ESA/STAT/AC.238
UNCEEA/6/12

DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS
STATISTICS DIVISION
UNITED NATIONS

Sixth Meeting of the UN Committee of Experts on Environmental-Economic Accounting
New York, 15-17 June 2011
North Lawn Building – Conference Room C

Report of the Issue Management Group on Green Economy "Supporting the Transition to a Green Economy"

Section 11: Indicators of progress, measuring growth and prosperity

Paper prepared by UNEP

(for discussion)

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"Supporting the Transition to a Green Economy"
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11.1 Introduction

A framework for measuring progress towards a green economy is necessary in order to formulate necessary policies in a concrete manner and to monitor progress in their implementation. Such a framework should organize thinking concerning different groups of indicators, relative to the concept of green economy, and their associated statistics.

The elaboration of a framework for measuring progress towards a green economy, including in terms of growth and prosperity, should draw on a range of existing frameworks and initiatives. This includes the UN System of Environmental-Economic Accounting (SEEA)[1], as the internationally recognized statistical framework for representing the relationship between the economy and the environment. In addition, a transition to a green economy will contribute to the goal of sustainable development, and a measurement framework should also draw on the existing frameworks for indicators of sustainable development.

A conceptual framework for indicators for a green economy should provide flexibility for governments to use and develop, as necessary, indicators and supporting statistical frameworks that meet their needs and circumstances. Although the selection of specific indicators may vary, the SEEA can provides consistent statistical classifications, concepts, and methods underlying flexible indicator sets.

Sub-section 11.2 presents a general conceptual framework for assessing progress towards a green economy. Sub-section 11.3 then summarizes the SEEA and how this can provide a statistical framework for organize data and generate indicators. Various related other frameworks are described in sub-section 11.4.

11.2 A conceptual framework for assessing progress towards a green economy

The following conceptual framework for assessing progress towards a green economy is proposed, in which indicators are divided into three groups:

- *Green investments, jobs, and sectors*: This group has an economic focus and represents efforts to achieve a green transformation of various sectors of the economy, in terms of investment, and the associated share in output and employment.

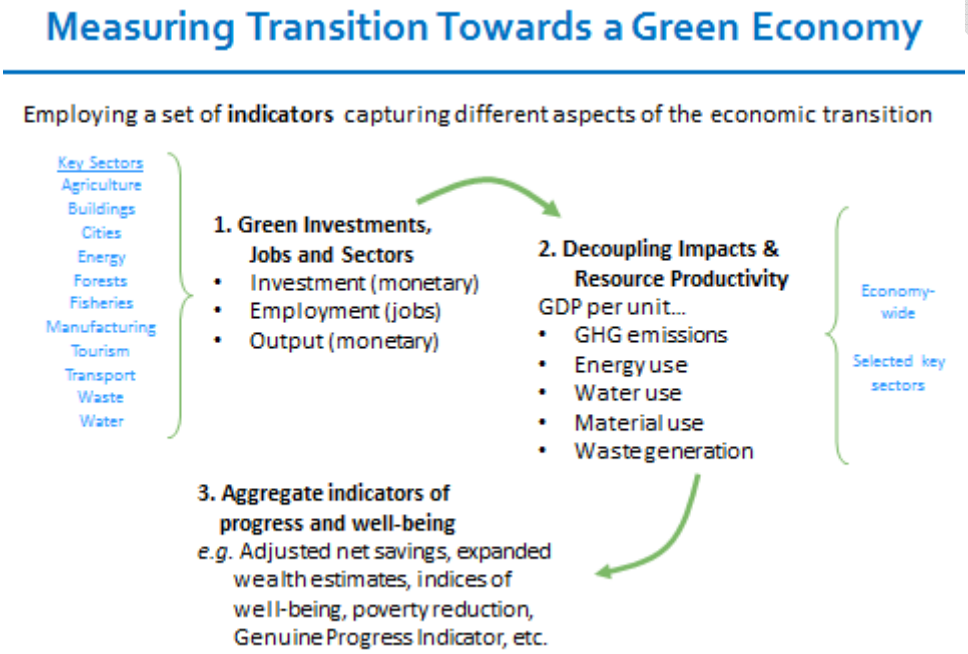
- *Decoupling Impacts and Resource Productivity/Efficiency*: This group assess the environmental impacts of economic activity, identifying indicators of resource efficiency and the decoupling of economic activity from these impacts. Principle issues including materials and waste, energy, water, land use and ecosystem change, and emissions of hazardous substances, related to economic activity.

