

## Contribution to Beyond GDP „Virtual Indicator Expo“

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

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

Summary prepared by (name; institution): **London Group on Environmental Accounting**

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### Why we need the SEEA

The SEEA in response to policy demands. Policy-makers and managers benefit from consistent, comparable and comprehensive statistics and indicators when an integrated accounting approach is used. Importantly, the trade-offs of their decisions that affect natural resources and associated services are made explicit. The SEEA which was adopted as an international statistical standard for official statistics by the Statistical Commission of the United Nations at its 43rd session in 2012 is based on this accounting approach.

#### ***Relevant in a data poor environment ...***

The SEEA is relevant in a data poor environment by identifying the data gaps and improving consistency. International agencies and donors need to contribute to the implementation of the framework.

#### ***The SEEA in response to Agenda 21...***

Twenty years ago Agenda 21 identified the need for a systems approach to monitoring the transition to sustainable development and proposed a specific solution: the development of integrated environmental and economic accounts. Over the past two decades, the international official statistics and accounting communities have responded to this need through a rigorous and global process to develop a System of Environmental-Economic Accounts (SEEA) within the broader set of international statistical standards. A critical lesson from Agenda 21 is that integrated policy decision-making is crucial. This requires greater integration of the statistical evidence that informs policy. Unfortunately, in many cases, the production and dissemination of statistics relevant to sustainable development has remained relatively disparate, following the traditional ‘information silo’ based organization rather than using a systems approach. Moreover, given that data collection often involves many different agencies with different scopes of responsibility, there is usually limited collaboration in the collection, management and sharing of data across institutions, particularly on environmentally related topics.

#### ***The role of the SEEA ...***

The SEEA provides the internationally moderated framework for reversing the historical ‘information silo’ approach to statistics and for providing indicators that directly respond to the demand of integrated policy-making. Indicators related to initiatives such as “beyond GDP”, “Green Economy”, “Green Growth”, “measuring progress of societies”, and “better

life”, all fit under the umbrella of sustainable development. Taking just a few examples, indicators derived from the accounts provide the measures for the following policy questions:

- Who benefits from natural resource use? What are the impacts on the state of the environment and on other sectors of the economy?
- How does depletion of natural resources affect measures of the real income of a nation? Are the depletion costs recovered by the government? What is the composition of the wealth of a nation?
- Are current trends in production and consumption of resources sustainable? What economic instruments are in place? And what is the impact of new instruments?

#### Box 1: SEEA in practice: The Philippines

The Philippines has a decentralized statistical system consisting of a policy-making and coordinating body, a general purpose statistics producing agency, a statistical research and training centre, and various government agencies engaged in the generation of statistical information. The National Statistical Coordination Board (NSCB) is the highest policy-making body on statistical matters, and plays a central role in coordinating statistical activities. For example, it is mandated to compile the System of National Accounts by integrating the information from various data producing agencies in the country.

The Philippines has established an Inter-Agency Committee on Environment and Natural Resource Statistics (IACENRS) with the objective of coordinating activities in the generation of environment statistics, the integration of statistics into the environmental-economic accounts, and the derivation of indicators. The Committee brings together the government agencies responsible for designing environmental policies and data production, including the geo-spatial agency and the business community. It agrees on priorities and data collection requirements, identifies data gaps and overlaps, determines timeliness and data quality expectations, outlines dissemination policies, and seeks ways to improve the efficiency and cost effectiveness of the data production process.

The Philippines has a long history in the implementation of the SEEA under the leadership of the NSCB. The Philippines started implementation of the SEEA in 1998 as a pilot project with the funding of UNDP and the technical assistance of the UN Statistics Division. The pilot compilation included the following accounts: forests, fish, water, mineral and energy, and land and soil.

Since the 1998 pilot project, the Philippines has formally institutionalized the SEEA and IACENRS has adopted the SEEA as the supporting framework for integrated policies on the economy and the environment. The NSCB has been given the task to integrate the basic data produced by the different agencies in the SEEA accounts and tables. In the new 2012-2017 Philippines Statistical Development Programme a separate chapter on the environment has been devoted to the adoption of the revised SEEA as one of the activities under this program.

Source: National Statistical Coordination Board

## Accounting and integrated information systems

### ***The importance of accounts for the environment...***

The importance of the SEEA has long been recognized. Chapter 8 of Agenda 21 “Integrating Environment and Development in Decision-Making” called for “establishing the SEEA (1993) in all member countries” to obtain a “better measurement of the crucial role of the environment as a source of natural capital and as a sink of by-products generated during the production of man-made capital and other human activities”. It also requested the “UN Statistical Division in collaboration with other relevant international organizations to further develop, test refine and standardize the provisional concepts and methods proposed” in the 1993 SEEA.

