RESEARCH AGENDA FOR THE SEEA CF, 2016

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1 INTRODUCTION

In 2012 the System of Environmental Economic Accounting Central Framework (SEEA CF) was adopted as an international standard by the United Nations Statistical Commission. During the preparation of the SEEA CF, some important topics were identified that would benefit from further research and consideration with the international statistical community. These topics are described in the Research Agenda that is part of the SEEA CF (ANNEX II).

Since 2012, work has started in various areas based on the issues identified during the drafting of the SEEA and other issues that have arose in subsequent years. In order to move the SEEA CF research agenda forward, a revised complete list of issues has been developed, which also provides a deeper overview outline of those issues identified. The UNCEEA also established a technical committee for this purpose. In November 2015, the SEEA CF research agenda was discussed at the London Group meeting for further input and then elaborated in more detail by the SEEA CF Technical Committee. This resulted in an updated multi-annual research agenda for the SEEA CF.

In November 2015, the SEEA CF research agenda was considered at the London Group meeting and then discussed in more detail by the SEEA CF Technical Committee. This note presents the outcome of these discussions through an updated SEEA CF research agenda. This note will be submitted to the UNCEEA for approval.

2 PURPOSE AND ORGANISATION OF THE SEEA CF RESEARCH AGENDA

The SEEA CF must be regularly 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 CF advances across the world, the range of experience gained offers new insights that should be considered in the conceptualization of the environmental and economic accounts. Furthermore, new developments in the System of National Account (SNA) need to be considered as these may have implication on the SEEA which is fully consistent with the SEEA.

The SEEA CF research agenda will play a key role for investigating and determining the appropriate changes to the SEEA CF. The process for reviewing and updating the SEEA CF 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 revised version of the SEEA CF research agenda consists of two parts. The first part is focused on 'research issues' which are more conceptual in nature. For the main part these are issues already identified in the previous version of the research agenda, found in the Annex of the SEEA CF. The second part consists of implementation issues which have increasingly arisen as implementation of the SEEA CF expands. It should be noted that in a lot of cases, the issues of implementation and conceptual issues are closely inter-related and may need to be addressed concomitantly. The SEEA CF Technical Committee will oversee the resolution of both the research issues and implementation issues.

The research topics that are part of the SEEA CF research agenda do not cover topics related to the development of SEEA experimental ecosystem accounting (SEEA EEA). These topics are part of the SEEA EEA research agenda and are dealt with by the SEEA EEA technical committee. There are however overlaps between the SEEA EEA and SEEA CF research topics. An example is the accounting for soil resources. In some cases these topics will be part of both research agenda's as the resolution of this issues will benefit from a joint approach. In this case close collaboration between the two technical groups is essential.

Finally, some topics were identified by the SEEA CF technical committee as potentially important, but were not considered part of the SEEA CF research agenda at this stage. They may be added at a later stage. These are issues that were considered to be 'low priority' to develop them in the short term. In addition there are some topics, such as extension of SEEA into the social domain, which first require broader consultation to

determine whether it is appropriate for SEEA to move in this direction. Lastly, a number of 'broad topics' have been further detailed in the updated research agenda in order to provide a clear understanding of the issue and concrete areas for which further work is needed. The list of the issues that are currently not incorporated in the SEEA CF research agenda is presented in section 4 of this document.

The SEEA-CF research agenda may be updated when needed. New topics may be added based on consultation with and discussion within in SEEA CF Technical Committee. Issues that are solved may be removed from the research agenda. A process still has to be developed by the UNCEEA how these solved issues eventually will be incorporated in the SEEA CF. A possibility is to introduce 'SEEA News and Notes', similar as for the SNA.

3 RESEARCH AGENDA FOR SEEA CF

The research agenda consists of two parts:

A. A list of conceptual issues which need to be addressed.
B. A list of Issues in Implementation which needs to be addressed, focusing more on methods of data collection/compilation.

Table 1: Overview of the topics of the revised SEEA CF Research agenda

A: Conceptual issues
1. Development of classifications
2. Development of consistent valuation techniques
3. Definition of resource management and structure of the resource management expenditure accounts
4. Depletion of natural biological resources
5. Integrated framework for environmental activity accounts
6. Losses
B: Implementation issues
1. Implementation issues related to classifications
2. Approaches to the measurement of adapted goods
3. Economy wide material flow accounts
4. Input output techniques
5. Global DSDs for data exchange for SDMX

3.1 Conceptual issues

1. Development of classifications

Lead agencies: UNSD / EUROSTAT/ FAO

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 CF 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 CF 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 stocks and flows.

Most of the classifications presented in the SEEA CF are still preliminary in nature and need further development to come up with a more definitive classification. Also, the detail for certain classifications would require further consideration. A review of the SEEA CF will be made by the UNSD to identify all the classifications currently identified as preliminary, with a view to developing a comprehensive list of the work needed on developing classifications for the SEEA CF.

