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A Proposed Structure of the Revised SEEA

Mark de Haan

Statistics Netherlands

Division of Macroeconomic Statistics and Dissemination
National accounts

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BACKGROUND

1. The UN Statistical Commission established in 2005 the UN Committee of Experts on Environmental-Accounting (UNCEEA) with the objective of elevating the *System of Environmental and Economic Accounting 2003* (SEEA-2003) to an international statistical standard (Secretary General Report to the Statistical Commission E/CN.3/2006/9). In addition the SEEA should provide clearer linkages to the most crucial environmental-economic policy issues. These improvements require a revision of the SEEA.

2. The purpose of this paper is to initiate a discussion in the London Group on a newly proposed structure of the SEEA as a statistical standard. The desired outcome of this discussion is to provide the UNCEEA with recommendations on the preferred SEEA structure. One may expect that, together with the revision issues list, a worked out structure will give a clearer picture on the entire scope of the SEEA revision process. Once consensus is reached on the overall structure of the revised SEEA, more detailed structure proposals can be worked out on a chapter by chapter basis.

3. Standardized accounts will only be developed for those parts of the SEEA for which methodologies and practical experiences are well advanced. It is unwanted that a standard takes a position in terms of school of thoughts. It is expected that those parts of the current SEEA that are still under debate will not become part of the statistical standard. This means that the revised SEEA will consist of two parts, the standardized set of accounts and an experimental set of accounts.

4. The conclusions of the LG about the new SEEA structure, as expressed in the 2006 New York meeting, are taken as a point of departure. These are the following:

- The SEEA should remain as closely as possible to the 1993 SNA (update);
- Classifications, tables and accounts should be developed for those resources for which practical experiences and methodology is well advanced to warrant international comparability;
- Tables and related classifications should support the compilation of time series;
- Case studies and implementation issues should be removed;
- There should be a clear presentation of accounting identities and aggregates;
- A standard should not take any position in different schools of thought;
- The present SEEA structure will be subject to revision but the present order of chapters should be maintained.

A. MAIN PRINCIPLES

5. The SEEA 2003 has been a major step forward in harmonizing concepts and methods in environmental-economic accounting and related statistics. The proposed change of the SEEA is called a revision since it is expected to substantially enhance the status of the System. This does not necessarily imply that the SEEA will be changed rigorously. On the contrary it has been agreed that only those changes of the System are accepted that are found necessary to elevate most parts of the SEEA to an international standard.

6. Standardization is not expedient for those areas of the SEEA where active research and development is still proceeding and consensus is still being sought. It is expected that valuation methods for environmental degradation and the subsequent compilation of national aggregates adjusted for environmental degradation will not be part of the statistical standard.

7. However also the revised SEEA will contain an elaborated discussion on the various accounting propositions in this area. This means that the new SEEA will exist of two parts: one part presenting the statistical standard and a second part presenting a range of approaches for those subsets of accounts lacking consensus. The introduction chapter of the revised SEEA will explain the differences in status of each of these two parts.

8. One may expect the new SEEA to focus more than the 2003 version on purely statistical issues: accounting framework, sequence of accounts, accounting identities and aggregates, tables and classifications, nomenclature etc. A statistical standard, like the SNA, does not very well address a more policy oriented audience. For its promotion it is very important to reach also policy oriented users of environmental economic accounts. Therefore it is recommendable to include in a third part the policy uses and applications chapter(s). The design of this third part of the new SEEA will be explicitly addressed in the revision process. The current applications and policy uses chapter provides useful material for a more advanced policy uses and applications chapter.

9. The chapter structure of the SEEA will be subject to revision. However in its New York meeting the LG advocated that the overall structure of the current SEEA should be maintained as much as possible. This guiding principle can be understood as follows. The current presentation sequence of the main building blocks of the SEEA will be maintained, i.e. physical flow accounts and hybrid accounts ─ accounts for environmental activities, products and transactions ─ natural resource assets accounts ─ valuing degradation and adjusted national accounts aggregates.

10. The current SEEA 2003 chapter structure is rather detailed. Elimination of e.g. country examples, chapter overviews, boxes, implementation issues and multiple accounting options is expected to lead to a more condensed presentation of the System. This may also help to achieve a more cohesive presentation of the SEEA's main building blocks.

11. As a standard the SEEA should provide guidelines on the levels of detail at which the compilation of accounts are recommended. These recommendations should for example address the main categories of physical flows (e.g. separate flow accounts for energy, water, solid waste) or the coverage of different environmental asset categories.