### ***Elevation to an international statistical standard...***

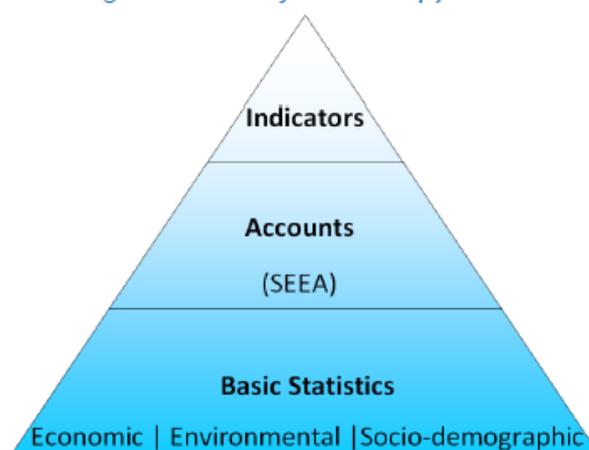
In recent years there has been an extensive effort to revise the SEEA and elevate it to an international statistical standard, taking into account new thinking in the measurement of environmental issues as well as established country experiences in implementation. The revised SEEA has undergone a wide consultation process led by the UN Committee of Experts of Environmental-Economic Accounting (UNCEEAA), an intergovernmental body under the auspices of the UN Statistical Commission. The global consultation involved countries at different stages of development from all regions, as well as international partners including multiple UN agencies, World Bank, IMF, OECD and the European Commission.

The SEEA utilizes the principles of economic accounting, building on the existing System of National Accounts (SNA). The SEEA accounts bring into direct focus the relationship between the environment and well-being not revealed through traditional measures of economic activity, such as GDP and national income. The SEEA does not propose or recommend any single indicator or basket of indicators for use in developing and assessing policy. Indeed some of its major strengths are in its approach to integrating statistics to allow for multiple purposes and multiple scales of analysis. However, there are several key aggregates and indicators that are directly derived from the accounting tables and are of interest to policy analysis and goal-setting.

### ***Consistent, comparable, coherent statistics and indicators...***

Figure 1 below illustrates the role of the SEEA in the statistical system.

*Figure 1: The information pyramid*



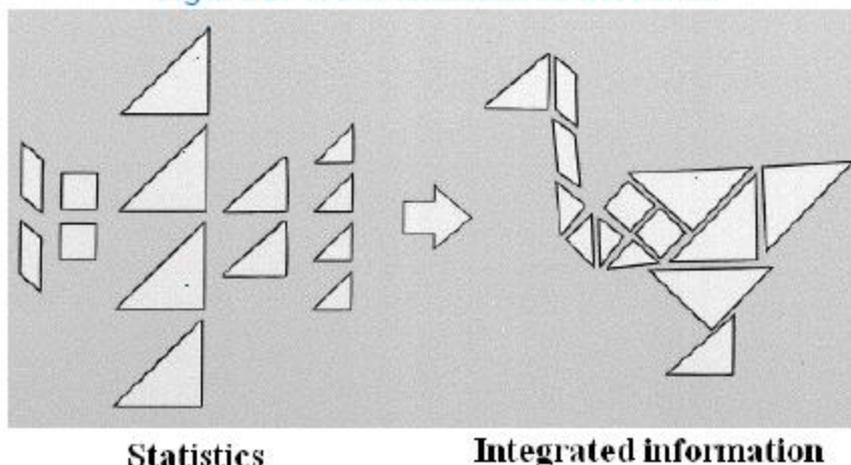
Starting from the basic economic, environmental and socio-demographic statistics, the SEEA organizes and reconciles them using accounting concepts and structure to obtain time series of consistent, comparable and coherent statistics and indicators and to facilitate the linkages with official statistics. While the indicators can be derived from basic statistics, the use of the accounts ensures that the indicators are consistent because their component data are derived from a common framework. As a result the signals of the statistics and indicators are coherent.

### ***From statistics to accounts...***

The UN Framework for the Development of Environment Statistics (FDES, currently under revision) provides the conceptual foundation and structure for organizing environment statistics. The SEEA provides a comprehensive conceptual accounting framework which brings together the blocks representing basic economic, environment and socio-

demographic statistics and describes the relationship between them as illustrated in Figure 2.

