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1. INTRODUCTION

The establishment of the Social-ecological Research Funding Priority marks a transition within the German Federal Ministry of Education and Research (BMBF) from environmental research to sustainability research. This change became apparent with the adoption of the "Research for Sustainability" (fona) framework programme in 2004. With this programme, the ministry has underlined its intention to support the implementation of the sustainability strategy of the Federal Republic of Germany. During the first stage of funding, the Social-ecological Research funding priority generated major impulses for structuring the fona framework programme and impacted on other programmes operating within this framework.

By emphasising that sustainable development can only be achieved if scientific/technical innovation is accompanied by social innovation, Social-ecological Research has become a key component of the framework programme. Investigating and generating knowledge about climate-relevant causal relationships, for example, does not in itself lead to any ability to influence or manage such processes. Measures which merely make energy-efficient production processes and technologies available are equally insufficient in countering climate change. The potential of technical innovation can only be exhausted if it is accompanied by changes in individual behavioural patterns. Without analysing sustainability problems from the perspective of the social sciences and developing solution strategies within Social-ecological Research, the research activities undertaken within "Research for Sustainability" would be incomplete.

The funding priority was launched in 1999 with an exploratory phase that resulted in the mapping of topics to be

covered in the first five years. The first framework concept was presented in June 2000, setting out the contents, objectives and *raison d'être* of the research approach.

The overarching aim of the funding priority involves understanding social transformation processes and generating the knowledge required to steer such processes in a sustainable direction. Social-ecological Research is committed to a transdisciplinary research approach. This means that the research process exceeds the boundaries of individual academic disciplines and indeed of the academic system as a whole. It implies addressing problems against which society needs to take action and that can be defined in terms of a close interaction between science and society. Stakeholders within society are therefore integrated into the research process. This innovative research approach presents both theoretical and methodological challenges.

Given these particular factors, the mission of this funding priority has involved more than the usual funding of projects including, from the very start, supporting measures to anchor Social-ecological Research approaches in both personnel and institutional terms (capacity building).

In view of its complexity, Social-ecological Research has been designed as a "learning" funding priority. The revision of the framework concept has taken this approach into account by assessing the experience gathered by more than 30 research groups and the results of the programme evaluation conducted by an external panel of experts in 2004/2005.



2. PROGRAMME RATIONALE

2.1. Social Context

Over the past three decades, the understanding, public awareness, and assessment of environmental problems have changed considerably. Initially, attention focused on threats to parts of the environment, which were divided into soil, water and air pollution, the impact of contaminants on forests or the destruction of individual biotopes. During this time, conservation and environmental protection increasingly became a matter of public concern and a responsibility of the state.

Technical, political/administrative and economic measures made it possible to reduce environmental damage, particularly that which was caused by major polluters. However, these were generally limited to individual environmental segments (air, water) and required a high level of additional investment and operating expenses.

Public attention later focused on more complex environmental patterns (such as "forest dieback") and global ecological problems (such as the hole in the ozone layer or the man-made greenhouse effect). Environmental problems appeared to be the result of industrial or agricultural production, consumption, traffic, population growth or international development disparities.

In view of the now uncontested fact that human actions play a major role in global climate change, resolving the contradiction repeatedly posited between economic development and the protection of the environment and climate is one of the largest challenges facing politics. This issue is all the more urgent given that problems in both areas are rapidly intensifying in an increasingly globalised world. At present, economic growth in emerging economies is accompanied by massive environmental destruction. The process of shrinkage simultaneously underway in many industrialised countries has also certainly failed to reduce ecological problems, and has even exacerbated them in some cases. Land consumption in Germany, for example, is increasing in spite of a decline in the country's population. Stagnating or even falling real income has increased demand for cheap products, which are often produced without attention to environmental or social standards and/or are supplied by distant countries where production costs are lower. In view of this situation, it is apparent that sustainable consumer behaviour cannot be achieved merely by educating consumers or developing environmentally-friendly products. Clearly, sustainable development requires efforts which go beyond such measures.

The shift in emphasis from sector-related environmental protection to broader social developments also involves extending environmental policy into sustainable development policy. To this end, ecological factors must be harmonised with economic development and social justice. The guiding principle of sustainable development currently forms the basis that can be applied to define framework conditions to accompany processes of social change and environmental action.

The financial squeeze on the public sector and demographic change mean that major transformation processes currently have to be managed in the area of water supply. The price of water and supply reliability are a main focus, as are sustainably using water as a resource and ensuring the quality of a vitally important form of nourishment. In which direction do we need to go to fulfil the need for sustainable development in the future? How can current knowledge about the vulnerability of ecosystems and the impact of climate change be linked with knowledge concerning the impact of economic trends?

The problems facing the food sector are no less complex. Given repeated food quality scandals, there is an increasing demand for healthy and safe food. However, like access to education, access to nutrition and health is increasingly dependent on class and social background. For instance, in Germany, obesity has become a visible problem of the poor. How can the conditions underlying nutritional habits and consumer trends be influenced to ensure social justice? And how can a balance be struck between eating habits and the desire for environmentally-friendly agriculture?

To counter climate change, it will be necessary to pool all available measures with regard to energy efficiency, the use of renewable energies and energy saving. One major challenge facing both industrialised nations and emerging economies will be to avoid rebound effects, i.e. overcompensating the positive environmental impact of greater material and energy efficiency in production and consumption by increasing demand. Moreover, unintended side-effects must be taken into account, such as those already seen from the increased use of renewable energies. If the production of bioenergy comes at the expense of nutrition for parts of the population, countermeasures must be introduced.

This involves a change of perspective with regard to the problems facing industrialised societies. Environmental problems are viewed not only in terms of their impairment of ecological systems, but also in connection with the political, economic and social structures giving rise to such problems. Conversely, considering the phenomena of socioeconomic crisis also includes analysing their implications for the natural environment.

How can science contribute to managing the complex challenges that society faces? Traditionally, the relationship between science and society has involved scientists making neutral expertise available to decision makers – a model summarised by the expression “speaking truth to power”. The acknowledgement that scientific progress is largely based on uncertain knowledge requires that the relationship between science and society become a more natural process.

2.2. Research Policy Context

The evaluation of the EU’s environmental research programmes that took place from 1976–1983 (Evaluation of the Community’s Environmental Programmes (1976–1983) – Research Evaluation Report No. 14, 1986) led to the following recommendation:

“The Panel recommends particularly that economic, social and behavioral science be developed as an integrated part of the programme.”

In the report that ensued (Evaluation of the Research and Development Programmes in the Field of the Environment (1981–1985 and 1986–1990), Research Evaluation Report No. 36), the panel noted that:

„The recommendation that “economic, social and behavioral science research be developed as an integral part of the programme” has not been implemented within the Environmental Research Programmes.”

Reports compiled by the Wissenschaftsrat (German Science and Humanities Council) in 1994 and the German Advisory Council on Global Change (WBGU) in 1996 concluded that social sciences, economics and cultural studies should be more closely involved in solving environmental problems. The report compiled by the Wissenschaftsrat states that:

“The values, attitudes and behaviour of individuals, social groups and societies determine the relationship between people and their environment. Environmental research

should therefore not be restricted to scientific or technical investigations. Research in the field of human sciences aimed at investigating the relationship between society and its environment represents a central, if still hardly developed, component of environmental research.”

The report also proposed “long-term forms of third-party funding to develop structures for interdisciplinary topics and programmes”.

The scientific challenge: Dealing with uncertain knowledge

The problems addressed by Social-ecological Research are generally complex. Furthermore, they frequently involve novel technologies, the implications of which are subject to controversial assessment and whose application is disputed. The dealing with uncertain knowledge is thus one of the characteristics of Social-ecological Research. This is because the knowledge demanded of scientists obliges them to exceed the limits of the areas of knowledge deemed to be certain ever more rapidly. Examples worth mentioning include the controversies surrounding climate change or the safety of genetically modified organisms.

This situation results in ever more frequent disputes between experts, which are often exacerbated by the media. Contradictory expert opinions can be instrumentalised in the political process, and the trust placed in science may be severely eroded as a result. It can be observed, for example, that some groups within society draw on existing uncertainties and contradictions in scientific findings to reject the introduction of climate protection initiatives. Still, the willingness to act in spite of such uncertainty is on the rise. Nevertheless, science must develop methods to appraise uncertain areas of knowledge and ensure a responsible culture of scientific debate.

Since the beginning of the 1990s, the research funding provided by the German Federal Ministry of Education and Research has aimed to take better account of the need for integrated environmental research approaches and strengthen these approaches.

The “Ecological Concepts for Cities (Urban Ecology)” funding priority established in 1991 required that social sciences be included in the treatment of ecological issues for the first time. It also put human beings, as the triggers of and parties affected by environmental change, at the centre of research interest.

From this point on, research shifted its focus from environmental segments and ecosystems to landscape research (agricultural, forest, river and mining landscapes) aimed at pooling the perspectives of the various specialist disciplines (mainly natural sciences). The goal of this research was to provide knowledge about ecosystems to those managing types of landscape and enable subsequent users of the research results to be actively involved in developing solutions for environmental problems. Furthermore, more recent funding priorities have addressed explicitly socioeconomic issues (e.g. management of river catchment areas, global water cycle).

