

The background image is a photograph of a narrow, cluttered alleyway in a dense urban setting. The buildings are multi-story and painted in various colors like red, blue, and green. There are many external metal ladders and scaffolding structures. A person is visible on one of the ladders. In the foreground, there are various items like a grill, a sign, and some debris. The overall scene suggests a complex, lived-in environment.

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Neighbourhood
Development

including

The ABC of Real-world Lab Methodology

Editorial



▲ **Figure 1:** Graffiti in Villa 31, Buenos Aires. (Photo: Sophie Naue)

"Neighbourhood Development in the Global South" was the topic of a conference held by TRIALOG e.V., the Arbeitskreis Stadterneuerung an deutschsprachigen Hochschulen ["Working Group on Urban Regeneration at German-speaking Institutes of Higher Learning"], and the Department of Urban Regeneration and Planning at University of Kassel, which took place in June 2016. Inspired by the Call for Papers published in TRIALOG 118/119, presenters explored the urban regeneration strategies of state actors as well as the contributions of community organisations to neighbourhood development. In seven sessions and twenty presentations, participants discussed frameworks and paradigms of neighbourhood development, the different requirements for the upgrading of informal settlements and inner-city quarters, matters of infrastructure and resilience, as well as participation methods and evaluation criteria. In this context, international development goals were recognised as important points of reference. While these goals are supposed to further the fulfilment of human rights, it was noted that they also tend to be abused for legitimising forced renewals. Thus, discussions also returned to the debate around "the right to the city", which substantiates people's claims for access to basic services and the co-production of urban environments. TRIALOG subsequently invited some of the authors who spoke at the conference to elaborate on their research findings and arguments in scientific papers, and to submit their papers to an anonymous peer review. More-extensive empirical and theoretical articles will be published in the forthcoming Jahrbuch Stadterneuerung, the urban regeneration yearbook published by our co-operation partners.

Based on a study conducted in a suburb of San José (Costa Rica), **Castillo Ulloa** calls for an alternative politics of neighbourhood development and attributes a catalytic role to public space for citizen's self-empowerment. Public space is also afforded a central role in the highly praised urban regeneration programmes of Rio de Janeiro and Medellín. **Restrepo Rico** lets it rain on their parade: While these programmes have produced remarkable innovations and significantly improved the infrastructure in poor neighbourhoods, the lack of real participation by the people casts doubt upon the sustainability of the results. Meanwhile, the focus of urban planning in Rio has shifted from incremental neighbourhood improvement to large-scale urban development driven by mega events. **Paris, Guasch Antúnez, Bertame**

and **Romero** analyse the fight of the inhabitants of Vila Autodrómo, who defended their place in the city against construction works for the Olympic Games with the help of planning from below. Villa 31 in Buenos Aires had likewise been threatened with destruction for years, but as **Naue** reports, it is now undergoing a process of preservation and gradual improvement – nevertheless, inhabitants are still faced with unresolved questions of tenure security. The cover of this issue is of Villa 31. The slogans on the facades call for the "immediate authorisation of roads and sewerage" and celebrate "People's Power". It seems as if neighbourhood development can only be attained through social organisation.

Based on case studies from Jakarta (Indonesia) and Soc Trang (Viet Nam), **Putri** makes an argument for the neighbourhood as the preferred scale of investment into water infrastructure. Water supply, wastewater treatment, and storm-water management could all benefit from more-decentralised planning. This article is followed by two contributions developing criteria for the evaluation of resettlements. Based on a livelihood approach, **Obermayr** and **Sandholz** arrive at a rather positive assessment of a resettlement in Surakarta (Indonesia), which was prepared with significant input from the affected residents. **Thonke** reviews resettlement processes in Cairo based on criteria developed by the OHCHR and IASC, and suggests concrete measures for overcoming the deficits. **ElGamal** analyses the institutional context within which these measures would have to be implemented. While it was an important decision by the Egyptian state to focus on unsafe areas, to date its institutions have been too short-lived to develop a sustainable practice of urban regeneration that is able to learn from its own mistakes. In Algeria, the government wants to eliminate and replace all forms of precarious housing. In her interim conclusion, **Chabou-Othmani** points out negative consequences of the resettlement policy while also mentioning merits of the national housing programme.

This double issue is complemented and accompanied by an article on sustainable neighbourhood development, participation and action research from Germany. It is a catalogue of key terms of real-world lab methodology developed by the research team "District Future" of the Institute for Technology Assessment and Systems Analysis (ITAS) of Karlsruhe. Whether the definitions, goals and methods described by our colleagues could also be productive on the southern half of the globe could be explored in a future issue of this journal.

Gerhard Kienast – Peter Gotsch

▼ **Figure 2:** Audience at the 2016 TRIALOG conference plenary session in Kassel (Photo: Jörg Schrader)



Neighbourhood Development

Volume editors: Gerhard Kienast, Peter Gotsch

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The ABC of Real-world Lab Methodology

From "Action Research" to "Participation" and Beyond

Oliver Parodi, Richard Beecroft, Marius Albiez, Alexandra Quint, Andreas Seebacher, Kaidi Tamm, Colette Waitz ^{1,2}

"Real-world laboratories" and "real-world lab research" are new concepts, and therefore not yet clearly defined. Even though they are highly-regarded newcomers in certain scientific communities, there is still no common understanding of their characteristics. This compilation of key terms offers a brief overview of real-world laboratories and their position between science and practice. With this paper, the authors explicate their understanding of these key terms to invite discussion, in the hope of contributing to a consensus on the characteristics of real-world laboratories.