Figure 2: From statistics to accounts

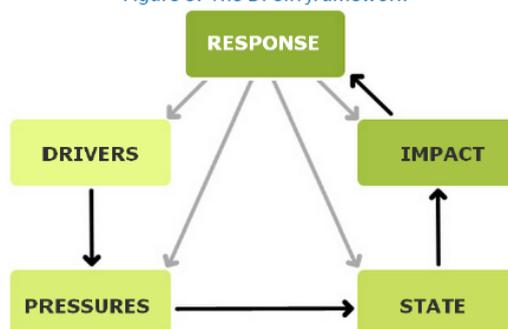


In addition to economic and socio-demographic statistics, the SEEA relies on basic environment statistics such as statistics on natural resources such as water, energy, forest, flows of materials and pollutants which are usually collected for specific purposes. The SEEA adds value to individual information components by bringing them together to inform integrated policies, evaluate trade-offs between different policies and evaluate their impacts across domains of the economy, the environment and society. The SEEA conceptual accounting framework is equally applicable for data rich and data poor environments. While in a data rich environment the SEEA confronts and reconciles the basic component data, in a data poor environment it identifies data gaps and provides the structure for the imputation of missing data.

### Connection to DPSIR...

Statistics and indicators derived from the SEEA can be communicated through the DPSIR framework. The Driving forces, Pressure, State, Response framework describes a step-wise causal chain between economic activity and impacts on ecosystems<sup>1</sup>.

Figure 3: The DPSIR framework



Responses are management responses to address environmental problems, such as environmental protection and resource management expenditures and environmental taxes. Driving forces are anthropogenic activities that cause pressure on ecosystems. Pressures are direct stresses from anthropogenic activities to ecosystems such as emissions to air,

<sup>1</sup> Report of the Issue Management Group on Green Economy “Working towards a balanced and inclusive green economy – A United Nations System-wide Perspective”(UN Environmental Management Group (EMG 2011)

water and waste, release of excessive nutrients. State refers to the state of ecosystems in terms of its capacity to provide services to humanity and the conditions of the environment. Impacts are the measures of changes in the ecosystem conditions such as depletion of natural resources and degradation of ecosystems conditions. The monitoring framework, the SEEA, informs the policy framework (see Figure 4) through statistics and indicators that may be communicated through the DPSIR framework.

## Sustainable development policy and information requirements

### *Informing different policy perspectives...*

Figure 4 presents sustainable development policy areas according to four simple quadrants related to how information is derived from the SEEA.

*Figure 4: SEEA and sustainable development policy*



The first quadrant, Improving access to services and resources, refers to policies that aim to ensure that households have access to appropriate, reliable and affordable resources and services. Scarcity, as experienced by individuals, is not only about absolute volumes of resources in a country, but also accessibility. The SEEA can provide a range of measures to guide policymakers in assessing and managing performance of providers of critical services such as water and energy. They include the following indicators:

- Current and capital costs associated with the provision of the services and their financing;
- Losses in distribution;
- Quantity of resource used.

The second quadrant, Managing supply and demand, refers to the allocation of natural resources for meeting the needs of current and future generations in relation to the available endowments. Relevant measures derived from the SEEA include the following key aggregates and indicators:

- Resource use of production and consumption;
- Generation of emissions and waste by economic activity and households.
- Resource efficiency;
- Decoupling indicators for emissions and resource use;
- Carbon and energy embedded into products;
- Environmental goods and services;
- Green jobs;
- Environmentally-adjusted aggregates for depletion (e.g. net savings or environmentally-adjusted value added);
- Resource rent;

- Investment in infrastructure.

The third quadrant, Improving the state of the environment and reducing impacts, recognizes the potential for economic activities to cause harm and the potential to protect or restore natural capital for future benefit. The SEEA provides an agreed approach for internationally comparable measures such as:

- Stocks of natural resources;
- Emissions into water, air and soil and waste generation;
- Environmental protection expenditures and resource management;
- Land use and land cover;
- Conditions and health of ecosystems;
- Regulatory services provided by ecosystems;
- Economic instruments to reduce impacts.

The SEEA is also developing best practices on measures such as:

- Conditions and health of ecosystems;
- Regulatory services provided by ecosystems;

Finally, the fourth quadrant, Mitigating risks and adapting to extreme events, refers to policies that aim to reduce human, economic and ecological harm created by extreme natural events and changing environmental patterns. Measures that inform this quadrant include:

- Greenhouse gas emissions by type of economic activity;
- Expenditures on mitigation (e.g. technologies);
- Expenditures for adaptation to extreme events (e.g. dykes, etc.).

## **Implementation of the SEEA**

### ***Countries adopting the framework...***

Although the SEEA is a relatively new approach in the development of integrated national accounts for the environment, more and more countries are compiling or planning to compile environmental accounts. Environmental accounts do not necessarily require a large amount of data. On the contrary, the SEEA provides the organizational structure to bring all the available data together to improve understanding of their interrelationships and verify consistency. This facilitates the identification of data gaps and overlaps as well as the improvement the quality of the data.

### ***Also developing countries adopting the SEEA...***

The SEEA can be implemented in countries which are at various stages of development. The implementation of the framework can be incremental starting from very aggregated tables and accounts that can be disaggregated based on policy needs and data development. Increased use of the framework should lead to improvements in the availability and quality of the data and the information base that supports the development and assessment of policies that have an impact on the environment.