[1] http://unstats.un.org/unsd/envaccounting

- *Aggregate Indicators of progress and well-being*: This group refers to overall measures of economic progress and well-being, including dimensions such as poverty alleviation, equity, social inclusiveness, overall well-being, natural capital, inclusive wealth (such as in the "Beyond GDP" initiative). This includes thus a wide range of proposed indicators, mostly to complement GDP with social, environmental and more detailed economic criteria.

There is a logical link between these groups, depicted in Figure 11.1. The concept of green economy entails an increasing share of green, or environmental, sectors (or activities to improve sustainability – "green" – other sectors) in the economy. This could be assessed with economic indicators of these activities: investment, value added, output and employment. The Environmental Goods and Services Sector (EGSS) can provide a starting point for this disaggregation within the System of National Accounts (SNA). The EGSS is incorporated in the internationally agreed SEEA (as discussed below).

Figure 11.1 Conceptual framework for assessing progress towards a green economy



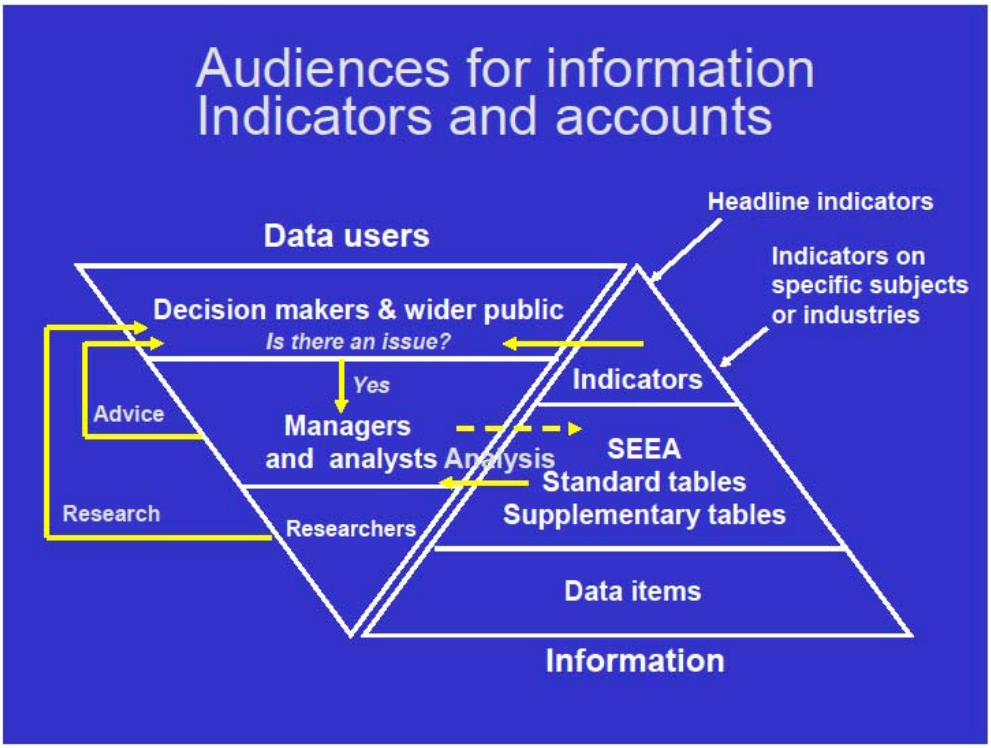
As these green or greener sub-sectors come to occupy a greater share of the green economy, the expectation is the impact of the economy on the environment in terms of energy and resource use and waste generation will decline. It should be possible to assess these improvements in terms of the second group of indicators on impacts. These will typically be expressed in normalized terms, or relative to economic outputs, such as in the case of resource use per unit (dollar) of GDP.

The work of the International Resource Panel provides a scientifically solid basis on which to build indicators of the environmental impacts of economic activity. The Panel has recently published a report on assessing the environmental impacts of consumption and production

(UNEP, 2010). The report reviews and summarizes scientific work relevant to the environmental impacts and resource consumption of economic activities. Conceptually, the report takes the so-called DPSIR (Driving force – Pressure – State – Impact – Response) framework as a basis, developed by organizations such as EEA, OECD and UN CSD. The concept provides a step-wise description of the causal chain between economic activity and impacts such as loss of biodiversity, and diminished human health, welfare or well-being. The SEEA provides an agreed system for components such as material flow accounts, input-output tables, and land and water use accounts, that provide the needed frameworks for measuring indicators such as energy, resource and materials use at sectoral as well as economy-wide scale.