Von „Aktionsforschung“ bis „Zielkonflikt“: Schlüsselbegriffe der Reallaborforschung

„Reallabor“ und „Reallaborforschung“ sind junge und demgemäß noch wenig scharf umrissene Konzepte. Obwohl sie in einigen wissenschaftlichen Communities gerade Karriere machen, hat sich noch kein allgemein geteiltes, inhaltliches Verständnis herausgebildet. Die Sammlung von Schlüsselbegriffen soll einen schnellen Einstieg und ersten Gesamteindruck geben, was Reallabore auszeichnet, und die Bezüge zur umgebenden Wissenschaftslandschaft und Praxis aufzeigen. Die Autorinnen und Autoren explizieren hiermit ihr Begriffsverständnis und stellen dieses zur Diskussion mit dem Ziel, zu einem geteilten Begriffsverständnis in der Reallaborforschung beizutragen.

1

An earlier version of this text was published in German: Parodi, O.; Beecroft, R.; Albiez, M.; Quint, A.; Seebacher, A.; Tamm, K. & Waitz, C. (2016) Von 'Aktionsforschung' bis 'Zielkonflikte'. Schlüsselbegriffe der Reallaborforschung. In: TATuP 25/3, p. 9-18.

2

If not indicated, all figures are by the authors (© QZ/ITAS/KIT)

Figure 1: "Gaining an understanding of the problem situation, and developing practical solutions": Citizens looking at our project's timeline, displayed along the "Future Space" showcase windows.

1. Action Research, Intervention Research
2. Aims, Conflicts of Aims
3. Citizen Science, Public Engagement in Science
4. Education, Social and Societal Learning
5. Interdisciplinarity, Transdisciplinarity
6. Laboratories, Labs
7. Location, Addressability
8. Participation, Actors
9. Planning, Design, Development
10. Real-world Experiment, Experiment, Transdisciplinary Experiment
11. Real-world Laboratories
12. Sustainable Development, Sustainable, Future-oriented
13. Transformation Research, Transformative Research

This compilation of key terms is presented in the form of a glossary. They are not abstract definitions, but explicitly tailored to the context of real-world laboratories. The glossary encompasses four types of key terms: terms from various academic traditions (e.g., "action

research"), theoretical and methodological terms that describe the specific working methods of real-world laboratories (e.g., "real-world experiments"), commonly used terms (e.g., "location") that need to be specified in the context of real-world laboratories, and key terms that describe the aims of real-world laboratory research (e.g., "sustainability"). The nature of the respective explanations varies accordingly. The text has deliberately been kept short, touching only briefly upon the conceptual fields. The references are selected as starting points to deepen the respective issue.

1. Action Research, Intervention Research

In the 1940s, the concept of "action research" was coined by social psychologist Kurt Lewin (Lewin 1946). Today, Lewin's concept is still being applied. Action research is a form of experimental research that addresses the problems of a group, a community, or an organisation, and helps the people involved to work on their problems in an iterative, empirical and reflexive way (Kemmis 2011, Stringer 2014). The aim of action research, which was originally designed in an educational context, is to gain an understanding for the problem situation and to develop practical solutions. The basic steps form a spiral of planning, acting, observing and reflecting (Kemmis/McTaggart 1988, Kemmis 2011). Sometimes, practitioners plan and carry out action research independently in order to improve their own experience. In most cases, action research is used as a participatory research format to cooperate between researchers and partners from other fields. The use of everyday language makes the process of research more accessible and helps all involved in this process to see themselves as co-researchers.

Since the 1990s, intervention research has come up as a strategy related to action research. It is characterised by a stronger role of the researchers, an idea



of practice that is more system-oriented than action-oriented, and with an increased focus on a far-reaching system transformation. According to Krainer and Lerchster, intervention research should support practice systems on their way to collective self-reflection and enlightenment in order to reach decisions about their own planning for the future (Krainer/Lerchster 2012, p. 10-11).

Real-world laboratories and real-world lab research stand in the tradition of action and intervention research, as these are research strategies which work especially well in experimental settings that focus on iterative processes and continuous reflection. For this purpose, real-world laboratories provide ideal conditions. Real-world lab research could also be regarded as a type of institutionalised action or intervention research. (For more information about the roles of the researchers, see also Wittmayer/Schäpke 2014.)

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2. Aims, Conflicts of Aims

To work in a sustainability-oriented real-world laboratory means to concurrently pursue aims of research, transformation, and education/learning. Two types of conflicts can appear in doing so. "Conflicts of interest" denotes a clash of different interests (justified or not) of various actors on practice level. True conflicts of aims (aka "goal conflicts") are of fundamental and theoretical character. If several aims are pursued at the same time and are mutually exclusive in their fulfilment, they constitute a conflict of aims.

In real-world labs, conflicts of aims arise not only from pursuing different aims of research, transformation, and education/learning, but also from the multidimensionality of sustainable development. Its sub-targets – and their respective realisation – can exclude each other fundamentally. Such conflicts of aims originate already from theory and not only from realisation in practice; therefore, they can hardly be solved (Dusseldorp 2007, Dusseldorp 2017). Hence, in real-world lab research, conflicts of aims will inevitably appear, which calls for considering case-specific and contextualised solution options. Conflicts of aims and conflicts of interests can appear simultaneously. It seems useful to deal with conflicts in an open and transparent way and to seek a dialogue with all actors involved; yet, a complete resolution of conflicts of aims cannot be expected.



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Figure 2: Workshops and talks on a big variety of topics (such as urban mobility, regional food supply, deceleration, community, and eco-villages) correspondingly attract a wide audience among the urban population.

3. Citizen Science, Public Engagement in Science

Based on the perception of general social reservations regarding science and technology ("expertocracy"), a search began for ways to create acceptance for science and technology. Supposing that this lack of acceptance is primarily the result of poor understanding, educational programmes for the "public understanding of science" were (and still are) being initiated, supposedly enabling a vivid, playful and self-active access to scientific topics.