Countries will have to make changes to their national economic accounts in order to have more detailed information about the natural resource asset accounts, material flow and pollution accounts

As the framework is implemented at national and subnational levels it will become increasingly easier to share and compare information over time and space.

## **Subsystems of the SEEA**

The SEEA-Water and the SEEA-Energy are two subsystems of the SEEA. They elaborate and build on the concepts of the SEEA while maintaining close links with the concepts and terminology of the specific subject areas.

### ***SEEA-Water...***

The SEEA-Water, a subsystem of the SEEA, provides a conceptual framework to support water policy design and evaluation. The SEEA-Water was adopted by the United Nations Statistical Commission (UNSC) in 2007. As part of the implementation of the framework the International Recommendations for Water Statistics (IRWS) were also developed and adopted by the UNSC in 2010. IRWS provides the list of data items and methods of collection for water statistics.

The SEEA-Water framework sets the basis for compiling a full spectrum of information to answer a wide variety of policy questions, such as:

- What are the investments in water supply and sanitation services? How are the costs being recovered?
- Are the services affordable to the population?
- Are water resources being used sustainably? Who benefits in the allocation of scarce water resources?
- What are the trade-offs of water re-allocations?
- Are the levels of pollutants emitted to water acceptable? Are they decreasing? What investments are made for the purpose of reducing pollutant emissions?
- What are the economic losses associated to floods and droughts? What investments are associated with reducing flood and drought risks?

### ***SEEA-Energy...***

Work is currently underway to finalize SEEA-Energy. SEEA Energy can inform on progress across the full spectrum of energy related matters. For example, for those concerned with an environmentally sustainable energy supply that addresses socioeconomic needs, it informs the following policy questions:

- Do we have an affordable, economically sustainable and environmentally sustainable energy supply?
- What is the mix of energy products used - and who are the various users of these products? What are the emissions generated by this energy mix? How does this supply and use of energy impact on the full range of related economic measures, for example, energy prices paid, energy expenditures as a proportion of household income or business income, profits earned and so on?
- What is the expected (and actual) impact of various policies on the environment; and on household and business expenditure, business income, taxes and so on? Or, for example, how would incentives to invest in renewable energy impact on industry emissions?
- Furthermore what types of incentives are being used (subsidies, grants etc), what is their size, and who is financing them? What are the changes in the contribution of renewable energy to total energy use over time?

### ***Sustainability goals..***

Water and energy are essential for achieving equitable and sustainable social and economic development. Water and energy security require improving the management of water and energy resources. These are necessary conditions for achieving many Millennium Development Goals (MDGs), such as eradicating extreme poverty and hunger, achieving universal primary education, promoting gender equality and women's empowerment, reducing child mortality, improving maternal health, combating major diseases, and ensuring environmental sustainability.

***Also developing countries adopt water and energy accounts...***

The SEEA-Water and SEEA-Energy can be implemented in countries which are at various stages of development. The implementation of the frameworks can be incremental starting from very aggregated tables and accounts that can be disaggregated based on policy needs and data development. Increased use of the frameworks should lead to improvements in the availability and quality of the data and the information base that supports the development and assessment of policies that have an impact on water and energy. As the frameworks are implemented at national and subnational levels it will become increasingly easier to share and compare information over time and space.

**Conclusions and recommendations**

The examples above provide a preliminary and limited preview of the possibilities of the SEEA in relation to sustainable development policy. The SEEA is a multi-purpose tool that can serve a variety of monitoring purposes related to sustainability.

***Donors need to contribute to implementation...***

The advantage of implementing the SEEA comes from the benefits of integrating environmental and economic information in an internationally agreed framework, using common definitions, classifications, and accounting rules. In order to realize the full potential of the SEEA, cooperation and commitment at the national and international level is required. International agencies and donors need to contribute to the implementation of the SEEA, including through programmatic support to institutions in developing economies to improve their capacity to collect, organize, interpret, and communicate the relevant data.

***Building a commitment in countries...***

At the national level, considering the many institutions that either produce or use environmental information, it is important to create appropriate institutional arrangements for coordination purposes. Usually the national statistical offices or other agencies that compile national economic accounts are important coordinators in the compilation of the SEEA. Implementation of the SEEA can take a step-wise approach and each individual country will need to establish its own priorities for measurement. But the first step is to build a commitment in countries in support of the SEEA implementation to help meet their sustainable development monitoring needs.

Source: Brochure on The System of Environmental-Economic Accounts (SEEA) – Measurement Framework in Support of Sustainable Development and Green Economy Policy: <http://unstats.un.org/unsd/envaccounting/Brochure.pdf>

For further information on this briefing, contact: [seea@un.org](mailto:seea@un.org).

For more information on the SEEA please visit: <http://unstats.un.org/unsd/envaccounting/seea.asp>