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ECOLOGICAL PERSPECTIVES FOR SCIENCE AND SOCIETY
ÖKOLOGISCHE PERSPEKTIVEN FÜR WISSENSCHAFT UND GESELLSCHAFT

CALL FOR PAPERS: *GAIA* OPEN ACCESS SPECIAL ISSUE

# Real-world Laboratories and Transformative Research

Deadline for abstract submission: April 11, 2017

## *GAIA* – ECOLOGICAL PERSPECTIVES FOR SCIENCE AND SOCIETY

*GAIA* is an inter- and transdisciplinary journal for scientists and other interested parties concerned with the causes and analyses of environmental and sustainability problems and their solutions.

## REAL-WORLD LABORATORIES

Real-world laboratories (RwL) have gained increasing popularity. They create spaces for transdisciplinary research, developing and experimenting with potential solutions to sustainability challenges. In so doing, they promise contributions to both the understanding and the enabling of societal transformation towards sustainability. As such, RwL constitute an auspicious approach to transformative sustainability research (Schneidewind et al. 2016).

RwL belong to a dynamic family of research settings, which includes living laboratories (Voytenko et al. 2016, Liedtke et al. 2015), urban (sustainability) transition labs (Nevens et al. 2013, Forrest and Wiek 2015) as well as social innovation labs (Westley et al. 2014, Seyfang and Longhurst 2013). These approaches share a focus on using experiments in real-world settings to understand and shape societal transformation to contribute to solving sustainability challenges. They also build on the tradition of action research in the social sciences. While there are similarities, the settings hold differences in "normative orientations, theoretical foundations, analytical emphasis and corresponding actor coalitions" (Sengers et al. 2016, p. 10). Recent reviews of experimental approaches in transformative research point toward the dynamic development of the field and the need for a shared research agenda (Sengers et al. 2016, Voytenko et al. 2016, Luederitz et al. 2016).

This special issue (SI) aims to embed RwL into the field of experimental research relating to sustainability transformation. It will focus on RwL as an example of an experimental turn in social and sustainability science (Schneidewind 2014). A growing interest in RwL is reflected in the growing number of publications on the topic (e.g., special issue of *Technikfolgenabschätzung – Theorie und Praxis,* see Beecroft and Parodi 2016, WBGU 2016, Bernert et al. 2016, Jahn and Keil 2016), and the increase in funding agencies supporting RwL research (e.g., German Federal Ministry of Education and Research with its research agenda *Zukunftsstadt*). The Federal State of Baden-Württemberg is currently funding 14 RwL (called *BaWü-labs*) and accompanying research, thus playing a pioneering role. RwL are subject to critical reflection (Wagner and Grunwald 2015, Strohschneider 2014, Schneidewind 2015). Recent publications have focused on individual cases in empirical and conceptual work, providing insights into transdisciplinary collaboration, experimentation and learning in RwL (e.g., Rhodius et al. 2016, Marquardt and West 2016, Albiez et al. 2016, Botero et al. 2017). Conceptual works have drawn out overarching characteristics of RwL (Parodi et al. 2016, Schäpke et al. 2016).

## *GAIA* SPECIAL ISSUE: AIMS AND SCOPE

This SI aims to document the current state of RwL research as an approach to transformative science. It will build upon both the experiences of the *BaWü-labs* and a related conference and workshop series held with international scholars (Wagner et al. 2016). This SI will systematically bring together empirical evidence from a broad selection of cases with an emphasis on comparative analysis and cutting edge conceptual work. It should report the experiences, highlight the potential, but also discuss the problems and shortcomings of this approach to research and identify best practices. Furthermore, it strives to provide insights into the specific added value of RwL in comparison to other transdisciplinary and transformative research approaches.

The SI will include a set of papers on the *BaWü-labs*. It welcomes additional contributions on the following themes:

RWL AND REAL-WORLD EXPERIMENTS: Experimentation appears to be constitutive for research in RwL, although the relation between RwL and experiments is underdeveloped. ▶

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Some scholars conceptualize RwL as places for (real-world) experimentation (e.g. Schäpke et al. 2015); while others portrait RwL as experiments themselves or consider RwL and real-world experiments separate approaches (Krohn and Weyer 1989, Groß et al. 2005).
Contributions may address:
- the general relation of RwL and experiments,
- possibilities for combining and selecting experiments to realize RwL aims,
- different forms of experimentation. (Caniglia et al. Forthcoming).

EPISTEMOLOGY: RwL aim for shaping as well as understanding transformation. They provide contextualized settings to address societal challenges via experiments, primarily on smaller scales. Nevertheless, transferability and scalability, as well as the long-term impact of RwL research and results, are requested as well.
Contributions may address:
- trade-offs in pursuing differing aims, based on differing epistemological implications,
- criteria to measure quality of research in RwL,
- roles of researchers and practitioners.

ETHICAL DIMENSION OF TRANSFORMATIVE SCIENCE: RwL and related experiments involve societal actors and aim for societal change. They potentially blur the demarcation between science and society, between research and politics. Scientific experimentation implies open-endedness and knowledge generation from experiments and may substantially benefit from failure. In contrast, societal expectations emphasize successfully solving sustainability challenges.
Contributions may address:
- legitimacy of the societal impact of RwL,
- transparency, ownership and codes of conduct to resolve ethical issues,
- function of conflicts and possibilities for their mediation in RwL.