Funding priorities based on technical innovations, such as "Integrated Environmental Protection in the Economy", "Water Supply and Disposal" and "Mobility in Conurbations", have also increasingly involved the social sciences and economics in their projects. This is intended to increase the chances that technology-based environmental innovations will be implemented on a widespread basis. It is also meant to improve knowledge of the factors relevant for implementation, assess the implications of technological developments for the environment and society at an early stage and tap the potential of social innovations in the relevant fields.

Scientific challenge: Accounting for normative elements in the research process

Aligning research with the idea of sustainable development inevitably means that normative elements are introduced into the research process. The definition of sustainability in a given case cannot be determined on the basis of scientific factors only, but also on the basis of differing values and interests.

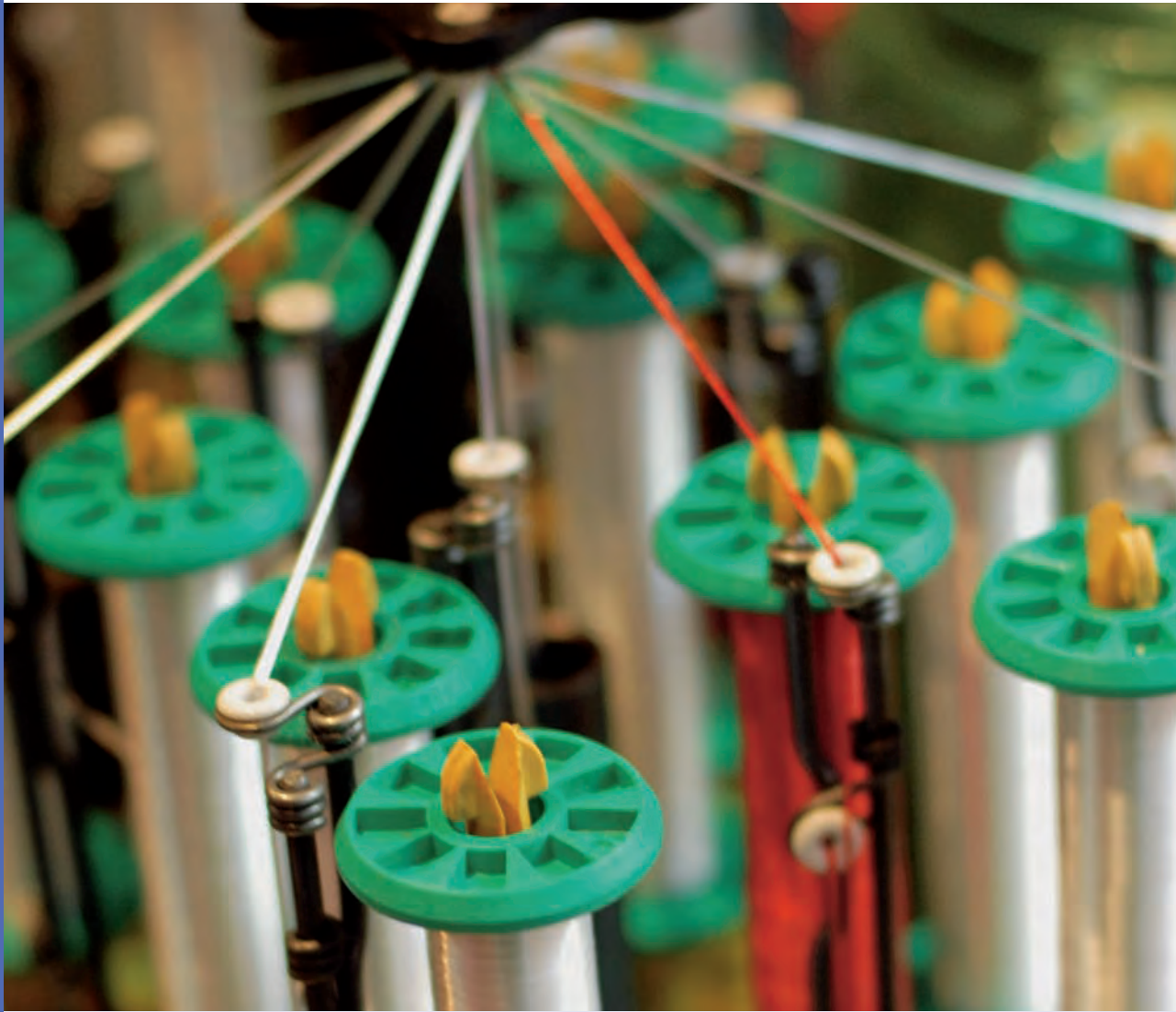
Science and technology studies and philosophy of science have also shown that the scientific integrity of research cannot be assessed based on a naïve understanding of objectivity. In its search for theoretical and methodological approaches to dealing with normative models such as sustainable development, Social-ecological Research does not have to enter uncharted territory. In the 1970s, it was already pointed out that normative implications also form an inherent component of science and research and that researchers have to be aware of this.

The "Model Projects for Sustainable Economies" funding priority (1998–2005) concentrated on the players involved in sustainable economic activity, i.e. initiatives and "pioneers" in specific regions and sectors. Researchers

accompanied social experiments that tested the possibilities of exploiting regions' geographical, economic, social and cultural potential for sustainable development.

Interdisciplinary environmental research also led to changes in the established academic system. Interdisciplinary study programmes, such as environmental planning and environmental management, were established, as were several ecosystem research centres. This resulted in a considerable expansion in knowledge about the functionality and sensitivity of complex ecosystems. However, ecosystem research was not in a position to integrate the complexity of human action into its concepts. The restrictive approach of interpreting all human intervention in ecosystems as a disturbance can be assumed to have played a role in the development of the opposing positions of economic and environmental policy.

Research carried out in the field of sustainability faces the challenge of taking due account of the attitudes and interests of persons and groups within society, and thus of integrating non-scientific knowledge and normative aspects into the research process. The Social-ecological Research funding priority is intended to master these challenges.



3. OBJECT AND OBJECTIVES OF FUNDING

The funding priority deals with topics for which exerting an influence on processes of social transformation is deemed necessary. This is because any continuation of current organisational structures (regulatory patterns) would lead to the emergence of interdependent social, ecological and economic problems that could result in crisis. The topics addressed by Social-ecological Research draw on current areas of discourse within society. The sustainability strategy of the Federal Republic of Germany, which was presented in the publication "Perspectives for Germany" in April 2002, is a major point of reference here.

One of the most important challenges that politics and science face involves making sustainability considerations an integral part of design processes within society and countering the tendency to limit sustainability to environmental policy. Along the same lines, with its "Renewed EU Sustainable Development Strategy" (June 2006), the Council of the European Union has explicitly supported the amalgamation of the sustainability strategy with the Lisbon strategy for growth and jobs. The document sets out seven key challenges, and it clearly calls upon science to contribute to mastering these challenges.

"Renewed EU sustainable development strategy" Key challenges

- Climate change and clean energy
- Sustainable transport
- Sustainable consumption and production
- Conservation and management of natural resources
- Public health
- Social inclusion, demography and migration
- Global poverty and sustainable development challenges

The Council of the European Union, June 2006

These topics are of fundamental relevance to Social-ecological Research and have in some cases already been investigated. The "Sustainable Consumption and Production" topic outlines an area that was covered in the August 2006 announcement "From Knowledge to Action – New Paths towards Sustainable Consumption". This announcement marked the beginning of the second stage of the funding priority. A general announcement that would allow applicants to choose a specific topic themselves or the funding of exploratory projects is currently being considered.

The funding of Social-ecological Research pursues two closely related objectives:

1. Transformation knowledge should be generated in two ways. First, it is necessary to understand the forces and dynamics driving social transformation and describe these with due reference to socioeconomic and ecological aspects. Second, options for future development should be defined, as should ways of ensuring that this development is sustainable.
2. Personnel and institutional capacities must be built up and networked. These should act as bearers of theoretical and methodological knowledge in the field of transdisciplinary sustainability research (capacity building).



4. RESEARCH APPROACH

When addressing problem areas, Social-ecological Research connects environmental factors with social aspects and takes dynamic interactions between the two into account. According to the definitions used in the programme, the term "ecological" refers to the material-energetic aspects of human beings and the organic and inorganic world surrounding them. It is assumed that any understanding of complex problems also requires an examination of both material structures and processes and the patterns of social action and interpretation exhibited by people in their dealings with nature and society. This research approach can be described as "Societal relations to nature". The way in which these relationships are defined in greater detail and the theoretical and methodological foundations used in such definitions depend on the specific research object, as well as on the academic background of the party carrying out such research. It is left to the discretion of the researchers.

Within Social-ecological Research, transdisciplinarity means that projects should refer to lifeworld problems, and thus to research issues not generated within the realm of science. This involves the challenge of translating non-scientific questions into issues which can be addressed scientifically and taking knowledge from outside the realm of science into account. Integrating knowledge from different disciplines is therefore insufficient to address the problems; it is also necessary to integrate non-scientific knowledge into the research process. This is the case for each category of knowledge briefly outlined below.

