosystem accounting and official statistics more generally, we look forward to on-going involvement in the processes being used to develop the SEEA in order to more fully information decision-making and policy development in government. This will continue to require the involvement of a range of government agencies as well as others in non-government organisations and academia.

8. As noted above, the comments in this document reflect a broad consultation process undertaken by the ABS that has resulted in a range of inputs from people in Australia including from government, scientific and academic organisations, including:

    - Australian Bureau of Statistics (ABS)
    - Bureau of Meteorology, Australian (BoM)
    - Australian Bureau of Agricultural Resources Economics and Sciences
    - Department of Agriculture, Fisheries and Forestry
    - Australian National University
    - Commonwealth Scientific Industrial Research Organisation
    - Catchment Management Authorities of Victoria
    - Department of Sustainability, Environment, Water, Population and Communities
    - Department of Sustainability and Environment, Victoria
    - Department of Treasury and Finance, Victorian
    - Murray-Darling Basin Authority
    - University of Queensland
    - Wentworth Group of Concerned Scientists

Structure of comments

9. We have consolidated the comments of the ABS and those received from others into a single response. In doing so we have removed obvious repetition of points and tried to bring key points to the fore. This has sometimes meant that some specific comments by chapter and paragraph (which are included at the end of this document) are repeated under the general headings in the first part of the document.

10. Comments are arranged under the headings:
    - Terminology and concepts
    - Units
    - Classification of ecosystem services
    - Biodiversity
    - Valuation
    - References

11. Separate to the comments contained in this form we supply five documents as attachments to United Nations Statistics Division. These contain additional detail and background for consideration by the Editor and the Editorial Board in finalising the draft. These documents are:
    1. Specific comments by chapter and paragraph
    2. Some new text on units, building on the current text on units, as a track-change word document
    3. Australian examples of additional physical boundaries for areas that could be used for ecosystem accounting
    4. An Australian example of a scientific accreditation process for the data used to construct the accounts
    5. A note on valuation prepared by the ABS in September 2012 as part of the SEEA development process

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.

Terminology and concepts

12. Perhaps the hardest thing to achieve will be the adoption and use of a consistent terminology to describe concepts. As the text notes, many different professions are involved. Each profession has its own lexicon and this combined with the variety of meanings for common English words can lead to misunderstandings. It is also the case that some words are pejorative and where possible the use of such words should be avoided.

13. In general there is enough supporting text (i.e. context) to make specific meanings clear, but a few terms central the SEEA needed to be described and used with care. We have noted some specific cases of inconsistent use of terms in the text along with the inconsistent use of examples to support the explanation of the terms (see section 'Comments by Chapter and Paragraph').

14. The addition of a glossary, which we understand is intended, but has not been included with the current draft, will help to reduce inconsistencies and greatly assist in the interpretation of the document.

15. Specific suggestions on particular terms and concepts are identified below.

Degradation and enhancement

16. We understand the concepts behind these terms from the discussion in sections 4.2.3 pp. 56 to 59. However we would prefer that these terms be replaced by other terms. For degradation, we suggest "decreases due to human activity" (as per table 4.3) and for enhancement "increases due to human activity". This is consistent with paragraph 2.37. The use of these terms would not change the structure of the tables presented (Table 4.3), but would align better with the counterpart terms for "natural" changes (e.g. improvements due to natural regeneration, and here would also suggest the use of the word "increases" rather than "improvements"). This would also make the labels in the tables more intuitive. The choice of terms should also be reflected in chapter 6 (and in particular Table 6.1).

Ecosystems, Ecosystem Assets and Environmental assets

17. Ecosystems and ecosystem assets need to be defined clearly and consistently in the document. In this we suggest that you define ecosystems as early as possible (and probably paragraph 1.1), and note that the definition used is based on definition from the Convention on Biological Diversity (CBD).

18. The definition of ecosystems from the CBD given in paragraph 1.40, p. 10 should be that given in Article 2 (Use of Terms):

    > "Ecosystem" means a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit" see http://www.cbd.int/convention/articles/?a=cbd-02

    The year of CBD agreement (2003) should be added wherever it is mentioned.

