

## 86. Debating transformation in multiple crises<sup>1</sup>

by

Ulrich Brand, Achim Brunnengräber (lead authors), Steinar Andresen, Peter Driessen,  
Helmut Haberl, Daniel Hausknost, Sebastian Helgenberger, Kirsten Hollaender,  
Jeppe Læssøe, Sebastian Oberthür, Ines Omann  
and Uwe Schneidewind

*Robust political and social action is required for humanity to stay within planetary boundaries and ensure socially just and sustainable development. The challenges that this involves are increasingly discussed in terms of socio-ecological and sustainable transformation. The term “transformation” is an appropriate one because it points to the complex financial, economic, social, political, resource and climate dimensions of the crisis.*

The social sciences are active in developing the novel approaches to social innovation which are needed to address today's great challenges. This priority is also a central pillar in the European Commission's strategy for Horizon 2020, the EU programme for research and innovation for 2014-20. In its Strategic Research Agenda, the European Joint Programming Initiative, JPI Climate, describes its aim as “[s]ynthesizing knowledge for a climate-friendly and climate-proof Europe”. Europe needs integrated scientific support for policy development and decision-making informed by knowledge.<sup>2</sup>

The transformative contribution of the social sciences in this field results from their role in reflecting on the processes leading to global environmental problems, their driving forces, and attempts to deal with them. They have a role in examining differing interpretations of crises, institutional innovations, successful experiments, and change that pioneers induce in specific areas. Different forms of knowledge as well as their interdisciplinary and transdisciplinary co-production also need to be considered (O'Brien, 2010). Moreover, social sciences contribute by exploring visions of the socio-ecological or socio-technical system. These visions have the potential to shape existing markets and institutional structures, attitudes, and everyday practices. In this way, social sciences can contribute to improved societal and political reflexivity, and have a high value for decision-making processes.

### Different meanings of transformation

The concept of transformation has different meanings. The term is often used in a normative-strategic sense (e.g. WBCSD, 2010; NEF, 2010; WBGU, 2011) but it is also applied

in an analytical-descriptive sense (Haberl et al., 2009; UNEP, 2011; World Bank, 2011). The normative usages identify problems and show effective and socially desired ways of dealing with them (e.g. [www.gtinitiative.org](http://www.gtinitiative.org)). This is especially true of discourses on a new type of economy (such as a green economy) but also relates to different understandings of prosperity (such as de-growth), a greater and progressive role for the state, and the expansion of local production and consumption patterns.

The analytical usage, by contrast, tries to analyse past and present changes to assess and explain them.

A detailed review of the literature about transformation can help identify both shared aspects and differing ones, whether transformation is a concept or a paradigm, and whether and how it forms a part of scenarios and visions. A review can help us understand increasingly complex social science perspectives on global environmental change in times of a multiple crisis, which are usually based on the natural sciences and the humanities.

There is no one best way to realise a climate-friendly, sustainable and just society (Hulme, 2009). Policymakers might be able to formulate better aims and strategies if they had better knowledge of the explicit and implicit ontological assumptions about problems, of the drivers of non-sustainable change, of visions and pathways, of progress and barriers, and of actors and practices. In this sense, policymakers' levels of insight into current contexts and processes empower them to try to realise a better society.

## Common ground

What can be identified as common ground so far? First, it is obvious that the literature on socio-ecological transformation – and the related one on transition and transition management – differs from scientific diagnoses of the state of natural, socio-economic and cultural environments and their interaction. The need to generate profound changes to production and consumption patterns is broadly acknowledged (Kates, Travis and Wilbanks, 2012).

Transformation research goes beyond incremental change and towards particular policy fields such as climate change or biodiversity policies. This is important given the multiple character of the current crisis. So it is acknowledged, secondly, that transformation involves non-linear processes because it deals with dynamic, multidimensional and complex systems as well as potential tipping points. Third, it is acknowledged that technical innovation is important but not enough; social innovations are central to socio-ecological transformation. A fourth common consideration is that analyses of unsustainable developments and necessary changes take place unevenly over time. Both of these elements relate to multiple spatial scales and system levels, including for example the international level, which overlies the national, regional and local levels, and functional levels such as markets, states and civil society. The literature does not favour any scale or level.

