



Lost in Translation

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Lost in Translation? Introducing Planetary Boundaries into Social Systems.

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Identifying and quantifying planetary boundaries by interdisciplinary science efforts is a challenging task—and a risky one, as the 1972 Limits to Growth publication has shown. Even if we may be assured that scientific understanding of underlying processes of the Earth system has significantly improved since then, the challenge of translating these findings into the social systems of the planet remains crucial for any kind of action, and in many respects far more challenging.

We would like to conceptualize what could also be termed a problem of coupling social and natural systems as a nested set of social translation processes, well aware of the limited applicability of the language-related translation metaphor. Societies must, first, perceive these boundaries, and they have to understand their relevance. This includes, among many other things, the organization of transdisciplinary scientific cooperation. They will then have to translate this understood perception into possible actions, i.e. strategies for different local bodies, actors, and institutional settings. This implies a lot of 'internal' translation processes, e.g. from the scientific subsystem to the mass media, the political and the economic subsystem. And it implies to develop subsystem-specific schemes of evaluation for these alternatives, e.g. convincing narratives, cost-benefit analyses, or ethical legitimacy considerations. And, finally, societies do have to translate chosen action alternatives into monitoring and evaluation schemes, e.g. for agricultural production or renewable energies. This process includes the continuation of observing and re-analyzing the planetary boundary concept itself, as a re-adjustment of these boundaries in the light of new scientific insights cannot be excluded.

Taken all together, societies may well get lost in translation here—and we have not yet mentioned the societal management of other problems, such as wars and civil wars, or 'taming' the global financial markets. After having sketched this conceptual outline in some detail, we would like to focus on three planetary boundaries for illustrative purposes: GHG emissions, nitrogen fertilization, and biodiversity loss, and highlight some similarities as well as dissimilarities in the social translation processes involved. We would limit the range of examples to the EU, USA, and India. In a last step, we would like to illustrate a promising way of translating one specific planetary boundary—anthropogenic climate change—by a case study on how it is translated into urban energy and climate policies with the example of climate neutral Berlin 2050.