

Contribution to Beyond GDP „Virtual Indicator Expo”

<http://www.beyond-gdp.eu>

Name of the indicator/method: **System of Environmental-Economic Accounting (SEEA)**

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Why we need the SEEA

Conventional national accounting does not fully account for the role of the environment in its measurement of economic activity. Recognizing this limitation resulted in the development of the System of Environmental-Economic Accounting (SEEA).

Environmental-economic accounting brings together economic and environmental information in a common framework to measure the contribution of the environment to the economy and the impact of the economy on the environment. The framework builds on concepts definitions and classifications consistent with economic statistics supplementing them with environmental data that reflect the environment in terms of the resource, sink and service functions it provides.

The SEEA can be used to analyze sustainable paths of development through a broad range of indicators. These indicators can be directly obtained from the accounts, such as, material flows and energy use by industries and households; or natural resource indicators can be derived, such as, energy efficiency and water efficiency by industry. In addition, indicators, such as, 'ecological rucksacks', 'virtual water' and 'total material requirement' can also be derived through the application of the accounts, for instance, by using input-output modeling.

History

Environmentally sound and sustainable socio-economic development has since the 1970s received increased attention from the international community. It was particularly stimulated by the report of the World Commission on Environment and Development (1987) and Agenda 21 of the United Nations Conference on Environment and Development (1992). During the 1980s and early 1990s, joint workshops, organized by United Nations Environment Programme (UNEP) and the World Bank, set out to examine the feasibility of physical and monetary accounting in the areas of natural resources and the environment. A consensus emerged supporting a satellite approach, in which the analytical capacity of the national accounts is expanded to include environmental data without overburdening the central framework of the System of National Accounts (SNA).

The *1993 System of National Accounts* (1993 SNA) also endorsed the link to the environment by including a chapter on satellite accounts (Chapter XXI), a large part of which is dedicated to environmental-economic accounting. In 1993 the United Nations also published the *Handbook of National Accounting: Integrated Environmental and Economic Accounting* (SEEA-1993) demonstrating how several environmentally-adjusted national accounts aggregates can be derived.

After the publication of the SEEA-1993, several developing and developed countries started experimenting with the compilation of the SEEA. These compilation experiences were shared in the London Group on Environmental Accounting, one of the City Groups established under

the auspices of the United Nations Statistical Commission (UNSC) in 1994. As mandated by the UNSC, the London Group advances methodologies in environmental-economic accounting and provides a forum for practitioners to share their experiences in the development and implementation of the SEEA.

At its twenty-ninth session, in 1997, the UNSC requested the London Group to collaborate with the United Nations Statistics Division (UNSD) on the revision of the SEEA-1993. This eventually materialized in the revised *Handbook of National Accounting: Integrated Environmental and Economic Accounting, Rev. 1 (SEEA-2003)*. The SEEA-2003 was submitted to the 33rd session of the UNSC in 2002 and subsequently issued in 2003 by the United Nations, the European Commission, the International Monetary Fund, the Organization of Economic Cooperation and Development, and the World Bank.

Although the SEEA-2003 handbook is widely accepted as the reference for recording the interaction between economic processes and the environment, it still falls short of being an international statistical standard. It does not provide unique guidance or a preferred treatment for various issues. The UNSC therefore, created the United Nations Committee of Experts on Environmental-Economic Accounting (UNCEEA), with one of its main objectives to establish the SEEA as an international statistical standard.

