The System of Environmental-Economic Accounting (SEEA)

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Presentation Overview

1. Why Environmental-Economic Accounting? What is it about?
2. Examples
3. SEEA in the ECE region
4. Conclusions
1. Why Environmental-Economic Accounting? What is it about?
From Statistics to Accounts

Source: United Nations Statistics Division
Environment Statistics and Environmental-Economic Accounts are related to each other

Environment statistics:
- Can respond to particular questions or problems
- Not always easy to see the whole picture, or how it relates to other things
- Usually not integrated with economic statistics
- Provide a foundation for Environmental-Economic Accounts
- Main reference document: UN FDES

Environmental-Economic Accounts:
- Help to get the larger picture
- Help to identify pieces that are missing
- Connect environment and economic statistics
- Main reference document: SEEA-CF
Audiences for information

- **Public Politicians**: Indicators
- **Researchers**: Basic Statistics (environment, business, labor, ...)
- **Policy Makers Strategic planners**: Accounting (SNA, SEEA-CF)
- **Micro data**
SEEA Conceptual Framework

- **Activities**
  - Production
  - Consumption
  - Accumulation

- **Economic Units**
  - Enterprises
  - Households
  - Government
  - Non-profit institutions

- **Instruments**
  - Financial/Monetary
  - Taxes/subsidies
  - Financing
  - Resource rent
  - Permits

- **Analytical and Policy Frameworks**
  - Productivity analysis
  - Natural resource management
  - Climate change
  - Green Growth/Green Economy
  - Post-2015 Development Agenda

- **Ecosystem Assets**
  - Individual Environmental Assets (e.g., land, water, mineral and energy, soil, aquatic)

- **Environment**
  - Outside territory of reference

- **Imports/Exports**
  - Outside territory of reference

- **Residuals (e.g., emissions, waste)**

- **Ecosystem services**

- **Natural inputs**

- **Transboundary Environmental Flows**
# Keys concepts of SEEA

<table>
<thead>
<tr>
<th>Stocks</th>
<th>Flows</th>
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<tr>
<td>Physical units</td>
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<td>(e.g. tonnes, m³)</td>
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<tr>
<td>Value</td>
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<td>(e.g. $, £, ¥, €)</td>
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SEEA responds to the demand of integrated policy-making, such as

- European Union: Beyond GDP
- OECD: Towards Green Growth
- Post-2015 Development Agenda (SDGs)
- Climate Change
- Etc.
SEEA Central Framework

- Internationally agreed statistical framework to measure environment and its interactions with economy
- Adopted as international statistical standard by UN Statistical Commission in 2012
- Developed through inter-governmental process
- Published by UN, EU, FAO, IMF, OECD, WB
2. Examples
Indicators derived from SEEA responding to policy questions such as

- Who benefits from natural resource use?

- What are the impacts on the state of the environment?

- Are current trends in production and consumption of resources sustainable?

- What economic instruments are in place? And what is their impact?

- Etc.
Example Norway: «Profile» with output and GHG emissions by industry – who contributes the most

Figure 3. Greenhouse gas emissions (CO₂-equivalents) and output (fixed 2005-prices) divided according to industries and share of totals. 2012

Agriculture, forestry and fishing
Oil and gas extraction
Manufacturing
Energy and water supply, sewage and waste management
Transport incl. ocean transport and international air transport
Services and remaining industries not elsewhere included

1 Services, energy and water supply and construction, education, health and social work and general government administration.
Source: Statistics Norway.
Example Norway: Decomposition Analysis – causes of the observed changes from one year to another
Example Australia – physical water supply and use, 2004-05 (GL)

* Note shown is the supply of distributed water and reuse water by mining and manufacturing, 25 GL in total.
Example Australia – monetary water supply and use, 2004-05 (million AUD$)

* Note shown is the supply of distributed water and reuse water by mining and manufacturing, 25 GL in total. No monetary available for these.
Example Australia: Monetary versus physical use of distributed water (% of total use)
Australia: Analysing changes over time

Percentage of mean annual rainfall
1998-99 to -2000-01

Percentage of mean annual rainfall
2002-03 to -2004-05

Water use
Percentage change 2000-01 to 2004-05

Water use
2000-01
2004-05

Water use
Australia:
Analysing changes over time
Projecting future water demands
Australia 2050
Modelling Effects of Price Changes: Murray-Darling River Basin Australia

Based on historical water use & price data, simulated impact on GDP of doubling water prices and the expected increases in water use efficiency (WUE) of 1-2%

<table>
<thead>
<tr>
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<th>Increase in GDP, A$million</th>
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<tr>
<td></td>
<td>1% increase WUE</td>
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<tr>
<td>Irrigated agriculture</td>
<td>-24</td>
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<td>Dryland agriculture</td>
<td>-51</td>
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<tr>
<td>Food and fibre processing</td>
<td>44</td>
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<td>Other industries</td>
<td>262</td>
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<tr>
<td>Total impact on GDP</td>
<td>253</td>
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Netherlands: Measuring green growth

