

Sixteen Ways to Adapt:

A Comparison of State-Level Climate Change Adaptation
Strategies in the Federal States of Germany

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Panel 6: Herausforderungen im Mehrebenen-System

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Presentation Structure

- Research context and research gap
- Research questions
- Conceptual background
- Methods
- Main Findings
- Key Discussion Points
- Limitations and Recommendations
- Conclusion

Research context and research gap

- Climate change adaptation: prepare for and cope with impacts of climate change (heat, drought, floods, etc.) with the aim of reducing negative impacts (and maximizing benefits)
 - equally important as mitigation, but *more complex* (no one-size-fits-all solutions)
- Adaptation strategies considered central for policymaking and mainstreaming CCA
- National policy: *Deutsche Anpassungsstrategie* (DAS 2008), Action Plans I & II, ...
 - main authority at state (*Länder*) and local level
 - national recommendation for state CCA strategies
 - Federal Assessment Reports either superficial or focused on other levels

Research context and research gap

- “Adaptation deficit” – despite increasingly available CC impact data and solutions
 - years of research on barriers and key factors for effective CCA
- Extensive research at national/local scales, but little at state/regional scale
- Further motivation systematic case study selection for “Adapt Lock-in Project”



How comprehensive are German state CCA strategies, and to what extent do policy approaches and commitments vary within the federal context?

Conceptual background

- Potential leverage of the state-level governments
 - smaller scale than national-level → problem-specific strategies (regional geographic and climate change impacts)
 - more resources and broader scope than individual municipalities
- Framework for Analysis
 - 5 themes synthesized from interdisciplinary literature (geography & planning, political science and policy studies)
 - observed key factors for effective CCA policies and barriers to adaptation
 - aims to capture all phases of the policymaking cycle
 - foundation of data → agenda setting → policy adjustments

Conceptual background

Analytical Themes	Subthemes	Literature
Use of scientific data & concepts	Regional climate change data, vulnerability concept (ecological, economic, & social aspects)	(Smit and Wandel 2006; Dupuis and Knopfel 2013; Owen 2020)
Sectors & areas of action		(Biesbroek et al. 2010; Huiteima et al. 2016)
Formulation of policy goals	Policy goals, sector goals, formulation of measures, timeframe for implementation	(Runhaar et al. 2018; Howlett et al. 2019)
Institutional organization and coordination	Authority or leadership roles, committees & working groups, vertical & horizontal coordination	(Termeer et al. 2012; Ford and King 2015; Huiteima et al. 2016; Jurgilevich et al. 2019; Russel 2019)
Plans for policy adjustments	Monitoring & evaluation, continuation, extension or amendments to strategies	(Smit et al. 2001; Termeer et al. 2012; Berrang-Ford et al. 2019; Jurgilevich et al. 219; Owen 2020)

Method and Data Analysis

- Case selection
 - Germany seen as “leader” in CCA at national level; thoroughly researched at national and local levels, but not state level
 - no in-depth systematic analysis of all state strategies published by government or peer-reviewed literature
- Qualitative Document Analysis (as described by Bowen 2009)
 - 28 state documents (overarching strategies, plans, and CCA laws)
 - most states several documents/versions of CCA strategies
 - coded by themes and subthemes in MaxQDA

Main Findings

- Strategies well grounded in data and scientific contexts
- Spread of sectors (see fig.) addressed reflect DAS sectors, climate change exposure, geographic characteristics
- Formulation of policy goals often high-level, in most cases non-binding commitments
- Majority of strategies include clearly established authorities, some evidence of vertical and horizontal coordination
- Half of the states include explicit plans for policy adjustments, four states have no plans

