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Mapping governance of adaptation to climate change in Switzerland

Dominik Braunschweiger ^a, Marco Pütz ^a, Frank Heidmann^b and Mark-Jan Bludau^b

ABSTRACT

Climate change severely affects Alpine regions. Adaptation to climate change is needed in order to deal with these impacts, but the implementation of national adaptation strategies is inhibited by multiple obstacles. Regional strategic frameworks are just emerging, adaptation is of little priority to local agendas and policy mainstreaming is limited on all administrative levels. This paper provides a better understanding of the governance of adaptation to climate change in Switzerland, an example of a federal system with a strong focus on subnational levels and multilevel governance. We conceptualize governance as a network of policies, measures, actors and knowledge, and visualize their interactions using D3.js, a data-driven JavaScript library. The findings illustrate the typical division of labour in federal multilevel governance systems. The national level provides a strategic framework and funding and conducts coordinating measures at subnational levels, especially the local-level implementation of concrete measures. Conducting comparable mappings for other countries would allow interesting comparisons and insights into common barriers and opportunities to adaptation to climate change.

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JEL CLASSIFICATIONS

Q54; Q58

Alpine regions are severely affected by climate change. Adaptation to climatic change is needed to deal with climate-related risks and manage climate change impacts. Adaptation to climate change is not just a matter of technological solutions but also of governance which plays a key role in the transition from adaptation strategies to implementation in practice. The implementation of national adaptation strategies is inhibited by multiple obstacles: regional adaptation strategies and action plans are just emerging, adaptation has hardly entered local agendas, and policy mainstreaming is limited on all levels (Bauer, Feichtinger, & Steurer, 2012; Biesbroek et al., 2015).

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The goal of this paper is to demonstrate how the governance of adaptation to climate change can be mapped using data collected from official documents and expert interviews and a data-driven JavaScript library. Conceptually, we refer to governance as a network of policies, measures, actors and knowledge. These four network items are linked through different interactions. We distinguish information, decision-making, implementation, funding and monitoring as generic governance interactions. Mapping governance means identifying and visualizing (1) who or what implements which policies and measures, (2) who or what informs which policies, measures and actors, and (3) who decides, funds and monitors which policies and measures.

Following a qualitative research design, our mapping is based on expert assessments on the most relevant adaptation policies, measures, actors, knowledge resources and interactions. The data were collected from progress and final reports of the Swiss National Adaptation Strategy, the National Adaptation Action Plan, the Pilot Program Adaptation to Climate Change, the Grisons Climate Strategy, and other studies commissioned by the Climate Division of the Federal Office for the Environment. A total of 27 expert interviews as well as workshops involving senior officials from the Austrian, German, Italian and Swiss environment agencies also served to confirm and complement the data, identify important aspects of it and to discuss possible approaches for visualization. We followed an iterative design process by experimenting with various visualization types, finally resulting in the use of a radial network visualization. The visualizations were created using D3.js, a data-driven JavaScript library (Bostock, Ogievetsky, & Heer, 2011). Each data node is arranged radially, ordered by category and their regional level. Relations between nodes are visualized by links connecting the nodes. Categories and regional levels are encoded by icons; link directions are visualized by small arrowheads and the types of relations by colour.

Figure 1 highlights the overarching roles of the Swiss Pilot Program on Adaption; Figure 2 shows the role of the cantons in the implementation of the National Action Plan. Owing to our methodical approach, all links between these items and knowledge are indirect and thus not visible.