In line with transdisciplinary research programmes in Switzerland and Austria, Social-ecological Research also distinguishes between several types of (scientific) knowledge. According to the definitions provided by the Swiss Transdisciplinarity Network (td-net), this framework concept makes use of the terms "systems knowledge", "target knowledge" and "transformation knowledge". When structuring a research project, it is helpful to visualise which categories of knowledge are targeted as a result of the project. All three types of knowledge are generally necessary to understand and influence transformation processes. Depending on the specific set of problems and issues under investigation, however, it may be necessary and useful to focus on generating knowledge within individual categories.

As for the theories and methods applied within research projects, it is assumed that it is possible to draw on a wide range of approaches. The development of a specific social-ecological theoretical and methodological framework

does not constitute one of the aims of the funding initiative. In individual cases, it may nevertheless be necessary to extrapolate or modify theoretical and methodological concepts, or to develop innovative approaches. The experience gained in environmental research, which shows that complex system models reach their limits when it comes to integrating qualitative aspects of human behaviour, represents such a challenge.

Knowledge categories of transdisciplinary research include:

Systems Knowledge: is generated on the basis of issues related to the genesis and potential developments of the problem and its lifeworld interpretations.

Target Knowledge: addresses issues related to determining and substantiating any required changes and desired targets, as well as improved practices.

Transformation Knowledge: contains statements concerning possible actions to change current practices and introduce desired practices.

based on: Pohl, Ch., Hirsch Hadorn, G. (2007): Principles for Designing Transdisciplinary Research. Proposed by the Swiss Academies of Arts and Sciences.

Generating Systems Knowledge

The generation of systems knowledge must be based on identifying and solving problems. It is therefore necessary to assess the relevance of existing knowledge to which reference is made with regard to the specific issue and objective. This naturally also includes non-scientific knowledge about lifeworld problems and everyday culture. A networked or systematic approach, in which knowledge from the natural and social sciences is interrelated, is needed to understand complex structural relationships.

Experts at the Swiss Transdisciplinarity Network have pointed out that handling uncertain knowledge is of particular relevance at this stage. Researchers often avoid dealing with problems which are characterized by a high degree of uncertain knowledge. Given that pressing social problems are at stake, however, it is very important to find a transparent means of dealing with uncertainties that does not block the research process.

Generating Target Knowledge

Moderated participatory processes frequently play a major role in the generation of target knowledge. Since the moderation of such processes often requires special skills, it may be useful to seek professional support. In cases where sustainability targets must be precisely defined, researchers are confronted with differing interests, power relations and values of the stakeholders. At that point, light has to be shed on how ecological, economic and social interests affect one another to expose conflicts and identify potential solutions. For this process to succeed, the parties involved must have clearly defined roles. In particular, researchers have to reveal whether they see themselves as moderators or involved parties. They are required to clearly state which scientific criteria are applied to evaluating specific issues and areas that include non-scientific aspects.

Generating Transformation Knowledge

Transformation knowledge identifies potential changes, which may relate to technical, social, legal or cultural aspects. Recommendations should be compatible with patterns of practice.

Even though the success of transdisciplinary research is measured in terms of society's demand for the knowledge generated (on all three levels), the quality of the research cannot be evaluated solely on the basis of whether transformation knowledge is actually implemented in practice. Though this kind of use is extremely desirable and, once knowledge has been successfully introduced, it may receive further support within the framework of a follow-up project. Alternatively, it may also be interesting to analyse the reasons why research results are not implemented. The results of this analysis could be of relevance for social orientation processes and reveal new requirements for action. Moreover, it should be noted that the knowledge generated may also be applied in long-term processes that involve, for instance, rethinking issues or changing values.

Generating systems, target and transformation knowledge: project examples

Project: Supplying the Population - Interactions Among Demographic Trends, Needs and Supply Systems

This project's overall aim is to develop a general model for the interaction between population dynamics and supply systems that is capable of incorporating social-ecological issues. Existing models in this area generally fall short of this objective, as they largely ignore the global and regional heterogeneity of population developments and qualitative aspects. Population development statistics, for example, only include quantitative data, such as birth or mortality rates, but do not contain any information about lifestyles; analyses of the carrying capacity of habitats do not distinguish between different types of land cultivation, etc. Within the framework of the project, an instrument is being developed to contribute to the generation of this type of systems knowledge. The development is based on the following key questions, which enable social-ecological research perspectives to be expressed:

- How are changes in the population relevant to critical developments and transformations in the water and food supply?
- In this connection, how significant is the size, distribution and structure of a population, as well as its needs, consumer behaviour and lifestyles?
- How do supply systems have to be structured in order to react adequately to demographic changes?

The model is developed and validated in an iterative process based on the findings of five case studies.

- International relations/peace and conflict research focus: regulation of problems surrounding water and food supply in the Middle East/Jordan Basin conflict region. Investigating the significance of demographic changes (population growth, migration, urbanisation) in utilisation conflicts between the agricultural, residential and industrial sectors. Analysing new forms of regulation, such as sector-based resource reallocation through foodstuff imports
- Evolution theory/palaeo-anthropology focus: development models for the relationships between organisms, populations and resources based on the example of habitats of Pleistocene hominids in South-East Asia. Filling in gaps in terms of development and transformation processes in supply systems

- Geosciences focus: functional differentiation of spaces as a result of water supply activities in the case of increasingly (spatial) concentrated population distribution. The example regions used are the North of Namibia, where the majority of the Namibian population is concentrated around the lower reaches of the Cuvelai River, in which water only flows sporadically. Another example is the region of the Kunene river in neighbouring Angola, which is the most important source for the water supply there

- Economics focus: investigating the interaction between processes of demographic shrinkage and the specification of water supply in eastern Germany. Developing conceptual approaches to amended planning and decision-making processes, as well as regulatory frameworks in the residential water supply business and water management

- Urban and development sociology focus: interaction between processes of urbanisation and changes in the food supply in developing countries based on Ghana/Accra. Investigating the traditional "resource regime" as a factor impairing adaptivity in the food supply. Analysing various strategies of action on the part of urban players in terms of food supply structures, taking urban agriculture as an example

The research process links the development of a general model with its subsequent specifications for the respective case studies. Discipline-based subprojects were initially undertaken to determine the criteria relevant to the specific disciplines and to the supply systems as social-ecological systems model. These include institutional regulations, differentiation of players, spatial structures etc. Importance was attached to linking material/energy and cultural/symbolic aspects. On this basis, a general model depicting the interaction between supply systems and population dynamics was created.

The integration of subproject results was based on:

- a) An interdisciplinary analysis of problems, i.e. translating social and lifeworld problems into a common scientific issue. Within the project, this was done by systematically correlating population dynamics with supply systems.
- b) Model development: structuring knowledge, revealing interactions and key factors and integrating the various disciplinary perspectives.

c) Definition of terms: the joint generation of concepts enables access from both natural and social sciences and is compatible with the concepts used within specific disciplines (examples include "population", "resources", "regulation").

Project: From a Turnaround in Agriculture to a Turnaround in Consumption?

Starting point for this project is the German policy of the "agricultural turnaround" (policy measures towards an organic food market), the aims of which included increasing the share of surface used for organic farming from 3% to 20% within ten years. The research project creates a link between these ecological targets and the related socioeconomic and cultural aspects. The team set itself the task of reviewing whether measures taken within the framework of the agricultural turnaround policy to expand the organic market had led to the targeted changes in consumer behaviour.

Integrated systems knowledge was generated by correlating the consequences of the agricultural turnaround policy for the individual links in the chain of players, with behavioural patterns arising from these players' interaction with one another. The major players include agriculture, food processing, retail, consumers and nutritional counselling. To shape the debate surrounding sustainable consumption and sustainable development in the organic sector, reflexive target knowledge was generated based on an evaluation of the consequences of the agricultural turnaround for the players. The results were then taken as a basis to generate recommended actions to tackle the follow-up problems that have emerged as a result of the organic market's expansion.

The research team identified overall trends (systems knowledge) that have been the consequence of political measures related to the agricultural turnaround. Examples include:

- **New growth dynamism:** The surface area used for organic farming showed remarkable growth rates for several years, but has since stagnated at approximately 4.5% of the total surface area used for agriculture. While the market share of organic products has also shown dynamic growth, it totalled only 2.6% in 2004. Since 2005, the organic market has shown annual growth of 15%. As a consequence, the structure of organic retail has changed. Only around a quarter of all organic products is sold at organic food stores, and about a third is sold by conventional grocery retailers. There has also been an increase in demand for organic convenience products.

- **Implications of the organic guarantee label:** Until now, this label has only been a success story for retailers. Given that the label is based on the EU Eco-Regulation, which requires lower standards than German organic association labels (Demeter, Bioland etc.), the "organic food" market segment for companies involved in retail has increased as did the share of organic products not produced in Germany, thus intensifying the competitive situation for organic farmers. As for consumers, the label has not fulfilled its expected orientation function, as it often fails to be perceived at all.