19. We suggest that after the definition of ecosystems is added to paragraph 1.1, a new sentence be added to note that ecosystems can have varying degrees of human influence on them and the influence can be current or historical (this point is made in paragraph 2.2 but needs to be made clear from the beginning as some people interpret ecosystems as "natural") and that human influences in one area can have an impact on other areas (e.g. water pollution has a downstream impact). This makes the scope clearer from the very start.

20. We suggest the definitions of ecosystems and ecosystem assets be based on those already in the Central Framework:

    - **Ecosystems are areas containing a dynamic complex of biotic communities (for example plants, animals and micro-organisms) and their non-living environment interacting as a functional unit to provide environmental structures, processes and functions.** (This is

text from SEEA-CF 2.21)

- **Ecosystem assets are areas containing a dynamic complex of biotic communities (for example plants, animals and micro-organisms) and their non-living environment interacting as a functional unit to provide environmental structures, processes and functions that may provide benefits to humanity.** (This text is adapted from the definition of an environmental asset in the SEEA-CF (paragraph 2.17) with the definition of ecosystem (paragraph 2.21).

21. There is then a question as to whether there can be individual ecosystem assets (i.e. can some ecosystem characteristics be considered separate assets and if so what should they be called). In the draft, carbon and biodiversity are separately identified, and in relation to Figure 2.1 (p. 17) they would appear to be ecosystem characteristics. Carbon would also seem to align in character with the environmental assets of the Central Framework, along with species, which are part of biodiversity. In this it might be worth noting that at this stage of the development of ecosystem accounting, accounts of high level properties of ecosystem characteristics and their condition (e.g. resilience) are not practical, therefore it is reasonable and more feasible to first develop more basic accounts of ecosystem characteristics.

22. The ability to measure ecosystem assets them from two different perspectives (i.e. from services flows or by condition and extent) is covered in section 2.2.2 and again in Chapter 4 (e.g. 4.1). Section 2.2.2 would benefit from further clarification and the inclusion of some cautions about aggregating the results obtained from each of these approaches would be appropriate in paragraph 2.29.

23. There is also a need to clarify the relationships of environmental assets, ecosystems and the units (BSU, LCEU and EAU). This is addressed in comments on units and the specific suggested modifications to the text on unit which will be sent separately.

24. An issue is that more than one environmental asset can exist in one space, whether the space be a BSU, LCEU or EAU. In general, the chances of more than one type of asset (e.g. wetland and forest) occurring in one unit increase with the size of the unit. The same would be true for ecosystem services.

25. Related to the issue of scale are the characteristics of each of the units (i.e. BSU, LCEU and EAU). Each type of unit can have a range of characteristics but particular characteristics for a specific area could change depending on scale or with it being included within different spatial boundaries. For example, consider a particular area defined by a BSU for a small area (e.g. 1

hectare) that is completely covered in forest now and was also completely covered by forest in the past (i.e. at a particular reference date), and so has a high reference condition. The same area when included in an EAU (e.g. a local government area) could be shown as having a lower score because the other areas that make-up the EAU (which could be an aggregation of BSU) either have no forest cover now or in the past. This scale issue is partially addressed in the updated text in Annex 1, and hence there is room for further text on this matter.

26. One characteristic of ecosystem assets that requires development in measurement terms is resilience. As such it should be included in the research agenda. At present resilience is mentioned but little detail is given but there are initiatives underway in Australia and elsewhere which might.

Reference condition

27. Ecosystem condition is an important concept and it is appropriate that it is included in chapter 2 which introduces the main principles (i.e. ecosystem condition is outlined in paragraphs 2.30 to 2.32). Condition is difficult to measure and some mention of this is needed, perhaps as an addition to paragraph 2.32 but also elsewhere in the document.

