

# Social-ecological research for the transformation to a sustainable economy

## Opening up new perspectives for change

*Reaching the Sustainable Development Goals requires a transformation to a sustainable economy.*

*This special issue presents new scientific results produced within projects of the funding measure Sustainable Economy, which is part of the Social-Ecological Research (SOEF) funding priority of the German Federal Ministry of Education and Research. The articles focus on new lines of inquiry with regard to impacts, governance approaches, and sector-specific conditions and options for a transformation to a sustainable economy.*

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**Social-ecological research for the transformation to a sustainable economy.** Opening up new perspectives for change

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A high level of production and consumption of goods and services reflect prosperity and quality of life. However, at the same time, this leads to social-ecological problems such as the destruction of nature with the loss of biodiversity, overexploitation of natural resources, environmental pollution and exploitative working conditions. The unsustainable production and consumption patterns of our economic system with companies and citizens as key players represent a crucial social challenge. One goal, therefore, is to turn companies and consumers into shapers of social-ecological change. The task of companies is to reorganise their production processes in accordance with sustainability principles and to influence consumption patterns. The role of citizens is more diverse. As the consumers and users of products and services, they exert influence, finance projects (e.g., through investing and crowdfunding) and are involved in civic activities. They are also increasingly becoming producers themselves, of food, for example (e.g., urban gardening or food sharing). As a result, the spheres of production and consumption are becoming increasingly interconnected (prosuming), leading to the creation of cooperative innovation processes between companies and consumers (BMBF 2015, p. 19).

Reaching the *Sustainable Development Goals (SDGs)* requires numerous eco-innovations. This is reflected in policy initiatives

such as eco-innovation action plans on both the national and EU level, which concentrate mostly on technical innovations (Walz et al. 2019a). However, organisational, institutional and social innovations are needed in addition to technical ones, and it is their combination, which can lead to a transformation towards sustainable development. Despite the progress made in corporate activities and sustainable consumption patterns, the road to a transformation towards a sustainable economy is still a long one. A survey on recent trends in Germany (Walz et al. 2017) concluded that

- most eco-innovations still focus on technical innovations,
- the dynamics of German corporate eco-innovations seems to stagnate,
- despite progress in corporate sustainability reporting, there is still a lack of integration of sustainability issues into the strategic positioning of corporations,
- the importance of sustainability for consumption decisions has been stabilising on a moderate level, and adjusting actual behaviour is still subject to numerous restrictions.

## Research for sustainable economy

A sustainable economy has been addressed in numerous scientific articles in the past. Figure 1 illustrates the results of a literature analysis of publications in journals referenced by SCOPUS. The number of publications which use the term “sustainable economy” in their title, abstract, or among their keywords, has been increasing steadily. The number of articles dealing with transformation and a sustainable development, however, is lower by more than the factor of ten. Albeit increasing substantially in recent years, the number of publications explicitly identifying with a social-ecological research is also rather low. Given the need to improve our knowledge about these issues, there clearly is a need to

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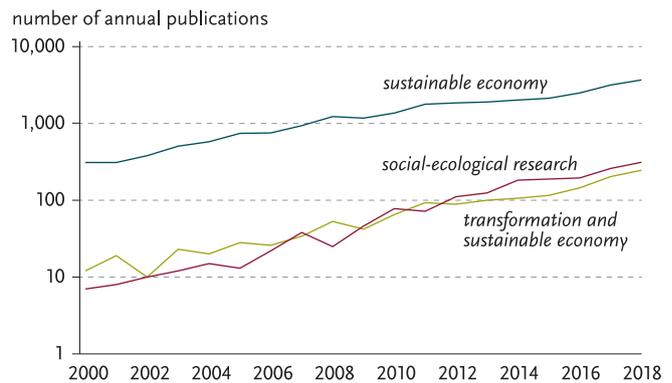
increase research with a social-ecological focus on transformation to a sustainable economy.

Social change processes and transformations under the guiding principle of sustainable development form the central focus of the *Social-Ecological Research (SOEF)* funding priority of the Federal Ministry of Education and Research (BMBF), which integrates the perspective of social sustainability research into the research agenda of the German Federal Government for the Green Economy (BMBF 2016). Instead of focusing on isolated environmental problems, social-ecological research analyses the complex problem of interrelationships and interactions between society and nature. This is based on the insight that sustainable development can be achieved only if technical and social innovations, such as new social practices of consumption or the development of new business models, mesh with one another (Wilhelm and Schulz 2017, pp. 217 ff.).