Indeed, the SEEA provides a framework to integrate information from difference sources from which consistent indicators comparable across countries and over time can be derived and disseminated for various purposes. Figure 11.2 presents a matching of different users (left) of indicators and underlying data to the information pyramid (right). One way of disseminating indicators is the DPSIR framework, which has been used by national and international initiatives, but there are several other options for presenting indicators derived from the SEEA.

Figure 11.2



The changes in the environmental performance of the economy should also be captured in the third group, comprised of complementary or alternative indicators to GDP, including also adjusted GDP measures, such as GDP adjusted for natural capital depletion and degradation, or net savings estimates. Many proposed indicators under this category attempt to portray many other dimensions of well-being and progress beyond the environmental pillar. A transition to a green economy should contribute to reducing poverty and enhancing social equality. Combining the various pillars of sustainability suggests the use of measures of inclusive wealth.

There is an increasing demand to incorporate the link between ecosystems and their functions to productivity, and to assess the impacts of degradation on those functions. Natural capital in the form of ecosystem services, such as nutrients cycling and waste absorption capacity, are now well recognized as fundamental to the green economy and human well-being in general. Development of the concepts and methods for concrete measures of ecosystem services as natural capital is ongoing. Eventually, it is expected that measures will be available to assess ecosystem health in relation to changes in the economy, and to separately identify the value of the assets and services of ecosystems in their contribution to the green economy.

11.3 SEEA: An accounting framework for the green economy

In order to assess a country or region's path towards a green economy, data on economic production and consumption should be integrated with information on the environmental impacts of these activities. In terms of the conceptual framework above, the impacts in terms of decoupling and efficiency in the second group of indicators should be related to production and consumption data, as maintained in the system of national accounts. In addition, changes in the amount and sectoral disaggregation of production and consumption, as well as associated employment, can be characterized as part of a green transition, resulting from specific investments or changes in the structure of the economy.

The UN System of Environmental-Economic Accounting (SEEA) is the internationally agreed statistical framework for the environment focusing on measuring the relationship between the economy and the environment. The SEEA sets the statistical standards for collecting and integrating economic and environmental data for analysis of the green economy and sustainability. It does not propose any single headline indicator. Rather it is a multi-purpose system with many different analytical applications that generates a range of indicators.

For example, the SEEA provides added value to compilation of greenhouse gas emissions by integrating the information on emissions to economic activities and the related economic statistics, thus allowing for decomposition analysis of the driving forces of emissions. Also, in order to assess increases in the share of "green" investment, employment and output , the SEEA provides the framework for compiling economic data classified according to the internationally-agreed environmental goods and services sector (EGSS) classification. The SEEA is the reference framework for organizing basic data and deriving indicators that link environment and economy. A recent example is application in the OECD Green Growth Indicators Report.

The SEEA covers natural capital asset accounts, flow accounts of emissions, energy, water and materials, environmental resource management and protection expenditures, and aggregate economic indicators adjusted for environmental depletion and degradation. The asset accounts record stocks and changes in stocks of natural resources and may be compiled both in physical and monetary terms. The accounts can be used to track the distribution of ownership of these assets and the sustainability of natural capital utilization. The physical flows from the environment to the economy (water, energy and other raw materials) and from the economy to the environment (waste and emissions) are recorded in the SEEA tables according to supply and use by industries and households. The accounts may be combined with monetary information into so-called hybrid accounts. The information from the physical flow accounts is vital for

conducting analysis of productivity of natural resources and cost-recovery from waste and emissions.

The SEEA separately identifies all transactions that are related to the environment such as taxes, subsidies and expenditures on protection, remediation or management of the environment. These accounts can be used to assess the greening of economic policies, the implementation of the polluter-pays principle, and to conduct comparisons of environmental protection expenditures across industries and countries. A valuable contribution of the SEEA for these accounts is the introduction of an international agreed classification of environmentally related transactions.

With globalization and growth in trade in goods and services, the SEEA makes important contributions to understanding green growth by providing internationally comparable compilations of integrated statistics on the environment and the economy. The SEEA allows for analysis from both the production and consumption perspectives; for example, by using input-output modelling to understand the amounts of emissions embodied in exports or imports of goods. Time series of such data can reveal whether mitigation strategies have been effective at the global level, or if the sources of emissions have simply leaked into other production markets.

