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Background document
Available in English only

System of Environmental-Economic Accounting—Ecosystem Accounting: Summary of feedback and responses to the Global Consultation on the complete draft of the SEEA EA

Prepared by the Committee of Experts on Environmental-Economic Accounting

Background

The process for the revision of the SEEA 2012 Experimental Ecosystem Accounting has been underway since 2018. Extensive research, discussion and testing across all of the components of ecosystem accounting has proceeded over the past three years including two rounds of global consultation on drafts of the SEEA Ecosystem Accounting (SEEA EA) through 2020. A first round of consultation on the core substantive Chapters 3-11 took place progressively in three tranches from March to August 2020. Over 200 responses were received across the three tranches with substantive feedback received in relation to the various questions posed about the material.[1] A summary of the feedback received from those processes and the responses made is available on the UNSD website.[2] A second round of consultation took place from late October to late November 2020 encompassing a draft of all 14 chapters. Over 90 responses were received, including from 58 national government agencies from 49 countries and territories, 20 regional and international organizations or NGOs, and 14 individual experts from academia and other associations. All of the individual responses to both rounds of global consultation can also be accessed on the UN Statistics Division website.[3] A sincere thanks is expressed to all of those who contributed their time, experience and knowledge to the process.

This background paper focuses on the feedback received from the second round of global consultation on the complete SEEA EA draft and proposed responses to that feedback with a focus on issues concerning definitions, concepts and treatments across the various accounts. The proposed responses have been developed under the guidance of the SEEA EA Technical Committee which has played the role of an editorial board through the revision process. This paper does not provide a complete itemization of all comments received or a description of responses to individual comments.

General feedback and responses

Overall, the feedback on the chapters indicated widespread and strong support for the ecosystem accounting framework and the associated definitions and treatments. This reinforced the feedback received from the first rounds of global consultation. Given the nature of the subject matter and its focus on the integration of environmental and economic data, the feedback revealed some varying perspectives and concerns on the rationale and manner in which accounting should be undertaken, particularly as it related to the monetary valuation of ecosystem services and ecosystem assets. However, these types of concerns were raised in a limited number of responses (less than 10).

There was some feedback expressing concern that the level of testing of the various concepts and associated classifications was not sufficiently advanced such that the conceptual material could be considered ready for adoption as a statistical standard. While recognising the need for, and merits of, more testing, the majority of reviewers indicated that the concepts were sufficiently robust, although some feedback indicated concern as to whether this subject

[1] All comments can be found at: https://seea.un.org/content/global-consultation-individual-chapters

[2] https://seea.un.org/sites/seea.un.org/files/documents/EEA/Revision/2._seea_ea_global_consultation_on_complete_draft_october_2020_an_overview.pdf

[3] https://seea.un.org/content/global-consultation-complete-draft

matter should be a focus for national statistical offices but these views were very much in the minority.

Notwithstanding the broad support, there were several calls for amendment, clarification and explanation of specific definitions and treatments. As should be expected given the number of responses, not all views as to what should change and what the definition or treatment should be, were aligned. The proposed responses have therefore aimed to reflect a balance of views on the various issues including consideration of past discussions on the issues with guidance on the proposed responses being provided by the SEEA EA Technical Committee.

Beyond comments focused on conceptual and technical matters, there were a reasonable number of comments that concerned issues of implementation of ecosystem accounts and the development of practical guidelines. Since implementation is not a focus of the SEEA EA text itself, no responses to these issues are provided here. Nonetheless, it is noted that there has been a significant volume of work undertaken and ongoing on the testing of ecosystem accounting concepts over the past 8-10 years based on the initial SEEA EEA. Further, there is ongoing preparation of technical guidance and training materials which will support implementation of SEEA EA.

As well, many responses provided editorial suggestions and included requests for additional examples. As appropriate the editorial suggestions have been incorporated and are not further noted here. The request for additional examples has been answered to some degree however the on-going focus of the re-drafting has largely been on conceptual matters. For the finalisation of the SEEA EA it is intended that a stylised example will be incorporated with relevant estimates to be included in the relevant accounts through the document, or as an (online) annex to the document. This will, however, be finalized together with the final publication.

