Updating the research agenda for the SEEA Central Framework

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Introduction

In 2012 the SEEA-CF was adopted as an international standard by the UN Statistical Commission. In the period 2006-2011 the London group, as a technical group of experts, played a key role in the establishment of the SEEA-CF by writing issue and outcome papers for the revision process, which were discussed during the different meetings of the group. The SEEA-CF also includes a research agenda, prepared by Carl Obst the editor of the SEEA CF (see the annex of this note). This research agenda includes a list of several topics that may need further research in the future.

The SEEA Central Framework must be reviewed to assess its ongoing relevance as the environment and the economy change, as understanding of the links between the environment and the economy develops, and as policy and analytical requirements evolve. In addition, as implementation of the SEEA Central Framework occurs increasingly across the world, the range of experience gained will offer new insights that should be considered in the conceptualization of the environmental and economic accounts. Also, developments in the System of National Account (SNA) as the accounting basis for the SEEA need to be considered.

As is also stated in the SEEA CF research agenda, the process for reviewing and updating the SEEA Central Framework will follow standard processes that have developed for the review of international standards. Thus, there will be consideration within the United Nations statistical system of (a) the relative importance of updating the standard to ensure its ongoing relevance; (b) the consequences of making any changes and the potential impact on implementation; and (c) the extent to which research into a proposed area of change has

been completed. The process for selecting topics for investigation and determining the appropriate changes to the SEEA Central Framework will involve widespread consultation and involvement of compilers and users.

The purpose of this note is to review the 'old' SEEA-CF research agenda and to initiate new work for topics listed there. In the past few years, i.e. since 2012, already some work was done in different areas, for example by the OECD on asset accounting and by Eurostat on environmental activity accounting. First, the list of topics has to be reviewed and were needed to be complemented. Second, a process has to be established to start work on these issues and the role of the London group has to be determined.

Topics for the SEEA-CF research agenda

During the preparation of the SEEA Central Framework some major topics were identified that would benefit from further consideration within the international statistical community. These topics are described in the research agenda that is part of the SEEA CF:

1. Development of classifications

The SEEA Central Framework contains a number of classifications that assist in explaining the breadth of various concepts and also serve as a basis for classifying different stocks and flows. Generally, the classifications in the SEEA Central Framework are presented only at a relatively high or summary level. In the drafting process, it became clear that the detail for certain classifications would require further consideration. Specifically, the CEA (classification of environmental activities) with regard to resource management activities, the land cover classification and the classification of land use need further work. *And possibly, a classification for residuals (which is not part of the SEEA CF) may be considered.*

2. Development of consistent valuation techniques beyond the SNA in the absence of market prices

The SEEA Central Framework does not address the valuation of stocks and flows that are neither "market" nor "near market", but that fall within the measurement boundary in physical terms. An example is the full valuation of water stocks and flows.

3. Definition of resource management

The definition of resource management activity for the purposes of the Central Framework was complicated by a lack of clarity on the ideal scope of the resources that should be considered. In some circumstances, limiting consideration only to natural resources seemed appropriate, while in other cases, the inclusion of cultivated resources seemed relevant. Therefore, a review of the scope of resource management activity should be undertaken.

4. Accounts and statistics relating to the minimization of natural hazards and the effects of climate change

The SEEA Central Framework limits the scope of economic activities considered to be environmental to environmental protection and resource management activity. However, it is recognized that there are a number of other economic activities that are related to the environment which may be of particular interest for policy and analytical purposes. A specific set of activities encompasses efforts to minimize the impact of natural hazards (such as floods, cyclones and bush fires) and efforts to mitigate, or adapt to, the effects of climate change. It is recommended that work in these areas be considered to fall within the remit of the SEEA so that alignment of accounting conventions and links to other parts of the SEEA Central Framework can be properly established.