Objective:
• Assess the state of green growth in the Netherlands
• Benchmark for a more thorough and comprehensive assessment of green growth in the future

Point of departure: OECD indicators
• Data availability
• Robustness of indicators
• Relevance for the Netherlands → List of 20 relevant indicators

Project was completed in only 2 months
Netherlands: Measuring green growth
SEEA as data source

<table>
<thead>
<tr>
<th>Group</th>
<th>Indicator</th>
<th>Environmental accounts</th>
<th>Environmental and energy statistics</th>
<th>Other</th>
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<tbody>
<tr>
<td>i Environmental Efficiency</td>
<td>Production-based greenhouse gas intensity</td>
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<td>Consumption-based greenhouse gas</td>
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<td>Energy efficiency</td>
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<td>Renewable energy</td>
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<td>Surpluses of nutrients</td>
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<td>Material intensity</td>
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<td>Water use intensity</td>
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<td>Waste treatment</td>
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<td>ii Natural asset base</td>
<td>Stocks of standing timber</td>
<td>X</td>
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<td>Fish inputs</td>
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<td>Natural gas reserves</td>
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<td>Land conversion into built-up land</td>
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<td>Threats to biodiversity</td>
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<td>iii Environmental quality of life</td>
<td>Pollution induced health problems</td>
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<td>iv Policy responses</td>
<td>Green patents</td>
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<td>Share of green taxes</td>
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<td>Energy prices</td>
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<td>Carbon trade</td>
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Netherlands: Measuring green growth
Development of GDP and key figures

Index 1990=100
### Netherlands: Measuring green growth

**Scores of the green growth indicators**

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<th>Indicator</th>
<th>Time series</th>
<th>Policy targets</th>
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<td>Production-based greenhouse gas intensity 1990-2009</td>
<td>Y G</td>
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<td>Consumption-based greenhouse gas emissions 1996; 2007</td>
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<td>Energy efficiency 1990-2009</td>
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<td>Renewable energy 1990-2009</td>
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<td>Surpluses of nutrients 1990-2009</td>
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<td>Material intensity 1996-2008</td>
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System of Environmental-Economic Accounting 2012
Central Framework

SEEA at UNECE
EU Countries and OECD

**European Union:** EU Regulation on:
- Air emissions
- Environmental taxes
- Material flows
- Environmental protection expenditure
- Environmental goods and services sector
- Physical energy flow accounts

**OECD:**
- Implementation Programme for SEEA
- Focus on SEEA tables with relevance for OECD Green Growth Strategy
Countries (EECCA, SEEA, TR)
- Planning to expand their accounts: 6
- Planning to begin compilation: 8

**Modules of Environmental-Economic Accounting already compiled**
(interim results of UNSD Survey, response from 40 countries, of which 13 EECCA, SEE and TR)

- Environmental taxes and subsidies account
- Environmental goods and services sector accounts (EGSS)
- Resource use and management accounts (RUMEA)
- Environmental protection expenditure accounts (EPEA)
- Ecosystem accounts
- Waste accounts
- Water emissions accounts
- Air emissions accounts
- Asset accounts for other biological resources
- Asset accounts for aquatic resources
- Asset accounts for timber resources
- Asset accounts for soil resources
- Asset accounts for land (land cover and/or land use)
- Asset accounts for mineral and energy resources
- Asset accounts for water resources
- Monetary supply and use tables for energy
- Physical supply and use tables for energy
- Monetary supply and use tables for water
- Physical supply and use tables for water
- Economy-wide material flow accounts (MFA)
- Supply and Use Tables for Materials
Upcoming Events

• Joint UNECE/OECD Seminar on Implementation of SEEA, 14-15 October 2015, Geneva:
  • Objective: Sharing knowledge and experience on SEEA implementation
  • Target Audience: Producers of environmental-economic accounts, managers of environmental-economic account programs from NSOs and related agencies.
  • Infos and registration: http://www.uneca.org/index.php?id=37910#

• EFTA Training Course on SEEA-CF Energy Accounts, 20-22 October 2015 at Belstat in Minsk:
  • Objective: Gain hands-on experience, uses of the accounts data for analysis and indicators
  • Target Audience: Experts working with energy statistics and experts working with supply and use tables (SUTs) from National Accounts
  • Invitation letters will be sent soon
4. Conclusions

• Several important policy frameworks can be served by SEEA

• SEEA supports national policy decision making

• Lots of international activities (UNSD, World Bank, OECD, Eurostat, UNECE,...)

• Some EECCA countries have started / are about to start the compilation of SEEA modules

• Implementation Seminar and Expert Workshop will be held in October 2015

• Follow-up activities to be identified

• Environment statistics, good institutional cooperation and data sharing are essential
Thank you for your attention!

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