Under the heading "public engagement in science", these activities have been extended and deepened (critically reconstructed in Weingart 2005). This was done by opening research to the public, not presenting final results but rather making the diverse way that leads to them visible and perceptible. Although the term suggests otherwise, "public engagement in science" projects rarely include engaging the public in the selection of the research questions.

The keyword "citizen science" describes numerous activities in which interested citizens collect large quantities of data. This method is predominantly used for questions from natural sciences (e.g., bird watching), but it is gradually also being applied in social sciences. And citizens get included more and more into the data analysis, evaluation and also in the generation of new and interdisciplinary research questions. High hopes are placed in citizen science concerning the reconnection of science into the democratic society (Finke/Laszlo 2014). But citizen science as a programmatic approach also raises serious questions

with regard to the relationship between science (as a profession) and citizenship.

"Citizen science" can prospectively serve real-world labs as a valuable complement of its methodical spectrum to allow higher numbers of citizens to participate and to integrate their problem perceptions and ideas for solutions. In real-world labs, "public engagement in science" is put into practice to a much higher degree than the programmatic approach describes.

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4. Education, Social and Societal Learning

Research in real-world laboratories, like transdisciplinary research in general, is often described as a social learning process (Schneidewind/Singer-Brodowski 2015). This term depicts different aspects: (1) Real-world lab research can be seen as an iterative process that offers participants an opportunity to gain experience, to reflect, and to initiate change. The real-world laboratory can be seen as a supportive infrastructure, as a place of learning. (2) Real-world lab research offers the opportunity of peer learning and mutual learning by social exchange. (3) The learning process also includes social issues and involves different groups of stakeholders (social learning, Reed et al. 2010). (4) Real-world lab research can and should work as an engine for social transformation processes and therefore represents the starting point of societal learning, which can be seen as a learning

process for the society as a whole. (5) As far as the learning processes are changing the participants' worldview and self-image, they can also be considered as processes of education (or "Bildung", Beecroft/Dusseldorp 2009). Although these five aspects refer to each other, it should be noted that a mere description as "social learning processes" would blur the differences between these five levels of meaning.

Even though real-world lab research is often described and partly planned as a "social learning process", there are currently few references to the experiences of didactics within the field of planning learning and educational processes.

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5. Interdisciplinarity, Transdisciplinarity

The terms "interdisciplinarity" and "transdisciplinarity" describe two consecutive research paradigms: Interdisciplinarity refers to the cooperation of researchers from different disciplines with the aim of generating knowledge which would otherwise remain hidden to the single disciplines (Kocka 1987, Frodeman et al 2017). Transdisciplinarity describes an opening of science to: a) real world problems; b) the integration of non-scientific players and; c) addressing the normative dimension of the issues explicitly. In most cases, transdisciplinary research includes interdisciplinarity (Bergmann et al. 2010) and is seen as a sophisticated research process that is created in cooperation with non-scientific actors. This specific situation of transdisciplinary cooperation also changes "the research questions, hypothesis, methods and the language of research" (Eckhardt 2014, own translation).

Both research paradigms stem from the criticism of the limits of disciplinary science (Euler 2005). Today's discourse on interdisciplinarity has largely lost its problem-oriented impetus. In transdisciplinary science, the impetus often takes the shape of a positive and normative orientation based on the concept of sustainable development (Hirsch Hadorn et al. 2008). A second discourse on

Figure 3: "The Karlsruhe Repair Café – a perfect, low-threshold format for learning about (and elegantly teaching) sustainability, sufficiency and resiliency issues.



transdisciplinarity focuses on the connection between science and art (Tröndle/Warmers 2011, Adams et al. 2008). Both interdisciplinarity and transdisciplinarity are central categories of cross-disciplinary teaching. In the field of real-world laboratories, transdisciplinarity is seen as the common research paradigm.

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6. Laboratories, Labs

The term "laboratory" (or "lab") describes a place and an infrastructure constructed for generating knowledge. It allows for creating stable conditions for experimental research and its documentation. Laboratories are closely connected to the development of natural sciences and engineering (Schmidgen 2011).

In order to emphasise the technological, infrastructural or innovative-creative character, a lot of (research) facilities and projects are carrying the term "lab" in their names (SENWTF 2013). Currently, an inflationary use of the label "laboratory" or "lab" can be observed.

The profile of real-world laboratories emphasises transformation research, sustainability and transdisciplinarity. These three characteristics distinguish real-world laboratories considerably from the following "laboratories" whose experimental approach is only partly scientific and whose findings do not necessarily flow back to the scientific discourse:

- Living lab, urban living lab, sustainable living lab: infrastructure for open socio-technical innovation processes, connection to the users' everyday life, with partial inclusion of transdisciplinary elements (von Geibler et al. 2013);
- Transition lab, urban transition lab, ecological design lab, sustainability lab: co-design of and research on transition towards more sustainability (Neuens et al. 2013);



- City lab, urban lab, ecological design lab, resilience lab: urban and regional planning, urban development, e.g., relating to a smart city vision (no systematic overview published yet);
- Fab lab, fabrication laboratory: free access to production technologies, open hardware & maker-movement (Baier et al. 2016).

Furthermore, there are many funding initiatives in Germany for urban and regional planning, like the *Internationale Bauausstellung*³ or *REGIONALE*⁴, which are designed as laboratories but do not carry this term in their names (Hohn et al. 2014).

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▲
Figure 4: The "Future Space" district office and science shop in Karlsruhe – a space for cooperation, consulting, and events; and an information hub and meeting point for non-academic working groups, researchers, and visitors.

3
The *International Building Exhibition* ("IBA") is a sporadic town planning and urban development instrument in Germany which, having a thematic focus, aims at stimulating regional transformation (see Wikipedia.de).