The remainder of this document provides a summary of feedback and the proposed responses for five sections: Section A – chapters 1 & 2; Section B - chapters 3-5; Section C - chapters 6 & 7; Section D - chapters 8-11; and Section E - chapters 12-14.

SECTION A: Introduction and overview (Chapters 1 & 2)

Chapter 1

Chapter 1 provides a general introduction to the SEEA EA.

The feedback on Chapter 1 was positive overall and no significant changes to the structure or general coverage of the chapter were proposed. A number of responses called for a reworking of the initial paragraphs to better place the work on ecosystem accounting in context before explaining what the SEEA EA is. Also, there were requests to be clearer in what the SEEA EA was not able to do. Concerning the general introduction to implementation and application there were requests to better recognise the role of non-NSOs in implementation and to extend the discussion on the uses and applications of the ecosystem accounts.

In response, the opening sections have been reworked to include a new section title “Context for SEEA EA” ahead of the section “What is the SEEA EA?”. This latter section has been amended to include a discussion on the limits of the SEEA EA, particularly as it applies to the coverage of its monetary values which exclude consumer surplus and non-use values, in line with national accounting principles. Text has been changed in some places to note that the ecosystem accounts are aligned with and complement data from the national accounts to respond to a concern that the text may be interpreted to suggest that the SEEA EA was

redefining GDP and other SNA aggregates. An additional paragraph has been included to recognise the role of non-NSOs, in particular environmental agencies, in the implementation of ecosystem accounting. Some additional text has been incorporated in the section on use and applications noting that it is not the role of this chapter, or the SEEA EA more generally, to provide a comprehensive description of these aspects.

Chapter 2

Chapter 2 provides an overview of the conceptual framework of the SEEA EA.

The feedback on Chapter 2 was also positive in line with the comments above indicating the general support for the conceptual framework. The main concern with respect to the description of the framework was related to Figure 2.1. In relation to the overview of the set of ecosystem accounts no substantive comments were received on the five ecosystem accounts aside from a request for more elaboration on the conceptual structure of the accounts themselves. One response raised concerns about the inclusion of the range of related accounts and requested they be excluded from the document.

Several responses raised concerns with the presentation of the material in Section 2.4 on the framing of values in ecosystem accounting, particularly with respect to Figure 2.4. Two responses suggested the whole section should be dropped but quite a number indicated their support for the section subject to amendment.

In response, Figure 2.1 has been re-worked taking on board the specific feedback received. It is noted that the text describing the elements of the framework will be edited to ensure alignment with the detailed descriptions in the relevant chapters. On the description of the ecosystem accounts, a more extended approach has been adopted picking up some aspects of presentation from SEEA Central Framework Chapter 2. The discussion of related accounts has been retained noting that at the beginning of Section E a short overview has been included to explain that these chapters are different from Chapters 1-11 and that their purpose is to introduce a range of potential applications and connections along the same lines as SNA Chapters 19-29.

Concerning the section on the framing of values, it has been retained but the material describing the multiple value perspectives has been re-worked to better reflect the literature and with a focus on the link to the values recorded in the SEEA EA. In particular, Figure 2.4 has been removed. In general, it is noted that there is no intention for the SEEA EA to define a values framework but it is considered important that the estimates from the SEEA EA are placed in context.

SECTION B: Accounting for ecosystem extent and condition (Chapters 3 – 5)

Chapter 3

Chapter 3 discusses the definition of spatial units for ecosystem accounting, principles and practices for their delineation and the reference classification of ecosystem types.

The feedback on Chapter 3 raised no substantive concerns on the conceptual content. There were requests for clarification on the treatment of marine ecosystems, aquifers, subterranean ecosystems and complex mosaics but the focus was on clarifying the drafting of material rather than questioning the treatments. The SEEA Ecosystem Type reference classification

based on the IUCN Global Ecosystem Typology (GET) was widely endorsed. Two responses raised concerns on the potential loss of control in using a classification from a non-statistical source.

In response, amendments have been made to clarify the treatments of the various ecosystem types and a number of other improvements to the explanation of the concepts and treatments have been incorporated. With respect to the use of the IUCN GET, it has been confirmed that IUCN is an authorised custodian of statistical classifications and given the close working relationship with IUCN, including its membership by many governments, no issues in the use of the GET for statistical purposes are envisaged.

