

**System of Environmental-Economic Accounting 2012--
Experimental Ecosystem Accounting**

Annotated Outline

Valuation chapters: 8-11

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Contents

Contents 2

SECTION D: Valuation and integrated accounting for ecosystem services and assets	4
8 Principles of valuation for ecosystem accounting	4
8.1 Approaches to environmental valuation	4
8.1.1 Valuations and assessments in monetary and non-monetary terms	4
8.1.2 Frameworks for considering the economic value of ecosystems	4
8.2 Valuation concepts and principles for accounting	4
8.2.1 Defining exchange values for accounting	4
8.2.2 Connections to welfare values	4
8.2.3 Valuation of ecosystem services	4
8.2.4 Valuation of ecosystem assets	4
9 Accounting for ecosystem services in monetary terms	5
9.1 Introduction	5
9.2 Ecosystem services supply and use account in monetary terms	5
9.3 Techniques for valuing transactions in ecosystem services	5
9.4 Valuation approaches for different ecosystem services	5
9.5 Considerations in the valuation of ecosystem services	5
10 Accounting for ecosystem assets in monetary terms	5
10.1 Introduction	5
10.2 Ecosystem asset account in monetary terms	5
10.3 Approaches to valuing ecosystem assets	5
10.4 Approaches to measuring and valuing ecosystem degradation	5
10.5 Approaches to measuring and valuing ecosystem enhancement	6
10.6 Approaches to measuring other changes in ecosystem assets	6
10.7 Measuring ecosystem capacity	6
11 Integrated and extended accounting for ecosystem services and assets	6
11.1 Introduction	6
11.2 Combined presentations for ecosystem accounting	6
11.3 Extended supply and use accounts	6
11.4 Determining the ownership of ecosystem assets	6
11.5 Allocation of ecosystem degradation and enhancement to economic units	7
11.6 Integrated sequence of institutional sector accounts and adjusted income estimates	7
11.7 Extended and integrated balance sheets	7
11.8 Accounting for ecosystem related liabilities and environmental expenditures	7
11.9 Complementary valuations for ecosystem services and ecosystem assets	7

11.10 Other approaches to extended and integrated accounting 7

SECTION D: Valuation and integrated accounting for ecosystem services and assets

8 Principles of valuation for ecosystem accounting

8.1 Approaches to environmental valuation

8.1.1 Valuations and assessments in monetary and non-monetary terms

8.1 The discussion of environmental values is very wide ranging and certainly goes beyond economic approaches to value and valuation in monetary terms. Building on content from discussion papers 2.1 (ecosystem condition) and 5.1 (on valuation), this section describes the different approaches that are possible and describes in general terms how the accounts of the SEEA EEA can support discussion of different valuation approaches. This section will link to discussion planned for Chapter 2 in the revised SEEA EEA on the framing and purpose of valuation in the SEEA EEA.

8.1.2 Frameworks for considering the economic value of ecosystems

8.2 This section will discuss the nature and relevance of various frameworks for considering economic values in particular the TEV, definitions of use and non-use values. A range of frameworks have been developed to describe the breadth of values and the support assessments. Building on discussion paper 5.1, this section describes relevant frameworks and explains the links and applications to SEEA EEA.

8.2 Valuation concepts and principles for accounting

8.2.1 Defining exchange values for accounting

8.3 This section will describe the range of concepts and definitions concerning valuation using exchange values for accounting.

8.2.2 Connections to welfare values

8.4 This section will describe the connections between exchange and welfare valuation concepts in the context of accounting.

8.2.3 Valuation of ecosystem services

8.5 This section introduces the approach to valuation of ecosystem services using the exchange value concept highlighting the treatment of ecosystem services as transactions and the various choices around the types of values and assumptions that are of relevance. It also works through the basic framing for valuation in terms of starting from the benefits to which ecosystem services contribute and describes the approach to using channels of ecosystem services to group valuation requirements by type of ecosystem service.

8.2.4 Valuation of ecosystem assets

8.6 This section introduces the logic of valuing ecosystem assets using the net present value approach. Building on Discussion paper 5.2, it summarises the basic theory, discusses its application to ecosystems and describes the main components including estimation of future income streams, discount rates, resource allocation mechanisms, etc.

9 Accounting for ecosystem services in monetary terms

9.1 Introduction

9.2 Ecosystem services supply and use account in monetary terms

9.1 This section describes accounting for the supply and use of ecosystem services in monetary terms building on the description of the ecosystem services supply and use account in physical terms from chapters 6 and 7.

9.3 Techniques for valuing transactions in ecosystem services

9.2 Building on the concepts for the valuation of ecosystem services from Ch 8, this section documents various methods for the valuation of ecosystem services. This will build on material in Discussion paper 5.1 and the draft Valuation guidance document.

9.4 Valuation approaches for different ecosystem services

9.3 This section provides a summary of relevant techniques for valuation of different ecosystem services. This will build on material in Discussion paper 5.1 and the draft Valuation guidance document.

9.5 Considerations in the valuation of ecosystem services

9.4 This section will discuss a number of measurement issues that need to be considered in the valuation of ecosystem services. These include the use of benefit transfer techniques, the aggregation and disaggregation of ecosystem service values within and across spatial areas and the allocation of ecosystem services values to users.

