

Towards Integration: Sustainable Land Management A new German Research Funding Measure

Land and soil are central aspects of human-nature interaction, represented by different forms of land use. In this context research activities and applicable results about ongoing and future land utilisation are necessary preconditions for solving complex problems on the way towards sustainability. Currently in Germany a new funding measure 'Sustainable Land Management' financed by the Federal Ministry of Education and Research (BMBF) starts. The programme is designed to support the development of innovative theoretical, methodological, conceptual and technological approaches of land management. The following article describes the funding measure in detail and analyses in which way the joint projects and the two coordination projects act to realise transferable solutions in sustainable land management.

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Soil and land use

Land use represents one main interface in human-nature-interaction. Soil as a main medium provides and determines the realisation of different types of land use. Multiple demands on land and interferences in land use generate complex conflicts but also synergy options. Characteristics of complexity are variety of involved actors, mutual interactions and interconnections, existing multi-level governance, heterogeneity and diversity of institutional frameworks as well as differing territorial challenges. In a process of global change and changing societies more comprehensive understanding of structures and procedures as well as new strategic approaches are necessities for solving problems. Moreover adequate analytical approaches, governance styles, governance modes, and evaluation tools will ensure handling of soil in a sustainable way.

Research funding measure 'Sustainable Land Management'

Facing these challenges adequate research programmes and results are preconditions for generating applicable analytical tools and problem solving concepts. In October 2008 a new German research funding measure '*Sustainable Land Management*' of the Federal Ministry of Education and Research (BMBF) has been started with a call for joint research projects and scientific coordination projects.

"The funding measure aims to generate the basic knowledge which is needed for sustainable land management decisions and to provide relevant strategies for action as well as suitable technologies and system solutions" (BMBF 2008).

The research programme is split up in two main modules (A and B) which reflect differing topics and will be supported by two scientific coordination projects.

Module A, mainly at international level, is called: "*Interaction between land management, climate change and ecosystem services*". The scientific coordination is realised by Helmholtz Centre for Environmental Research - UFZ Leipzig.

Module B, "*Innovative system solutions for sustainable land management*", mainly focused on German aspects, is coordinated by Leibniz Centre for Agricultural Landscape Research (ZALF) Müncheberg.

One of the first research activities will be re-defining the term "sustainable land management". The call describes that "*land management therefore means far more than traditional agriculture and forestry. It is a highly complex field of action which affects all areas of human life and includes such aspects as water, soil and biodiversity management, regional value creation, the relationship between urban and rural regions, quality of life, etc.*" (BMBF 2008).

The term is mainly used as a normative approach in land use of developing countries. Organisations like the United Nations or World Bank utilise the term to discuss problems and solutions of soil protection and degradation or, more in general, for land use aspects (participation, ownership, re-forestation) in developing countries (Hurni 1997; The World Bank 2006). Only in Australia and New Zealand sustainable land management is an official topic of national environmental policy, but strongly connected to solve problems in relation to climate change.

Based on a reflection of political agendas and scientific debates about land use (e.g. EEA 2006, EEA 2007) main themes within this research programme for generating innovative theoretical, methodological and conceptual approaches of spatial governance towards sustainability are:

- *targets of / in land use*
- *drivers of land use change (actors, interests, resources)*
- *complex regional interactions between current land use as well as land use options*
- *synergies and conflicts in land use*
- *sustainable solutions in land use (including models)*
- *land management / governance and technologies / land use policy.*

Starting in 2010 joint research projects supported by the scientific coordination projects work on different issues of sustainable land management by means of case studies. Every project is located in a specific region. It is of main importance that the projects comprise different types of land use, landscapes, actor networks and institutional settings.



Abb. 1: High complexity in land use – the Ruhr Cultural Landscape. Foto: Thomas Weith.

Expected results

Within the research programme the various projects and the scientific coordination projects will initiate processes to transfer challenges in land use into solutions of good practice results.

The projects in *Module A will assess environmental conflicts and tradeoffs that arise from global land use and climate change*. The environmental conflicts relate to greenhouse gas emissions (nitrous oxide, carbon dioxide and methane) and ecosystem services, such as food production, fresh water supply and climate regulation. Common drivers of change are population growth, developments in economic markets and climate change, primarily in the context of agricultural developments although other types of land use will be considered as well.

Since the projects are geographically widespread, however, their environmental, economic and institutional settings will differ widely. Consequently, every project will perform an analysis that is specific to those conditions. The scientific coordination in Module A will develop ways of addressing this diversity to assess whether general patterns can be identified that could assist policy formulation.

Projects in *Module B focus on problems and possible solutions for sustainable land management in Germany*. Topics are urban-rural interrelations, management of water, energy and material flows, rural and settlement development as well as development of cultural landscapes. Some projects include evaluation of housing, commercial areas and infrastructure development, some analyse connections between energy prices and land use. Furthermore, the application and assessment of ecosystem services is seen as an innovative way towards sustainable land use. The scientific coordination of Module B will focus on the development of successful governance modes and transfer tools for sustainable land management. Additionally the analysis and valuation of inter- and transdisciplinary approaches will be a central aspect of the accompanying research. Main methodological tools for the integration of results are coordination and networking, synthesis and meta-analysis of project-based results as well as support of scientific and problem-oriented dialogue, qualification, transfer and deliberation processes.

First results of the projects including the scientific coordination are to be expected in 2011/2012. In conferences the varying examples and solutions will be presented and discussed. *One major aim is to get continuously in touch with practitioners of innovative solutions in sustainable land management*. Contacts and networks shall support the development and diffusion of solutions referring to sustainable land management. ■

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