

Adaptation pathways and path dependencies: Insights into past and future decision-making in flood risk management

Abstract

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Recent extreme flood events clearly show that the challenges posed by **climate-related risks** demand well-informed and -prepared local planning and governance. Consequently, the main political and academic discourse revolves around developing approaches that make society more resilient against potential future events not just by introducing smart technical solutions, but also by improving local decision-making processes. Nonetheless, flood risk management decisions and their impacts are typically assessed as singular events, often overlooking the locally specific social and economic framework-conditions as well as ignoring **alternative paths and decisions** that have not been taken (into account) so far. We aim to fill this gap by analyzing the long-term development of decision-making arenas in which local adaptation policy evolves and assessing the impacts on flood risk management.

These arenas are characterized by (1) competing interests from various policy areas, (2) ad-hoc decisions often taking precedence over strategic planning for long-term climate risk management, and (3) previous decisions providing carry-over, follow-up or even create lock-in effects for later decisions. We develop a novel approach that brings together the broad range of knowledge about **path dependencies** with ongoing scholarly debates on **adaptation pathways** in flood risk management. This enables us to combine backwards- with forward-looking perspectives and, thus, both analyze past and support (possible) future decision-making.

Our case studies are located in two Austrian climate change adaptation regions. There, we identify intersecting pathways of how hazards and socio-economic conditions developed over time and identify crucial points in time in which major decisions were made. This allows us to trace pathways that lead to particular constellations and situations in which a specific pathway is chosen over other possible pathways. Learning from these past experiences lays the foundation for the development of feasible climate-related flood risk management pathways for the future.