12. Emphasizing too much on diverging characteristics and differences in recording will not contribute to the overall cohesion of the System. On the other hand, specific flow or resource characteristics may be decisive in their relationship to expected environmental impacts. Therefore, a well-considered balance must be found between keeping record of flow and asset specific characteristics and maintaining the overall System's cohesion.

13. To further enhance the policy relevance of the SEEA, accounting identities and aggregates, both in physical and monetary terms, linking flows and stocks, should be presented in the revised SEEA in a clear and logical way. The criteria of choice of recommended accounting aggregates or indicators will be further explored in the revision process. In order to enhance the SEEA's leading role in the sustainability debate a solid bridge must be built between detailed accounts and condensed indicators. In this context it seems also useful to explicitly address in relevant parts of the SEEA key sustainability issues such as climate change (e.g. greenhouse gas emissions, fossil and non-fossil energy use, carbon dioxide emission permits).

14. The newly proposed chapter structure of the revised SEEA is the following:

- 1. Introduction;
- 2. SEEA structure;

Part I Statistical Standard

- 3. Physical flow accounts (and their linkage to the national accounts);
- 4. Accounting for environmentally related activities and products;
- 5. Balance sheets for natural resources;

  Optional breakdown: 5a. Balance sheets in physical terms;

  5b. Balance sheets in monetary terms;
- 6. A full sequence of monetary current and accumulation accounts;

  (Including resource depletion adjusted balancing items)

Part II Experimental accounts and applications

- 7. Valuation techniques for environmental degradation;
- 8. Accounting adjustments for environmental degradation;

Part III Applications and policy uses

– 9. Applications and policy uses.

Annexes including SEEA classifications, index and glossary

15. It is assumed that consensus will be reached on a standardized recording method of natural resource depletion in the production account and the compilation of depletion adjusted national accounts balancing items: domestic product, national income and saving. These adjusted balancing items will be discussed as part of the statistical standard in the new chapter 6.

16. The balance sheets in chapter 5 and current accounts in chapter 6 are presented in reversed order compared to the SNA. This order of presentation in the SEEA emphasizes the central position of natural assets in the domain of environmental accounting. The idea is to first discuss stocks and changes in stocks on the basis of balance sheets followed by a discussion of the corresponding changes in the current and accumulation accounts.

17. The standardization of the SEEA requires a set of standard accounts and tables based on agreed sets of classifications. All SEEA accounts and tables will be illustrated with a fictitious but realistic (the so-called SEEA-land) data set. Country examples will no longer be included.

18. The revised SEEA will contain a glossary of terms and an index (like the SNA) with clear references to definitions and terminology.

B. SEEA CHAPTERS

19. This section discusses chapter specific structure issues for each of the current SEEA-2003 chapters.

Chapter 1

20. The current structure of chapter 1 is rather logical. The discussion on sustainability in this chapter is quite extensive. In the revised SEEA the notion of sustainability will be introduced in a more condensed way. A reference to welfare measurement (cf. SNA-1993, chapter I) seems

appropriate in this chapter but is currently missing. An introductory chapter should also discuss linkages to other statistical frameworks such as the SNA and relevant indicator frameworks.

21. The introductory chapter in the revised SEEA should include one single SEEA 'road map' explaining the purposes and uses of the various parts of the accounts. This single road map should replace as much as possible the individual road maps in the introductory sections of each chapter (the chapter overviews). This will contribute to a more condensed presentation style.

Chapter 2

22. Currently this chapter introduces the main SEEA building blocks (categories 1 to 4: physical and hybrid flow accounts, economic accounts and environmental transactions, asset accounts in physical and monetary terms, extending SNA aggregates) and chapters in an incoherent way. To put more emphasis on the overall structure of the SEEA, its main body should be presented in a more top-down format. This should be followed by a description of the different building blocks (physical flow accounts, expenditure accounts, asset accounts).

23. This main SEEA accounting body should be represented with the help of two interlinked accounting structures: one representing the physical subsystem and a second one representing the set of monetary accounts. The physical subsystem entails the physical supply-use tables and physical balance sheets. The monetary accounts should follow as much as possible the structure of the SNA e.g. current accounts, accumulation accounts and balance sheets. Of course in the monetary accounts emphasis is put on environment related assets, activities and transactions. Direct linkages between the physical and monetary accounts exist at the level of product flows (supply-use) and assets (balance sheets).

24. This chapter should also introduce in a separate section the main concepts of the SEEA such as accounting units, key classifications, production boundary, asset boundary and the scope of the SEEA (resident versus territorial based definition of a national economy).