The priorities for SEEA data collection will largely determine which classifications are prioritized. In this regard, classifications for 1) emissions (to air, water, soil), 2) land use and 3) the resource management component of the Classification of Environmental Activities are most likely to be prioritized. In addition, some work has been done by OECD to further elaborate on the classification for minerals and energy, which will also be assessed. Finally, the land cover classification should be developed in tandem with the development of the SEEA EEA.

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

Lead agencies: OECD, World Bank

The SEEA CF 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 market values. As in the SNA, in this situation, imputed prices are required in order to record a proxy to a market value of the transaction. Such market values are deemed important to assess the economic importance of environmental stocks and flows and, more importantly, establishing the trade-off between these and non-environmental stocks and flows.

In line with the SNA, the SEEA CF outlines the market 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 CF 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 are the types of valuation made for water stocks and flows, but may also include other environmental assets. (see for more details the 'old' SEEA research agenda).

This work will be done in close collaboration with the SEEA EEA technical committee.

3. Definition of resource management and structure of the resource management expenditure accounts

Lead agency: Eurostat

The environmental activity of resource management is defined in chapter IV of the SEEA CF. 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 CF 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.

The SEEA CF now contains only a small section on accounting for resource management expenditure (ReMEA). This was primarily because when SEEA CF was written, there was almost no practical experience in compiling these accounts. Based on recent experience, it needs to be determined a) whether the structure of the ReMEA is indeed the same as for EPEA, b) whether EPEA and ReMEA can be described within the same accounting structure c) whether there are specific conceptual issues related to compilation of ReMEA which need to be addressed. In this context also the CEA classification has to be revised but this is part of research topic 1 (development of classification).

4. Depletion of natural biological resources

Proposed lead agency: ???

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

Significantly, the measurement of depletion of natural biological resources requires an integration of economic concepts and scientific information in the form of biological models. While the principles for the purposes of the SEEA CF have been clearly outlined, there is a need for further research and application of these principles.

5) Integrated framework for environmental activity accounts

Lead agency: EUROSTAT

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. Investigation is needed to determine whether the different aspects of monetary activity accounts can be further integrated into a single accounting framework.

This topic is closely linked to the definition of resource management (topic A3) and classification of the CEA (topic A1).

6) Losses

Proposed lead agency: to be determined…

There are a number of issues related to losses which are not fully described in the SEEA CF and which need to be further clarified to assist countries in implementation. These include energy losses and water losses. There are a number of papers which were drafted during the drafting of the SEEA CF which should be reviewed for better clarification of the terminology and conceptual issues and how to address them.

3.2 Implementation issues

1. Classifications

Lead agencies: UNSD, Eurostat

There are a number of implementation issues linked to classifications that need further clarification. There is a need to work towards harmonizing these classifications and/or providing clarification on how these classifications can be linked.

In particular:

- More clarity is needed on the linkages between land accounting and air / carbon emissions etc.
- CEA classification: For some environmental activities it is not directly clear whether they belong to CEPA or CReMA. An example is climate change related activities which are related both to CEPA1 and CReMA 13. SEEA CF provides some guidance here for some of these border cases, but also leaves room for different interpretations. More work is needed to provide clear guidance for implementing the CEA classification to ensure international harmonized compilation. This could possibly extend to international conventions, like e.g. the Convention on biological diversity and related Biodiversity Finance Initiative (BIOFIN)

2. Approaches to the measurement of adapted goods

Lead agency: Eurostat

Adapted goods are goods that have been specifically modified to be more "environmentally friendly" or "clean" 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 constitutes 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. Given this conceptual agreement, research should be undertaken to further develop relevant measurement techniques and approaches for adapted goods that might be applied better at a national and international levels.

3. Economy wide material flow accounts

Lead agency: OECD, ISTAT

The purpose of economy-wide material flow accounts (EW-MFA) is to provide an aggregate overview, in tonnes, of the material inputs and outputs of an economy, including inputs from the environment, outputs to the environment, and the physical amounts of imports and exports. There are several differences in treatment between EW-MFA and the physical supply and use tables ,as described in SEEA CF. SEEA CF now provides a short text on these issues (section 3.3.6). A short note is needed for further clarification of the issue, pointing out the alternative solutions and possibilities for review of the SEEA CF Text. One issue the note should address is the different uses of EW-MFA and PSUTs. This could also be a long-term issue.

4. Input output techniques

Lead agencies: OECD, Eurostat

Input output is an important analytical tool that uses data from the environmental accounts. Examples include structural decomposition analyses and footprint analyses. The SEEA Applications and Extensions describes the application of SEEA data from the perspective of the type of techniques that may be applied across analysis of different topics. Environmentally extended – input-output tables, EE-IOT makes up a prominent part of the chapter describing these techniques.

