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Proposed outline for Volume 1 of the revised SEEA

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SEEA Editor

A. Introduction

1. This paper presents the current version of the outline proposed for Volume 1 of the revised System of Environmental and Economic Accounts (SEEA). It has been based on

- Discussions in the London Group over the past few years
- An outline prepared by Peter Comisari, interim SEEA Editor, in late 2009.
- Discussions within the Editorial Board for the SEEA Revision

2. This version retains the essential broad content that had been discussed and largely agreed in the London Group but builds structure into a number of areas and also finds a more clear "home" for the discussion of hybrid accounts which had been a particular point of discussion.

3. The comments of London Group members would be welcome on this version of the outline.

Draft outline SEEA Volume I **October 2010**

Foreward/Preface

Acknowledgements

Chapter 1 Introduction

1.1 What is the System of Environmental and Economic Accounts?

1.2 Policy relevance and uses of SEEA

1.3 Conceptual elements of SEEA
A broad overview of the key elements, terminology and boundaries of the system

1.4 Key features of the system

- 1.4.1 SEEA as a framework for organising statistics
- 1.4.2 Combining accounts in physical and monetary terms
- 1.4.3 Flexibility in implementation
- 1.4.4 Approaches to dissemination and reporting

1.5 Relationship of SEEA to other statistical standards

- 1.5.1 Linkages between SEEA and 2008 SNA
- 1.5.2 Linkages between SEEA and sub-systems of SEEA
  eg SEEA-Water, SEEA-Energy
- 1.5.3 The relationship to other standards for environmental statistics
  eg IRES, IRWS

1.6 Structure of the SEEA manual – a reader's guide

- 1.6.1 Role of Volumes I, II and III
- 1.6.2 Chapter 2
- 1.6.3 Chapter 3
- 1.6.4 Chapter 4
- 1.6.5 Chapter 5
- 1.6.6 Chapter 6

Chapter 2 Accounting structure and concepts

2.1 Introduction

2.2 Accounting concepts

- 2.2.1 Stocks and flows in physical terms
  - Stock levels
  - Physical flows
  - Ecosystem services and functions
  - Depletion and degradation
- 2.2.2 Stocks and flows in monetary terms
  - Assets and liabilities
  - Transactions and other changes in assets including revaluations
  - Introduction to different valuation techniques including NPV
  - Introduction to depreciation, depletion and degradation

2.3 Accounting rules and assumptions

- 2.3.1 Timing of recording
- 2.3.2 Units of measurement
- 2.3.3 Residence and national territory
- 2.3.4 Balancing of supply and use
  - Physical terms
  - Monetary terms
- 2.3.5 Basic, producer and purchaser's prices
- 2.3.6 Timing of valuation (end of period pricing/ average period pricing)

2.4 Accounting units

- 2.4.1 Economic units
  - Sectors (Corporations, Households, General Government)
  - Industries
- 2.4.2 Environmental units
  - Ecosystems

2.5 Accounting boundaries

This section needs to clarify the boundaries for SEEA as a whole manual, the differences between boundaries for Vol I and II and the distinctions where relevant between SEEA and SNA asset and production boundaries.

- 2.5.1 Boundary between the environment and the economy
- 2.5.2 Production boundary
- 2.5.3 Asset boundary
- 2.5.4 Geographical boundaries

2.6 SEEA Classifications

This section should introduce the range of different classifications used in SEEA and related to SEEA. All detail should be discussed in the relevant chapter, an annex or referenced in the relevant documentation relating to the particular classification. The use of bridge tables should be introduced here.

2.7 The connections between the SEEA Accounts

- 2.7.1 Physical flow accounts
- 2.7.2 Monetary flow accounts
- 2.7.3 Hybrid flow accounts
- 2.7.4 Asset accounts
- 2.7.5 Environmental expenditure accounts

2.8 SEEA aggregates and indicators

The intention in this section is to highlight that the accounting framework of SEEA contains a range of different totals, aggregates, indicators, etc that can be useful for analysis and research. While detail on these estimates would be contained in relevant sections this section should give an overview of the possibilities. The section will clarify the use of terms such as aggregates and indicators for SEEA purposes that have been interpreted very differently. It is not intended to present any details on weighted indicators that do not emerge naturally from the accounting framework.