25. This chapter is the most obvious place to explain the differences in nature of the three parts of the SEEA: the statistical standard, the experimental accounts and the policy uses and applications.

Chapter 3

26. The physical flow accounts presented in this chapter have a logical supply-use accounting structure illustrated with the help of a SEEA-land dataset. This coherent presentation style should be maintained.

27. Crucial is the level of detail at which the compilation of physical flow accounts is being recommended. The introduction of chapter 3 explains that different flows lead to different types of expected pressures and degradation effects. This discussion seems to emphasize the importance of detail. On the other hand the MFA approach presented in chapter 3 follows the principle of 'adding it all up'.

28. Chapter 3 should provide clear and consistent guidelines about the various levels at which the compilation of physical flow accounts is recommended. Recommendations must address the main categories of physical flows or substances (e.g. waste, energy, carbon, water, toxics, and nutrients) to be distinguished in the accounts. These recommendations may have repercussions for the classifications of physical flows, natural resource inputs, residual outputs and product throughputs. Generally it is desirable to reconcile these classifications in the SEEA as much as possible with existing (OECD and Eurostat) classifications.

29. This issue directly relates to the indicator discussion. In the current chapter 3 this discussion is restricted to MFA based indicators. It is recommended to combine this discussion with the environmental pressure indicators discussed in chapter 4 and, if needed, other types of indicators. A well-established linkage of physical flow accounts and indicators is expected to substantially enhance their analytical usefulness. Also, the analytical strength of physical flow accounts is expected to increase by consistently linking the embedded indicators in the physical flow accounts to national accounts aggregates such as domestic product and value added. In this way the accounts are able to provide, based on time series, a coherent overview of the changing resource and pollution dependencies of an economy and its economic activities.

30. This chapter may need bridge tables for energy and (IPPC based) emission accounts to explain differences in the territorial versus resident based accounting boundaries. The current table 4.6 may serve as an example. However, this example should be illustrated with SEEA-land data and not with country specific data (Netherlands).

31. All country examples in this chapter (e.g. Germany and Finland) should be removed.

Chapter 4

32. The chapter on hybrid accounts mainly deals with a range of presentation formats bringing consistently together physical and monetary data. It is unwanted to present hybrid accounts separately from physical flow accounts since they do not constitute an alternative approach. Therefore chapters 3 and 4 should be merged. In this way the emission accounts, currently presented in chapter 4, will be part of the entire system of physical flow accounts. This single chapter will also explain how physical flow accounts can be consistently linked to the national accounts.

33. The suggested indicator discussion in chapter 3 should include indicators derived from hybrid flow accounts such as eco-efficiency or resource productivity type of indicators.

34. The discussions on input-output analyses and time-series decomposition analyses will be replaced to the applications chapter. One important issue that is raised in the context of input-output analyses is the resource (or pollution) dependency of countries and pollution displacement. Also this issue should preferably be discussed, together with the MFA notion of hidden flows, in the applications chapter.

35. This chapter contains a lot of material on compilation issues that must be removed. Further country examples (e.g. Netherlands, Denmark) should either be removed or replaced by SEEA-land illustrations.

Chapter 5

36. The structure of chapter 5 is straightforward. The environmental expenditure accounts are illustrated with the help of SEEA-land data. This set up should be maintained.

37. The externalization of ancillary activities should be presented in the main text and not in a box (5.1).

38. The discussion on possible data sources for compiling EPEA (C5) must be removed. Section D on applications should either be removed or transferred to the applications chapter. The country examples (e.g. France, Netherlands, Germany, Canada) should be removed as well.

Chapter 6

39. Following the newly proposed chapter structure, the full content of chapter 6 (SEEA 2003) will be part of the newly proposed chapter 6. This new chapter will present the complete sequence of monetary current and accumulation accounts (and probably financial accounts for example in relation to financial lease of natural assets, cf. SEEA 2003, Box 8.2, option 2). In these accounts emphasis will be put on environment related transactions. The discussion of these accounts will follow as much as possible the presentation style of the SNA. Possible presentation formats are either the standard sector accounts and/or matrix style of accounts (open for discussion).

40. The logical structure of the current chapter 6 should be maintained in the newly proposed chapter 6. The chapter should first discuss environment related transactions on a case by case basis:

- Natural resource depletion in the production account;
- Environmental taxes and subsidies;
- Pollution permits and permits for the use of other natural resources;

- Rent payments and property income;
- Terminal costs of assets;
- ..

41. The full set of current and accumulation accounts will be discussed and exposed, with the help of SEEA land data, in the subsequent sections of this chapter.