4
The *REGIONALE* is an intermittent strategic means of promoting ground-breaking joint projects of a region financed by the German State of North Rhine-Westphalia (see Wikipedia.de).

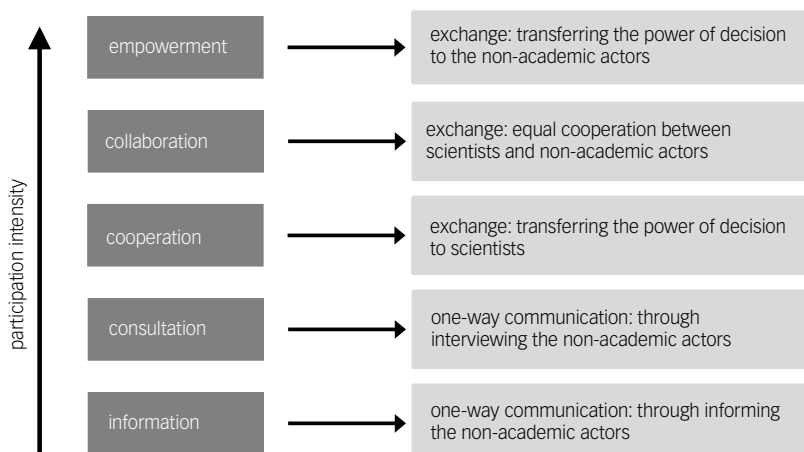
7. Location, Addressability

Real-world labs should, as an infrastructure for transdisciplinary participative working, have their own designated space, which needs to be easily accessible and centrally located in the project area, outside the so-called academic ivory tower. Key requirements for this location are visibility, accessibility, address generation and addressability. Typical characteristics and functions are:

- The location serves as a place where all participating actors can meet and exchange.
- It is accessible for everybody, facilitates interaction and identification with the real-world lab, and supports co-design of projects and the real-world lab itself.
- It enables seriousness and permanence, thereby strengthening the trust relation between academics and practice actors, which is fundamental for a long-term transdisciplinary process.
- It provides a continuous basis for the provision, generation and integration of knowledge, from academic as well as local and life-world perspectives, and it facilitates the discussion of local issues in relation to sustainable development.
- It provides a supportive framework for participatory processes at all levels (see chapter "Participation and Actors") as well as for educational processes and consultation.

The design of the space may differ significantly depending on the thematic focus and local conditions. It can feature characteristics of a neighbourhood office, a science shop (Gnaiger/Martin 2001, Steinhaus 2015), an agenda office (de Haan et al. 2013, Wittmayer et al. 2016), a studio, a community centre, and/or a researcher's office – but it can also be more than any one thing. As a hybrid, it unites various functions to a specific profile. By becoming a permanent part of its surroundings, the real-world lab also develops a (physical) aesthetic face ("addressability") supporting both the identification within the lab and the branding towards outside.

Figure 5: Five-step model of participation, following Brinkmann 2015 and Stauffacher 2008. Source: own representation.



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8. Participation, Actors

Participation – be it involvement in project work, research, or social design processes – plays a driving role in transdisciplinary research. Participation is the basis for co-designs and co-creation in real-world labs. Activating participation enables different actors to engage on eye level, to receive information, to take part in decisions, and to contribute to a design process (co-creation). This is mainly achieved through transparent processes and through raising sensibility for differing views on the subject. This perspective explicitly includes scientists in an active, engaged role rather than as a distant observer.

The intensity of participation is often classified into levels (Arnstein 1969, Selle 2013), for instance from information as a basal level (1), via consultation (2), co-operation (3) and equal collaboration between scientific actors and practice actors (4) through to empowerment (5), which means to enable actors to make decisions and to act in an autonomous and competent way (Brinkmann et al. 2015). Real-world labs can vary in the intensity of participation. To meet the requirements of transdisciplinarity (see section "Interdisciplinarity, Transdisciplinarity"), at least the level of cooperation (level 3) needs to be reached (Meyer-Soylu et al. 2016: 33) (see Figure 5).

Actors – are both individuals and groups, which intervene as natural or legal persons (Gabriel 2004) actively in a societal process. The constellation of actors depends on the topic of the real-world lab. It includes scientific actors and actors who are not focusing on sustainable development, even disagree with it. Actors that are physically present in the "sustainability theatre", i.e. the "sustainability crowd", develop through more intense concrete interaction (*resonance relationships/ "Resonanzbeziehungen"*, Rosa 2017) – parallel to their often lively digital activities – a higher transformative capacity of mobilisation, advertisement, and public awareness than the "sustainability cloud", whose members are mere "digital activists". Actors can also be categorised according to other aspects, for instance the degree of formalisation, relation to the project (area), intensity of activities, funds, level of explicit sustainability orientation, effectiveness, or profit orientation, as well as the degree of freedom according to the development and implementation of ideas.

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9. Planning, Design, Development

"Planning", "design", and "development" are sometimes used synonymously in the real-world lab discourse to describe the (partly) intentional changes in the experimental field. Nevertheless, in theory and practice these three processes have different characteristics.

Planning – is an intentional process that devises the course and timeline from the initial state to the final target state, realising abstract or factual goals (Jessel 1998, Reimer et al. 2014). Certain measures and instruments are used to influence the surrounding and social context in order to reach a desired future goal. "Urban planning" means the methodical development of a city, for which concepts are formulated on the basis of spatial, economic, and ecologic analyses, also taking into account the interests of public and private actors (Streich 2011).

Design – is a purposeful production process, driven by creativity, during which the participating actors produce something new or improve something existing. To enable design in the context of sustainable development, sustainability problems first need to be recognised as such and knowledge about sustainable development has to be specified for them.