28. In paragraphs 2.31 and 4.14, reference condition is defined as a particular point in time. It is appropriate that this is a primary way of defining reference condition as it provides an unequivocal reference. However, it needs to be noted that time is not the only method for determining a reference benchmark and that in different places human influence will be at different levels. As such some conceive the condition of an asset in reference to a state that is without, or with little, human influence which can be measured directly or more likely is modelled. We accept that defining such a state is problematic (and may indeed be given as a time reference) but a paragraph noting this conception of reference condition should be added, noting a few examples of its use. For example, this conception of condition is apparent in Europe in the EU Water Framework Directive which uses ecological status, with a high status is "no, or only very minor, anthropogenic alterations"[1]. Similar definitions of reference condition can also be found in Australia (e.g. the Sustainable Rivers Audit[2]).

29. We also note that the Central Framework includes individual environmental assets (e.g. land, timber, water and energy) and allows for some consideration of condition as a measure of the 'state' (see SEEA Central Framework, Table 5.7.1 Soil: changes in soil quality and paragraph 5.341 of

[1] Table 1.2, p. 38 http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2000:327:0001:0072:EN:PDF

[2] Page 7, section 2.2.2 http://www.mdba.gov.au/sustainable-rivers-audit/#

the SEEA Central Framework).

30. Developing principles of measuring the quality/condition/overall state of environmental assets was not considered in any detail in the Central Framework. As such it could be beneficial to draw attention to the fact that concepts addressed in Chapter 4 of the SEEA Part 2 could assist in providing direction to completing these lines items in the asset physical accounting tables of CF Chapter 5. This may be best addressed through additions to the research agenda.

31. Measurement of condition also raises issues concerning the data quality and data quality assessment frameworks (DQAF). At present DQAF is included as an annex, but it is probably appropriate to mention here (around paragraph 2.32), and add in more material to section 1.4 "Objectives and challenges in ecosystem accounting" and perhaps an extra paragraph after paragraph 1.29, which introduces the concept. References to the DQAF annexes should be made in both places (i.e. in Section 1.2 and in paragraphs 2.30 to 2.32).

32. Some suggested text on 'Scientific Accreditation of Ecosystem Condition' will be provided separately.

33. We suggest adding a section for accounting for river condition and can provide some material for this if the suggestion is adopted.

Units

34. The text on units is good but can be improved chiefly by acknowledging that the information for particular areas can come from a range of sources and that this information can be both aggregated to higher levels or disaggregated to lower levels depending on the scale of the accounting contemplated (which in turn depends on the question of analytical interest). A present the focus is on a bottom up approach, which is probably superior, but a top down approach is also valid.

35. Renaming the "units" as "areas" could help particularly those from geographic backgrounds as well as help make the distinction between economic units. That is, Basic Spatial Units (BSU) become Basic Spatial Areas (BSA) and Ecosystem Accounting Units (EAU) become Ecosystem Accounting Areas (EEA)

36. A short paragraph(s) outlining the economic units (establishments, enterprises) and their classification by industry (e.g. agricultural, mining, manufacturing, health, education, etc.) and sector (private, public) is required in the discussion of units. This is needed especially for chapter 5 and for people unfamiliar with the SNA (who are likely to large in number).

37. With this in mind we have suggested some specific edits and additions to the

existing document, done as track changes. This document will be supplied separately to UNSD.

38. For the LCEU these are just one representation of spatial areas, and we suggest that these are simply a special case of EAU. Again we will separately supply this information to UNSD.

Classification of ecosystem services

39. The classification of ecosystems is a difficult area that must be addressed in the SEEA Experimental Ecosystem Services. There are some problems with the classification as it stands in the draft. For example, the rules for establishing each of the divisions in the hierarchy seem to be different for each service and even within a particular service. For example, we note that materials provision (2-digit level) has at the 3-digit splits by both degree of human influence in production (i.e. cultivated and uncultivated) as well as splits by, for want of a better description, product type (i.e. plant and animal fibres, chemicals and genetic material).

