



Creating Space for Change: Real-world Laboratories for Sustainability Transformations

The Case of Baden-Württemberg

In the face of persistent sustainability problems challenging economic development, ecological integrity as well as social justice, transformational changes are crucial. Proposed changes shall include,

for instance, large-scale transitions of practices, infrastructures as well as values and priorities. In Germany, real-world laboratories are proposed for research in and with society, aiming to understand and contribute to transformations.

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In recent years, numerous science-society collaborations have been developed that are experimenting with solutions to sustainability problems in real-world settings (Trencher et al. 2014). These initiatives usually aim at radical changes from the status quo, in process and outputs (Evans and Karvonen 2014). Fields of application as well as labels of initiatives are varying, with examples including food production (e.g., *Victorian Eco Innovation Lab*, Australia), energy consumption (e.g., *Campus as a Living Laboratory*, Canada), urban living (e.g., *Low Carbon Labs*, Sweden) and mobility (e.g., *Delft Design Labs*, The Netherlands) (Luederitz et al. submitted).

The sketched developments are part of broader trends in sustainability research towards a solution-oriented research agenda (Miller et al. 2014), a pragmatist turn (Popa et al. 2015) and a re-orientation towards experimental approaches (Schneidewind 2014). As part of this development, a new generation of experimental settings, such as living laboratories (e.g., Voytenko et al. 2015), urban (sustainability) transition labs

(e.g., Loorbach and Rotmans 2010, Wiek and Kay 2015, Wittmayer et al. 2014) as well as real-world laboratories (e.g., Wagner and Grunwald 2015) is proposed for research in and with society. Despite their differences, the settings share a focus on interventions in real-world contexts undertaken by stakeholders in transdisciplinary collaboration with scientists. Furthermore, they share a double aim of understanding and at the same time contributing to societal change towards sustainability (see Schneidewind 2013). Accordingly, they are research endeavors, meaning they produce evidence regarding possible solutions to given sustainability problems (Wiek and Kay 2015) and at the same time pursue a transformational mission and therefore apply solutions in an exemplary way (Voytenko et al. 2015).

Methodologically stated settings can be understood as an attempt to merge the strength of experimental laboratory situations with the integration of research into real-world contexts, offering the possibility to learn about changes induced by the

very research. This merger is not without challenges: while stated laboratory settings operate within societal settings and necessarily adapt their proceedings to the given contexts, actors and problems, the very notion of the laboratory comes with the promise of generating transferable and generalizable knowledge. Thus, there are numerous open questions including terminologies and concepts, concrete methodologies as well as epistemological foundations. >

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Systematic explorations and comparisons of different and more in-depth studies of single laboratory settings are a demand.

Developments in Germany: “Reallabore” and Real-world Laboratories

In the German-speaking discourse on sustainability research the concept of real-world laboratories (“Reallabore” in German) has gained popularity. A shared understanding of real-world laboratories does not yet exist, rather there are a number of

With this initiative, Baden-Württemberg creates a fruitful environment for new research collaborations between universities and non-academic actors. While the funding program has a regional scope, the actual projects are of much wider interest, as they represent a first systematic attempt to explore the notion and concept of German real-world laboratories. Baden-Württemberg follows an experimental strategy oriented towards the very idea of a (real-world) laboratory. Providing the labs with

1. To support and interconnect the real-world laboratories with regard to facilitating the implementation process, mutual learning, developing transferable insights and embedding the labs into national and international networks.
2. Gaining insights on real-world laboratory processes, in particular with regard to applied methods, quality features and transdisciplinary knowledge integration.

Developing the setting of the laboratories further requires mutual learning from empirical experiences as well as conceptual discussions. Therefore a number of activities will be undertaken by the ministry, the labs and the accompanying research projects, such as a colloquium with (international) experts and practitioners in spring 2016. One major public event will be the *International Sustainability Transitions Conference 2016*.⁴

MORE INFORMATION:

<http://nachhaltigewissenschaft.de/category/themen/reallabore>

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partially overlapping understandings (cp. MWK 2013, WBGU 2014, Schneidewind 2014, De Flander et al. 2014, Wagner and Grunwald 2015). In addition, the concrete relation of real-world laboratories to research settings and approaches, such as other stated labs and (natural science) laboratory research, action research or transdisciplinary research, is not yet sufficiently understood.

In face of multiple expectations and given conceptual openness, numerous questions arise: what constitutes a real-world laboratory? How to cope with the “contradiction in terms” of a laboratory in the real world? What is the added value in comparison to established settings?

An Experimental Research Policy

The federal state of Baden-Württemberg institutionalized research in real-world laboratories with a substantial funding program running from 2015 until 2017. In doing so, the state government followed the advice of an expert commission on how to further strengthen research for sustainability. In a broad participatory process the commission assessed existing research initiatives in the field of sustainability on behalf of the Minister for Science, Research and Culture, Theresia Bauer. An independent expert panel selected seven out of 32 applications that started in spring 2015¹.

considerable space for realizing their research is both appreciated by the participating universities and their partners as well as foundational for realizing the experimental setting of the labs itself.

