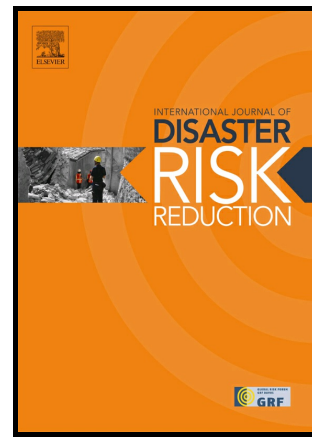


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Life Cycle Cost and Return on Investment as complementary decision variables for urban flood risk management in developing countries.

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Abstract

Herein we investigate Life Cycle Cost (LCC) and Return on Investment (ROI) as potential decision variables for evaluating the economic performance (ROI) and financial feasibility (LCC) of a set of flood mitigation strategies over time. The main novelty of this work is the application of LCC and ROI analyses at the urban level to an asset portfolio of flood-prone buildings. Reduced flood damage is treated probabilistically as avoided costs (LCC analysis) and returns (ROI analysis), respectively. The proposed methodology is applied to the case of Dar es Salaam, Tanzania, which suffers severe riverine flooding on a sub-annual basis. Specifically, LCC and ROI of five mitigation scenarios that include large-scale catchment rehabilitation, settlement set-backs and waste management are compared with the current situation. The main result is that the highest-performing flood mitigation option includes both conventional interventions and ecosystem rehabilitation.

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