- **Individual development and conversion paths:** Investigations in the areas of production, retail and consumption show that there is no "royal road" towards organic products. In addition to experience, regional particularities, underlying economic factors, values and the social environment also play a major role. This leads to various types of differentiation within these groups of players, ranging from purely idealistic to purely pragmatic forms of orientation.

The following target knowledge was generated: analyses reveal an ambiguous development which does not permit any clear evaluation. The results underline that measures taken to implement the agricultural turnaround should be monitored on an ongoing basis, as they may also trigger unexpected and undesired effects. The heterogeneity of motives and action strategies within the groups of players is considered fundamentally positive, as it contributes to stabilising the organic food sector. However, more robust networks must be established to avoid unnecessary structural interruptions, conflicts and inequalities.

The project team made the following recommendations (transformation knowledge), which aimed to correct follow-up problems in the agricultural turnaround policy. These measures pursue the strategy of promoting positive developments and introducing countermeasures in areas where questionable ecological or social trends have emerged.

- Develop professional, target group-based and context-specific forms of address and advice for all groups of players throughout the value chain
- Maintain and promote a diversity of structures in production and retail
- Establish cooperative networks
- Find a new balance between idealist approaches and economic pragmatism

Project: Product Sustainability Assessment (PROSA)

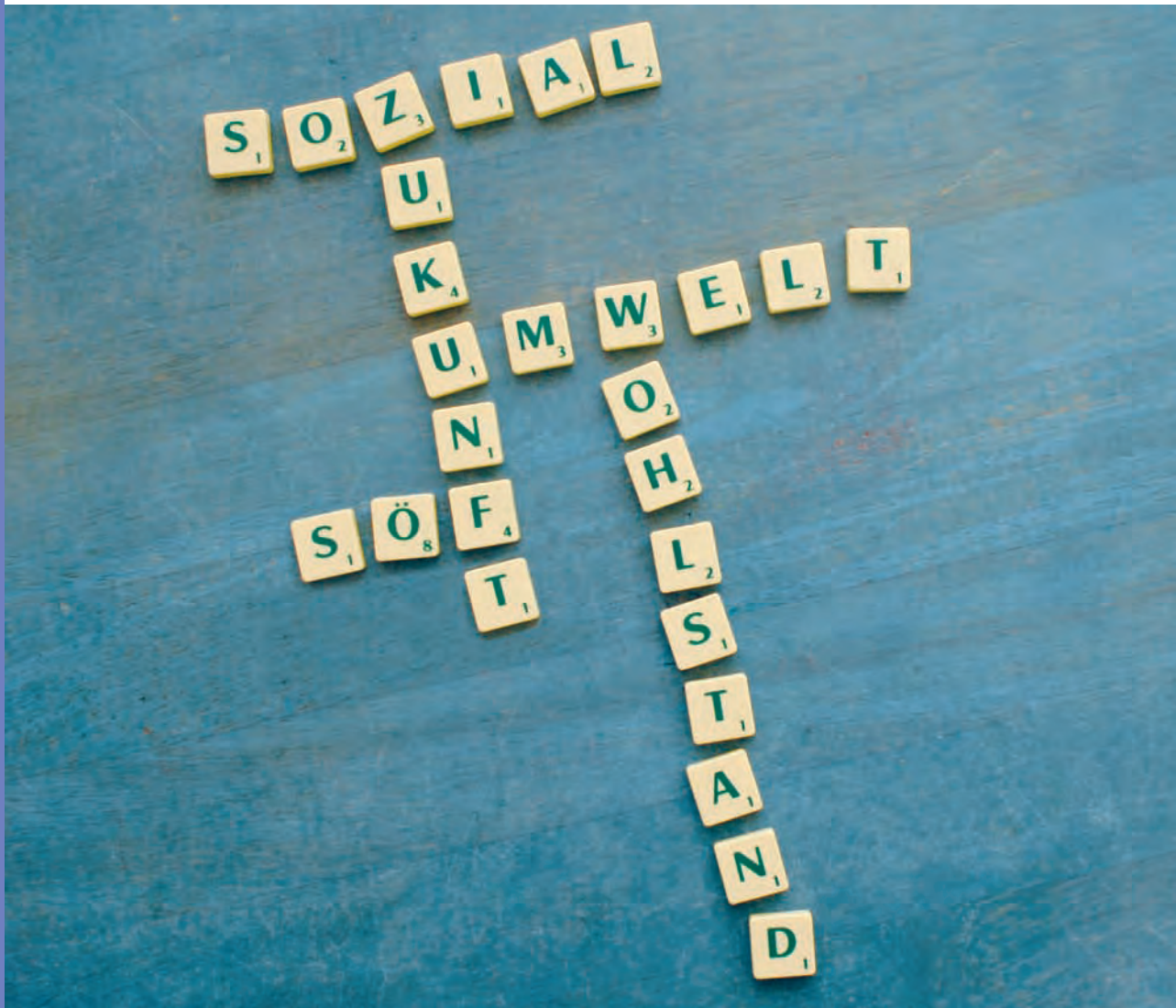
The guiding principle of sustainable development proclaimed at the Rio Conference in 1992 led to greater interest in sustainable products and production processes. However, there are no analytical methods that could be used as evaluation or certification instruments in the same way as the eco-balance tool. Such methods could also be relatively easily integrated into companies' management processes. The Öko-Institut e.V. (Institute for Applied Ecology) has already created the Produktlinienanalyse (comprehensive product system assessment), which is a prototype for this kind of method. Alongside ecological factors, this assessment also takes account of economic and social indicators of product lines and production processes. However, the complexity of processes and the players involved in the product lifecycle mean that integrating this method into company processes has proven difficult.

As part of the "Product Sustainability Assessment (PROSA)" infrastructure project, the Öko-Institut aims to enhance the product sustainability assessment using Produktlinienanalyse. In parallel, it also aims to clarify the conditions required to apply this analytical instrument at companies. Another project goal involves harmonising this new method with comparable international approaches, which would lend it greater weight and make potential standardisation easier. Based on systems and target knowledge already available, the project focuses on generating transformation knowledge.

In line with the social-ecological approach, a basic methodological structure was developed with players from science, business and politics using a transdisciplinary, integrative approach. This structure links methods and terms from the natural, social, technical and economic sciences in a joint system model and analytical grid. While the main focus was initially on analytical and evaluation tools, such as the eco-balance, lifecycle costs, eco-efficiency analysis and the specially developed method of social life-cycle assessment (SLCA), discussions with users highlighted the particular importance of process orientation. For this reason, process and communication tools were developed based on the typical stages of product development at companies. These integrated modules such as scenario development, product portfolio analysis and marketing strategies. PROSA has now become an instrument for strategically analysing and evaluating product portfolios, products and services. In so doing, it focuses on identifying system innovations and options for action which are directed towards sustainable development. PROSA structures the decision-making processes required for this

purpose and breaks down complex interrelationships into core statements. Its areas of application include strategy planning and product portfolio analysis at companies, integrated product policy (IPP) and dialogue processes, as well as cooperative product development in innovation networks. The method has already been applied at a number of large companies. A special version has been developed for small and medium-sized enterprises (SMEs), taking due account of their scope of action.

PROSA has been discussed at several international events organised by science, business and/or politics and has received a great deal of attention. The integration of researchers in the UNEP-SETAC Life Cycle Initiative means that they are participating in an international debate aimed at harmonising sustainability methods in the countries involved. Particular attention is being paid to integrating social indicators.



5. FUNDING STRATEGY

5.1. Previous Funding Strategy

The funding strategy in the first programme stage (2000–2005) focused on the following three measures:

- Infrastructure funding, with regard to independent research institutes not receiving basic financing
- Funding junior researchers
- Funding thematic research groups

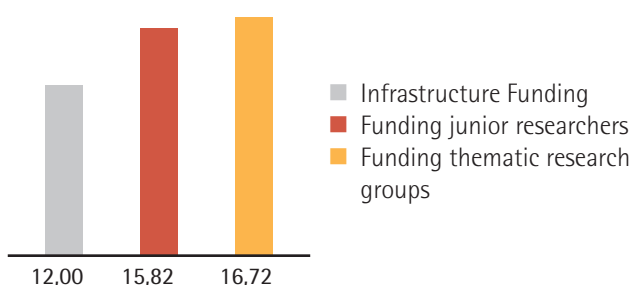
Infrastructure Funding

In Germany, there are a number of small, non-commercial research institutes not funded within the framework of agreements between the Federal Government and the Federal States that have particularly well-developed competencies in the field of transdisciplinary environmental and sustainability research. In some cases, addressing social-ecological research topics was the very reason the institutes were established. A remarkable pool of knowledge about methods and applications, which can be designated as “tacit knowledge” (implicit, non-formalised knowledge) has been generated at these institutes. One of Social-ecological Research’s aims is to secure and systematise this knowledge and support its diffusion into the established academic system.

Funding Junior Researchers

The funding of junior researchers is intended to contribute significantly to extending the pool of academic personnel on a permanent basis and to opening up universities for interdisciplinary and transdisciplinary research. This measure is also intended to promote knowledge transfer and career mobility between universities and independent non-university research institutes.