5. Depletion of natural biological resources

The definition and measurement of depletion of natural biological resources require an integration of economic concepts and scientific information in the form of biological models. While the principles for the purposes of the SEEA Central Framework have been clearly outlined, there is a need for further research and application of these principles, and an assessment of the usefulness of the conceptualization in the SEEA for policy and analytical purposes.

6. Accounting for soil resources

Accounting for soil resources is discussed in the SEEA CF. On the other hand, there is little practical experience in the implementation of soil accounting. While it is appropriate to highlight both the connection of soil with land and the status of soil as a complex biological system, the SEEA shows that significant information with a broad scope can be usefully organized around the concept of soil as a separable environmental asset. However, more research and collaboration are needed in assessing the usefulness of soil asset accounts for the purposes of managing this fundamental resource.

7. Valuation of water resources

Within the general scope of advancing water accounts, it is recommended that further investigation be undertaken to develop techniques and methods for the valuation of water resources consistent with the valuation principles in the SEEA Central Framework.

8. Approaches to the measurement of adapted goods

In concept, there is agreement on the inclusion of adapted goods in the scope of measuring environmental activity. However, in practice, measurement of adapted goods is a challenging task. Given this conceptual agreement, it is recommended that research be undertaken to further develop relevant measurement techniques and approaches for adapted goods that might be applied at a national and international levels.

More details for these topics are described in the Annex of this note.

The main questions with regard to this 'old' list are a) whether all topics are still relevant, b) on which topics already work is being done, and c) what topics can be addressed in the near future.

Additional topics

The list of research topics can be elaborated based on present ongoing work by OECD and Eurostat, but also based on extensions of SEEA mentioned in Chapter IV of SEEA applications and extensions (2012). It should be noted that with these (possible) extensions of topics the list is probably not complete. Other topics may still need to be added. The London group is asked to provide additional topics for the research agenda. Also other stakeholders may have to be consulted to contribute here.

9. physical and monetary asset accounts

In the last years, the OECD has worked on the physical and monetary asset accounts for mineral and energy resources. This work elaborated on the SEEA guidelines on physical stocks and flows of mineral and energy resources and valuation methods. The results, which have already been discussed in the OECD taskforce, clearly also feed into the SEEA CF research agenda.

10. Integrated framework for environmental activity accounts

Chapter IV of SEEA CF describes environmental activity Accounts and related flows. The two main accounts and statistics, the EPEA and EGSS, partly overlap, but also differ with regard to accounting structure, scope and valuation of adapted goods. These differences are explained in par. 4.3.4 of the SEEA CF.

Recently, Eurostat has been developing an integrated framework for environmental activity accounts (Eurostat, 2015). The aim of this integrated framework is to unify concepts and terminology across the modules of the monetary environmental accounts (MEA), including the EPEA, EGSS and environmental transfers. This simplifies comparison of the (scope of the) different MEA modules, identifying the missing bits bridging them and clarifying linkages. This leads in turn to a neater conceptual framework for MEA, facilitating a joint compilation of the MEA modules and a simpler learning curve for newcomers.

11. SEEA CF and tourism accounts

In the context of the SEEA it is relevant to consider links between the accounting approach that has been developed for analysis of tourism, the Tourism Satellite Account (TSA), and the SEEA since both are based on the accounting principles of the SNA. A combining of TSA and SEEA would enable consideration, within an integrated dataset of both the contribution of tourism to the economy and the environmental uses and pressures of tourism activities.

SEEA applications and extensions (2012) lists some key aspects of integrating tourism and environmental information. However, clearly more work is needed in this area. UNWTO

jointly with UNSD is setting up a Working Group to work towards the extending the SEEA for tourism. The work of the London group may contribute here.

12. Extension of SEEA in the social domain

The SEEA Central Framework provides the basis for integrating environmental-economic data, which can also be used as an input to development of broader information sets for analysis of topics such as sustainable development. This will usually require linking the SEEA with data on social conditions. Comparable data over time and across countries are needed to track performance across a range of sustainable development related goals and objectives, including the Sustainable Development Goals (SDG's).

