



DEPARTMENT OF ECONOMIC AND SOCIAL AFFAIRS  
STATISTICS DIVISION  
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Background paper

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**Preliminary Meeting of the UN Committee on  
Environmental-Economic Accounting  
New York, 29-31 August 2005  
Two United Nations Plaza  
Conference Room 23<sup>rd</sup> floor**

**RESEARCH AGENDA:  
OTHER ISSUES  
LAND AND ECOSYSTEM ACCOUNTS**

**European Environment Agency**

Land and ecosystem accounts are an essential component of the quantification of the natural capital, its potentials and threats under economic development and climate change, in particular considering ecosystem goods and services (marketed and non marketed). The Millennium Ecosystem Assessment report illuminates the key character of the issue as well as the necessity of developing the data infrastructure for shifting from assessments to operation. Presently, data are at the same time abundant and scattered between thematic system and multiple data collectors/managers at the various geographical scales.

Economic-environmental accounts can contribute to integrating the natural and socio-economic aspects of the information system as well as streamlining the cooperation between statistical institutes, environmental agencies and the research community. Recent and fast developments in space-borne and in situ real time observation systems, database management and data transmission make it possible today to progress in implementing accounts of the living and cycling natural capital (beyond the mineral resource) that match the requirements of ecological economics analysis.

The SEEA2003 section on land and ecosystem accounts (Chapter 8 – F), although not fully developed, sets correct grounds. On this basis, reflections, experiments and even first steps of implementation have been undertaken in Europe and Canada. They meet the policy requirements for assessing trends in ecosystems and biodiversity, the stress resulting from intensive use of land, water and biological resource, as well as the adaptability and sustainability of ecosystems and human systems. Remaining issues relate to the completion of the framework and the strategy of implementation.

The current framework of land and ecosystem accounts is based on the distinction between basic accounts and supplementary targeted accounts. It is relevant to natural and modified ecosystems as well as land use systems.

Basic accounts describe the overall picture resulting from land use and ecosystem conditions. They are the first level exhaustive measurement of stocks and trends as well as a pattern for stratifying the more complex statistics and monitoring data required for targeted accounts. They are explicit in terms of geographical distribution and make use of GIS analysis. Comprehensive monitoring and observation programmes (land cover and other biophysical parameters on land, oceans, meteorology, hydrology...) and geographical data infrastructure are the basis of their implementation.

Targeted accounts focus on ecosystem functions and land use functions, their compatibility and possible conflicts. They are analytical and focussed on priority issues. They incorporate data and statistics for the socio-economic domain as well as from nature. Their implementation requires stratifications and sampling as well as data assimilation and modelling.

The research agenda on land and ecosystem accounts should define how the accounting model will contribute in overcoming analytical and data gaps, making the best use of the existing statistics and databases available at the country and international levels, including statistical systems, environmental and related (e.g. meteo) agencies, space agencies and research programmes. It should not duplicate any existing research but, instead, focus on short/medium terms results, of interest for policy making, that should in turn contribute to enhancing these programmes and facilitate the dialogue. Therefore, each item will include a conceptual and an implementation aspect.

#### **A - Basic accounts:**

1. **Land cover accounts:** prepare the implementation in relation to the global observation programmes (GEOSS, Globcover)

Methodological issues: classification(s), integration of scales (space and time)

Action: set up inter-institutional cooperation UNCEEA/ GEOSS-GMES

2. **Inland water/Hydrosystem:** development as an extension of water accounts (quantity and quality)

Methodological issues: coherence of typologies, data infrastructure

Action: in relation to the development of water accounts

3. **Marine ecosystem:** definition of the overall accounting framework

Action: tbd

## **B – Targeted accounts:**

1. **Land & inland water ecosystem accounts:** validate and test the feasibility of the ecosystem accounting framework

Methodological issues: scientific soundness of the framework (stocks, health/resilience, functions, goods & services, interactions), classification(s), integration of scales (space and time), stratification/sampling strategy

Actions:

- Working group & workshop on framework and priority setting (sept. 2006)
- Pilot applications (cross-cutting and/or specific to ecosystem types):
  - / satellite monitoring (primary productivity, connectivity/fragmentation)
  - / data provision through modelling (flows of nutrients, water stress)
  - / stratified sampling (biodiversity)

2. **Land use accounts:** validate and test the feasibility of the land use accounting framework

Methodological issues: scientific soundness of the framework (land use functions, intensity of use, stress), classification(s), integration of scales (space and time), statistical issues (use of local statistics and alternative solutions)

Actions

- Working group & workshop on framework and priority setting
- Pilot applications:
  - Urban systems
  - Agriculture/ rural systems
  - Tourism

## **C - Integration of land use and ecosystem accounts to other SEEA accounts**

- Physical flow accounts, MFA & PIOT
- Hybrid flow accounts
- Forest/Water/Fisheries
- Protection expenditure

Methodological issues: explicit definition of the gateways between sub-accounts, optimal levels of data assimilation and common requirements (scales...).

Action: Working group/workshop (session of the London Group?)

## **D - Natural Capital accounting**

1. **Ecosystems as part of the natural capital (in physical terms):** stock and potentials, natural ecosystems and socio-ecological systems, economic functions (landscape resource, material resource, ecosystem services), depletion and degradation

Methodological issues: development of the framework, classification of assets and ecosystem goods and services (in relation to recent assessments e.g. Millennium Ecosystem Assessment, UICN/ Value initiative...), indicators and aggregates

Action: organise dialogue with ecological-economics and other economist communities.

2. Economic value of ecosystems and ecosystem functions (in particular non-marketed services).

Methodological issues: exploration of valuation methodologies appropriate to ecosystems and living/cycling natural capital to be implemented on the basis of developed ecosystem accounts  
Action: organise dialogue with ecological -economics and other economist communities.