Development – is a continuous process and means a – planned, partly planned or even unplanned – unfolding and advancing. In the context of sustainable development, the term "development" refers in a wider sense to the process-character of change, while it addresses in a narrow sense the socioeconomic development of poorer countries.

In real-world labs, all of these terms can play a central role (especially with regard to real-world labs in the urban context). Therefore, the terms need to be distinguished clearly with respect to their different meanings.



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10. Real-world Experiment, Experiment, Transdisciplinary Experiment

In many scientific disciplines, experiments are an important way to attain knowledge and, especially, to validate or refute hypotheses. A scientific experiment has the following characteristics:

1. It is conducted under at least partially controlled conditions.
2. It is embedded in a theoretical framework.
3. Conditions, course, and results are comprehensively documented.
4. Its prime goal and result is the production of new knowledge (even if it fails).

Therefore, experimenting ranks among the inductive approaches which draw general conclusions from single cases. It can be distinguished from participatory observation (without controlled conditions), from trial and error (which is not led by a theory), from "pure" measurements (which does not support the formation of a theory, e. g. quality control), and from demonstration experiments (whose result is known). There are various forms of experimenting that deviate from the classical, natural, scientific experiment, such as the thought experiment, the computer experiment, and the self-experiment; in the last mentioned, those conducting the experiment become themselves part of it (Riehm/Wingert 1996) – with manifold epistemological and ethical implications.

▲
Figure 6: Project flyer in the form of a postcard: "Join in! Shape your, our future".

Experiments that are conducted within a real-world lab could obviously be termed "real-world experiments". But, initially, the term "real-world experiment" (early mention: Krohn/Weyer 1990) referred critically to the uncontrolled and not scientifically monitored character of technical, political, and societal experiments with an uncertain end (1-4 do not apply). The notion remains negatively connoted in the public despite new constructive interpretations (Groß et al. 2005) – and is therefore unsuitable for real-world labs.

The authors suggest to speak, instead, of "transdisciplinary experiments" (or, where appropriate, "sustainability experiments", "transformation experiments"). These are characterised by the fact that the experimental setting itself (i.e., design, implementation, evaluation, assessment, and utilisation) is open for participation. Transdisciplinary experiments can assume, with regard to the complex role of the participants, the role of (group) self-experiments, or show similarities with participating observation with regard to the sometimes hardly controllable boundary conditions. Nevertheless, they are always oriented towards the four characteristics mentioned above.

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11. Real-world Laboratories

For a few years now, the term "real-world lab" has received great attention in the German-speaking discourse

of sustainability research and transformation. But there is still a striving going on to formulate a sound and consistent concept of what a "real-world lab" should be.

The projects currently labelled as "real-world labs" show a broad range of individual activities, goals, theoretical backgrounds, and methodological approaches. In most cases, they revolve around transformation and learning processes, with stronger or weaker reference to science and to the guiding principle of sustainable development. Building upon first definitions, (Schneidewind/Scheck 2013, Schneidewind 2014), the authors propose the following clarification of the term: "Real-world lab" signifies a transdisciplinary research institution, designed to conduct sustainability experiments within a demarcated societal context in order to stipulate transformation processes, and to give continuity to the respective scientific and societal learning processes. The following seven characteristics are constitutive for a real-world lab (Beecroft/Parodi 2016, Parodi et al 2016, Wagner/Grunwald 2015):

- a. *Research orientation*: Real-world labs serve as scientific institutions for sustainability and transformation research.
- b. *Normativity*: Real-world labs are orientated towards the guiding principle of sustainable development and mention explicitly their normative assumptions, basis and goals.
- c. *Transdisciplinarity*: Real-world labs work in a transdisciplinary way. They link science and society (practice actors) in a direct manner and apply forms and methods of transdisciplinary research in the course of their experiments.
- d. *Transformativity*: Real-world labs conduct transformative research. They are hybrid ventures that aim, at the same time, at scientific findings and changes in societal practice. They enable sustainability research and deliver at once experimental contributions to sustainable development.
- e. *Civil-society orientation*: Real-world labs integrate, from the very beginning, citizens and/or civil society actors as strong partners and decision-makers into their work. They conduct multiple levels of participation (from information, consultation, and co-operation up to empowerment) and develop their transdisciplinary experiments in co-design.
- f. *Long-term perspective*: Real-world labs are established as long-term institutions with a time horizon of (several) decades.
- g. *Laboratory character*: Real-world labs are laboratories. They constitute a transdisciplinary infrastructure and aim at providing as good and stable conditions for experimental research as possible in complex real-world contexts. They offer a reliable framework for new insights. They have an adequate staffing and physical facilities for conducting transdisciplinary experiments.

Figure 7: The happening called Freiluftwohnzimmer ("Open-air Living Room") aims at re-populating public space: i.e., reconquering space lost due to car traffic and its side effects.