40. Reducing the number of levels to two (i.e. deleting the current 3-digit level) would overcome much of the problem.

41. Regards of whether a 2 or 3 level classification is presented, in recognition of the state of development of the classification a more appropriate title would be "Interim Common International Classification of Ecosystem Services (ICICES) or Interim Classification of Ecosystem Services (ICES)

Biodiversity

42. The discussion and placement of text on biodiversity should be refined.

43. At present biodiversity is referred to in many contexts. For example, paragraph 1.23 states biodiversity is central to "understanding the operation of ecosystems" in paragraph 1.40 biodiversity "affects ecosystem function", in paragraph 2.4 biodiversity is a component of ecosystems, paragraph 2.5 states "biodiversity is a characteristic of ecosystems" and paragraph 2.9 refers to "ecosystem characteristic". These references would be clearer if in the first or second chapter (probably chapter 2) biodiversity was defined and there was a clear statement about how biodiversity relates to ecosystems/ecosystem assets.

44. Central to this discussion is the definition of biodiversity from the Convention on Biological Diversity (paragraph 4.104), which is appropriate to use in the SEEA – Experimental Ecosystem Accounting. In this definition, ecosystems are one level of biodiversity, with species the next. Genes are not included in the CBD definition but are added as a third level in the current paragraph 4.104.

45. We suggest that the material currently in section 4.5.2 be shortened and moved before the current section of 2.2, probably as a new section or as an addition to current section 2.1. If as a new section then it could be named "The relationship between biodiversity and ecosystems". The inserted text needs to be clear that both ecosystem/land cover accounts and species accounts are biodiversity accounts and that the 3rd level, genes, is not considered in the SEEA Part 2.

46. Some text linking ecosystem assets to biodiversity needs to be added to Section 4.1. In this it should be noted that ecosystems are the highest level of biodiversity, that the extent and configuration of different land covers can be seen as one representation of biodiversity and that the species occurring in particular areas (ecosystem assets) are one of the characteristics of ecosystems assets.

47. The focus of Section 4.5 would then be clearly species accounts, but would retain the name "Biodiversity accounts".

48. Additional consideration could be devoted to how biodiversity contributes beyond ecosystem processes (including inter- and intra-ecosystem flows plus ecosystem characteristics) and ecosystem services beyond provisioning services.

Valuation

49. The estimation of monetary values where there are non-monetary activities is a vexed issue in the SNA and SEEA contexts. It has been discussed for many years with limited progress and no resolution. It is also noted that the challenges faced in putting monetary values on ecosystem services and assets are the same as those faced by other attempts to put monetary values on non-monetary activities. The ABS has previously prepared a note on valuation relating to ecosystems and this will be forwarded separately as part of the additional material mentioned in paragraph 11 of this response.

50. We strongly support the mentions of the complexity and difficulties in valuation as well as the cautions given in the text in Chapters 1, 2 and 5. For the cautions, an additional point to add into the current paragraph 5.2 (which may need to be split into more than one paragraph) is that if different approaches to valuation are used for different services or assets then aggregation is not appropriate. Similarly, if different approaches to a particular service or asset are used in different areas, then aggregation is not appropriate.

51. For paragraph 5.2 it is noted that detailed data are needed. This point could be expanded to make explicit that valuation requires detailed physical data as well as detailed data on economic transactions. It should also be

mentioned, probably in a separate new paragraph, that developing monetary estimates of the value of services and assets should come after physical assessments of these assets and services. The point is made elsewhere in the document (Chapter 2, paragraph but this is not currently apparent if Chapter 5 is read in isolation from the rest of the document).

52. The point about the monetary valuation being reliant on physical assessment could also be made in chapters 3 and 4 (e.g. paragraph 3.4, 4.115).

53. The specific coverage of the SNA is very brief (2 pages, pp. 85-86). While the SNA is referred to other places is other, a long treatment would seem appropriate, particularly since two of the audiences for this document (ecological economist and ecosystem scientists) will have no or very little information on it. The current section could be expanded or an annex (or both) could be added to address this. Further explanation of the principles of the SNA is appropriate as without understanding these, ecosystem accounting is unlikely to produce valuations that can be integrated with the SNA. In the short term we see no alternative to the SNA based approaches but note that valuation is likely to be a substantial part of the research agenda.