■ Funding volumes of the individual measures (2001–2006)



in million Euros

Funding Thematic Research Groups

Research groups are funded for current topics in the field of social ecology. These themes are identified as being related to politics and science and put out to tender within the framework of BMBF announcements. Interdisciplinary and transdisciplinary research groups analyse social problems and generate transformation knowledge to support developments aimed at sustainability.

5.2. Interim Programme Evaluation Results

The programme was evaluated as planned after five years, mainly with positive results¹.

The strategic alignment of the programme was considered to make sense, as there continues to be a need for social-ecological research based on interdisciplinary and transdisciplinary approaches. It is also necessary to build up the academic capacity required to conduct such research. It was therefore recommended that the three funding measures be continued.

The report underlined the significance of infrastructure funding, given that non-university environmental research institutes have made a major contribution to the performance of interdisciplinary and transdisciplinary research. Measurable effects have been achieved in part by integrating organisational development measures into the institutes’ daily work. One example of such measures is the compilation of theoretical foundations and methods on a cross-departmental basis, which reinforces the institute’s profile.

Recommendations made to optimise the programme concern the following aspects in particular:

- Reducing workloads by providing clearer targets and weighting allocation criteria. The research projects were overloaded because each project was expected to contribute to the theoretical and methodological development of the research approach in addition to the findings of the specific project
- Improving the science impact, partly by strengthening the integration of Social-ecological Research within the scientific community, improving networking between non-university research institutes on an international level and with the “established” research environment, as well as by developing enhanced publication strategies

¹ A pdf version of the evaluation report (in German only) can be found at: www.sozial-oekologische-forschung.org/de/234.php

- Improving institutional involvement and support for junior researchers
- Increased involvement of natural sciences and ensuring that state-of-the-art natural scientific knowledge suitable to the topics is accounted for in the projects
- Active, ongoing involvement of partners on the ground
- Improving project management by providing training measures, such as supervision and coaching
- Greater internationalisation of the funding priority

Implementing these recommendations is decisive for the second stage of the funding strategy. They will be accounted for in the formulation of future announcements, and are also reflected in the formulation of the evaluation criteria underlying the second funding stage (c.f. Section 5.4).

The first funding stage shows that suitable theoretical concepts and methods must be carefully determined at the start of the project, as this is of crucial importance for the success of the overall project. As a general rule, therefore, the second funding stage will also include the financing of preliminary stages.

Particular attention will be paid to involving partners on the ground of practice. The role and function of such partners, as well as what is expected of their involvement, have to be clearly defined at an early stage. Should the practical references discussed in the course of the project give rise to implementation prospects, a second stage can be funded once the project has been completed. In con-

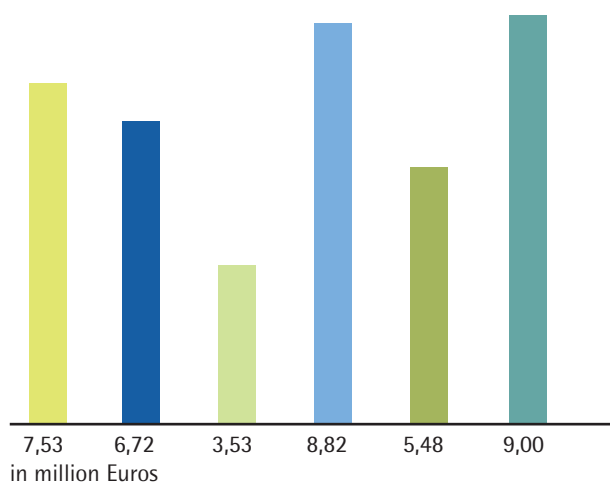
trast to clearly application-oriented research, however, the implementation of research results will not be taken as an indicator of success for a transdisciplinary social-ecological research project. Particularly when the general public is the target audience, prompt implementation can seldom be expected.

Various paths will be taken to support the internationalisation of the funding priority. Within the framework of infrastructure funding, for example, support will be provided to measures aimed at developing European and international research networks. Additionally, an international conference is planned in 2008. In order to strengthen the involvement of German groups of researchers working with social-ecological research approaches within the European Research Area, the formulation of future thematic focuses within Social-ecological Research will take due account of the relation of such projects with the 7th Research Framework Programme of the EU (2007-2013). Efforts will also be made to network social-ecological research approaches more closely on a European level and to factor such approaches into the funding logic of the Framework Programme. With these aims in mind, a discussion group was founded in autumn 2006 with the National Contact Points in the areas of "Environment" and "Socio-Economic Sciences and Humanities" to establish ongoing contacts at the EU level.

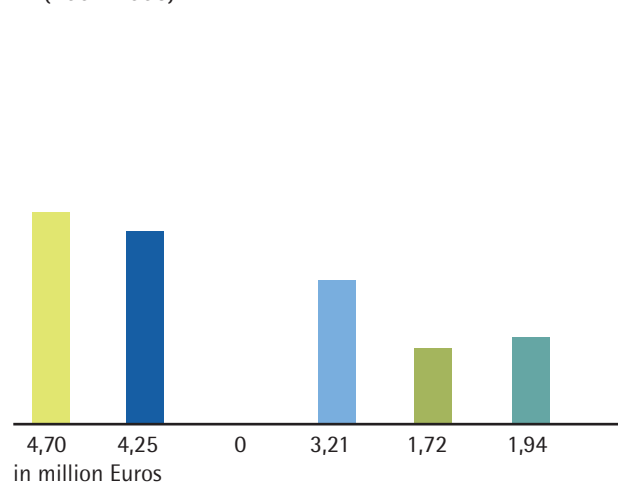
5.3. Future Priorities: Building Capacity to Generate Transformation Knowledge

The second stage of the Social-Ecological Research funding priority is driven by the insight that increased efforts are required to initiate the necessary changes in the academic system. Capacity building factors will therefore

■ Funding volumes of all three measures (2001-2006)



■ Funding volumes for groups of junior researchers (2001-2006)



play a major role in all measures (infrastructure, junior researchers and thematic research funding).

The principal objective of capacity building is to integrate and establish the social-ecological research approach within research and teaching. Particular attention will be paid to strengthening social-ecological competence centres and qualifying junior researchers for interdisciplinary and transdisciplinary research. The structural changes within the scientific system (formation of competence centres, increased establishment of endowed and research professorships, development of academic networks, Collaborative Research Centres etc.) open up opportunities to anchor social-ecological research approaches within university structures and strengthen the links between university and non-university research.

Infrastructure Funding

The targeted funding of academic networks enables the non-university institutes to contribute to research and teaching in cooperation with university establishments. This is mainly achieved by training and qualifying academic personnel at non-university institutes. This should make a major contribution to the transfer of knowledge between university and non-university institutes. With regard to participation in the 7th Research Framework Programme of the EU, the formation of networks should be conducive to achieving greater international visibility for the institutes. The ministry will provide financial support to enhance networking with established European and non-European university and non-university institutes.

In terms of external communications, support will be provided for publication activities on the part of the institutes,

as this provides a means of significantly increasing the development and visibility of the institutes' research profiles.

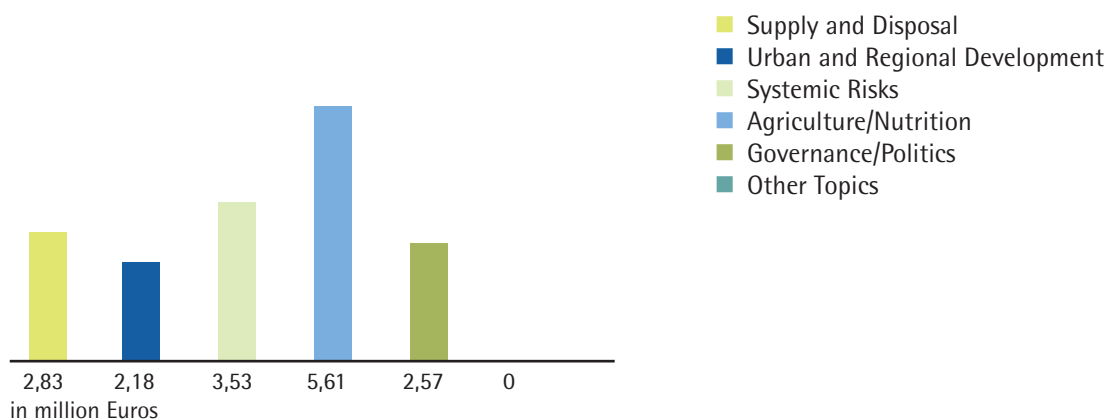
Infrastructure funding measures will generally be carried out within the framework of projects. In addition to these activities, efforts will be made to establish a "flexibility fund", which can be drawn on at short notice to support individual measures beyond the framework of projects.

Since 2001, infrastructure funding measures have supported eight non-university, non-commercial research institutes in developing their areas of expertise. The first stage of funding focused on developing methods and theories, ensuring the quality of interdisciplinary and transdisciplinary research, and improving the transfer of research results to the relevant social groups. In the interest of achieving closer cooperation with universities and international research organisations, the Federal Ministry of Education and Research is particularly supporting the initiation and formation of academic networks in the second stage of funding. These funding measures will make non-university institutes important partners for universities and international research groups.