The table gives an overview of the laboratories of the first funding line which are situated in diverse contexts of application, sharing a focus on transformational processes towards sustainability. This diversity corresponds to the aim of exploring the new research setting and promises learning from multiple application contexts.

As the program is pioneering within Germany, the funded projects are confronted with a twofold challenge: first, to create transformational knowledge and therewith to support societal change in the different areas of investigation. And second, the labs need to fill the very concept of real-world laboratories with life.

Accompanying Research and Outlook

The labs are supported by an accompanying research consisting of two projects: one at the University of Basel, Research Group Inter-/Transdisciplinarity², a second formed by Leuphana University of Lüneburg, the ISOE – Institute for Social-Ecological Research and the Wuppertal Institute for Climate, Environment and Energy³. Jointly and in close co-operation with the laboratories, these projects pursue two aims:

- 1 A second funding line focusing real-world laboratories in urban contexts was issued in Baden-Württemberg, and proposals selected in October 2015 are currently starting: www.reallabore-bw.de.
- 2 <http://bit.ly/1QmT6y4>
- 3 <http://bit.ly/1SbsvVi>
- 4 <http://wupperinst.org/en/info/details/wi/a/s/ad/3253>

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TABLE: Real-world laboratories in Baden-Württemberg. Source: https://mwk.baden-wuerttemberg.de/fileadmin/redaktion/m-mwk/intern/dateien/Anlagen_PM/2014/084_PM_Anlage_Gefoerderte_Reallabore.pdf (own translation, modified).

SUBMITTED BY	TITLE	SHORT PROFILE
University of Freiburg/ University of Applied Forest Sciences Rottenburg	<i>Knowledge Dialogue Northern Black Forest: The National Park as a Catalyst for a Regional Sustainability Transformation</i>	The laboratory analyzes and evaluates the ecological, social and economic interrelations between the newly founded Black Forest National Park and the surrounding region with regard to a regional transformation towards sustainability. Stakeholders from business, politics and civil society are actively involved in the research. Building on analysis and evaluation, researchers and stakeholders will develop and implement options for concrete actions.
University of Heidelberg	<i>“Urban Office”: Sustainable Development of Cities in the Knowledge Society</i>	The current transformation of Heidelberg can be experienced in many neighborhoods of the city. The city administration and the international <i>Bauausstellung</i> are aware of the challenges posed by these developments. The laboratory contributes to questions of demographic change, participatory city planning, actor constellations for concrete projects as well as new forms of communicating and understanding ongoing changes.
Karlsruhe Institute of Technology (KIT)	<i>Urban Transition Lab 131: KIT Meets the City</i>	The <i>Urban Transition Lab 131</i> fosters sustainable development of one district of Karlsruhe, addressing a broad spectrum of sustainability issues. By way of an extended citizen forum, topics and projects have been selected and are now being realized in transdisciplinary co-operations. For these projects, the lab offers a transdisciplinary infrastructure of a local “sustainability science shop”, an overarching knowledge base, as well as integrated teaching and networking activities.
University of Stuttgart	<i>Future City Lab_Stuttgart: Real-world Laboratory for a Sustainable Mobility Culture</i>	University, city and the region of Stuttgart are used as field of action, concrete laboratory space and experimental platform for the exploration and development of visions and practices of a sustainable mobility culture. Civil society actors are involved as co-researchers in this knowledge generation process, the generation of research data and the development of scenarios and pilot projects.
Ulm University/ Reutlingen University	<i>Sustainable Transformation of the Textile Industry at Location Dietenheim</i>	The project links two perspectives in one real-world laboratory: the sustainable urban revitalization of Dietenheim, once home to a strong textile industry, with the transformation of the textile supply chain towards sustainability. Currently vacant areas in the inner city of Dietenheim will be used by enterprises and further actors of the Dietenheim textile industry to create a transparent supply chain that can be experienced locally. Thereby impulses for changed textile consumption patterns shall be created.
University of Applied Sciences Stuttgart (HFT Stuttgart)	<i>EnSign Real-world Laboratory: The Climate Neutral University as a Partner for the Region</i>	Climate neutrality of the inner city campus of the HFT Stuttgart shall be achieved via developing a comprehensive implementation strategy, debated amongst actors from the campus, the neighborhood and the metropolitan region of Stuttgart and realized in exemplary manner financed by a public administration body (Landesbetrieb Vermögen Bau) and private capital.
Public Academy of Fine Arts Stuttgart	<i>Space Sharing: Use-intensification of the Building Stock via Combining Usage Forms</i>	Developments of recent decades have shown that in regions of urban growth like Stuttgart building spaces and usable floor spaces are increasing, while the actual density of usage is declining. Against this background the project aims to (spatially) combine various forms of using the current building stock to increase the efficiency of usage of buildings in urban centers.