10 Accounting for ecosystem assets in monetary terms

10.1 Introduction

10.2 Ecosystem asset account in monetary terms

10.1 This section will describe the ecosystem monetary asset account, its role and key aspects in compilation.

10.3 Approaches to valuing ecosystem assets

10.2 This section will describe the approaches to implementation of the principles/concepts of valuing ecosystem assets described in Chapter 8. Key aspects include approaches to measuring expected ecosystem service flows considering different ecosystem services and ecosystem types, the role of biophysical models, estimating rates of degradation and asset lives, selection of discount rates, determining resource allocation mechanisms and approaches to scaling and aggregation. Also to be considered are links to individual resource values (e.g. from SEEA Central Framework) and links to market-based land valuations.

10.4 Approaches to measuring and valuing ecosystem degradation

10.3 This section will define ecosystem degradation in the context of SEEA EEA and describe approaches to measurement and valuation in physical and monetary terms. This section will also include a description of links to the concept of ecosystem capacity (section 10.7).

10.5 Approaches to measuring and valuing ecosystem enhancement

10.4 This section will define ecosystem enhancement in the context of SEEA EEA and describe approaches to measurement and valuation in physical and monetary terms. This section will also include a description of links to the concept of ecosystem capacity (section 10.7).

10.6 Approaches to measuring other changes in ecosystem assets

10.5 This section will define other changes in ecosystem assets not recorded as either degradation or enhancement – this will include discussion of ecosystem conversion and revaluations.

10.7 Measuring ecosystem capacity

10.6 The concept of ecosystem capacity has long been recognised as a core linking concept between ecosystem assets and flows of ecosystem services. Precise definition is challenging but general approaches can be developed and this section will describe the relevant connections to the measurement of ecosystem condition and flows of ecosystem services. Also relevant will be discussing links to concepts of resilience and environmental thresholds.

11 Integrated and extended accounting for ecosystem services and assets

11.1 Introduction

11.1. This section to provide an overview of the various ways in which the core ecosystem accounts can be extended and integrated with economic data and accounts. This includes the development of extended measures of wealth and income, and allocation of degradation.

11.2 Combined presentations for ecosystem accounting

11.2. This section describes the approach to combining the information from ecosystem accounting with common socio-economic statistics through the use of combined presentations, which are described in chapter VI of the SEEA Central Framework. In essence, such presentations are tables that support the presentation of information from a variety of sources in a manner that facilitates comparison of economic and environmental data. This is achieved through the use of common classifications and accounting principles. This discussion will also encompass the development of indicator sets.

11.3 Extended supply and use accounts

11.3. This section describes extended supply and use accounts (SUA) which are the first accounts where explicit consideration must be given to the boundaries between current economic measures and measures of ecosystem services in terms of the structure of the accounts. The aim for extended SUA is to present the information on the supply and use of ecosystem services as extensions to the standard SNA SUA.

11.4 Determining the ownership of ecosystem assets

11.4. To integrate ecosystem accounting data with economic accounts, it is necessary to determine/assign the economic ownership of ecosystem assets. This section discusses a range of options may be applied based on SNA principles.

11.5 Allocation of ecosystem degradation and enhancement to economic units

11.5. This section discusses approaches to allocating measures of ecosystem degradation and ecosystem enhancement to economic units based on the economic ownership determination. This discussion encompasses recording degradation based on polluter pays and costs borne.

11.6 Integrated sequence of institutional sector accounts and adjusted income estimates

11.6. For certain purposes, it may be relevant to integrate ecosystem information into the broader sequence of institutional sector accounts and balance sheets of the SNA. The general underpinning logic and the structure of the sequence of accounts is described in detail in the SNA and is summarized in chapter VI of the SEEA Central Framework. This section describes alternative models for the design of the sequence of accounts and links to the discussion on assigning economic ownership and the allocation of degradation and enhancement.

11.7 Extended and integrated balance sheets

11.7. This section discusses the integration of the opening and closing values of ecosystem assets in monetary terms with the values of asset and liabilities recorded on the standard balance sheet of the SNA. Such an integration would lead to the derivation of extended measures of national and sector net wealth and hence this section will discuss connections to measures such as comprehensive and inclusive wealth.

11.8 Accounting for ecosystem related liabilities and environmental expenditures

11.8. This section will discuss the recording of accounting entries concerning the general concept of ecological liabilities (and the associated concept of ecological debt). The general idea is to use the accounting concepts of assets and liabilities to make explicit that current economic activity is degrading the environment and leaving future generations with a cost that must be paid, thus establishing a current liability. Also, there are direct linkages to the measurement and recording of environmental expenditures. Various perspectives on this include recording unpaid ecological costs, liabilities in corporate natural capital accounting, recording liabilities under accounting standards and liabilities in the context of capital accounting in the economics literature.

11.9 Complementary valuations for ecosystem services and ecosystem assets

11.9. In the opening discussion of environmental valuation the common focus on welfare values was noted. This section discusses the potential for complementary valuations (to exchange values) to be developed using the ecosystem accounting framework. This discussion will highlight the links to the measurement of environmental externalities and potential supplementary tables.

11.10 Other approaches to extended and integrated accounting

11.10. This section will discuss links to any other approaches to extending and integrated ecosystem accounts and economic data.