RELATED APPROACHES: RwL belong to a family of transformational research approaches building on transdisciplinary experimentation. We invite papers to elaborate on the similarities, differences and complementarities of these approaches. Contributions may provide a conceptual overview, comparative analysis and develop good practices, e.g., regarding the following aspects:
- analyzing and solving different types of sustainability challenges,
- realization of transdisciplinary collaborations,
- real world experiments and transfer of results.

THEORIES OF CHANGE: A number of lab approaches, such as urban transition labs, do build on particular theories of change, e.g., broader ideas on governing transitions. RwL approaches usually are neither based on a shared theory of change nor are particular assumptions on change always made explicit for the individual labs.
Contributions may address:
- governance strategies pursued to establish labs and transfer developed solutions,
- RwL and their (potential) contribution to a sustainability transformation,
- the role of knowledge production for change.

OVERARCHING CONCEPTUALIZATIONS: RwL can be understood as a combination of core characteristics (Schäpke et al. 2017). These include transformation, experimentation, transdisciplinary collaboration, long-term orientation and transferability, as well as learning and reflexivity. In individual labs, these characteristics can be shaped in various ways. Characteristics are interdependent (e.g., certain forms of transdisciplinary collaborations may be particularly suitable for certain forms of experiments).
Contributions may address:
- promising combinations for shaping different characteristics,
- RwL as an overarching category for various lab approaches.

LEARNING: RwL are spaces of reflection and learning (Schneidewind and Singer-Brodowski 2015). They contribute to capacity development, new scientific insights and societal learning. Integrating knowledge is a core practice in RwL.
Contributions may address:
- labs as educational settings, allowing experiential and transformative learning,
- tools and processes for knowledge integration,
- transferring lab processes and results as contributions to societal learning.

TRANSDISCIPLINARITY: RwL build on transdisciplinarity as a core mode of research. Transdisciplinary sustainability research itself is a long-standing field of research with established methods, conceptual underpinnings and quality criteria ▶

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(Bergmann et al. 2010, Defila et al. 2008, Lang et al. 2012). The novelty of RwL in contrast to established transdisciplinary research has been questioned (e.g. Jahn and Keil 2016). Contributions may address:

- add-on value of RwL in contrast to established forms of transdisciplinarity,
- challenges and potential solutions of transdisciplinary collaborations in RwL,
- process phases and varying intensities of transdisciplinary collaboration. (e.g. Stauffacher et al. 2008)

GEOGRAPHY: RwL are applied to different geographical contexts, such as cities and rural areas. They are applied at different scales, too, e.g., from the household to the neighborhood to the city level. Contexts and scales have effects on the RwL design (Coenen et al. 2012). Setting the boundaries for RwL is a crucial yet non-trivial step in the research process. The situatedness of the individual labs may pose challenges in gaining generic insights. On the contrary, deliberately setting up experiments at different scales may also improve the scalability of results (Sengers et al. 2016).
Contributions may address:

- connecting labs and experiments across different scales,
- labs as boundary objects,
- comparison and typology of labs in different contexts.

This SI is not limited to the presentation and analysis of RwL, but encourages their contextualization in the international debate, critical and epistemological reflections, and the drawing of research policy recommendations. Practitioners' perspectives are welcome. In addition, we encourage cross case comparisons of different lab approaches regarding their aims, methods, contexts and results. Presentations for research designs of particularly interesting projects, as well as literature reviews, may also be accepted.

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## DEADLINES, SUBMISSION AND REVIEW PROCESS

Authors are encouraged to submit extended abstracts to the SI guest editors. Upon acceptance, authors will be invited to submit full manuscripts. Papers will be peer reviewed. Upon acceptance, they will be published Open Access. No author fees will be raised. Papers must be written in good English. In exceptional cases, papers in German may be accepted as well. Please submit abstracts via *E-Mail: schaepke@leuphana.de*

## IMPORTANT DATES

April 11, 2017 or earlier: submission of extended abstracts (500 to 1000 words).
April 24, 2017 or earlier: invitation for full papers.
July 1, 2017 or earlier: submission of full papers.
Mid-September, 2017: communication of decisions by co-editor on acceptance, rejection or recommended revisions to authors.
Fall 2017: revisions, rebuttals, potential 2nd round of reviews.
Winter 2017: final decision on manuscripts.
Early spring 2018: publication of special issue.

## THE CO-EDITOR, GUEST EDITORS AND GUEST EDITOR ADVISORS

Ortwin Renn, IASS Potsdam, is the responsible GAIA co-editor of the special issue. The guest editor team includes Niko Schäpke and Daniel J. Lang, Leuphana University of Lüneburg, Franziska Stelzer, Wuppertal Institute, and Matthias Bergmann, ISOE – Institute for Social-Ecological Research. Felix Wagner and Eric Miller (MWK), responsible for the BaWü-lab funding lines, will advise the Co- and Guest Editors in designing the topical focus of the special issue.

## GAIA JOURNAL METRICS

- JOURNAL IMPACT FACTOR: 1,397 (2015)
- H INDEX: 17 (2015)

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