

Compound Risks and Challenges for Governing Resilience in Cities

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Cities are facing a growing number of complex and interrelated risks, driven by a range of socio-economic and environmental drivers such as climate change and urbanization. These are particularly challenging when they occur simultaneously or one after another, known as 'compound risks', as highlighted by extreme weather events during the Coronavirus pandemic. These compound risks put pressure on existing coping and management strategies and require innovative solutions.

Globally, extreme weather events such as floods, heatwaves, and bushfires resulted in extended and acute periods of stress on governance systems driven by multiple crisis and emergencies caused by climate change and the pandemic. Yet, the way our resilience governance and decision-making systems are dealing with multiple risks are often siloed and fragmented. Since the beginning of the current pandemic, various studies and reports have been published highlighting that the resilience governance systems are fragile in the face of new and compound risks (Rode and Flynn, 2020; Hilton and Baylon, 2020; Herbert and Marquette, 2021). Therefore, it is important to identify the challenges that compound risks impose on resilience governance systems in cities, and, in turn, to develop innovative technologies that help identify vulnerabilities, assess the efficacy of policies, and move towards anticipatory resilience implementation.

In this study, we consider how existing approaches used to support the four phases of resilience governance (risk assessment, option appraisal, implementation, and evaluation) can help addressing compound risks. We find that these are often designed with a single risk focus and rarely consider the interrelations among multiple, interconnected risks. We, therefore, argue that governance of compound risks in urban area require new approaches and methodologies which might be different from those used for single risk, and highlight novel approaches, methods, and tools with the potential to support resilience governance towards compound risks in the urban context. We only focus on urban compound risks in which at least one of the risks is related to climate change impacts.

The output of this study is, therefore, twofold: (1) a categorization of urban compound risks and their governance challenges, and (2) guidance for the development and implementation of new approaches and novel techniques to support resilience governance towards compound risks. This study is based on the knowledge and insights obtained in the [Zurich Flood Resilience Alliance](#) program supporting resilience building in communities across the world.

References:

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