## Open questions

What issues can a review and careful interpretation of the literature clarify? First, the social sciences can conceptualise the subjects of environmental transformation – that is, the state and the intergovernmental system in conjunction with private and civil

society actors (e.g. Fischer-Kowalski and Rotmans, 2009; Geels, 2010, in his outstanding contribution) – via a range of different approaches:

- What are the constituents of the state and governance structures?
- What is their range of action? Which interests, rationalities and kinds of knowledge are the most important?
- What is the role of values, meanings, beliefs and belief systems?
- What roles are played by the pioneers of change, social experiments, innovation and best practices?
- In what way do networks contrast with or complement states, governance, markets and civil society?
- Does transformation indicate more power-driven processes or is it a result of deliberation? What is the logic according to which these governance processes are organised?
- And what is their relation to normative aims of transformation? How is change constructed, managed or even blocked between state, corporate and civil society actors?

The same questions apply to the object of transformation, in other words society and its relation with natural systems. How should we conceptualise and investigate societal relations to global environmental changes, multidimensional problems, and unsustainable social and natural subsystems? What are the megatrends and drivers of change?

Some approaches consider long timescales to analyse the transformations of socio-metabolic systems, while approaches like transition management (Fischer-Kowalski and Rotmans, 2009) or the multi-level perspective (Geels, 2010) need shorter timescales. In other approaches, implicit assumptions should be made more explicit in order to sharpen the evolving social scientific discourse on transformation. By bringing the subject and object dimensions of transformation together, insights and possible policies will be fostered, irrespective of how manageable, if at all, particular aspects of transformation turn out to be.

One strength of the social sciences is that they encompass different worldviews, each with its own specific characteristics. For example, they reflect on the insight that climate change is not a discrete problem that can be solved, but instead rather forms a condition that requires humanity to make choices (Hulme, 2009). Feminist or postcolonial approaches to existing and desired transformation emphasise other aspects than institutionalist or rational choice viewpoints.

Despite recognition of the current multiple crisis, the danger remains of unintended effects, in Robert K. Merton's sense of the "unanticipated consequences of purposive social action" (1936), and of shifts in crisis strategies. For instance, the production of agrofuels might promote the use of renewable energy and capital market investments in the real economy (here, a new strand of literature on the "financialization of nature" emerges). At the same time, competition between different land-use strategies and the disempowerment of local people might be a consequence of other approaches, perhaps framed as "food versus fuel", or through counter-effects caused when European policy supports the automobile sector mainly to retain employment.

Furthermore, we know that there is no energy supply system without side effects – whether this is centralised, based on large-scale nuclear power and fossil sources, or whether it relies on more decentralised systems. Examples of such side effects include the

environmental pollution generated by the fabrication of solar panels in China, which are used as an energy source in Europe.

Social science can make a crucial contribution to our understanding of the multiple crisis and of socio-ecological transformations, for example through scientific descriptions and analyses of the ongoing crisis strategies, different normative perceptions and societal changes, on a local to a global scale. This helps us to understand and enhance the possibilities of making a normatively desired and strategic transformation towards low-carbon, sustainable and just societies.

## Notes

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2. [www.jpi-climate.eu/\\_img/article/JPI-CLIMATE\\_Strategic\\_Research\\_Agenda-adopted\\_111109.pdf](http://www.jpi-climate.eu/_img/article/JPI-CLIMATE_Strategic_Research_Agenda-adopted_111109.pdf).

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**Ulrich Brand** is chair of international politics at the University of Vienna and was member of the Expert Commission on "Growth, Well-Being and Quality of Life" of the German parliament.

**Achim Brunnengräber** is associate professor at the Department of Political and Social Sciences, Free University of Berlin.

**Steinar Andresen** is research professor at the Fridtjof Nansen Institute in Norway.

**Peter Driessen** is professor of environmental studies at Utrecht University, the Netherlands, and chair of the research group Environmental Governance.

**Helmut Haberl** is director of the Institute of Social Ecology, Alpen-Adria Universität Klagenfurt, Vienna.

**Daniel Hausknost** is senior researcher at the Institute of Social Ecology, Alpen Adria Universität Klagenfurt, Vienna.

**Sebastian Helgenberger** is scientific research coordinator at the Climate Change Centre Austria (CCCA) at BOKU University, Vienna, and chairs the Joint Programming Initiative (JPI Climate) "Societal Transformation" Working Group.

**Kirsten Hollaender** is senior scientific officer at the Project Management Agency, part of the German Aerospace Centre.

**Jeppe Læssøe** is professor at the Department of Education, Aarhus University, Copenhagen, Denmark.

**Sebastian Oberthür** is academic director of the Institute for European Studies at the Vrije Universiteit, Brussels.

**Ines Omann** is senior researcher at the Sustainable Europe Research Institute in Vienna.

**Uwe Schneidewind** is president and chief research executive of the Wuppertal Institute for Climate, Environment and Energy, and professor of sustainable transition management at the University of Wuppertal.