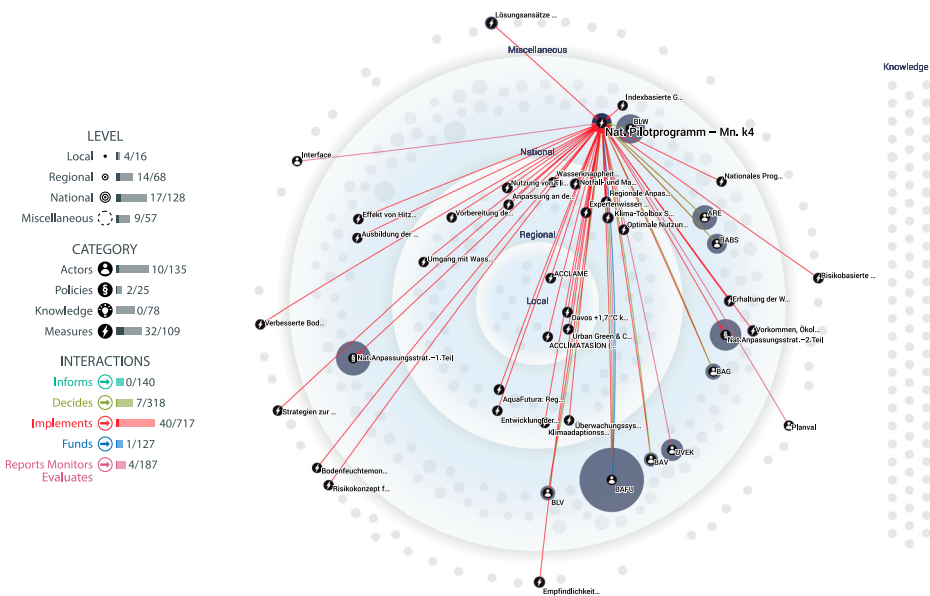


Figure 1. Mapping climate adaptation governance: the role of the Swiss Pilot Program for adaptation to climate change.

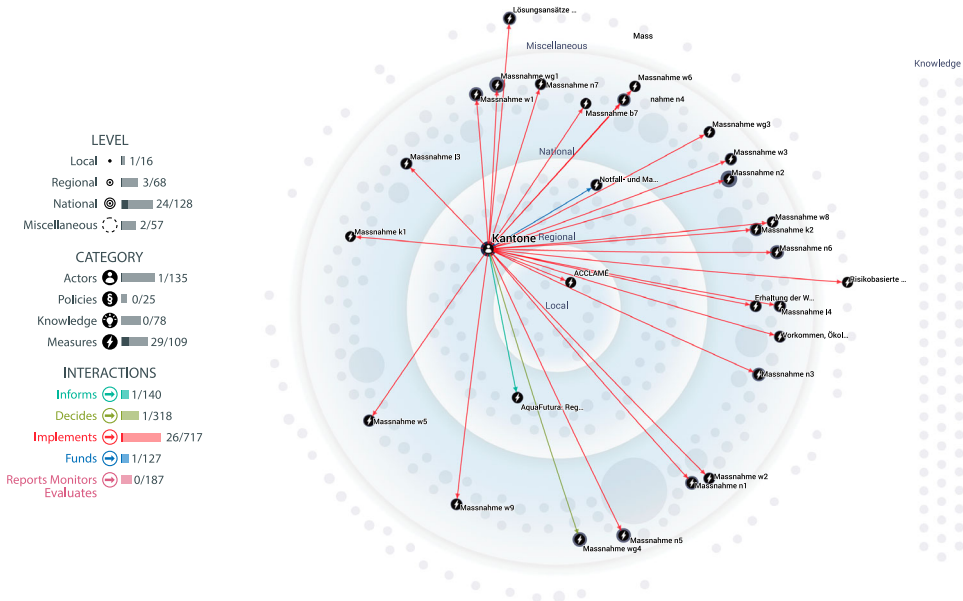


Figure 2. Mapping climate adaptation governance: the role of the cantons for adaptation to climate change.

The governance maps confirm the common claim that governance of adaptation to climate change is a multi-actor, multilevel and cross-sectoral process (Kruse, Stiffler, Baumgartner, & Pütz, 2013; Widmer, 2018). The maps also show that while adaptation may be decided and funded by actors at the national level, the actual implementation of concrete projects often takes place at the cantonal or local level. These findings illustrate the common division of labour in federal multilevel governance systems. The national level acts strategically by informing, funding and coordinating measures; subnational levels act operatively by executing concrete measures on the ground.

Mapping the governance of adaptation to climate change in other countries would allow for interesting comparisons. In particular, visualizations of governance patterns and dynamics would enable institutional learning and would help to identify barriers and opportunities for adaptation to climate change.

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the authors.

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