



Peri-urban vulnerability and resilience: A framework to examine the adaptive capacity of water management institutions.

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During urbanization, one of the challenges concerning water security relates to the peri-urban context. In peri-urban India, water resources are threatened by urbanization and climate change. Peri-urban areas are situated near expanding cities. Here, rural to urban transition is clearly visible in land use, economic activities, and population. The dynamic nature of this context and future uncertainty requires an adaptive approach to peri-urban water management. The underlying institutions play an important role in this regard. Institutions refer to rules used in decision making such as laws, regulations, customs, and norms. Understanding the adaptive capacity of existing peri-urban institutions is the objective of this study.

The research presents a conceptual framework to examine the vulnerability and resilience of peri-urban institutions. Together vulnerability and resilience are factors that determine the adaptive capacity of institutions. Assessing existing vulnerability and resilience provides lessons for implementing an adaptive approach in this context. The framework is based on inter-disciplinary research on institutions, adaptive governance, and resilience. Existing frameworks to analyze institutions in the real-world serves as suitable start point. Theories on adaptive governance and resilience further explicate the role of learning and use of information in building resilient institutions, as a collective effort.

In order to assess the adaptive capacity of institutions, the study identifies attributes of vulnerability and resilience relevant to the peri-urban context. Published research from peri-urban case studies provide a basis for their identification and serve as indicators of adaptive capacity. Future application of this framework to water management in peri-urban Kolkata, Pune, and Hyderabad (India) is outlined, as part of the H₂O-Transitions to Sustainability (H₂O-T2S) project. Potential uses of this framework beyond peri-urban contexts are identified, where similar institutional mechanisms are needed to build resilience against climate change.