Chapter 4

Chapter 4 describes the ecosystem extent account and associated entries and treatments.

The feedback on Chapter 4 highlighted the need to clarify the explanation of managed and unmanaged expansions and regressions and some called for replacing the term regression with reduction. There were some requests for improved explanation of the ecosystem type change matrix. There was one proposal to include a concept of reference extent reflecting the composition of ecosystem types across an ecosystem accounting area at a baseline period to support the assessment of current period changes.

In response, amendments have been made to the description of managed and unmanaged to cater for specific cases raised in the responses. The term regression has been placed by the term reduction and the labels in Table 4.1 have been amended to align with the text of the chapter. The logic of the ecosystem type change matrix has been explained. The proposed concept of reference extent has not been included specifically but mention has been made of the relevance of assessing a baseline composition of ecosystem types. Also, it is proposed to include the concept of reference extent in the discussion of indicators that may be derived from extent accounts in Chapter 14.

Chapter 5

Chapter 5 describes the measurement of ecosystem condition.

The feedback on Chapter 5 indicated ongoing broad support for the three-stage approach for the measurement of condition and for the change introduced following the first round of feedback to treat the third stage involving the derivation of aggregate indicators as optional and dependent on user requirements. There was also continued broad support for the focus on ecological integrity noting that a small number of responses indicated a preference for a focus on the potential to supply ecosystem services in the measurement of ecosystem condition. Clarifications were sought on the appropriate scope of landscape and seascape characteristics and there were concerns raised on the use of reference conditions. Finally, there was support for the inclusion of the table showing indicative characteristics (Table 5.7) but a request for further explanation on the potential to use pressure indicators in the measurement of ecosystem condition.

In response, given the general support for the approach described no substantive changes have been made to the chapter. The main development has been a re-working of Annex 5.1 which described options for establishing reference conditions. This re-working sees a much clearer explanation of the distinction between natural and anthropogenic ecosystems and the range of different framings and methods that may be applied. This re-working makes it clear that it is not proposed to assume a natural reference condition in all contexts which has been

a longstanding concern. The related text in section 5.3.3 on reference conditions has been adapted. Also, text has been incorporated to better explain the link to measures of biodiversity in particular concerning measures of beta and gamma diversity which operate at scales larger than the ecosystem asset scale.

SECTION C: Accounting for ecosystem services (Chapters 6 & 7)

Chapter 6

Chapter 6 presents the definitions and treatments related to recording ecosystem services in the ecosystem accounts.

The feedback on Chapter 6 also confirmed the broad support for the approach taken to defining ecosystem services and related concepts such as benefits and abiotic flows. There were requests for further clarification of the wording used in the definition of ecosystem services with respect to the words "used" and "activity" suggesting these might be interpreted too narrowly. While there was support for the definition of intermediate services a number of responses requested some additional explanations and also for ensuring consistency on description and application of this concept across the document, especially in Chapter 7.

The ecosystem services reference list was broadly endorsed as providing suitable coverage of services but many specific comments were made in relation to the descriptions of individual ecosystem services. The exclusion of non-use values was generally supported but it is recognised that this is a difficult area since there is no doubt that these values are significant in many contexts. In terms of treatment of specific ecosystem services, most comment concerned biomass provisioning services. A number of responses requested that the balance of the recommendation move toward encouraging derivation of an ecosystem share of gross biomass harvested as the measurement approach and some requested that the use of gross biomass harvested be rejected. There were also a range of requests to clarify the treatment of livestock, orchards and services that are inputs to biomass provisioning. Three responses raised concerns about the proposed approach to global climate regulation services based on carbon retention and requested a higher presence be given to the measurement of carbon sequestration.

Finally, a number of responses were received in relation to the discussion of ecosystem capacity. While there was general support for the direction in focusing on capacity in relation to individual ecosystem services, a range of clarifications have been proposed, including for example, better recognition of the distinction in the application to different ecosystem services and better distinguishing capacity from concepts of sustainability.