- Aggregates and indicators from physical flow tables
  - eg household energy consumption
- Aggregates and indicators from monetary flow tables
  - eg total environmental protection expenditure
- Aggregates and indicators from environmentally adjusted SNA accounts
  - eg depletion adjusted GDP

Chapter 3 Physical flow accounts

3.1 Introduction

3.2 Types of physical flows

- 3.2.1 Types of flows
  - Flows from the environment to the economy
  - Flows within the economy
  - Flows from the economy to the environment
- 3.2.2 Classifications of physical flows
  - Natural resources
  - Products
  - Residuals
  - Energy
  - Water

3.3 Principles of physical flow accounting

- 3.3.1 Introduction
- 3.3.2 Physical SU tables
- 3.3.3 Classification and boundary issues

3.4 Natural resource flow accounts

- 3.4.1 Introduction
- 3.4.2 Physical SU tables for natural resources
- 3.4.3 Classification and boundary issues

3.5 Product flow accounts

- 3.5.1 Introduction
- 3.5.2 Physical SU tables for products
- 3.5.3 Classification and boundary issues
- 3.5.4 Accounting for losses
- 3.5.5 Aggregation and aggregates
- 3.5.6 Waste accounts
  - 3.5.6.1 Introduction
  - 3.5.6.2 Waste accounts
  - 3.5.6.3 Classification and boundary issues
    - eg treatment of landfills

3.6 Residual flow accounts

- 3.6.1 Introduction
- 3.6.2 Emission accounts
  - 3.6.2.1 Introduction
  - 3.6.2.2 Emissions to air (links to energy flow accounts section 3.7)
    - Accounts of emissions to air

Classification and boundary issues (incl bridge tables)

eg transboundary pollution

3.6.2.3 Emissions to water (links to water flow accounts section 3.8)

Accounts of emissions to water

Classification and boundary issues

eg treatment of wastewater

3.6.2.4 Emissions to soil

3.6.3 Other residual flows

3.7 Energy flow accounts

3.7.1 Introduction
3.7.2 Physical SU table for energy resources
3.7.3 Physical SU table for energy products
3.7.4 Classification and boundary issues
eg treatment of renewable energy sources
3.7.5 Accounting for losses
3.7.6 Aggregation and aggregates
incl links to energy balances and links to SEEA-E

3.8 Water flow accounts

3.8.1 Introduction
3.8.2 Description of the hydrological cycle
3.8.3 Physical SU table for water
3.8.4 Classification and boundary issues
eg treatment of waste water
3.8.5 Accounting for losses
3.8.6 Aggregation and aggregates
incl links to SEEA-W

3.9 Analysis of physical flows: Material Flow Analysis (MFA)
3.9.1 Basic principles
3.9.2 Types of MFA tables (eg economy wide, substance flow)
3.9.3 Classification and boundary issues
eg application of the harvest approach
3.9.4 Aggregation and aggregates

Chapter 4 Monetary flow accounts

4.1 Introduction

Identifying flows within an SNA framework

4.2 Monetary supply and use tables

4.2.1 Basic principles
4.2.2 Monetary SU tables
4.2.3 Classification and boundary issues
eg goods for processing / ancillary production
4.2.4 Valuation issues
4.2.5 Aggregation and aggregates

4.3 Environmental activities in the economy

This section will discuss relevant definitions, classifications and tables following the various approaches to identifying environmental activities within the SNA accounts.

4.3.1 Introduction
Purpose based approaches to environmental accounting
The scope and definition of environmental activities
Classifications of environmental activities

4.3.2 Environmental Goods and Services Sector (EGSS)
Environmental domains
Environmental protection
Resource management
Environmental output

4.3.3 Environmental Protection Expenditure
Basic principles
Classifications
Environmental Protection Expenditure Accounts (EPEA)

4.3.4 Natural resource use and management expenditure
Basic principles
Classifications
Resource use and management expenditure accounts (RUMEA)

4.4 Other environmental transactions

4.4.1 Environmental taxes
4.4.2 Environmental subsidies and related transactions
4.4.3 Permits, payments to access resources and for production or disposal of emissions
4.4.4 Rent and royalties
4.4.5 Costs of ownership transfer

Chapter 5 Asset accounts

5.1 Introduction

5.2 Asset boundary and classification (expanding from Chapter 2)

- 5.2.1 Asset boundary
- 5.2.2 Classification of assets

5.3 Principles of asset accounting

- 5.3.1 Description of different valuation techniques
- 5.3.2 Estimating the Net Present Value of assets
  - Basic principles
  - Estimating resource rent (alternative approaches and decision criteria)
  - Applying discount rates
  - Rates of return on fixed assets
- 5.3.3 Measurement of depletion
- 5.3.4 Measurement of degradation
- 5.3.5 Revaluation and holding gains

5.4 Asset accounts for mineral and energy resources

- 5.4.1 Asset characteristics
- 5.4.2 Classification and boundary issues (UNFC / links to McKelvey)

- 5.4.3 Measuring opening and closing levels in physical terms
- 5.4.4 Measuring changes in asset levels in physical terms
- 5.4.5 Asset accounts for mineral and energy resources in physical terms

