German Sustainability Indicator for Species Diversity – A New Approach to Policy Information on Sustainable Land Use and Biological Diversity

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Will sustainable development be effective if and when biodiversity declines? In order to answer such a question sustainability indicators provide the most comprehensive form of information about developments in economics, environment and society. They offer powerful and widely used tools for decision making. In Germany, a highly aggregated indicator for species diversity has been developed in a research project [1] led by the Federal Agency for Nature Conservation (BfN). The new indicator is one of the 21 headline indicators of the German National Sustainability Strategy and indicates the state and quality of Germany's nature and landscapes under the impact of land use. Only sustainable forms of land use can assure long-term conservation of biodiversity. The indicator is based on the nation-wide population trends of selected bird species which act as indicators for the main habitat and landscape types in Germany: farmland, forests, settlements, inland waters, coast/sea and Alps.

The pyramid construction of the indicator consists of three aggregation levels (indicator bird species, main habitat and landscape types, total index). The design corresponds to the information demand of different target groups (Fig. 1):
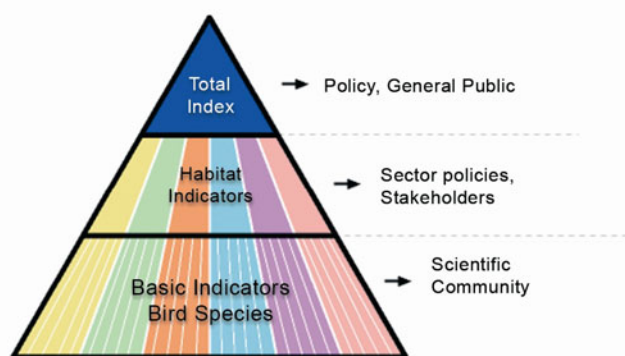

Fig. 1: Indicator construction and information levels.

The indicator has been developed in a *concerted action* of government agencies and research institutions. In addition, *stakeholders* participated during some phases of the construction and the Delphi technique was employed to bring together experts for scientific goal setting. This approach of "interactive" research enables appropriate as well as goal-oriented indicators. Likewise, the implementation of a *communication strategy* serves the following purposes (Tab.1) of environmental indicators.

Table 1: Functions of the new German Sustainability Indicator for Species Diversity

Political functions	Societal functions
Environmental reporting system (monitoring)	Instrument for "agenda setting"
Information for policy making (engineering)	Input for the formation of public opinion
Evaluation of policy measures as well as environmental quality (assessment)	Basis for social consensus about main environmental problems
Input to discussion on new priorities (goal finding)	Policy change in sectors / by main causers of environmental damage
Initiation of policy learning (enlightenment)	Facilitate acceptance of environmental policy
Innovative information system to integrate the issues of sustainability into several policy fields (policy integration)	

Index and trend results concerning the German habitat types and other indicators of the German Sustainability Strategy are regularly reported to the public. The Indicator for Species Diversity is also proposed to contribute to similar reports dealing with biodiversity on the European level (http://biodiversity-chm.eea.europa.eu/) and will be presented at the planned Conference of the Parties to the Convention on Biological Diversity 2008 in Germany. Future research must build up a consistent set of biodiversity indicators and strategies to realise the targets of biodiversity conservation efforts.

[1] ACHTZIGER, R., STICKROTH, H., ZIESCHANK, R., WOLTER, C. & SCHLUMPRECHT, H. (2007): Nachhaltigkeitsindikator für die Artenvielfalt – Weiterentwicklung eines Indikators für den Zustand von Natur und Landschaft in Deutschland. Reihe Naturschutz und Biologische Vielfalt (in press).