SEEA applications and extensions (2012) highlights some of the key aspects of the potential extensions to the SEEA Central Framework into the social domain. However, this is a very broad issue and probably first needs further discussion whether of not SEEA wants to move into this direction.

Overlap with the research agenda of SEEA-EEA

In the last few years, most new conceptual work in the SEEA domain was done in the area of ecosystem accounting (SEEA EEA). Some of the research topics of the SEEA EEA are closely related or overlap with issues that belong to the domain of the SEEA-CF. Examples are the land cover classification, accounting for soil resources and valuation of water resources. The main question here is how to coordinate the work on these issues.

Proposal for topic selection and organisation of work

We propose the following process:

- November 2015: First discussion of topics and organisation of the work during the London group meeting in the Hague
- November 2015: Discussion in the SEEA CF technical committee based on the input provided by the London group
- November-December: London group members can send comments / suggestions for additional topics.
- January 2016: new version of this note with a complemented list of topics
- Beginning of 2016: Discussion of this note by the board of the UNCEEA and/or during annual UNCEEA meeting
- Next London group: presentation and discussion of work done members of the LG on topics of the research agenda

Questions to the London group:

1. Should we (i.e. the London Group) start working on the research agenda (or wait a couple of years) ?

2. Are all topics on the list still relevant, are there additional topics that should be added ?

3. Is there an overlap with the ongoing work on SEEA EEA ? How should we deal with that ?

4. Do you agree with the proposal for topic selection and organisation of work

5. How can we organise the work on the research topics ?

References

Eurostat (2015). integrating the monetary accounts. Paper for the working group meeting on environmental expenditure accounts.

ANNEX: Research agenda of the 'old' SEEA CF (annex II, page 305-309)

Introduction

The SEEA Central Framework provides a consistent accounting framework for delineating and measuring environmental and economic concepts. Data compiled on a SEEA basis are invaluable inputs for the evaluation of policy and analysis of environmental and economic issues. As the environment and the economy change, as understanding of the links between the environment and the economy develops, and as policy and analytical requirements evolve, the SEEA Central Framework must be reviewed to assess its ongoing relevance.

In addition, as implementation of the SEEA Central Framework occurs increasingly across the world, the range of experience gained will offer new insights that should be considered in the conceptualization of the environmental and economic accounts.

As the accounting basis for the SEEA is the System of National Accounts, developments in the accounting within the context of that international standard will also need to be considered. The research agenda for the System of National Accounts is presented in annex 4 of the 2008 SNA (United Nations and others, 2009). Of particular relevance in this regard, is the expanding range of new economic instruments that are being created and implemented as part of policies for managing the environment. The research agendas of the SEEA Central Framework and the SNA need to reflect these developments.

Also in relation to the SNA, it is recalled that there are some small differences between the SNA and the SEEA in the treatment of certain physical flows, for example, the treatment of goods for processing (see sect. 3.3). The ongoing development of the SEEA will need to consider the extent to which any differences with the SNA should be maintained.

The process for reviewing and updating the SEEA Central Framework will follow standard processes that have developed for the review of international standards. Thus, there will be consideration within the United Nations statistical system of (a) the relative importance of updating the standard to ensure its ongoing relevance; (b) the consequences of making any changes and the potential impact on implementation; and (c) the extent to which research into a proposed area of change has been completed. The process for selecting topics for investigation and determining the appropriate changes to the SEEA Central Framework will involve widespread consultation and involvement of compilers and users.

It is noted that, because the SEEA Central Framework is an integrated accounting system with links between different accounts, changing individual areas in response to specific concerns is likely to have broader ramifications. Hence, updating the standard must be completed in a coordinated and integrated fashion.

