



“Gheorghe Asachi” Technical University of Iasi, Romania



EFFECT OF HYDROLOGICAL AND HYDRAULIC RETROFIT ON SURFACE AND PIPE NETWORK OVERFLOW IN OLD COMMUNITIES OF MOUNTAINOUS CITIES

Fanyi Liu, Hongxiang Chai*, Zhiyu Shao, Bo Lv

College of Environment and Ecology, Chongqing University, Chongqing Academy of Science and Technology

Abstract

Water environment exerts comprehensive effect on urban ecological environment, especially the old residential areas built earlier in the city, aging facilities, and incomplete functions, whose renewal and quality are related to people's livelihood and environmental improvement. Due to the wide distribution, high density and high demolition cost, plus backward water management facilities, old communities in mountainous cities have poor ability to cope with floods, lacking a complete set of optimization simulation system coupled with gray, green and blue that combines hydrological and hydraulic power of rainwater system. Therefore, this paper takes the old community in Chongqing Yuzhong District -- the Shangdatianwan Central Community as the research plot. Based on GIS hydrological analysis, InfoWorks ICM was adopted to conduct a systematic analysis on the hydrological and hydraulic retrofit of the rainwater system. The results show that pipe network, 1D and 2D confluence parameters and the setting of SUDS facilities can improve the surface and pipe network overflow. Hydrological retrofit plays an important role in reducing the annual runoff. Under heavy rainfall, hydrological and hydraulic retrofit is recommended to better control the surface and pipe network overflow.

Key words: hydrological and hydraulic retrofit, mountainous city, old community, surface and pipe network overflow

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