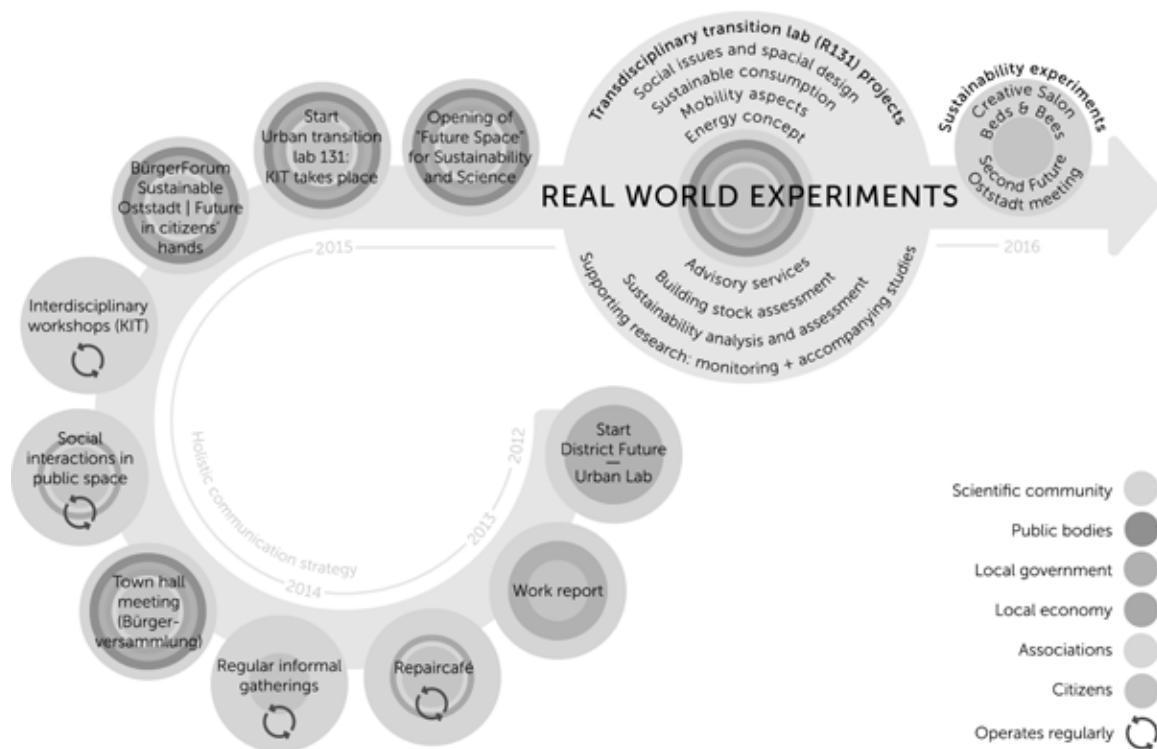


Figure 8: This graphic shows the path of life of the Karlsruhe real-world lab siblings Quartier Zukunft ("District Future") and R131 ("Urban Transition Lab 131"), and explains the types of participatory processes taking place in both.

Real-world labs are especially suitable for producing and exploring a "dense sustainability" that overarches dimensions, disciplines and sectors. Real-world labs are (at least implicitly) educational facilities and stimulating societal learning venues. Often they possess model character and can be designed to enable transferability towards other spatial or societal contexts.

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12. Sustainable Development, Sustainable, Future-oriented

The idea of sustainable development (SD) is a reaction to the insight, that the globally dominant, western, modern economic systems and lifestyle are creating increasingly problematic situations and existential threats (Meadows et al., 1972) that are not viable on a long term.

Different sustainability concepts have been formulated in the interplay between political, scientific and philosophical debates at the end of the 20th century (Grunwald/Kopfmüller 2012). They integrate ecological, social, economic, and sometimes also cultural and institutional perspectives on global development. Some concepts also formulate indicator sets (Kopfmüller et al. 2001, BUND et al. 2008), or specified goals (e.g., the sustainable development goals).

The notion of sustainability as intra- and inter-generational, as described in the so-called *Brundtland Report*: A development is deemed sustainable if "it meets the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations 1987, chap. 3, No. 27). From an ethical perspective, sustainability is a conception of the good and right life, while taking into consideration our fellow mankind, our environment, and our descendants.

Since then, steps have been made on many political levels (e.g., on national level, German Sustainable Development Strategy; on municipality/EU level, Aalborg-Charter), with the United Nations playing a pivotal role as a driver of the implementation of sustainable development. Yet, the discrepancy between far-reaching SD goals and their current state of implementation remains striking.

SD, as a guiding principle both for knowledge production and factual transformation, is a core principle of

Note

Real-world laboratory "District Future"
"District Future – Urban Lab" (in German: Quartier Zukunft) is a research and development project of the Karlsruhe Institute of Technology (KIT) and the Institute for Technology Assessment and Systems Analysis (ITAS). In view of the on-going or foreseeable worldwide demographic and urbanisation explosion, the lab aims at actively promoting urban sustainability by gently changing everyday city life through a strong participatory approach; supporting joint efforts between citizens, science, politics, and the private sector; bringing both pioneering ideas and sustainability pioneers into play; and examining technological and societal innovations. Its conceptual research interests go beyond the actual factual research area in Karlsruhe (Germany), reaching out to other geographic contexts and keeping an eye on global intra- and intergenerational needs. Taking sustainable development seriously the lab strives for a (new) Culture of Sustainability, "sustainability by default", and for standards, and behavioural changes. Contact: <info@quartierzukunft.de>

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real-world lab research, which originates from sustainability research, aims at sustainable transformation, and enables education for sustainable development (ESD). This strong reference to sustainability can also be used to differentiate real-world labs from other lab-like or experimental ventures (see sections "Laboratories and Labs" and "Real-world Labs").

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13. Transformation Research, Transformative Research

The term "transformation" is derived from the Latin word "transformare" ("to transform") and is used diversely in science. For instance, for the political and economic sciences "transformation" denominates the conversion of societal, economic, or political systems. The term is also used in geography, urban research, linguistics, law, and genetics.

Transformation research, in the real-world lab context, is considered to be a form of sustainability research (Schneidewind 2014). It studies societal changes through observation, modelling and analysis, and generates knowledge on transformation processes and necessary conditions for sustainable development (WBGU 2011, p. 66, 68-69). In transformation research, "transition processes are explored in order make statements about factors and causal relations within transformation processes. [...] Transformation research should conclude lessons from the understanding of decisive dynamics of those processes, their conditions and interdependencies" (WBGU 2011, p. 23).

