



# Dresdner Planerforum

## How can System Dynamics contribute to transformation in social-ecological systems?

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System Dynamics is a computer-based approach for policy analysis and design in complex dynamic systems. It has a long tradition of facilitating learning about complex systems through the use of system diagrams and computer simulation models. System Dynamics utilizes those tools, often in participatory settings, to develop an understanding of the interdependent structures of dynamic systems, that is, the ability to: discover and represent feedback processes (both reinforcing and balancing) hypothesized to underlie observed patterns of system behavior; identify stock and flow relationships; recognize delays and understand their impact; identify nonlinearities; and design policies that avoid, as much as possible, the occurrence of rebound effects and other unanticipated consequences.

In this talk, I will present two case studies that use participatory system dynamics to facilitate transformation in social-ecological systems: the first case study is about the construction and building sector in a developed country while the second case study looks at the resilience of food systems in a developing country context. Based on these two case studies, I will reflect on some of the key insights that a system dynamics approach allows and how these can be brought about.

**Birgit Kopainsky** is professor in System Dynamics at the University of Bergen, Norway. She holds a PhD in agricultural economics from ETH Zurich and a master's degree in Geography and Environmental Studies from the University of Zurich, Switzerland. She teaches at ETH Zurich in Switzerland as well as at the University of Bergen. Her research explores the role that system dynamics can play in facilitating transformation processes in social-ecological systems such as the transformation towards sustainable and resilient agri-food systems. She conducts and supervises research both in Europe and in developing countries. Birgit is currently involved in two Horizon2020 projects and has received funding from a broad range of funding sources such as the International Livestock Research Institute, the Research Council of Norway, ETH Zurich World Food System Center, the Swiss National Science Foundation, the Peder Sather Center for Advanced Studies at UC Berkeley, and the University of Zurich. Birgit is a very active member of the System Dynamics Society. At the beginning of her academic career, she was the president of the student chapter and the founding president of the Swiss chapter. In the meantime, she has become the first ever female president of the System Dynamics Society.

Quelle Foto: privat, Birgit Kopainsky

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