An interdisciplinary and transdisciplinary research approach needs to be used to develop proposals to solve these societal problems. Beginning with the problem description, the necessary natural, engineering or social science disciplines as well as the affected social actors with their context-related knowledge are to be integrated. Social actors, such as representatives of companies, local authorities or nongovernmental organisations, must be involved in such processes as knowledge bearers on the one hand and, on the other hand, must be persuaded to put the research results into practice. Participation in transdisciplinary social-ecological research means participation in understanding and shaping transformational processes. The aim is to make the knowledge generated available to social stakeholders in the most direct way possible (BMBF 2015, pp. 3 ff.) (figure 2, p. 182). In addition, the transformation to a sustainable economy that is ecologically compatible, socially equitable and, at the same time, competitive also requires a supportive framework.

## Research projects set impulses

All these aspects have been addressed in the *SOEF* programme with its funding focus on the *Sustainable Economy (Nachhaltiges Wirtschaften, NAWI)*:<sup>1</sup> in the period from 2015 to 2020, the BMBF will provide funding of approximately 32 million euros to a total of 30 research groups (*NAWI* projects). The sponsored project teams conduct research into various issues and areas of life – from clothing, mobility, nutrition, construction and housing to logistics and tourism (figure 3, p. 183). Some of the *NAWI* projects analyse consumer behaviour, as consumers are to be better informed about sustainable products and services and encouraged to consume sustainably. These projects can build on the results of the *SOEF* funding measure *Sustainable Consumption – From Knowledge to Action* (funding period 2008 to 2013, cf. Defila et al. 2014). Other projects examine business models, production forms and



**FIGURE 1:** Number of annual publications referenced in SCOPUS database which use the terms *sustainable economy*, *transformation and sustainable economy*, and *social-ecological research* in their title, or abstract, or among their keywords. Source: data retrieved from SCOPUS.

value chains with regard to their sustainability potential. Together with practitioners, sustainability innovations are created and strategies are developed for the dissemination of successful approaches. In addition, overarching recommendations for political action are developed as to how obstacles to the transformation of the economy towards sustainability can be removed, and which approaches can be used to successfully support such a transformation (cf. Wilhelm 2015, pp. 199 f.).

An accompanying project called *NaWiKo: Scientific Coordination of Research Projects on a Sustainable Economy* supported the research.<sup>2</sup> Various workshops and conferences were organised in order to facilitate communication between the projects and support transfer activities. Furthermore, *NaWiKo* aims at synthesizing the results of the projects. Thus, researchers from different projects were encouraged to team up and develop conclusions, which are drawn from more than one project. The synthesis activities also aim at making insights from the *NAWI* projects available to the broader scientific community in order to enhance future discussion. Based on a call for papers among the *NAWI* project partners, this special issue brings together a collection of articles particularly suited to show the range of issues analysed in *NAWI*.

## Lines of inquiry

So far, the discussion about the potential and impacts of sustainable economy approaches has mainly taken place on the level of single case studies. This stands in contrast to other arenas of environmental policy, such as climate change, where aggregated assessments are abundant. During the course of the *NAWI* projects, the need for a more aggregated assessment became apparent. In order to trigger a debate about this crucial issue, we included two articles within the *Forum* section:

<sup>1</sup> Funding measure *Sustainable Economy* and project list of the research networks see: <https://www.fona.de/en/measures/funding-measures/sustainable-economy.php>.

<sup>2</sup> <https://nachhaltigeswirtschaften-soef.de/en>

- **Wruk et al. (pp. 184–189)** present an approach to quantify the sharing economy in its heterogeneity of forms and effects. They argue that approaches towards quantifying the sharing economy could enrich societal knowledge about this phenomenon and, thus, fuel societal transformation.
- **Walz et al. (pp. 190–197)** quantify the implications of two scenarios of sustainable economy approaches, whose scope is based on NAWI projects. They focus on the nexus of intended emission reduction and unintended structural implications for the economy.

In one form or another, most NAWI projects touch upon the need to adjust policies. Thompson (1991) distinguishes markets, hierarchies and networks as archetypes of coordination in societies. The effectiveness of hierarchies has been questioned in the last decades, among other reasons, due to globalisation and the reduced steering capacity of the nation-state. Scholars, such as the Nobel Prize winner Elinor Ostrom, have underlined the need for diverse institutional arrangements that put decisions as close as possible to the level of the single actors involved. Recently, innovation policy scholars, such as Mazzucato (2018) or Edler and Boon

(2018), have called for new governance arrangements to support mission-oriented innovation policies. Against this background, two articles present specific governance insights from a NAWI perspective:

- **Heyen (pp. 198–203)** looks at governance in the sectors of mobility, agriculture and food. In particular, he focuses on the role of traditional policy instruments in transformation strategies.
- According to **Jacob et al. (pp. 204–209)**, new governance approaches appear necessary to govern a transformation of the economy. They focus on the emergence of governance innovations from the bottom up by non-state actors.