Transformative research differs from the rather distant and analytic transformation research through its activating approach. It initiates, accompanies, and supports transformation processes by means of socio-technical innovations (WBGU 2011, p. 23, Schneidewind 2014). Real-world labs usually cultivate a style of transformative research as "researchers conduct interventions in terms of 'real-world experiments' in order to learn about social dynamics and processes" (Schneidewind 2014 p. 3, own translation). Transformation and transformative research form a continuous spectrum of research strategies.

The term "transition", alongside "transition management" and "transition research", is also used to describe societal changes, though applying a socio-economic perspective rather than a socio-technical one (Brinkmann et al. 2015, chap. 4.5). Apart from this, various other concepts relating to transition aim at describing or addressing societal transitions (e.g., the Transition Town Movement). In transition research, it is not unusual to exert an influence on the direction of transition processes, especially if guided by the notion of sustainable development. Real-world labs can be considered to be part of this broad field of research. The relation between "transition" and "transformation" still requires an in-depth theoretical definition.

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Architektur



Lore Mühlbauer, Yasser Shretah (Hg.): Handbuch und Planungshilfe Flüchtlingsbauten. Architektur der Zuflucht: Von der Notunterkunft zum kostengünstigen Wohnungsbau. DOM Publishers, Berlin 2017, ISBN 978-3-86922-532-6, 304 Seiten.

Das Handbuch zur Flüchtlingshilfe beschäftigt sich mit der Unterbringung und Integration von Flüchtlingen auf der baulichen Ebene. In fünf Abschnitten werden von verschiedenen Autoren die Themen der Geschichte des Wohnens in Syrien und Deutschland, Konstruktionsprinzipien und Typologien von Flüchtlingsbauten behandelt, sowie Visionen zur gelungenen Integration von Flüchtlingen in Deutschland vorgestellt. Im letzten Kapitel werden Beispiele von kurzfristigen und dauerhaften Wohnformen vorgestellt.

Zu Beginn wird die Geschichte des Wohnens im Orient behandelt, da in diesem Buch vor allem der Flüchtlingsstrom aus Syrien beschrieben wird. Wichtige Typologien im syrischen ländlichen Raum sind Schwarzzelte, Kuppelhäuser und Hofhäuser. In Städten wie Damaskus, Homs, Hama oder Aleppo war der wichtigste Bautyp das Hofhaus, wurde aber im Zuge von Verdichtungen durch Haustypen westlichen Zuschnitts ersetzt. Flüchtlinge kommen mit neuen Wohnformen in Kontakt, die von internationalen Hilfsorganisationen zur Verfügung gestellt werden. Dabei wird oft nicht beachtet, dass Flucht vor allem Warten bedeutet und meistens viel länger andauert, als Hilfsorganisationen bei der Camp-Planung kalkulieren. Somit wurden die Camps, die temporär gedacht waren und sich entlang der syrischen Grenzen oft spontan entwickelten, zu dauerhaften Einrichtungen, denen die nötige Infrastruktur fehlt. Einmal in Deutschland angekommen, stehen wieder andere Bauformen zur Verfügung, die nur bedingt auf Flüchtlinge zugeschnitten sind. Doch Bauen für Vertriebene ist kein neues Phänomen in Deutschland. Für die Aufnahme der

Kriegsflüchtlinge zu Beginn des 20. Jahrhunderts wurden Massenwohnungsbauten und Lager errichtet, bei denen man sich vor allem eines Baukastenprinzips bediente, wo Holzteile, Elemente für die Stromversorgung und Installationen sowie die Möbel genormt waren. Nach dem Ende des 2. Weltkriegs kam es wieder zu einer Welle von Flüchtlingen, diesmal von ca. 12 bis 14 Millionen Menschen. Um rasch Wohnraum zur Verfügung stellen zu können, wurden Fertighäuser mit Betonfundament und einem Stahlgerippe errichtet, die ca. 40 000 bis 60 000 Menschen Unterkunft boten. Diese Gebäude sind heute verschwunden. Im zweiten Teil des Buches geht es um neue Typologien und Strategien für Flüchtlingsunterkünfte. Durch Aufstockungen, Schließen von Lücken, Überbauungen und Ergänzungen, Umnutzungen und dergleichen kann ein Anstoß für neue Ideen gegeben werden. In Bayern wurden beispielsweise neue Umbau-Strategien entwickelt, die zu kostengünstigen Wohnlösungen geführt haben. Diese Projekte sind insofern zukunftsweisend, als Integration nur gelingt, wenn Flüchtlinge ein permanentes Zuhause haben. Geschickte städtebauliche Lösungen können zur Integration der Ankommenden beitragen, indem sie an Kultur und Alltag in Deutschland herangeführt werden. Auch konstruktiv sollte man innovative Ansätze zulassen und dabei nicht nur an Neubau denken, sondern auch Objekte heranziehen, die eine flexible Nutzung zulassen. Bei solchen Projekten ist es notwendig, dass Immobilienwirtschaft und öffentliche Hand eng zusammenarbeiten, was bereits vielerorts geschieht. Ziel muss immer sein, Wohnraum für alle zu schaffen, die obdachlos sind. Dazu gibt es bereits Erfahrungen, z. B. mit der Unterbringung von Obdachlosen. Neben den Gebäuden ist auch eine sinnvolle Gestaltung des Außenraums für das Miteinander von Flüchtlingen und Anwohnern wichtig. In einem Planungshandbuch darf ein Leitfaden für das gute Gelingen von Architektur der Zuflucht nicht fehlen. Daher sind im Abschnitt "Visionen" sieben Punkte zusammengestellt, die der Autorin wichtig erscheinen: Neben Größe geht es dabei um die Faktoren Lage und Umfeld, kostengünstige Konstruktionen, kurze Bauzeiten, flexible Grundrisslösungen, geringe Kosten der Planung und eine hohe Qualität der architektonischen Gestaltung. Auch Container können diese Voraussetzungen erfüllen, wenn sie raumbildend angeordnet werden und so eine hohe Qualität des Außenraums entsteht. Wichtig ist eine faire, kleinteilige aber lokale Architektur, denn einmal Gebautes ist nur schwer zu beseitigen oder sinnvoll weiterzuentwickeln. Neben diesen konstruktiven Aspekten ist auch auf die frühzeitige Beteiligung der Flüchtlinge notwendig, will man innovative und nachhaltige Stadt- und Wohnbauentwicklung erreichen. In München beispielsweise leben in einem innovativen und integrativen Projekt 2800 Menschen aus 70 Nationen zusammen. Aufgrund der steigenden

