

# Research Needs Towards A Resilient Community

Vulnerability reduction, infrastructural systems model, loss assessment, resilience-based design and emergency management

Paolo Franchin, Department of Structural and Geotechnical Engineering, Sapienza University of Rome, Via Antonio Gramsci 53, I-00197, Rome, Italy. Email: [paolo.franchin@uniroma1.it](mailto:paolo.franchin@uniroma1.it)

## Abstract

Most of the literature on resilience is devoted to its assessment. It seems time to move from analysis to design, to develop the tools needed to enhance resilience. Resilience enhancement, a close relative of the less fashionable risk mitigation, adds to the latter, at least in the general perception, a systemic dimension. Resilience is often paired with community, and the latter is a system. This chapter therefore discusses strategies to enhance resilience, endorses one of prevention rather than cure, and focuses in the remainder on the role played by systemic analysis, i.e. the analysis of the built environment modelled beyond a simple collection of physical assets, with due care to the associated interdependences. Research needs are identified and include challenges in network modelling, the replacement of generic fragility curves for components, how to deal with evolving state of information.