



*“Gheorghe Asachi” Technical University of Iasi, Romania*



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## EXPLORING THE RESILIENT DESIGN OF SPONGE TRANSFORMATION IN OLD COMMUNITIES OF MOUNTAINOUS CITIES: A CASE STUDY OF Y DISTRICT IN C CITY

Fanyi Liu<sup>1\*</sup>, Lili Dong<sup>2</sup>, Zhiyu Shao<sup>1</sup>

<sup>1</sup>College of Environment and Ecology, Chongqing University

<sup>2</sup>School of Architecture and Urban Planning, Chongqing Jiaotong University

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### Abstract

In recent years, along with the frequent occurrence of climate extremes and rapid urbanization, the renovation of old communities has become a focus of attention. However, most of the related researches have been focused on one corner of theory and practice respectively. For example, in recent years, resilient city construction and sponge city construction have become hot spots, focusing on the weakest link of the city and the most grassroots carrier - old community renovation research is relatively small and fragmented. This study focuses on old communities in the main urban areas of mountainous cities with complex terrain and climate, high population density and difficulty of transformation, via working out the annual runoff control rate and other storm water resilience indices of the old communities after retrofitting design through theoretical calculation and InfoWorks ICM model simulation. The results indicate sponge reconstruction combined with upgrade of conventional drainage facilities are able to improve waterlogging in old communities effectively, so as to put forward sponge transformation design methods, mechanisms and strategies, as well as enhancement of conventional drainage facilities from resilient perspective if necessary, providing reference for the retrofitting of old communities in the main urban areas of mountainous cities.

*Key words:* mountainous cities, old communities, resilience, sponge transformation design strategies

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\* Author to whom all correspondence should be addressed: e-mail: 2052713623@qq.com