Examined below are the major topics identified during the preparation of the SEEA Central Framework as being those that would benefit from further consideration within the international statistical community, i.e.:

- Development of classifications
- Development of consistent valuation techniques beyond the SNA in the absence of market prices
- Definition of resource management
- Accounts and statistics relating to the minimization of natural hazards and the effects of climate change
- Depletion of natural biological resources
- Accounting for soil resources
- Valuation of water resources
- Approaches to the measurement of adapted goods

The research topics outlined here do not cover topics related to the development of ecosystem accounting. The status of accounting for ecosystems will be presented in the publication of SEEA Experimental Ecosystem Accounting, which is currently under development. The SEEA Experimental Ecosystem Accounting will recognize the need for ongoing research and experimentation in ecosystem accounting. Particular areas in which ongoing research is likely to be required include accounting for overall ecosystem condition and capacity, accounting for biodiversity, carbon accounting, accounting for economic instruments used by government in relation to the management of ecosystems, and techniques for the valuation of ecosystems.

In addition, research and development in some of the areas included in the research agenda of the SEEA Central Framework might be usefully combined with work on ecosystem accounting. Specifically, research work on accounting for soil resources, the valuation of water resources, and the development of land cover and land use classifications might be considered within the context of research on ecosystem accounting.

Topics included in the SEEA Central Framework research agenda

1. Development of classifications

The development of standard definitions, concepts and structures related to environmental and economic accounting is important. However, for a more complete standardization of information, especially for international reporting and comparison purposes, it is also necessary to construct agreed classifications of relevant statistical concepts. The SEEA Central Framework contains a number of

classifications that assist in explaining the breadth of various concepts and also serve as a basis for classifying different stocks and flows.

Generally, the classifications in the SEEA Central Framework are presented only at a relatively high or summary level. However, in some cases efforts have been made to describe finer-level classes with a view to assisting in the preparation of statistics and clarifying the treatment of some specific flows and stocks.

In the drafting process, it became clear that the detail for certain classifications would require further consideration. Specifically, further work and consultation are required on the land use classification and the resource management component of the Classification of Environmental Activities. The land cover classification would also benefit from testing and application for SEEA purposes, although its basis in the FAO Land Cover Classification System v. 3 provides a strong underpinning, from a classification perspective.

2. Development of consistent valuation techniques beyond the SNA in the absence of market prices

The SEEA Central Framework calls for the recording of many stocks, flows and transactions that are related to the environment, but for which there are no directly observable or measurable values. As in the SNA, in this situation, imputed prices are required in order to record the value of the transaction. Such values are crucial to determining the economic importance of environmental stocks and flows and, more important, establishing the tradeoff between these and non-environmental stocks and flows.

In line with the SNA, the SEEA Central Framework outlines the valuation of some stocks and flows by using "near market" data, whereby the valuation is based on market transactions that are close (in an economic sense) to the imputed transaction. For example, one may value a stock of coal based on the observed income of the coal extractor.

The SEEA Central Framework does not address the valuation of stocks and flows that are neither "market" nor "near market", but that fall within the measurement boundary in physical terms. A salient example is the full valuation of water stocks and flows, but may also include other environmental assets.

3.Definition of resource management

The environmental activity of resource management is defined in chapter IV. The definition is built on early work on the concepts to be applied to the measurement of environmental activity first presented in *SERIEE European System for the Collection of Economic Information on the Environment 1994 Version*, 2nd ed. (European Commission and Eurostat, 2002b). Although defined some time ago, there has not been a significant amount of work on the measurement of resource management activity, especially in comparison with the other main environmental activity of environmental protection. Interest in resource management has been growing strongly in recent years, including in relation to renewable energy, climate change and recycling activities.

The finalization of the definition of resource management activity for the purposes of the Central Framework was complicated by a lack of clarity on the ideal scope of the resources that should be considered. In some circumstances, limiting consideration only to natural resources seemed appropriate, while in other cases, the inclusion of cultivated resources seemed relevant.

It is therefore recommended that a review of the scope of resource management activity be undertaken. This work may be completed in concert with a review of the provisional classification of resource management activities as presented in the Classification of Environmental Activities (see above).

