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How megacities respond to urban pluvial floods in China: Policy recommendations

Mingyang Liu, Xiangzhou Xu, and Guang Ran

Dalian University of Technology, Dalian, China (xzxu@dlut.edu.cn)

The megacities in China experienced increasing impacts from the urban floods due to the climate change in the past ten years. However, it is still unknown how to deal with the potential hazards under the impact of extreme precipitation. This paper briefly reviews the general characteristics and challenges of urban flooding in China with a case study of the extreme rainstorm in Zhengzhou on 20 July 2021. Results indicate that, to comprehensively protect a megacity with existing building standards and emergency plans is difficult under the extreme rainstorms, and the disruption of weak lifeline facilities, e.g. the road network, may further disrupt the provisions from neighbouring cities. This study offers a unique perspective reflecting a multi-scale approach from a single local city to regional area, an urban cluster or even a country on the urban floods control, urban infrastructure design and policy development. In more details, the measures are anticipated to increase the control rate of annual rainfall via the development of sponge city, improve monitoring and forecasting in the urban area, and enhance the risk-response strategies from the local government. The study strongly suggests expand the experiences and achievements of the flood management from a disaster area to adjacent or distant cities coupled with different pathways including government cooperation, water conservation practices, information exchange or human migration. The policymakers in a megacity are also encouraged to update the viewpoints for the policies and strategies to control floods. Hopefully a clue for relatively effective water management and land use for the sustainable urban development may be obtained from the study.