

Urban Water Security: Opportunity and Challenges for the Sponge City Construction in China

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Abstract:

In this paper, the importance of urban water security was stressed according to water problems we are facing caused by the fast urbanization. “Sponge City” was proposed by China as a rapid urbanization country, which learns from the policies of the different countries to solve urban water problems. Wuhan, one of the first pilot cities in China’s sponge city construction, was selected as the example. Three experiments and lessons were discussed and summarized by the analysis of sponge city construction projects in Wuhan: (1) the system thinking is needed in the dealing with water issues in city; (2) the local conditions must be considered when the measures of sponge city are designed; (3) the monitoring system must be constructed in order to maintain the facilities. The opportunity and challenges of sponge city in China were concluded through the problems exposed by the construction of the sponge city in Wuhan: (1) the green development ideals for the development of city; (2) the integration of grey and green infrastructures; (3) the operation and maintaining of sponge city facilities; (4) the system treatment thinking of source-process-terminal. Facing the opportunity and challenges of sponge city, it may require the basic scientific research of urban hydrology and the multi-disciplinary cooperation.

Key words: urban water security; urbanization; sponge city; opportunity and challenges