In response, using the feedback a range of improved descriptions have been incorporated with respect to the various definitions but the definitions themselves, e.g., of ecosystem services, have remained the same. The reference list has been reviewed again by a panel of ecosystem service classification experts and an improved version that takes into consideration the detailed comments from the global consultation has been included. The treatment of non-use values has been retained but the rationale has been amended to reflect comments received. On biomass provisioning services the balance of the recommendation has moved slightly towards further encouraging measurement of the ecosystem share but the option of using gross biomass harvested has been retained. On global climate regulation services, the balance of text has been amended to give greater recognition of a carbon sequestration based approach to measurement in certain contexts. On ecosystem capacity, the definition has been retained but additional discussion has been included to explain the concept of capacity in

relation to other concepts of potential supply and ecosystem capability that apply slightly different assumptions, for example with respect to sustainability.

Finally, the final SEEA EA will contain an extended set of logic chains covering all ecosystem services in the reference list and the proposed correspondences between the reference list and other ecosystem service classifications and typologies remains under development and will be provided as supporting material following the release of the SEEA EA.

Chapter 7

Chapter 7 describes the ecosystem services flow account in physical terms and details accounting entries for various types of flows.

The feedback on Chapter 7 proposed a range of small changes to the design of the supply and use tables (SUT) and called for a range of improved explanations of the accounting entries for specific cases. There were requests to consider further the treatment of collective consumption of public goods as only applying to government units as users and to clarify the entries required when businesses are involved in the supply of recreation-related services to visitors. Some questions were raised on the measurement baselines but the general principles were endorsed.

In response, improved explanation and refinements of the tables have been introduced particularly as it relates to the treatment of intermediate services and exports and imports of services. On collective consumption, it has been clarified that for those ecosystem services which are not strictly public goods (e.g. flood mitigation services) where an allocation to individual users (e.g., households and business) can be made then an allocation should be made. On entries when businesses are involved the treatment in Chapter 7 has been retained but amendments have been made in Chapter 6 to ensure consistency of treatment. Refinements have been made to the discussion of measurement baselines, primarily extending the notes in Table 7.7.

SECTION D: Monetary valuation and integrated accounting for ecosystem services and assets (Chapters 8 – 11)

Chapter 8

Chapter 8 introduces the principles of monetary valuation for ecosystem accounting.

The feedback on Chapter 8 was largely in the form of requests for improved explanation of context for valuation in ecosystem accounting and improved description of the concept of exchange value. These comments need however to be considered in light of more substantive concerns from a small number of reviewers on the wider merits and rationale for valuation using exchange values as described in Chapters 8 – 11. Responses to these wider concerns are not discussed in this note.

In response, to specific comments concerning chapter 8, the text has been refined to improve the description of the potential applications and limits of exchange values; to better explain the structure of valuation methods used in the SNA and their focus on estimating market prices; and to recognise the need for the use of value transfer techniques.

Chapter 9

Chapter 9 describes the ecosystem services flow account in monetary terms and presents the range of valuation methods that can be applied in the measurement of exchange values of ecosystem services.

The feedback on Chapter 9 supported the design of the supply and use table but requested additional explanation of entries related to intermediate services and on the links to the entries in the physical SUT. With regard to valuation techniques there was general support for a better presentation of a hierarchy or preference order on valuation methods, this had been attempted but was not sufficiently clear. A range of comments on specific methods were provided. Of particular note was the request for an improved description of the travel cost method. The usefulness of Table 9.2 was questioned as its implicit advice seemed too flexible in terms of supporting the comparability of results across countries. Finally, notable concerns were raised by experts with knowledge of value transfer techniques on the material presented on this topic in section 9.5.

In response, improved descriptions of the supply and use table and relevant entries have been made, including explanation of the links to the same account in physical terms. The presentation of the preference order for valuation methods has been improved with a logic that follows the SNA in many respects. Improvements have been made to the descriptions of the valuation methods based on specific feedback. Table 9.2 has been removed recognising that this material is best placed in technical guidance on valuation. Section 9.5 on value transfer has been revised in consultation with the experts who raised concerns.

Chapter 10

Chapter 10 presents the monetary ecosystem asset account, including entries for ecosystem degradation, and describes the measurement of the net present value of ecosystem assets.