Doing environmental input output analyses is quite complex. In the SEEA Applications and Extensions, several compilation issues are presented which need to be considered (par. 3.2.5). Some of these issues need further consideration to provide guidelines for the users of these analytical techniques.

5. Global DSDs for data exchange for SDMX

Lead agency: Eurostat

A set of global data structure definitions (DSDs) will be needed to ensure that data can be exchanged using SDMX.

4 ISSUES FOR LONG TERM DEVELOPMENT

The following topics are **not** part of the SEEA CF research agenda at present, but may in time be considered to be added.

A. Classifications (long term development)

As discussed in section 3.1 of this note, most of the classifications presented in the SEEA CF are still preliminary in nature and need further development with different data sets in order to assess the usefulness for different countries to come up with a more definitive classification. A review of the SEEA CF will be made by UNSD to identify all the classifications identified as preliminary, so as to ensure a comprehensive list of needed classifications is made. Following this, a list of classifications considered for long term development will be included in the Research Agenda.

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

The SEEA CF 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.

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 CF can be properly established.

The UNECE group is working on statistics related to natural hazards and climate change, and ESCAP, Eurostat and FAO are also working in this area. There is a link between hazards and climate change, but this information is currently difficult to put into the accounts, especially when looking to separate climate change impacts. Much more conceptual thinking is needed, and this is more of a medium-long term priority.

C. 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. Combining the TSA and SEEA would enable consideration of both the contribution of tourism to the economy and the environmental uses and pressures of tourism activities within an integrated dataset.

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.

D. Extension of SEEA in the social domain

The SEEA CF 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).

In the beginning of 2000 a sub-group to the London group was established to further the area of SEEA in relation to social aspects, which were discussed at the 2004 LG meeting[1]. The SEEA Applications and Extensions (2012) highlights some of the key aspects of the potential extensions to the SEEA CF into the social domain. However, this is a very broad issue highlighted again with the establishment of the UN Sustainable Development Goals. It requires still further work such as applications and implementations.

ANNEX : Description of work done so far on the topics of the SEEA CF research agenda

[1] http://unstats.un.org/unsd/envaccounting/londongroup/meeting9.asp

A Conceptual issues

1. Development of classifications

Land: The land cover classification in the SEEA CF will 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. Building on the existing classification of land cover in the SEEA CF, there is a need to develop a hierarchical land cover/use classification that is coherent with the physiographic (i.e. bioclimate, landform, lithology, hydrology, etc.), socio-economic and biotope related attributes of the ecosystem units. This research overlaps significantly with the research agenda for SEEA Experimental Ecosystem Accounting.

Environmental activities

Handbooks for EW-MFA, EGSS and EPEA are in the process of being published during 2016 by Eurostat. A statistical guide on environmental taxes was updated in 2013. New guidelines have been written on environmental transfers (released in 2015) and on ReMEA (to be released in 2017).

One particular issue is the definition of the scope of EGSS. Work on this area has been done both conceptually (approach to address the problem) and operational (lists of products and activities).

Air emissions:

The manual for air emissions accounts has been updated by Eurostat to take into account recent developments and conceptual changes (including the changeover to the IPCC 2006 guidelines). The manual was released in 2015.

Energy and minerals:

OECD has been working on a classification for mineral and energy in the context of the SEEA taskforce for SEEA implementation.

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

3. Definition of resource management and structure of the resource management expenditure accounts

Draft guidelines on ReMEA have been produced by Eurostat. A final version will be published in 2017.

4. Depletion of natural biological resources
FAO has been doing work on this related to depletion of biological resources for forest degradation.

5) Integrated framework for environmental activity accounts
Eurostat has recently 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. Statistics Netherlands has completed a study (2016) on the compilation of the Integrated framework for environmental activity accounts.

6) Losses

Different types of losses are described in the SEEA CF. Papers and discussions about the conceptual treatment and practical measurement of losses exist and can be consolidated.

B Implementation issues

1. Classifications

Eurostat has made a proposal how to deal with some border cases with regard to the CEA classification.

2. Approaches to the measurement of adapted goods

There has been very little activity in this area. Some positive contribution can come from the work on an integrated approach, especially linking EPEA and EGSS.

3. Economy wide material flow accounts
Eurostat has established early estimates at T plus 9 months for the EU. A revision of the Eurostat handbook is being prepared.

4. Input output techniques
Work on environmentally related IO analyses using data from SEEA has been done by OECD and Eurostat, but also by several NSI's and research institutes. Eurostat has started to produce guidelines for EU Member States on how to compile raw material

equivalents, and is working on further standard methods on decomposition etc. Eurostat is working on updated multi-region IOT for Europe. This is the foundation for further work (environmentally-extended IOT, IOT beyond Europe, etc.) which is necessary for further IO modelling.