Nachfrage sind schnelle Lösungen gefragt. Auch Experimentalbauten können zur Lösung beitragen, oder aber die Vermietung oder Verpachtung der ca. 1,7 Millionen Wohnungen, die in Deutschland derzeit leer stehen. Dazu enthält das Handbuch Überlegungen zu einer neuen städtischen Dichte, zur Mobilisierung des ländlichen Raums sowie zur Einführung von mobilen Bauweisen. Diesem theoretischen Teil steht der praktische Teil des Buches gegenüber. Hier werden kurzfristige Lösungen in Hallen- und Modulbauweise aus Groningen, Berlin, München, Hannover, Bremen, Frankfurt/Main und Bonn vorgestellt. Im zweiten Teil des Abschnittes werden dauerhafte Lösungen beschrieben, also Beispiele vom Wohnen im Bestand aus Berlin, Stuttgart, Salzburg, München oder Wien. Das Buch ist sehr umfangreich konzipiert und versucht alle Aspekte rund um das Wohnen für Flüchtlinge zu betrachten, die gerade in Deutschland diskutiert werden, ohne dabei aber wirklich Neues zu bringen. Schade ist, dass das zu Beginn des Buches vorgestellte traditionelle Wohnen in Syrien später gar nicht mehr aufgegriffen wird, denn man hätte gerne mehr über die Möglichkeiten, Chancen und Grenzen der Integration traditioneller syrischer Wohnungstypen in deutschen Städten erfahren.

Renate Bornberg

Immobilienrecht

Lehavi, Amnon: The Construction of Property. Norms, Institutions, Challenges. Cambridge University Press 2013, ISBN 978-1-107-03538-6, 352 pages.

The author of the "Construction of Property", Amnon Lehavi, is the Atara Kaufman Professor of Real Estate at the Radzyner School of Law and Academic Director at the Interdisciplinary Center (IDC) in Herzliya, Israel. When attending a conference on "100 years of Zoning" at the IDC in June 2016, it was obvious to me that multi-disciplinarity was truly "lived" at the campus in Herzliya. Currently, Lehavi serves as the editor of the 2015 IDC conference compilation. The compendium titled "Private Communities and Urban Governance" has been published by Springer International in 2016 and offers an interdisciplinary and comparative study of the complex interplay between private versus public forms of organization and governance in urban residential developments. It challenges much of the conventional wisdom about the division of labour between market-driven private action and public policy in regulating residential developments and the urban space, and offers a new research agenda for dealing with the future of cities in the twenty-first century. Similar to this monograph on Private Communities, "The Construction of Property" also identifies the current trends in constructing the physical, economic, and social infrastructure of the built environment, ranging from legal realism and history, critical legal studies via the economic analysis of law towards new institutional economics, experimental psychology, and contemporary

moral theories. The interest towards property (rights) amongst planners and architects has risen significantly in the recent years. The monograph is a – extensively rewritten and restructured – compendium of papers that have been published in prominent journals such as Columbia Law Review, University of Colorado of Law Review and Yale Law Journal. For Lehavi, theorizing real-life phenomena of property forms and trying to bring them together, to unravel the richness of the evasive concept of property is not only an "incredible field of law" (p. vi), but also a never-ending field of research and academic challenge. Hence, Lehavi starts to describe property as a legal construct, continuous with rules and standards, examines the private-common-public relations of property in view of their consequences for planning and real-estate development. Chapter 1 focuses on the three structural traits of property: the (complicated) in rem nature of property's legal interests, and the inherent complex of public/private interplay of property. Chapter 2 describes the unique institutional features in which property is embedded. Clearly, the author was inspired by Robert C. Ellickson's paper on "Property in Land", published in Yale Law Journal in 1993. The "spectrum of property regimes" (Part II, chapters 3-8) leads the reader into the tension between rigidity and dynamism in property, thus moves beyond the paradigms that have led much of the analysis in current theory, "typically that of an asset such as land that is privately owned by a single proprietor and governed exclusively by the laws of a national system" (p. 3). Part III highlights the protagonists of property beyond the individual and the State, while Part IV addresses – in the words of Lehavi – "property's greatest challenge": moving into the one that accommodates the increasing social and economic forces of globalization. "Can land law go global?" asks the author (pp. 243-273); doubtlessly, the answer is yes, in view of Bilateral Investment Treaties (BITs), trade and investment protection agreements such as NAFTA or CETA, maybe based on the level of heterogeneity and homogeneity in the diverse attributes of property, supranational property governance, and the growing effects of extra-national systems (pp. 252-265; p. 311). Since Lehavi – convincingly to me – sees property rights different (p. 272), i.e., as a socio-political institution, property as the result of the coercive power of society that directly implicates all members of society in their individual capacity and their collective one, the book is of high value for planners (as the landowners' best friends), developers and community organizers. The sub-chapters and comments on the principle of eminent domain (including the legendary Suse Kelo saga), and community land trusts (CLT) as tri-layered property regimes (pp. 140-145) are well-written and show the commitment and enthusiasm of Lehavi towards collective and shared equity homeownership as instruments that could implement affordable housing schemes.

Fabian Thiel

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