- 5.4.6 Measuring opening and closing levels in monetary terms
- 5.4.7 Accounting for changes in asset levels
  - Depletion
  - Other changes in assets
- 5.4.8 Asset accounts for mineral and energy resources in monetary terms

- 5.4.9 Special issues
  - Treatment of renewable energy sources
  - Mineral exploration and extraction activity
  - Accounting for split resource ownership
  - Treatment of terminal and decommissioning costs
  - Permits to access resources and royalty flows

5.5 Asset accounts for land

- 5.5.1 Asset characteristics
- 5.5.2 Classification and boundary issues
  - Land use and land cover

Surface water/EEZ

5.5.3 Measuring opening and closing levels in physical terms
5.5.4 Measuring changes in asset levels in physical terms
5.5.5 Accounts for land changes in physical terms

5.5.6 Measuring opening and closing levels in monetary terms
5.5.7 Accounts for land in monetary terms

5.5.8 Special issues
Depletion and degradation
Treatment of renewable energy sources
Accounting for split resource ownership
Permits to use land

5.6 Asset accounts for water

5.6.1 Asset characteristics
5.6.2 Classification and boundary issues
Stocks for rivers
Transboundary water resources

5.6.3 Measuring opening and closing levels in physical terms
5.6.4 Accounting for changes in asset levels
5.6.5 Asset accounts for water in physical terms

5.6.6 Special issues
Artificial reservoirs
Permits

5.7 Asset accounts for forests

5.7.1 Asset characteristics
5.7.2 Classification and boundary issues

5.7.3 Measuring opening and closing levels in physical terms
5.7.4 Measuring changes in asset levels in physical terms
5.7.5 Asset accounts for forests resources in physical terms

5.7.6 Measuring opening and closing levels in monetary terms
5.7.7 Accounting for changes in asset levels
Depletion and natural growth
Other changes in assets
5.7.8 Asset accounts for forest resources in monetary terms

5.7.9 Special issues
Carbon sequestration and carbon accounting
Permits

5.8 Asset accounts for fish

5.8.1 Asset characteristics
5.8.2 Classification and boundary issues

5.8.3 Measuring opening and closing levels in physical terms
5.8.4 Measuring changes in asset levels in physical terms
5.8.5 Asset accounts for fish resources in physical terms

5.8.6 Measuring opening and closing levels in monetary terms
5.8.7 Accounting for changes in asset levels
Depletion and natural growth
Other changes in assets
5.8.8 Asset accounts for fish resources in monetary terms

5.8.9 Special issues
Quotas

5.9 Accounting for soil assets

5.10 Accounting for other environmental assets

5.10.1 Cultivated biological resources
5.10.2 Non-cultivated biological resources
5.10.3 Atmosphere
5.10.4 Oceans

Chapter 6 Summarising and integrating the accounts

6.1 Introduction
This section should provide the motivation for and benefits of merging of physical and monetary data and for compiling and analysing environmental information within an accounting framework.

6.2 Hybrid flow accounts and tables

6.2.1 Principles of hybrid accounts and tables
Assumptions, scope and limitations
Classification and boundary issues
Hybrid SU and IO tables
Values, quantities, volumes and prices

6.2.2 Common hybrid flow accounts and tables
This section should give a clear exposition of how hybrid flow accounts and tables can be constructed in several common areas. It should show the potential for expansion to include flows other than supply and use flows especially emissions, depletion and consumption measures.

6.3 Environmental expenditure accounts
This section aims to provide the context for purpose-based environmental expenditure accounts (such as EPEA and RUMEA) within the broader field of environmental accounting. There are close links to the discussion of this topic in Chapter 4.

6.4 Full sequence of SEEA monetary flow accounts

6.4.1 Introduction
The economic accounts in the SNA are structured such that there are clear links between the various accounts and balancing items can be followed from one account to the next. Thus a sequence of economic accounts is formed in SNA. A comparable sequence can be formed for the monetary accounts of the SEEA whereby links are made between production, income, transfers, capital and balance sheets. This chapter explains the full sequence of SEEA monetary accounts. Of particular interest is the derivation of aggregates of interest such as depletion adjusted operating surplus and GDP.

6.4.2 Standard sequence of accounts
Flow accounts
Accumulation accounts
Balance sheets

6.4.3 Aggregation and aggregates
Depletion adjusted GDP, etc.

6.5 Accounting for environmental disasters

6.5.1 Accounting for natural processes that impact on the economy (eg Iceland volcano)

6.5.2 Accounting for man-made disasters that impact on the environment (eg BP oil spill)

6.6 Other analytical directions

Introduction to volume III