

Sixteen Ways to Adapt: A Comparison of State-Level Climate Change Adaptation Strategies in the Federal States of Germany

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Climate change adaptation (CCA) strategies are a common form of policy that aim to reduce or prevent negative impacts of climate change and in some cases maximize potential benefits. This paper presents an evaluation of German state adaptation policies analyzing five key themes throughout the policymaking cycle: use of scientific data and concepts, breadth of the sectors addressed, formulation of policy goals, institutional organization and coordination, and plans for policy adjustments. Synthesized from literature on (institutional) barriers and facilitating factors for CCA and climate policy analyses, these five themes aim to evaluate state strategies and serve as a framework for the comparison of the 16 states' policies. This paper explores two main research questions: how comprehensive are German state CCA strategies, and to what extent are there discrepancies among policy approaches and commitments?

State governments are suggested to be key leverage points for enabling adaptation actions. Clear commitments can increase collaboration and innovations in local adaptation efforts (Jurgilevich *et al.* 2019; Vogel *et al.* 2020). In federalist systems, such as Germany, state governments wield the authority over various policy sectors and the power to instigate adaptation action through their jurisdiction over the municipalities. Compared to local governments, state governments are equipped with larger administrations, more financial resources, and a broader scope than single municipalities. This combination of authority and resources provides state governments with the capacity to formulate policies that effectively address regional climate change impacts.

Germany is one of the most researched countries in the field of CCA policy studies (Biesbroek and Delaney 2020), but research gaps remain particularly at the state level. Since the adoption of the German National Adaptation Strategy (DAS) and first state-level climate strategies to include adaptation in 2008, there has not been a systematic or in-depth assessment of state CCA policies published in peer-reviewed academic literature. Adaptation strategies are often considered "hubs" for policymaking and help encourage and coordinate efforts to mainstream CCA into various sectors (Clar and Steurer, 2019).

This paper compares and analyzes more than 25 state policy documents, reports, and strategies published by mid-2020. For this research, I conducted a qualitative document analysis as an iterative process (as described by Bowen 2009) consisting of skimming, reading, supported by keyword search and coding, and interpretation. I coded qualitative data using the five themes for analysis as well as subcodes for more differentiated data within those themes.

The analysis finds that many strategies are well informed by regional climate change data, but most states have developed non-committal sets of recommendations. Only four states have anchored CCA in legislative decisions, and in these cases, there is a trade-off between specificity of goals and deadlines and the level of commitment. While federalism allows for flexibility among state responses, the absence of federal mandates and policy standards allows states to fall behind while others continue to improve their strategies to adapt. State leverage potential may be underutilized if well-intended policies only lead to limited or short-term climate adaptation action.