42. This chapter will also discuss the depletion adjusted national accounts balancing items. A sector based presentation of these adjusted balancing items is recommended to illustrate complex issues related to (shared) natural resource ownership.

Chapters 7 & 8

43. The current SEEA presentation of asset accounts in chapters 7 and 8 is scattered. The various asset categories are introduced in both chapters leading to repetition. The linkage of asset accounts to other parts of the SEEA is not very well described. Chapter 8 includes resource specific elements such as decommissioning costs, mineral exploration, detailed water supply and use tables, water input output tables, water management related expenditure accounts, supply table of forest products and forest management expenditure accounts and ancillary fishing industry information. This diffuse presentation style emphasizes that each natural asset type is expected to require its own set of accounts. This is unwanted.

44. It seems quite feasible to present most of these resource specific elements in relation to the concomitant SEEA accounts (e.g. physical supply and use tables, environmental protection expenditure and natural resource management accounts). This changed presentation will substantially enhance the SEEA's overall structure. Resource specific accounting recommendations should be the exception.

45. As an alternative the complete system of natural resource asset accounts should be structured on the basis of the current tables 7.5 and 7.6. This main accounting structure should be put much more on the forefront including an elaborated discussion on each (resource specific) entry in this table: opening, closings stocks and periodic changes in stocks including revaluation entries.

46. The full content of natural resource asset accounts should be illustrated with the help of SEEA land data. Chapters 7 & 8 provide not very much guidance on how to compile total natural resource wealth stocks of an economy and periodic changes therein. This seems one of key purposes of the SEEA asset accounts. In addition, the asset accounts should be able to illustrate a nation's (or sector's) natural wealth as part of its total wealth as reflected in the complete balance sheet of an economy.

47. It is possible that merging chapters 7 and 8 together (into the new chapter 5) will lead to imbalance in terms of size compared to other chapters. The most logical way to split up the content on asset accounts in two chapters is to discuss in the first chapter (5a) the underlying concepts of each asset category (e.g. definition of stocks in physical terms, sub-classifications) followed by a chapter (5b) on asset valuation and the compilation of full fledged balance sheets for natural resources in monetary terms. The final structure of the new chapter 5 will be subject to further discussion.

48. The set up of ecosystem accounts, land coverage and use accounts do probably not match very well with the standard SNA type of balance sheets. Therefore these accounts require special attention. The location of their presentation depends on whether or not these accounts are accepted as part of the statistical standard. This must be decided first. If these accounts are found not sufficiently mature at this stage, they will be presented in a separate chapter (not yet introduced in the chapter structure presented in Section A of this paper) of the experimental part (II) of the revised SEEA.

49. Country examples in these chapters (e.g. UK, Norway, Eurostat, Finland) will either be removed or replaced by SEEA land illustrations.

Chapters 9 & 10

50. With the exception of natural resource depletion, the valuation of environmental changes as discussed in chapters 9 and 10 is not expected to be converted into a statistical standard. Alternatively, these chapters will become part of the experimental accounts.

51. General guidelines must be formulated about the way these experimental accounts are being presented in the revised SEEA. It seems desirable to bring these as much as possible in line with the first part of the SEEA (e.g. no country examples, no reference to research and authors, no boxes, no discussions on implementation issues), however with one important exception. The experimental accounts will continue to present a range of options for estimating environmental damages and adjusting national accounts aggregates. This range of options will be presented in a balanced way, discussing for each their pros and cons.

Chapters 11

52. The significance of a chapter on applications and policy uses will be enhanced by its presentation in a separate part of the revised SEEA. Similar to the chapters 9 and 10 a discussion is needed about its content and presentation style (country examples, references to research). The chapter should explain and illustrate how the SEEA system contributes to sustainable policy with

emphasizing on its strength of quantifying environmental-economic interrelationships. The design of an improved policy uses and applications chapter will be subject to further discussion.

Annexes

53. The current SEEA does neither have a glossary of terms nor an index referring to definitions of terminology in the main text. An index and glossary (like the revised SNA) is an important precondition for the SEEA to become a statistical standard.

C. QUESTIONS TO THE LONDON GROUP

1. Do you agree with the main principles of restructuring the SEEA?
2. Do you agree with the proposed chapter structure?
3. Which revision issues result from this new SEEA structure that are currently unidentified in the revision issues list?
4. How should this structure proposal be worked in more detail? Should this be done on a chapter by chapter basis?
5. Which linkages to other statistical systems (SNA, MFA, energy accounts, IPCC emission inventory) should be addressed in the revised SEEA? And how should this be done?