The feedback on Chapter 10 supported the approach taken. Some clarifications were sought on the definitions of ecosystem enhancement and ecosystem condition and the link to the measurement of ecosystem condition; and on the links between the asset accounts and other ecosystem accounts (e.g., the extent account and the ecosystem services flow accounts). Further, one response noted the longer term potential to link more closely to measures of ecosystem capacity. In the discussion of the measurement of NPV there were some requests for clarification and improved explanation. A small number of comments were received on the proposed use of social discount rates for specific ecosystem services and one request to limit the definition of social discount rates to only those based on long term government bond rates. On Annex 10.1, a range of comments were received seeking improved explanation and presentation of the example provided.

In response, some amendments have been made to the descriptions of the accounting entries to better explain the link to condition and to better highlight the links to other accounts. The longer-term potential to link to measures of capacity has also be noted. Amendments have also been made to the explanation of measurement using NPV based on specific comments received, with a particular focus on clarifying the NPV formula that is used. With regard to social discount rates, the proposed approach in the chapter has been retained given the general support and the challenges of providing prescriptive advice in this area. Improvements have been made to the explanation of the example in Annex 10.1 based on the range of feedback.

Chapter 11

Chapter 11 describes the potential connections between ecosystem accounts data and three different national accounts outputs – the supply and use table, the balance sheet and the sequence of institutional sector accounts.

The feedback on Chapter 11 was generally supportive of the descriptions. One response felt that the connections being made were inappropriate and poorly developed and concluded that this material should be removed from the document. Some highlighted potential refinements in the extended SUT. A number of responses raised points of detail on the description of the extended balance sheet and treatments of individual assets, noting in particular the lack of a clear connection to the values for ecosystem assets recorded in the monetary ecosystem asset account in Chapter 10. A few responses raised concerns on the institutional sector accounts in relation to the description and assumptions concerning ownership, and in relation to the treatment of costs of supply for the new ecosystem trustee quasi-sector. One response requested an explanation of the treatment of ecosystem enhancement in the measurement of adjusted income aggregates.

In response, the general view from the feedback was that the material and content is appropriate for the document and aligned with similar material presented in SEEA Central Framework Chapter 6 in terms of providing extended national accounts outputs. At the same time, particularly concerning the balance sheet, refinements were required. To this end, adjustments have been made in the description of the extended SUT; and a range of changes have been made to the treatments of individual assets in the balance sheet to ensure a clear connection to the ecosystem asset values in Chapter 10. These changes particularly concern asset values for cultivated biological resources. The model applied for the institutional sector accounts has been retained but the discussion of ownership has been amended to better recognise the distinction between land ownership and ecosystem ownership and to recognise the implications of the model that has been used.

SECTION E: Complementary valuations, thematic accounting and indicators (Chapters 12 – 14)

Chapters 12 – 14 provide complementary material to support the wider understanding of the potential of ecosystem accounts to support a wide range of applications and extensions. The development of ecosystem accounting has connected to many different measurement and valuation approaches, identified links to a number of important policy themes and been recognised as an important tool to support the development of coherent and consistent indicators.

The feedback on these Chapters was very positive with appreciation for recognising explicitly the links to many related initiatives and helping to clarify the role and potential of ecosystem accounting. There was also support for recognising the links to the SEEA Central Framework. The comments on Chapter 13 on thematic accounting highlighted the need to be much clearer in the nature of thematic accounting in going beyond ecosystem accounting to show linkages to other accounts and how this wider body of accounting information can support decision making for specific themes. A number of responses highlighted issues of detail concerning specific complementary valuation methods, thematic accounts and indicators. One response requested that the material in the three chapters was not appropriate for the SEEA EA.

In response, the general focus of the chapters has been retained and the general messaging about the role of the chapters in relation to the ecosystem accounting framework described in chapters 1-11 has been strengthened. Also, more consistency in the presentation of thematic accounting has been introduced across the four themes of biodiversity, climate

change, oceans and urban areas to better highlight the role of ecosystem accounts. In the discussion of indicators more balance has been introduced to reduce the discussion of global indicator frameworks. Also, text of combined presentations has been moved to the end of the chapter. Across all three chapters, the range of specific comments on sections of text have been incorporated.