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**Fifth Meeting of the UN Committee of Experts on  
Environmental-Economic Accounting  
New York, 23-25 June 2010  
North Lawn Building, Conference Room E**

**ENVIRONMENTAL ACCOUNTING  
AT THE EUROPEAN ENVIRONMENT AGENCY**

Paper prepared by the European Environment Agency

*(for information)*

*Background document*

## **Environmental accounting at the European Environment Agency**

Note<sup>1</sup> to the UNCEEA meeting, 23-25 June 2010

The EEA is involved in several economic-environmental accounting projects:

- Land cover accounts
- Ecosystem capital accounts;
- Water accounts
- Sustainable consumption and production analysis

This activity is part of the European Strategy on Environmental Accounting and is coordinated with Eurostat's programme.

- Land cover accounts

Land cover accounts for Europe 1990-2000 have been published in 2006. The EEA report<sup>2</sup> includes first the presentation of basic land cover stock and flows accounting methodology, the annotated classifications used, and methodologies for contextual landscape analyses with land cover accounts. Results for Europe are presented for 1990 and 2000 for 25 countries, and in addition for 1975 for the 10 km coastal strip. It includes tables by countries and regions, bio-geographical regions, catchments, and dominant landscape types. All data are computed using a 1 km<sup>2</sup> standard grid and aggregated by reporting units. Both grid data and statistics are available on the EEA website. Land cover accounts have been updated in 2009/2010 for the year 2006 for the 34 EEA member countries. Results are available, they will be used for the 2010 state of environment report and a specific technical report will be issued by the end of this year. In parallel, the EEA runs with the European Space Agency an experimental programme called GlobCorine for annual updating of land cover accounts. First results for year 2006 are available and the 2009 update will be delivered end of June 2010. GlobCorine methodology is implemented for the European Union and the so-called countries of the "European Neighbourhood Policy", of Eastern Europe and the southern Mediterranean. GlobCorine is prone at being implemented worldwide and a test on Burkina Faso 2006 is currently under validation for analysing the conditions of its extension.

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<sup>1</sup> Drafted by Jean-Louis Weber

<sup>2</sup> Land accounts for Europe 1990–2000, EEA Report No 11/2006

- Ecosystem capital accounts

The general framework for ecosystem capital accounts in physical units has been presented in an international workshop in Copenhagen, December 2006 and published in different papers, including for discussion by the London Group<sup>3</sup>. During the Beyond GDP conference of 2007, Brussels, the EEA has developed views on adjusting national accounts from ecosystem capital consumption and the ways of estimating such depreciation from ecosystem degradation physical accounting.

In November 2009, Luxembourg, a Joint seminar of EEA's Management Board and DIMESA, the Eurostat working group of environment statistics directors has favourably welcome the project of "fast track implementation of simplified ecosystem capital accounts for Europe" by 2012. The project is now ongoing with cooperation between EEA and Eurostat. Priority physical accounts have been defined: land (on the basis of land cover accounts), carbon, water and biodiversity. Each account will present a balance of stocks and flows, where the ecosystem reflects the economic system. The basic balances will be supplemented on the ecosystem side by counts of health. On the economic sectors side, the basic balances will be bridged to commodities accounts. They will include tables for "virtual" or "embedded" flows of land, carbon and water. Considering the carbon accounts, bio-carbon balances will be supplemented on the sector side by fossil carbon and GHGs accounts. Beyond basic resource balances, ecosystem and economic sectors accounts are connected via geographical data of crops, timber felling and water use. It makes it possible, by overlaying resource use and ecosystem condition (natural productivity and health) datasets to compile ecological sustainability coefficients.

On the monetary side, ecosystem accounts will include firstly an estimation of the non-recorded ecosystem maintenance or restoration costs. This depreciation element is similar to fixed capital consumption. It will come in addition to commodities purchaser's price in order to estimate their full cost. Calculation of non-paid maintenance/restoration costs will start when the first results of physical accounts will be available.

Benefits from ecosystem services can be assessed in two different ways. The first one consists in considering ecosystem services as an ecosystem capital outcome or a rent which can be isolated from the value of commodities and assets. Because the micro-economic empirical results of such calculations are difficult to generalise at the macro scale, the EEA works currently on the second approach, more modest which addresses ecologically sustainable economic benefits made possible from healthy ecosystems. The approach is deliberately functional and aims at extracting this conditional Value Added from the beneficiary sector's accounts in proportion to the benefits. The ecological sustainability coefficients used are those computed previously in the physical accounts. A first test is currently done by the EEA and Eurostat, using the input output tables available in Europe; the focus is at this stage agriculture, forestry and fisheries.

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<sup>3</sup> ref...

Ecosystem services as such are a central concept in ecosystem capital accounting. Ecosystem services resulting from the use by socio-economic actors of selected ecosystem functions in a particular place, the relation to ecosystem capital is not linear and scale dependant. Current experiments are taking place at the European (by the Joint Research Centre of the EC) and national (by several countries in view of their ecosystem assessment) scales for selected ecosystem services. They firstly are firstly mapped and then valuation is undertaken, the first tests relating to regulating services such as carbon sequestration and water purification. Because of this complexity, there is a need of a standard classification of ecosystem services to support synergies between the many approaches. The EEA, altogether with UNEP and UNSD has therefore organised a process (including two international workshops in 2009 and 2010 and an electronic conference open to the statistics and research communities) which has resulted in a proposal for a Common International Classification of Ecosystem Services, CICES which has been delivered in April to the UNCEEA.

- Water accounts

Their construction is under way, following the principles of the SEEA Water. In order to produce effectively operational water accounts, a particular attention is given to the space and time dimensions. Spatially, accounts are build-up by hydrological units according to the hierarchical system of river catchments, starting from small units up to the natural catchments which vary from very small to very large. Because of this organisation of data, it will be possible to present most accounts either by physical catchments or by river basin districts (managed by water agencies) or by administrative units, matching in that way the needs of the European Water Framework Directive. Regarding the time issue, accounts will capture water stress, which is a seasonal situation in Europe by using as much as possible frequently updated datasets (in particular regarding precipitations, river runoff, and soil humidity) on at least a monthly basis, syntheses being established on a quarterly basis. A first set of water resource accounts (supply and use and assets accounts, according to the SEEAW terminology) will be delivered at the end of 2010 for 5 countries, the others being available the following year.

Recently, the EC has asked the EEA its support to streamline the Water Framework reporting with accounting standards. A particular concern relates to the inconsistent economic data supplied by Member States in response to the objective of “full recovery of costs”.

- Sustainable Consumption and Production (SCP)

SCP is an important EU policy supported by the EEA in close cooperation with Eurostat which his running the European data centre on resources. In this area, the EEA is a client of Eurostat’s data and methodologies. SCP analyzing makes an extensive use of material flow accounts and input-output hybrid accounts (NAMEA). Future development foresee integration of SCP analysis and the ecosystem accounts in particular considering flows embedded into trade, and the ecological sustainability of resources and benefits.