54. A key risk in using non-SNA approaches in the SEEA Experimental Ecosystem Accounting is that potential users will focus on the contentious aspects of the valuation methods and debate them endlessly rather than accept the valuations from ecosystem accounting as meaningful statistics for analytical purposes.

55. Ideally, interested parties would work together to agree on a common approach to valuing non-monetary activities, noting the complexities of measurement in both theoretical and practical terms and the need to align with the SNA principles of valuation. This is essential for adjusted measures of income and comparable asset values (issues picked up in some detail in chapter 6).

56. It is accepted that it is appropriate to recognise the broad range of approaches and their conceptual basis in the discussion of chapter 5, with links to the approaches used in the SNA and SEEA clearly articulated. The cautious approach adopted, particularly the absence of recommendations in chapters 5 and 6, is supported, as is the inclusion of the contrary views on these topics (e.g. as is done in paragraph 6.4(i) and the justification for including this chapter (given in paragraph 6.5).

References

57. A greater level of referencing is recommended within the text given the

experimental nature of these accounts. At present a mix of author date and footnotes are used and this needs to be made consistent.

58. We suggest that a bibliography be added. The bibliography could be structured by topic (e.g. ecosystem services, ecosystem condition, valuation, etc.) and would include both cited references and other references which those striving to implement the accounts could find useful, be added. We offer the following examples of additional references for inclusion, if the suggested bibliography is adopted:

Australian Bureau of Statistics (2012). Completing the Picture: Environmental Accounting in Practice. http://www.abs.gov.au/ausstats/abs@.nsf/mf/4628.0.55.001

Australian Bureau of Statistics (2012). Land Accounts, Victoria: Experimental Estimates. http://www.abs.gov.au/ausstats/abs@.nsf/mf/4609.0.55.002

Australian Bureau of Statistics (2011). Land Accounts, Great Barrier Reef Region: Experimental Estimates.http://www.abs.gov.au/ausstats/abs@.nsf/mf/4609.0.55.001

Cosier, P. and Sbrocchi, C. 2012. Trials of Environmental Asset Condition Accounts in Australia. 7th Meeting UN Committee of Experts on Environmental-Economic Accounting, Instituto Brasileiro de Geografia e Estatistica, Rio de Janeiro, 11-13 June 2012. http://www.wentworthgroup.org/uploads/UNCEEA%20Rio%202012%20Cosier-Sbrocchi%20paper.pdf

Gibbons, P., Briggs, S.V., Ayers, D.A., Doyle, S, Seddon, J., McElhinny, C., Jones, N., Sims, R., and Doody, J.S., 2008. Rapidly quantifying reference conditions in modified landscapes. Biological Conservation 141: 2483 –2493.

Grafton, Q. 2003, Property and Resource Management in Australia: Rights and Responsibilities. Australasian Journal of Environmental Management 10, 70-72

Hein, L., 2010. Economics and Ecosystems: Efficiency, Sustainability and Equity in Ecosystem Management. Edward Elgar.

Land and Water Australia, 2002. Property: Rights and Responsibilities; Current Australian Thinking. Land and Water Australia, Canberra.

Scarbough, H., Bennet, J., 2012. Cost-benefit Analysis and Distributional Preferences: A Choice Modelling Approach. Edward Elgar.

Stoneham, G., O'Keefe, A., Eigenraam, M., Bains, D. 2012. Creating physical environmental asset accounts from markets for ecosystem conservation. Ecological Economics 82, 114-122

Walker, B., Salt, D. 2012. Resilience Practice: Building Capacity to Absorb Disturbance and Maintain Function. Island Press.

Yapp, G., Walker, J., Thackway, R., 2010. Linking vegetation type and condition to ecosystem goods and services. Ecological Complexity 7, 292-301.

Attachments 1 to 5 sent separately