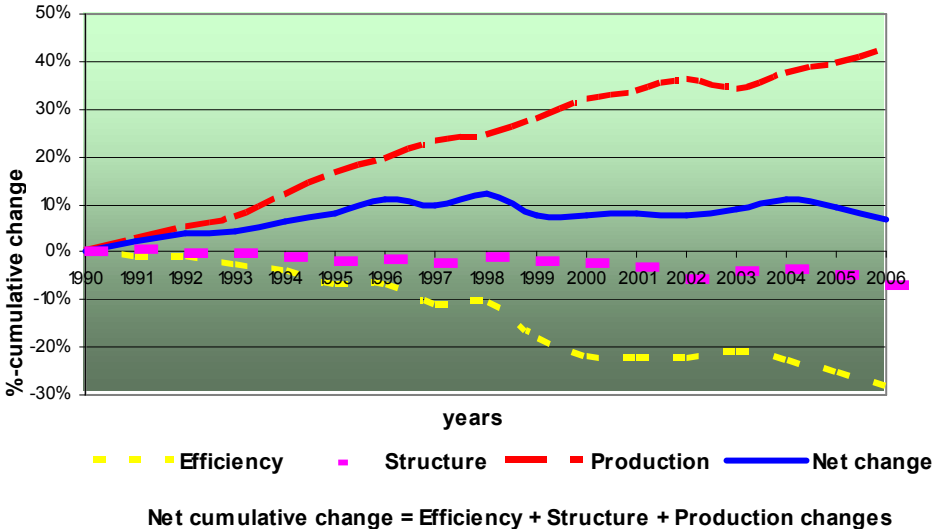
Description of SEEA: modules and indicators

The SEEA is an integrated information system consisting of several modules. It can be used to respond to different types of policy questions concerning, for instance, the pollution of the atmosphere, water bodies or soil from production and consumption, and the sustainable use of natural resources and ecosystems; or to provide information regarding environmentally related transactions, such as, taxes and subsidies to examine cost-recovery or polluter pays principles. The SEEA does not support particular schools of thought and can therefore be universally applied, underscoring its role as a multi-purpose for strategic planning and policy analysis.

Physical and hybrid flow accounts

Physical flow accounts provide a systematic physical description of production and consumption processes, including their natural resource inputs, product throughputs and residual outputs, i.e. wastes.

Figure 1 Global warming emissions of CO₂, CH₄ and N₂O in the Netherlands



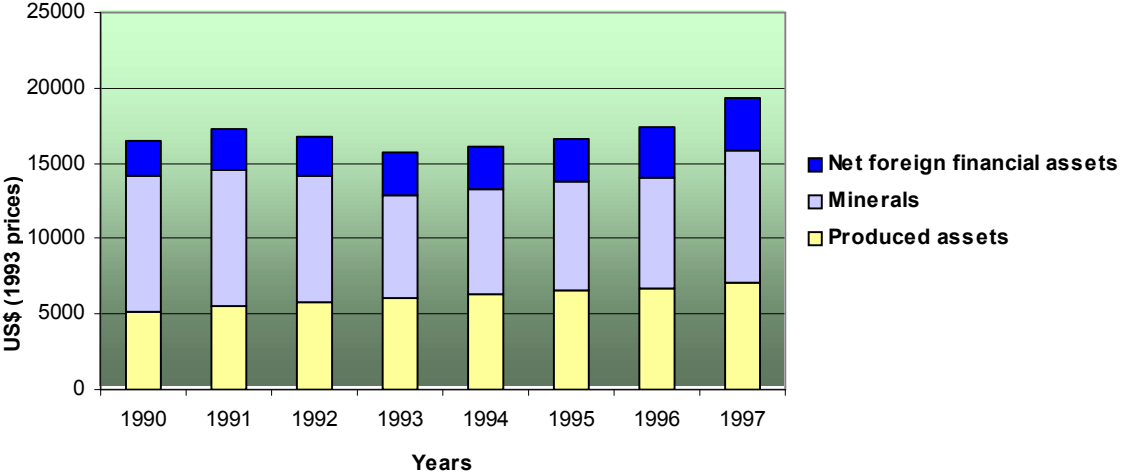
Source: Statistics Netherlands

The accounts also quantify the material dependencies of economies via imports and exports. When combined with monetary data they are called hybrid flow accounts. These accounts illustrate how economic growth is interrelated with natural resource use and pollution. By way of example, Figure 1 presents a decoupling indicator, which illustrates the effect of major economic determinants of pollution over time. Notwithstanding higher levels of production in the economy (read), emissions (blue) from the production processes have stabilized since the middle of the 1990s. This development can be attributed to improvements in the efficiency of the production processes (i.e. less emissions per unit of value added by industry) due to technological improvements (yellow), and structural changes in the production processes (pink) reflected by a greater share of the services industries in total value added.