Funding Junior Researchers

Funding groups of junior researchers depends on their being securely anchored within university structures. Support from senior university personnel is essential to ensure that research groups are adequately monitored and supported and to keep opportunities for university career paths open. Greater attention will be paid to this aspect in the future funding of groups of junior researchers.

■ Funding volumes for thematic research projects (2001-2006)



The transformation currently underway in the scientific system opens up opportunities for integration. The junior professorship instrument, for instance, proved to be a positive experience in the first stage of funding. This position enabled transdisciplinary research approaches to be integrated into the contents of university teaching with comparative ease. The integration of groups of junior researchers may also take the form of involvement in new (sustainability) centres, inter-faculty associations, academic networks at universities and research colloquia. They may also be included in Collaborative Research Centres.

The security provided by a five-year funding period (preliminary stage plus main stage) not only allows all of the time-intensive requirements of interdisciplinary and transdisciplinary research to be accounted for, but also provides researchers with the flexibility to combine their professional careers with family planning requirements.

Group leaders and members must meet high requirements. First, they are required to overcome the boundaries of their respective disciplines in order to develop integrated concepts and proposed solutions for social problems. At the same time, the university system generally requires qualifications based on specific disciplines. This makes it all the more important that researchers have well-developed project and quality management skills, as well as the skills necessary for effective coordination. To meet these requirements, the funding of junior researchers has the following features:

- Financial support is initially provided for up to one year to enable the development of a well-grounded concept, form the research team and prepare the establishment of the group of junior researchers within the university
- Coaching is offered during this preliminary period to prepare the group leader for his or her future tasks
- Following a successful appraisal of the complete research concept, the group of junior researchers can be funded for up to four years
- Funds for coaching and supervision may be applied for as an accompanying measure during the funding period

Funding Thematic Research Groups

Successfully acquiring funds for a social-ecological research project requires that the corresponding capacities be available in the research team. In line with the "learning" funding priority principle, these capacities can and should

be developed further in the course of the research project. Ultimately, the experience gained on each individual research project contributes to the consolidation of transdisciplinary research.

In principle, it is possible to apply for coaching workshops in order to promote project coordinators and to support team processes.

Capacity building also involves measures aimed at improving cooperation with partners on the ground. Applications for funds to finance professional moderation or comparable support are therefore conceivable.

Although thematic research groups generally focus on generating transformation knowledge, it is also possible to generate theoretical and methodological foundation knowledge, at least to a limited extent. The condition for such work is that it can be sensibly integrated into the project as a whole.

It is highly desirable that the funding of junior researchers be integrated into research groups. Being introduced to transdisciplinary work by an experienced project leader is considered a shining opportunity to support junior researchers. Nevertheless, junior researchers must be allowed sufficient flexibility within the project structure to pursue the specific requirements of their formal academic qualification process.

Other Capacity-Building Measures

> Accompanying research: Support is provided to initiatives addressing issues that affect several projects and which are of general interest for these projects. A limited volume of funds is available for this type of input. These funds may be used, for example, to organise workshops or conferences or compile cross-project publications, unless these are handled by the "Science and Society Coordination Office" (c.f. Section 7). Moreover, the ministry may also organise accompanying research by awarding projects or commissions.

> Publication strategies: Publications, especially those published in peer-reviewed journals, are considered an important capacity-building instrument. The ministry will provide funds for this purpose upon the submission of a sound publication strategy that can be implemented. Such submissions should present the form in which results can be published and the expected cost of doing so. The personnel capacities required for implementation should be factored into the project design.

> Communication strategies: One major quality criterion of transdisciplinary research involves the efficient com-

munication of project contents and results to various target groups, from potential users to the general public. In order to ensure suitable professionalism, writing and journalism training sessions will be offered and funds provided for journalistic support.

5.4. Assessment Criteria for Research Proposals

> Problem reference and problem focus: Social-ecological Research addresses complex lifeworld problems. Such problems are generally so complex that they must be broken down into sub-problems for which tasks can be clearly defined. The research proposal should already include a clear and substantiated focus. The description of the research objective has to include a "reformulation" of the initial social problem into issues which can be addressed scientifically.

> Transdisciplinarity (practical orientation and integration): To address social-ecological issues, considering non-scientific sources of knowledge is required, as is involving social players. Non-scientific knowledge can be factored into the research process in very different ways. Nevertheless, the project is not expected to be limited to simply researching practice or conducting commissioned research on behalf of practitioners. The proposal should include a detailed explanation of the level and form of practical integration. An accurate description of the relevant players or stakeholders for the problem area to be addressed should therefore be provided, together with a description of their specific potential influence. On this basis, the role of partners on the ground and their competencies should be clearly defined within the framework of the research project; it must be clear what is expected of them. They should be actively included in the research process on an ongoing basis. Their involvement should be an expression of their interest, and may also take on a monetary form. In suitably substantiated cases, the ministry may also provide financial assistance to the partners. The proposal should present the methods to be used to integrate practice-related knowledge into the research project.

> Interdisciplinarity: Social-ecological Research makes equal use of approaches from the natural and social sciences, reviews the solution potential they offer and illustrates ways in which they can be connected. The disciplines involved have to correspond to the problem area and objective of the research project. The proposal should include integration concepts and methods on the basis of which knowledge can be generated, evaluated and combined on an interdisciplinary basis (and in context with

stakeholders). This interdisciplinary cooperation should be regulated in an integration concept which sets out the most important working steps and competencies of the individual project participants in organisational terms. In cases where a suitable integration concept is only due to be generated in the course of the project, applicants should indicate whether they have considered concepts already tested and, if so, whether such concepts have been deliberately disregarded.

> Considering gender issues: Applicants are requested to explain whether addressing gender-related topics would be relevant in the execution of their project. If appropriate, the reasons for foregoing any consideration of gender issues should be provided.

> Specify targeted results: The proposal should state the type of knowledge to be generated (systems knowledge, target knowledge, transformation knowledge) and the share of knowledge allocable to each type. Furthermore, the targeted results (products) should be specified, e.g. publications, further-reaching issues, management tools and control instruments.

> Self-evaluation: The research team is expected to develop a self-evaluation concept to achieve milestones and research results. Further orientation can be obtained from the publication "Quality Criteria for Transdisciplinary Research. A Guide for the Formative Evaluation of Research Projects" (Bergmann, M. et al., 2005).

> Implementation strategy: Transforming scientific knowledge generated into a form that can be used in practice is a component of transdisciplinary research. Proposals should present the way in which transferring knowledge to stakeholders should be structured, i.e. the proposal should include a rough concept for the implementation of practice-related results in the respective problem area. This concept should be elaborated and refined during the project.

> Publication strategy: Separate personnel funds and, if appropriate, materials may be applied for in connection with the compilation of publications. Approval depends on a convincing publication strategy.

> Project coordination: The task of project coordination is accorded key significance in the research groups. It should always be ensured that this position is occupied by an individual with experience in handling transdisciplinary projects. The role and competencies of this individual should be clearly defined.



6. ORGANISATION OF THE PROGRAMME

The special character of Social-ecological Research as a "learning" funding programme requires accompanying and supportive measures which exceed or deviate from usual procedures.

Assessment Procedure:

In contrast to the standard procedures for evaluation meetings, applicants in the field of Social-ecological Research are generally given the opportunity to directly address the Expert Committee and answer any questions. This makes it possible to avoid misunderstandings that may arise on account of the complexity of the applications.

The ministry takes due account of the requirements of a "learning" funding programme by actively contributing to the evolution of evaluation criteria for this innovative research approach. The compilation of evaluation guidelines has been commissioned based on the latest state of knowledge in Social-ecological Research and experience gained with transdisciplinary research elsewhere. These guidelines will be tested within the framework of assessment procedures in the second stage of funding.

Programme Evaluation:

Based on the results of the programme evaluation in the first stage of funding, evaluations are also foreseen on a programme level in the second stage.

Strategy Advisory Committee:

The ministry established the Social-ecological Research Advisory Committee in November 2000. The Committee's principal tasks include providing its opinion on the overall objectives of the funding programme, commenting on the conception and coherence of the individual measures

and initiating suitable quality assurance and development measures for the programme.

Coordination Office:

The Social-ecological Research Coordination Office was established in 2004 to support the external presentation of the funding programme (from 2007: Science and Society Coordination Office). The Coordination Office sees itself both as a service provider for the projects, as well as the developer of new forms of communication. By mid-2006, the office had set up its website (www.sozial-oekologische-forschung.org), launched a quarterly newsletter, edited the regular contributions in the journal "GAIA - Ecological Perspectives for Science and Society" and started the "Social-ecological Research" book series published by Oekom-Verlag.

Programme evaluation for Social-ecological Research is a new instrument introduced by the Federal Ministry of Education and Research. This does justice to the "learning" character of the funding priority by comparing the objectives and impact already achieved by the individual measures at an early stage. The evaluation examines whether the capacity-building strategies were appropriate and achieved their aims. It also assesses whether thematic research funding has been able to build the desired bridge between scientific research and action, and whether any measures are lacking. An international Evaluation Committee critically examined all aspects of the programme from 2004 to 2005 – with positive results. The Committee presented valuable suggestions and recommendations on how to structure research funding activities more effectively. These have been factored into this framework concept and will be taken into account when new announcements are formulated.