Areas of Action	Federal States																Total	Federal
	Baden-Württemberg	Bavaria	Berlin	Brandenburg	Bremen	Hamburg	Hesse	Lower Saxony	Mecklenburg-Vorpommern	North Rhine-Westphalia	Rhineland-Palatinate	Saarland	Saxony	Saxony-Anhalt	Schleswig-Holstein	Thuringia		
Water Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	16	X
Coastal Risk Management	n/a	n/a	n/a	n/a	X	X	n/a	X	X	n/a	n/a	n/a	n/a	X	n/a	X	5	X
Human Health	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	15	X
Nature / Biodiversity	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	15	X
Agriculture	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	14	X
Planning and Development	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	12	X
Forestry / Forests	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	12	X
(Regional) Economy / Industry	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	11	X
Energy Sector	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	11	X
Soils	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	10	X
Tourism	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	9	X
Emergency Services / Disaster Protection	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	8	X
Transportation	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	8	X
Education / Research	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	7	X
Building / Housing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	7	X
Recreation / Culture / Sports	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	4	X
Fishery	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	4	X

Main Findings

State	Legal basis for Climate Adaptation Strategy?	Binding goals or measures?
Baden-Württemberg	Climate Mitigation Law (2013) required creation of CCA concept	No
Bavaria	N/A	No
Berlin	Berlin Energy Transition Act (BETA, 2026) requires creation of CCA and implementation of measures to sustain infrastructure and the quality of life	Yes (20 measures by 2021)
Brandenburg	State government decision (2007) to develop and present mitigation and CCA measures	No
Bremen	The Bremen Climate Protection and Energy Law (BremKEG, 2015) requires the cities to develop climate adapted development plans	No
Hamburg	Climate Plan (2015) aims to adapt to the impacts of climate change and integrate adaptation into climate policy and became binding with Climate Protection Law (2020)	Yes
Hesse	N/A	No
Lower Saxony	State parliament decision (2008) to develop CCA strategy	No
Mecklenburg-West Pomerania	State parliament decision (2007) to gather data on regional CC impacts	No
North Rhine-Westphalia	Climate Protection Law (2013) requires the development and implementation of CCA measures to limit negative CC impacts	Yes (implement measures to reduce negative CC impacts)
Rhineland Palatinate	N/A	No
Saarland	Executive decision to implement climate mitigation strategy measures (2008), which included CCA goals	No
Saxony	N/A	No
Saxony-Anhalt	N/A	No
Schleswig-Holstein	Energy Transition and Climate Mitigation Act (2017) calls for the development of a CCA strategy	No
Thuringia	Law on Climate Mitigation and Adaptation to the Impacts of Climate Change for Thuringia (2018) provides the basis for CCA policy goals and other institutions	Yes (implement measures to protect against CC impacts)

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Key Discussion Points

- Breadth of strategies often a strength
 - good coverage of DAS sectors and additional sectors/areas of action
- ...but depth/temporal scope often a weakness
 - depth: specificity of CCA goals and steps/measures to achieve them
 - temporal scope: plans for policy adjustments, long-term and continued action
- Data suggests a number of trade-offs
 - specificity of goals & measures VS. level of commitment (high-level goals cemented in legislation)
 - correlation between institutional organization and realized policy adjustments



Key Discussion Points

- Insights on CCA within federalist context
 - divided discourse: flexibility and higher acceptance VS. added complexity and divided resources
 - findings support both arguments – two sides of the same coin
 - state policies can be more comprehensive, regionally specific than national-level policies
 - dependent on political will and resources (funding, knowledge, personnel)
 - “freedom” to excel or fall behind without stronger national mandates



Limitations

- Exclusion of sector-specific strategies (few states have them)
- QDA couldn't capture data from informal activities or informal documents

Conclusion and Recommendation

- Results show wide range of comprehensiveness and levels of commitment throughout the policy phases among the 16 states
- Diversity of policy responses reflects flexibility inherent in federal polity
 - both an opportunity and a challenge for effective state-level adaptation
- Research on the implementation of CCA strategies provide more insights on policy effectiveness

Thank you for your attention!

Questions for discussant and others:

- *Comparative* framework or *analytical* framework?
- Focus on commitment & bindingness meaningful?