Asset accounts

Asset accounts record stocks and changes in stocks (flows) of natural resources such as land, fish, forest, water and minerals for the accounting period. The SEEA include all environmental assets that provide option, bequest and existence benefits and combined with produced assets provide a better indicator of the wealth of a country. Asset accounts can be compiled in both physical and monetary terms. Monetary asset accounts illustrate the changes in the value of environmental assets and whether they are being depleted. Asset accounts can be particularly relevant for countries which are economically dependent on the exploitation of natural resources. Figure 2 shows that Botswana has been successful in using its natural capital (primarily minerals) to build national wealth as evidenced by a rising per capita wealth in recent years.

Figure 2 Per capita wealth in Botswana

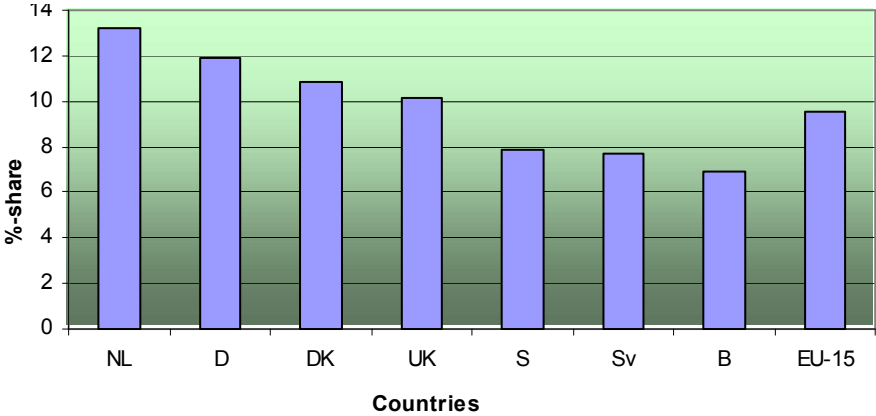


Source: G.M. Lange (2004), Environmental & Resource Economics, 29:257-283

Economic accounts and environmentally related transactions

These accounts separately identify environmentally related transactions presented in the existing SNA flow accounts in order to make them more explicit for analysis. They cover both expenditures on the protection of the environment and resource use. Other monetary transactions connected with the environment are covered as well, specifically those economic instruments being used to manage natural resources, such as taxes, permits and licenses for extracting natural resources or using the environment as a sink. Such accounts can for example illustrate the importance of environmental taxes (and subsidies) in the total tax regimes of countries (i.e. 'greening of the tax system').

Figure 3 Environmental taxes as share of total tax revenues in 2003



Source: Eurostat

Environmentally-adjusted national accounts aggregates

As an integrated and multipurpose system serving different policy needs, information from the various modules of the SEEA can be combined to form a full-sequence of accounts from which aggregates such as an environmentally-adjusted gross domestic product ('Green GDP'), or environmentally-adjusted net saving ('Genuine Saving') can be derived. These adjustments could include depletion, defensive expenditures and degradation.

Future –SEEA as an international statistical standard

The UNSC, recognizing the SEEA as a mature framework for the analysis and policy formulation on environmental-economic issues, entrusted the UNCEEA to promote the worldwide implementation of environmental-economic accounting and to establish the SEEA as an international statistical standard. In this regard the UNCEEA has the challenging task to revise the SEEA-2003. The work of the UNCEEA will be carried out in close cooperation with national statistical offices, international organizations (UNSD, UNEP, Eurostat, World Bank and OECD) and expert groups like the London Group on environmental accounting and the Oslo Group on energy statistics.

The SEEA revision and implementation programme is expected to improve the accounting concepts, the international harmonization of the accounting guidelines and subsequently the policy relevance of environmental-economic accounting considerably. In this context it is important to emphasize that the SEEA is not an indicator list, but an integrated information system providing the underlying statistical framework for thorough analysis and policy formulation.

More information on the SEEA is available on the website:
<http://unstats.un.org/unsd/envaccounting/default.asp>