The SEEA 2003 is currently under revision and the revised version will be put forward to the United Nations Statistical Commission in February 2012 for adoption as an internationally agreed conceptual framework for official statistics.

The revised SEEA will comprise three volumes. Volume 1 is for compiling asset and flow accounts in physical and monetary terms. It will cover concepts and definitions that are consistent with those of the conventional economic accounts (SNA). Volume 2 will provide the conceptual framework for ecosystem accounting and will address certain accounting items for which an international consensus has not yet been reached. The ecosystem accounts aim to provide information not only on the stocks and flows of resources and emissions, but also other forms of natural capital, particularly ecosystem services and measures of the impacts of degradation and depletion on the quality of those services. Volume 3 will contain elaborations and applications of the accounts, for example the use of time series data on natural resource flows to conduct resource productivity input-output analyses. Work on the revision of the SEEA and its implementation in national statistical systems is led by the Committee of Experts on Environmental-Economic Accounting (UNCEEA) under the auspices of the United Nations Statistical Commission and supported by national statistical offices and many international and regional organizations.

11.4 Relevant indicator sets

Based on the SEEA accounting framework, various sets of indicators can be proposed for assessing progress towards a green economy. Such sets can be organized according to the three groups presented in the conceptual framework.

One open issue concerns whether international agreement should be sought on a specific set of green economy indicators. Similarly, agreement could be sought on a subset of core, or headline indicators. Agreement on a common set need not imply agreement on a common headline indicators within such a set. Conversely agreement on common headline indicators does not

imply that all countries or regions adopt the same broader set. One advantage of a common set of indicators would be facilitating international comparison. A disadvantage might arise if not all indicators are equally relevant for all countries and their respective circumstances. This could be a more serious issue for headline indicators.

In considering the feasibility and desirability of a common set of indicators for green economy, it is worth noting that various sets of (overlapping) indicators for sustainable development and sustainability have been developed. For example, the Commssion on Sustainable Development (CSD) has produced the third set of Indicators for Sustainable Development in 2007 (following earlier versions in 1996 and 2001).[2] This latest version contains a core set of 50 indicators , which are part of a larger set of 96 indicators. Many of these indicators are relevant for assessing progress towards a green economy, and could be placed in the second group (decoupling and efficiency) in terms of the conceptual framework presented here. The FAO has developed a framework for sustainability indicators, comprised of target and core indicators.[3] These also overlap with indicators of sustainable development and with suggestions for green economy indicators.

As the concept of green economy is acknowledged as providing an opportunity to contribute to sustainable development and poverty eradication, it logical that green economy indicators will overlap considerably with indicators of sustainable development. The conceptual framework above does though suggest the development of indicators of green transformation of the economy and key sectors that are not generally part of agreed sets of indicators of sustainable development.

The assessment of a green economic transformation, in terms of possible economic indicators such as output and employment, is also discussed in within the OECD, which is currently developing a set of indicators for monitoring progress towards green growth as part of its Green Growth Strategy. The OECD's framework also recognizes the SEEA as the international statistical standard on which indicators of green growth are to be based.

11.5 Implementation

A framework for indicators to assess progress in moving towards a green economy, including the selection of relevant sets of indicators, poses two implementation issues. One concerns the use of such indicators by different audiences. The other relates to the needs and capacities of different countries, particularly developing countries.

As mentioned above, considerable efforts have been devoted to developing sets of indicators of sustainable development. Among these, there have been indicators formulated on environmental-economic inter-relationships, such as the adjusted net savings measures published by the World Bank. It may be possible, for example, by means of assessments, to learn more about the use by policy makers and other stakeholders of such information. Informed decision making and setting of targets concerning a green economy will require the

[2] *Indicators of Sustainable Development: Guidelines and Methodologies*, United Nations Department of Economic and Social Affairs, New York, 2007.
[3] http://www.fao.org/docrep/012/a1322e/a1322e00.pdf

availability of information in the form of standardized indicators, but other constraints may need to be addressed.

Many developing countries will, however, likely face constraints just in generating and making such information available. Technical assistance and capacity building will be required in order to support the development of this information base. One possibility might be to undertake pilot studies on the development and use of green economy indicators. UNEP is currently considering such activities in the context of requests for assistance received from several developing countries interested in the opportunities presented by a green economy strategy. There are clearly opportunities for partnering among agencies to respond to such needs and requests.