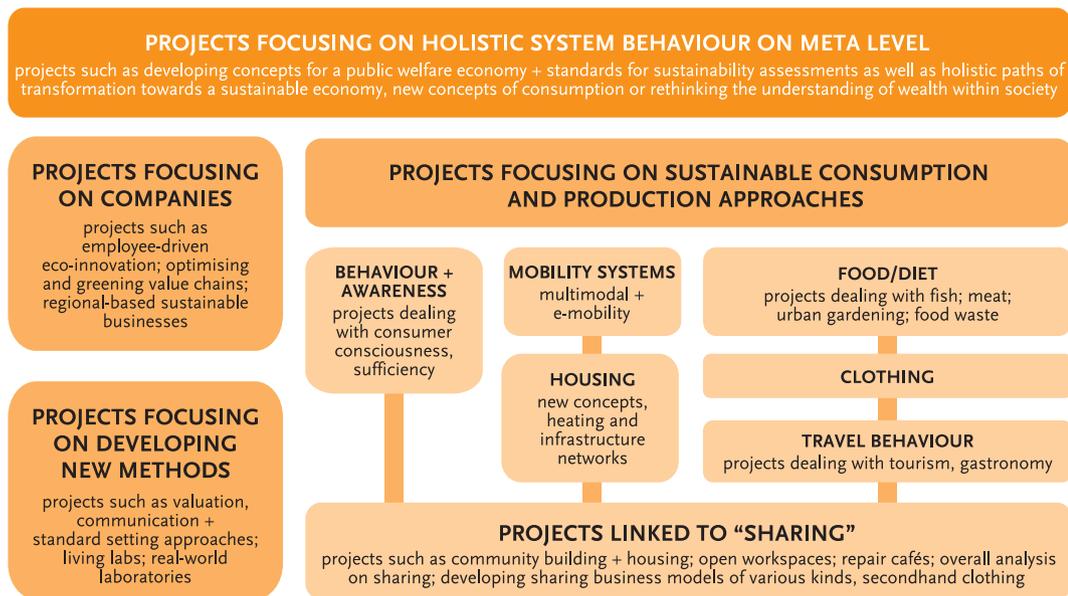
Many of the NAWI projects focus on specific sectors, and address obstacles to, and success factors for, sustainable economy approaches. The global nature of the challenges emerges, such as the need to incorporate international parts of the life cycle of products. New consumption patterns are needed, and new actors have to be involved, in order to move towards sustainability.

- **Süßbauer et al. (pp. 210–217)** investigate the potential role of ordinary employees in enhancing corporate sustainability. They analyse four transdisciplinary research projects, all aimed at initiating, accompanying and analysing processes of sustainability transformation within companies.
- **Hiete et al. (pp. 218–225)** analyse voluntary standards for minerals, which have been developed as a reaction to social and environmental problems in mining. Despite the heterogeneity of the standards, they arrive at a tripartite distinction, which they use to identify potential transformation paths to make standards more effective.
- **Heyen and Wolff (pp. 226–232)** ask why the German energy transition (*Energiewende*) has been more successful than the attempted transition to organic agriculture. Their article analyses the drivers and barriers of both processes to identify key factors that explain the difference.
- **Hacke et al. (pp. 233–239)** explore innovative initiatives in housing. They introduce cohousing as a social innovation, discuss the factors affecting its diffusion, and provide information about its social impacts.



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**FIGURE 2:** An example of knowledge transfer from the funding measure *Sustainable Economy* to the public is the interactive exhibition *use-less – Slow Fashion against waste and ugly clothes*. The exhibition stems from work carried out at the Hannover University of Applied Sciences and Arts, among others within the framework of the *Innovations for Sustainable Clothing (InNaBe)* project (see also Kleinhüeckelkotten and Neitzke 2019, in this issue). Visitors to the exhibition learn in a hands-on manner how fashion is created and how it can be produced in a sustainable way. The aim of the exhibition is to challenge visitors to reflect on their own consumption habits. On display are designs created by students of the fashion design course at the Hannover University of Applied Sciences and Arts. The picture shows the work *Damaged* designed by Dilan Capan. The exhibition, which runs until October 20, 2019, is taking place at the Hafenumuseum Speicher XI in Bremen, Germany. [https://useless-ausstellung.de/wp/wp-content/uploads/use-less-DilanCapan\\_DAMAGED\\_PatrickSlesiora.jpg](https://useless-ausstellung.de/wp/wp-content/uploads/use-less-DilanCapan_DAMAGED_PatrickSlesiora.jpg)



**FIGURE 3:** Scope of projects within the funding measure *Sustainable Economy (NAWI)*.

- **Kleinhüchelkotten and Neitzke (pp. 240–248)** focus on sustainable production and consumption patterns with regard to clothing. They analyse a multitude of economic, technical, social and personal factors to determine which factors impede or support a change towards more sustainability.

As this special issue demonstrates, sustainable economy approaches in their heterogeneous form promise to advance transformation towards sustainability. However, more conceptual and empirical analyses will be necessary to assess potentials and implications, policy mix and new forms of governance, and the systemization of the differences and commonalities of sector-specific approaches.

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