7. FURTHER INFORMATION ABOUT THE PROGRAMME AND PROJECT OVERVIEW

In 2000, 24 exploratory projects were funded to structure the Social-ecological Research funding priority in terms of the topics to be addressed. The results of these projects formed the basis for the selection of themes for thematic research funding. The projects have been summarised in the publication "Sozial-ökologische Forschung – Ergebnisse der Sondierungsprojekte aus dem BMBF-Förderschwerpunkt" ("Social-ecological Research – Results from Exploratory Projects of the BMBF Funding Priority", Balzer, I. and Wächter, M., 2002).

Since the funding programme was launched, a total of 11 infrastructure projects, 9 groups of junior researchers and 16 thematic research projects have been supported. The individual projects and the names of the respective project leaders are listed in the following overview.

Guidelines have been developed within the framework of infrastructure funding to support the self-evaluation of social-ecological projects. These have been published in "Quality Criteria for Transdisciplinary Research. A Guide for the Formative Evaluation of Research Projects" (Bergmann, M. et al., 2005). Applicants are recommended to take these guidelines into account when compiling their proposals and executing their projects.

This framework concept is based on the German Federal Government's "Research for sustainability" (fona) framework programme (www.fona.de/eng/index.php).

For further information, please consult the website www.sozial-oekologische-forschung.org/en/index.php.

Contact

The German Aerospace Center's (DLR) project management agency supports the Federal Ministry for Education and Research in the design and implementation of its funding measures. The project management agency is the direct point of contact for researchers.

Projektträger DLR
Heinrich-Konen-Straße 1
53227 Bonn

<http://pt-uf.pt-dlr.de/en/index.php>

The "Social-ecological Research" funding priority is granted to national applicants only. However, foreign partners can be associated by sub-contracts.

Application forms with guidelines and information sheets, as well as supplementary regulations for grant assessment notices, can be obtained upon request from the project management agency and are also available in electronic form online: www.kp.dlr.de/profi/easy/bmbf/index.htm (available in German only).

Infrastructure Funding

07IFS01	Product Sustainability Assessment (PROSA/PLA) - Methodology development and dissemination (www.prosa.org) 01. 04. 2001 – 31. 05. 2006	Dr. Rainer Griebhammer Öko-Institut e.V. Postfach 50 02 40 79028 Freiburg
07IFS02	Schnittstellenentwicklung für die Integration akademischer und praxisbezogener Forschung im Bereich Sozial-Ökologie 01. 06. 2001 – 31. 08. 2005	Jan-Peter Voß Öko-Institut e.V. Novalisstraße 10 10115 Berlin
07IFS03	Innovation Paths for a Sustainable Information Society (www.izt.de/sustainable-ict_eng/projects/innovation_paths.html) 01. 08. 2001 – 31. 01. 2006	Siegfried Behrendt IZT - Institut für Zukunftsstudien und Technologiebewertung gGmbH Schopenhauerstr. 26 14129 Berlin
07IFS04	Transdisciplinary Cognitive Integration (www.isoe.de/english/projects/integrat.htm) 01. 04. 2001 – 31. 03. 2006	Dr. Thomas Jahn Institut für sozial-ökologische Forschung (ISOE) GmbH Hamburger Allee 45 60486 Frankfurt am Main
07IFS05	The Communication of Scientific Knowledge - Concept and Tools to Improve the Societal Use of the Results of Social-Ecological Research (www.isoe.de/english/projects/wisskomm.htm) 01. 06. 2001 – 28. 02. 2006	Dr. Thomas Jahn Institut für sozial-ökologische Forschung (ISOE) GmbH Hamburger Allee 45 60486 Frankfurt am Main
07IFS06	Evaluation Network for Transdisciplinary Research (EVALUNET) (www.isoe.de/english/projects/evalunet.htm) 01. 07. 2001 – 31. 06. 2006	Dr. Thomas Jahn Institut für sozial-ökologische Forschung (ISOE) GmbH Hamburger Allee 45 60486 Frankfurt am Main
07IFS07	Governance and Sustainability – New Access and Networks for Social and Ecological Control (www.ioew.de/governance) 01. 08. 2001 – 30. 06. 2005	Dr. Guido Nischwitz Institut für ökologische Wirtschafts- forschung (IÖW) gGmbH Potsdamer Str. 105 10785 Berlin

07IFS08	Stärkung der Forschungskapazität des IÖW durch Erweiterung der Methoden- und Modellkompetenz 01. 09. 2001 – 29. 02. 2004	Ulrich Petschow Institut für ökologische Wirtschaftsforschung (IÖW) gGmbH Potsdamer Str. 105 10785 Berlin
07IFS09	Rahmenbedingungen erfolgreicher Klimaschutzstrategien – Fallstudie: Einführung eines Energiepasses 01. 01. 2002 – 30. 06. 2003	Dr. Ralf Schüle Wuppertal-Institut für Klima, Umwelt, Energie GmbH Döppersberg 19 42103 Wuppertal
07IFS10	Strategisches Benchmarking für eine nachhaltige Unternehmensentwicklung (www.izt.de/strategischbenchmarking) 01. 09. 2002 – 31. 08. 2005	Britta Oertel IZT - Institut für Zukunftsstudien und Technologiebewertung gGmbH Schopenhauerstr. 26 14129 Berlin
07IFS11	International Research Network on Social and Environmental Aspects in Business and Management (SEABUS) (www.izt.de/en/research-projects/current-projects/projekt/seabus) 01. 08. 2006 – 31. 07. 2009	Dr. Tobias Hahn IZT-Institut für Zukunftsstudien und Technologiebewertung GmbH Schopenhauerstr. 26 14129 Berlin
07IFS12	TRANSFOR(U)M - Socio-ecological Cooperation Network on Regional Transition Processes in Europe (www.transforum-network.eu) 01. 07. 2006 – 29. 02. 2008	Michael Heinze SFZ - Sekretariat für Zukunftsforschung GmbH Evinger Platz 11 44339 Dortmund
07IFS13	Stärkung der Forschungskompetenz in der Sozial-Ökologischen Forschung 01. 10. 2006 – 30. 09. 2009	Andreas Kraemer Ecologic - Institut für Internationale und Europäische Umweltpolitik gGmbH Pfalzburger Str. 43/44 10717 Berlin
07IFS14	conCISE.net: Scientific Network – Competitiveness, Innovation, Sustainability (www.concisenet.eu) 01. 07. 2006 – 30. 06. 2009	Dr. Joachim Lohse Öko-Institut e.V. Postfach 50 02 40 79028 Freiburg

07IFS15	Transdisciplinary Integration – Cooperation and Concept Development in Knowledge Networks (www.isoe.de/english/projects/transdis.htm) 01. 04. 2006 – 31. 03. 2009	Dr. Thomas Jahn Institut für sozial-ökologische Forschung (ISOE) GmbH Hamburger Allee 45 60486 Frankfurt am Main
07IFS16	Wissenschaftliche Vernetzung in ausgewählten Schwerpunkten der ökologischen Wirtschaftsforschung 01. 10. 2006 – 30. 09. 2009	Thomas Korbun Institut für ökologische Wirtschaftsforschung (IÖW) gGmbH Potsdamer Str. 105 10785 Berlin
07IFS17	German Competence Network for Urban Ecology (CONTUREC) (www.conturec.de/typo3/en/home/) 01. 07. 2006 – 31. 07. 2008	Peter Werner Institut Wohnen und Umwelt GmbH Annstr. 15 64285 Darmstadt
07IFS18	Strengthening the practice of transdisciplinary research (www.isoe.de/english/projects/transfoprax.htm) 01. 10. 2006 – 30. 09. 2009	Dr. Thomas Jahn Institut für sozial-ökologische Forschung (ISOE) GmbH Hamburger Allee 45 60486 Frankfurt am Main

Junior Research Groups

07NGS04	Supplying the population Interactions among demographic trends, needs and supply systems (www.demons-project.de/en_index.html) 01. 03. 2002 – 31. 08. 2007	Dr. Diana Hummel Institut für sozial-ökologische Forschung (ISOE) GmbH Hamburger Allee 45 60486 Frankfurt am Main
07NGS05	TIPS – Transformation and Innovation in Power Systems (www.tips-project.de) 01. 07. 2002 – 31. 12. 2008	Dr. Barbara Praetorius Deutsches Institut für Wirtschafts- forschung e.V. (DIW) Königin-Luise-Str. 5 14195 Berlin
07NGS06	GELENA – Social Learning and Sustainability (www.gelena.net) 01. 05. 2002 – 31. 05. 2007	Prof. Dr. Bernd Siebenhüner Carl von Ossietzky Universität Oldenburg Lehrstuhl für Ökologische Ökonomik Ammerländer Heerstr. 114 - 118 26111 Oldenburg

