Ecosystem Accounting – Current State of Research in Germany

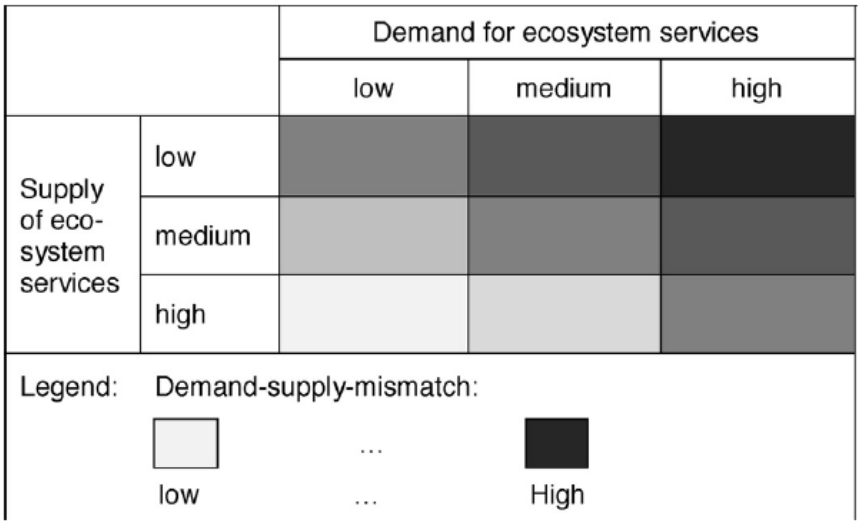
The European Biodiversity Strategy 2011-2020 has different measures. In particular Target 2, Action 5 is related to the ecosystem accounting. In Action 5, it is stated that "Member States, with the assistance of the Commission, will map and assess the state of ecosystems and their services in their national territory by 2014, assess the economic value of such services, and promote the integration of these values into accounting and reporting systems at EU and national level by 2020."

Current implementation and execution plans concerning the requirements of Action 5 are ongoing and consider different ecosystems and their services. In major these activities are carried out by the Ministry for the Environment (BMUB) and the Federal Agency for Nature Conservation (BfN) within the framework of R&D-projects. These projects are mostly concerned with physical as well as economic assessments. Results and selected indicators may provide additional insights and serve as foundation for the integration of ecosystems into the accounting system, as required in Action 5. At present, ecosystems are only integrated in the national environmental economic accounting system to a marginal extend.

For example the focus of the project "National Indicators for Ecosystem Services", which is led by the IOER Dresden from 2014 to 2016, is the assessment of physical indicators. The aim is the development of a set of indicators on ecosystem services, together with various stakeholders. All indicators, which are available at national level, are mapped as far as they can be spatially disaggregated. Additionally trend assessments for every ecosystem supply and demand are prepared as well as the mapping of ecosystem by using a matrix method, like it was developed by CAU Kiel. First recommendations for a respective indicator set where published by Albert et al. 2015a.

It should be noted, that a clear distinguishing between ecosystem services supplied by nature and in comparison the demand for ecosystem services by individuals or society exist, to illustrate the extend of ecosystem services which are actually used. These "Supply-Demand-Matrix[1]" aims to outline the relationship between spatial physical indicators and economic assessment, in particular information's about gaps and the need for investments in natural capital (e.g. low supply, high demand). The concept is illustrated in the following matrix (Albert et al. 2015b ; Burkhard and Müller 2012).

[1] For detailed information, please see attached paper by Albert et al. 2015b)



Additionally, in the context of Action 5, TU Berlin analyzed the economic effects of urban green spaces and integrating them in planning instruments and decision-making. To do so, an indicator for urban green based on a statistical analysis of supply with green spaces in German cities was used. In particular, the study focused on the distance to urban green and proportion in the neighborhood (Krekel, Kolbe and Wüstemann 2015). Monetary values for urban green where calculated on the basis of the life-satisfaction method. Results show that for instance, 1 ha additional of urban green within 1 km increases the life-satisfaction of an annual household by an income equivalent of 276 €.

Another R&D project led by Leibniz University Hannover focuses on the development of an indicator (incl. mapping) about the suitability of landscape for recreation on a national scale. As in the above mentioned project on urban green, physical valuation is complemented by economic valuation based on stated and revealed preferences (choice- and travel-cost-analysis).

A first project that will especially focus on methodological and practical problems of ecosystem and ecosystem services accounting is expected to start in 2016. It will consist of a scoping study and an in depth analysis of non-monetary and monetary approaches for selected items of ecosystem services and capital. The long-term aim is to include the achievements of nature into the national environmental-economic accounting, as described in Target 2, Action 5.

Beyhan Ekinci
Burkhard Schweppe-Kraft
Federal Agency for Nature Conservation (BfN), Bonn, October 2015

Literature

Albert, C., Burkhard, B., Daube, S., Dietrich, K., Engels, B., Frommer, J., Götzl, M., Grêt-Regamey, A., Job-Hoben, B., Keller, R., Marzelli, S., Moning, C., Müller, F., Rabe,S.-E., Ring, I., Schwaiger, E., Schweppe-Kraft, B., Wüstemann, H., 2015a. Development of national indicators for ecosystem services – recommendations for Germany: discussion paper. In: Federal Agency for Nature Conservation (Ed.),BfN-Skripten 410. Federal Agency for Nature Conservation, Bonn. (https://www.bfn.de/fileadmin/BfN/service/Dokumente/skripten/skript410.pdf)

Albert, C., Burkhard, B., Daube, S., Dietrich, K., Engels, B., Frommer, J., Götzl, M., Grêt-Regamey, A., Job-Hoben, B., Keller, R., Marzelli, S., Moning, C., Müller, F., Rabe,S.-E., Ring, I., Schwaiger, E., Schweppe-Kraft, B., Wüstemann, H., 2015b. Towards a national set of ecosystem service indicators: Insights from Germany. In: Ecological Indicators
(http://www.sciencedirect.com/science/article/pii/S1470160X15004823)

Krekel, C., Kolbe, J., Wüstemann, H., 2015. The Greener, the Happier? The Effects ofUrban Green and Abandoned Areas on Residential Well-Being. SOEP Paper. (https://www.diw.de/documents/publikationen/73/diw_01.c.495061.de/diw_sp0728.pdf)