South Africa – Advancing Experimental Ecosystem Accounting

South Africa is one of seven pilot countries involved in a global initiative called Advancing SEEA Experimental Ecosystem Accounting, led by the United Nations Statistics Division (UNSD) in partnership with the United Nations Environment Programme (UNEP) and the Convention on Biodiversity (CBD), with funding from the Government of Norway. Within South Africa, the South African National Biodiversity Institute (SANBI) and Statistics South Africa (StatsSA) have worked in partnership with the Council for Scientific and Industrial Research (CSIR), the Department of Water and Sanitation (DWS), the Department of Environmental Affairs (DEA) and Ezemvelo KZN Wildlife, to take this project forward.

The following deliverables are listed as priorities:
- Land and Ecosystem Accounting in KwaZulu-Natal, South Africa: Discussion Document
- Advancing Experimental Ecosystem Accounting in South Africa: Stakeholder Engagement Report
- National Plan for Advancing Environmental-Economic Accounting: South Africa

Ecosystem Accounts for Rivers
Rivers were chosen as the first set of ecosystem assets for which to compile national ecosystem accounts primarily because of the availability of relatively comprehensive, relevant national datasets on river ecosystems and work started in 2013/2014.

The initial set of accounts for river ecosystems has been undertaken with a view to informing subsequent development of national accounts for other classes of ecosystem assets in South Africa, including wetlands, marine and coastal ecosystems, and terrestrial ecosystems.

The focus of the accounts is on physical accounts of the extent and condition of rivers throughout South Africa, not on ecosystem services generated by or used from rivers or on monetary accounts for rivers. The purpose of this deliverable is four-fold:

- To present the extent and condition accounts for rivers for three different sets of reporting units, highlighting key results.
- To pilot an ecological condition index that shows trends in the ecological condition of rivers in a single figure that is simple to communicate, and which can potentially be developed for other classes of ecosystem assets.
- To highlight some limitations of the underlying data on ecological condition of rivers and suggest how these might be addressed in order to strengthen monitoring of river ecosystems going forward, whether for ecosystem accounts or other purposes.
- To contribute to the global research agenda on ecosystem accounting, especially in relation to the measurement of ecosystem extent and condition.

The data that were used to construct the ecosystem extent and condition accounts are:

- Nested hierarchical system of catchments.
- River network.
- Ecological condition of rivers.
- River ecoregions and longitudinal zones.
- Water Management Areas.

Two condition accounts were generated for main rivers based on 1999 and 2011 data. The 2011 data include tributaries, with the intention to demonstrate that it is possible to generate future condition accounts using ecological condition indicators for main rivers and tributaries. The level of detail includes quaternary (mean size 650 km^2) and quinary (mean size 135 km^2) catchment scales.

Ecosystem and Land Accounts

With regard to land accounts, the focus is ecosystem extent accounts and land accounts for ecosystems using KwaZulu-Natal province as a starting point due to the availability of land cover data in a time series, i.e. 2005, 2008 and 2011. It builds on work undertaken by StatsSA in 2004 on the National Land Cover 1994/5, the only available land cover dataset at the time. South Africa has recently launched the 2013/2014 and updated the 1990 National Land Cover data sets through the Departments of Environmental Affairs, and Rural Development and Land Affairs. The dataset provides 72 land cover/land use classes at a 1:75 000 – 1:100 000 data application scale.

Census data for 2011 is used to create additional layers, i.e.:

- Household water source by local municipality.
- Household energy source by local municipality.
- Household dwelling type by local municipality.

The priorities for further testing could be done based on the data and information compiled and includes:

- Testing the implications of using different spatial scales, for example, redoing the analysis using basic spatial units of 100 meters rather than 20 meters on a national scale.
- Exploring whether reappraisals could be incorporated into the European format for presenting the land accounts.
- Including more explicit information about uncertainty levels in reporting the results.
- Testing the use of specialised ecosystem accounting software to produce the same set of accounts.
- Constructing the accounts at municipal level, to determine percentage turnover in land cover as a useful indicator for all municipalities, and to provide municipalities with individualised land and ecosystem accounts.
- Summarising the accounts for other reporting units, such as catchments, and by land tenure or ownership arrangements, such as communal *versus* privately owned land.
- Exploring various ways of presenting the accounts to illuminate key patterns and trends effectively, including in the form of maps and graphs.