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| 07NGS07 | <p>MOBILANZ - possibilities to reduce energy consumption and material flows of different mobility patterns by the introduction of target group-orientated mobility services
(www.eco.psy.ruhr-uni-bochum.de/mobilanz)
01. 05. 2002 – 30. 04. 2007</p> | <p>Dr. Marcel Hunecke
Ruhr-Universität Bochum – Fakultät für Psychologie – Arbeitseinheit für Kognitions- u. Umweltpsychologie
Universitätsstraße 150
44780 Bochum</p> |
| 07NGS08 | <p>AgChange. Conflicts of the New Agricultural Policy. Changing relationship between society and nature?
(www.agchange.de)
01. 05. 2002 – 15.10. 2007</p> | <p>Dr. Peter-Henning Feindt
Universität Hamburg
Institut für Allgemeine Botanik und Botanischer Garten
Ohnhorststr. 18
22609 Hamburg</p> |
| 07NGS09 | <p>Global Governance and Climate Change
A multi-level analysis of conditions, risks and chances of socio-ecological transformation
01. 05. 2002 – 30. 04. 2007</p> | <p>Dr. Achim Brunnengräber
FU Berlin
Fachbereich Politik- und Sozialwissenschaften, Otto-Suhr-Institut
Malteser Str. 74-100
12249 Berlin</p> |
| 07NGS10 | <p>Regionaler Wohlstand – neu betrachtet
(www.regionalerwohlstand.de)
15. 05. 2002 – 14. 08. 2007</p> | <p>Prof. Dr. Dr. Martina Schäfer
TU Berlin – Zentrum Technik und Gesellschaft (ZTG)
Hardenbergstr. 36A
10623 Berlin</p> |
| 07NGS11 | <p>NEDS - Sustainable Development between Throughput and Symbolism. Economic construction concepts of ecological reality in European regions
(www.neds-projekt.de)
01. 07. 2002 – 30. 06. 2007</p> | <p>Dr. Fred Luks
Universität Hamburg
Fakultät Wirtschafts- und Sozialwissenschaften
Dep. für Wirtschaft und Politik
Von-Melle-Park 9
20146 Hamburg</p> |
| 07NGS21 | <p>Umbauen statt neu bauen: Sozial-ökologische Gestaltungspotenziale im Wohnungsbestand der Nachkriegszeit
(www.zeilen-umbruch.de)
15. 09. 2002 – 31. 05. 2007</p> | <p>Dr. Gabriele Wendorf
TU Berlin – Fakultät VIII
Institut für Volkswirtschaftslehre und Wirtschaftsrecht
Straße des 17. Juni 135
10623 Berlin</p> |

Thematic Research Groups

Sustainable Development in the Field of ‚Environment - Nutrition - Health‘: Long-term Strategies for Sustainable Consumption (LINK)

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|---------|--|---|
| 07VPS02 | Ernährungswende – Strategien für sozial-ökologische Transformationen im gesellschaftlichen Handlungsfeld Umwelt-Ernährung-Gesundheit (www.ernaehrungswende.de)
01. 07. 2002 – 30. 09. 2005 | Dr. Ulrike Eberle
Öko-Institut e.V.
Postfach 50 02 40
79028 Freiburg |
| 07VPS05 | OSSENA – Ernährungsqualität als Lebensqualität (www.ossena-net.de)
01. 05. 2003 – 30. 04. 2007 | Prof. Dr. Reinhard Pfriem
Carl von Ossietzky Universität
Oldenburg
Institut für BWL & BWP
Ammerländer Heerstr. 114-118
26111 Oldenburg |
| 07VPS06 | Von der Agrarwende zur Konsumwende? Agrarwende und neue Ernährungsmuster. „Karrieren“ nachhaltigen Konsums (www.konsumwende.de)
01. 11. 2002 – 15. 05. 2006 | Prof. Dr. Karl-Werner Brand
Münchner Projektgruppe für
Sozialforschung e.V. (MPS)
Dachauer Str. 189
80637 München |

Social-ecological Transformation in Supply and Disposal Systems

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|---------|---|--|
| 07VPS01 | Integrated Microsystems of Supply
(www.mikrosysteme.org/english.htm)
01. 08. 2002 – 30. 04. 2006 | Christof Timpe
Öko-Institut e.V.
Postfach 50 02 40
79028 Freiburg |
| 07VPS04 | KIDA - Cooperation in the waste industry
01. 06. 2004 – 31. 12. 2006 | Dr. Dr. Axel Zweck
Zukünftige Technologien
Consulting der VDI TZ GmbH
Graf-Recke-Str. 84
40239 Düsseldorf |
| 07VPS08 | netWORKS - Socio-ecological Regulation of Network-Related Infrastructure Systems: Example of Water
(www.networks-group.de/en/)
01. 11. 2002 – 31. 03. 2006 | PD Dr. Thomas Kluge
Institut für sozial-ökologische
Forschung (ISOE) GmbH
Hamburger Allee 45
60486 Frankfurt am Main |

Social-ecological Transformation in Urban and Rural Areas (STRARE)

- | | | |
|---------|---|--|
| 07VPS09 | <p>Blockierter Wandel? Die Überwindung von Dichotomien in den Raumbeziehungen als Element sozial-ökologischer Transformation (www.blockierter-wandel.de)
01. 08. 2003 – 28. 02. 2006</p> | <p>Dr. Babette Scurrell
BUND - Forschungsprojekt
Humperdinckstr.16
06844 Dessau</p> |
| 07VPS10 | <p>PartizipA – Participative Modelling, Actor and Ecosystem Analysis in Regions with Intensive Agriculture (www.partizipa.net)
01. 10. 2003 – 31. 03. 2007</p> | <p>Prof. Dr. Claudia Pahl-Wostl
Universität Osnabrück, Lehrstuhl für Stoffstrommanagement
Albrechtstr. 28
49069 Osnabrück</p> |
| 07VPS11 | <p>VERA - Temporalisation of Space (www.vera-research.de)
01. 05. 2004 – 31. 12. 2007</p> | <p>Prof. Dr. Ulrich Mückenberger
Universität Hamburg
Fakultät Wirtschafts- und Sozialwissenschaften
Dep. für Wirtschaft und Politik
Von-Melle-Park 9
20146 Hamburg</p> |

Political Strategies for Coping with Environmental Problems - from Local to Global Level

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| 07VPS03 | <p>Developing agrobiodiversity (www.agrobiodiversitaet.net)
01. 02. 2002 – 31. 03. 2004</p> | <p>Ulrich Petschow
Institut für ökologische Wirtschaftsforschung (IÖW) gGmbH
Potsdamer Str. 105
10785 Berlin</p> |
| 07VPS07 | <p>Joint Emission Trading as Socio-Ecological Transformation (JET-SET) (www.wupperinst.org/en/projects/proj/index.html?&projekt_id=97&bid=30)
01. 05. 2003 – 31. 08. 2006</p> | <p>Dr. Ralf Schüle
Wuppertal-Institut für Klima, Umwelt, Energie GmbH
Döppersberg 19
42103 Wuppertal</p> |

Strategies for Coping with Systemic Risks

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| 07VPS12 | <p>Overweight and Obesity in Childhood, Youth and Young Adulthood as a Systemic Risk
(www.zirn-info.de/index-ef.htm)
01. 12. 2005 – 31. 12. 2008</p> | <p>Prof. Dr. Ortwin Renn
Internationales Zentrum für Kultur- und Technikforschung (IZKT)
Universität Stuttgart
Seidenstr. 36
70174 Stuttgart</p> |
| 07VPS13 | <p>Risk Controversies visualized – The Development of Internet based Argumentation Maps
(www.risk-cartography.org/en_index.html)
01. 01. 2006 – 31. 12. 2008</p> | <p>Dr. Cordula Kropp
Münchner Projektgruppe für Sozialforschung (MPS)
Dachauer Str. 189/III
80637 München</p> |
| 07VPS14 | <p>GeneRise – Ecological and Economical Analyses about Co-Existence of Agriculture with and without Genetically Modified Plants
(www.sozial-oekologische-forschung.org/de/692.php)
01. 01. 2006 – 31. 12. 2008</p> | <p>Prof. Dr. Winfried Schröder
Hochschule Vechta, IUW
Oldenburger Str. 97
49377 Vechta</p> |
| 07VPS15 | <p>Kooperative Bewertung und Kommunikation der systemischen Risiken ubiquitärer Informations- und Kommunikationstechnologien
01. 10. 2005 – 30. 09. 2008</p> | <p>Dr. H.-Peter Neitzke
Institut für sozial-ökologische Forschung und Bildung gGmbH (Ecolog)
Nieschlagstraße 26
30449 Hannover</p> |
| 07VPS16 | <p>start – Management Strategies for Pharmaceuticals in Drinking Water
(www.start-project.de)
01. 10. 2005 – 31. 03. 2008</p> | <p>Dr. Florian Keil
Institut für sozial-ökologische Forschung GmbH (ISOE)
Hamburger Allee 45
60486 Frankfurt</p> |

Other Topics

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| 07SOE50 | <p>Der Natur-Kultur-Mensch. Analogien und Differenzen zwischen der Theorie Rudolf Bahros und sozial-ökologischen Forschungsansätzen
01. 09. 2003 – 31. 12. 2005</p> | <p>Dr. Maik Hosang
Internationales Hochschulinstitut (IHI) Zittau
Am Markt 23
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