4. Accounts and statistics relating to the minimization of natural hazards and the effects of climate change

The SEEA Central Framework limits the scope of economic activities considered to be environmental to environmental protection and resource management activity. However, it is recognized that there are a number of other economic activities that are related to the environment which may be of particular interest for policy and analytical purposes (see sect. 4.2). A specific set of activities encompasses efforts to minimize the impact of natural hazards (such as floods, cyclones and bush fires) and efforts to mitigate, or adapt to, the effects of climate change.

Accounts and statistics on these areas of economic activity can be compiled following standard approaches to satellite accounting for economic activities that are outlined in the SNA. Nonetheless, given the analytical and policy interest in these topics and the close link to the environment, the research and development of such satellite accounts may lie within the domain of environmental and economic accounts. It is recommended that work in these areas be considered to fall within the remit of the SEEA so that alignment of accounting conventions and links to other parts of the SEEA Central Framework can be properly established.

5. Depletion of natural biological resources

The depletion of natural biological resources, in particular natural timber and aquatic resources, is an important flow described in some detail in the SEEA Central Framework (see sect. 5.4). The discussion on depletion considerably extends the discussion contained in the SEEA-2003. At the same time, the definition and measurement of depletion in the context of resources that can regenerate are not straightforward and do not have an equivalent in traditional economic accounting.

Significantly, the definition and measurement of depletion of natural biological resources require an integration of economic concepts and scientific information in the form of biological models. While the principles for the purposes of the SEEA Central Framework have been clearly outlined, there is a need for further research and application of these principles, and an assessment of the usefulness of the conceptualization in the SEEA for policy and analytical purposes.

6. Accounting for soil resources

Accounting for soil resources is discussed in section 5.7, which offers a range of information on soil resources that might be organized within the general asset accounting structure of the SEEA Central Framework. At the same time, there is little evidence of soil accounting at a national level that is underpinned by the broad logic of environmental asset accounting. In part, this seems the result of a lack of clarity on the status of soil within accounting frameworks. In some situations, accounting for soil is combined with land and thus separate consideration of soil as a resource is mixed with analysis of changes in land cover and land use. In other situations, soil is seen as a complex biological system with multiple interacting components (e.g., nutrients, water and microorganisms) and therefore standard asset accounting seems inappropriate.

While it is appropriate to highlight both the connection of soil with land and the status of soil as a complex biological system, the SEEA shows that significant information with a broad scope can be usefully organized around the concept of soil as a separable environmental asset. However, more research and collaboration are needed in assessing the usefulness of soil asset accounts for the purposes of managing this fundamental resource.

Importantly, there is an emerging stream of analytical activity issuing from the scientific community which focuses on soil from a “natural capital” perspective. This work could be aligned well with the implementation of soil asset accounts. Part of the focus of the work will need to involve the development of spatially enabled data sets and there are a number of examples of work in this area at both national and international levels.

7. Valuation of water resources

Asset accounting for water resources is covered in section 5.11, which outlines, in some detail, the appropriate accounting for water resources in physical terms. However, the valuation of water resources is not outlined in detail because the application of the general principles of valuation of environmental assets tends to be inappropriate for water resources.

Within the general scope of advancing water accounts, it is recommended that further investigation be undertaken to develop techniques and methods for the valuation of water resources consistent with the valuation principles in the SEEA Central Framework.

8. Approaches to the measurement of adapted goods

Adapted goods are goods that have been specifically modified to be more "environmentally friendly" or "cleaner" and whose use is therefore beneficial for environmental protection or resource management. Examples include mercury-free batteries and recycled paper. As described in section 4.3, the production and use of adapted goods constitute a component of the framework of measurement of environmental protection expenditure and the production of environmental goods and services.

In concept, there is agreement on the inclusion of adapted goods in the scope of measuring environmental activity. However, in practice, measurement of adapted goods is a challenging task (as explained in sect. 4.3). Given this conceptual agreement, it is recommended that research be undertaken to further develop relevant measurement techniques and approaches for adapted goods that might be applied at a national and international levels.