

Urban risk reduction and resilience

Over the past years, there has been an increasing concern among the international community about the effects of natural and manmade hazards in urban areas and whose impacts are becoming more frequent, more severe and more widespread. To tackle this global issue, it is fundamental to engage and develop applied research that can lead to more efficient urban practices and policy making based on a thorough understanding of all the components that constitute urban systems and that contribute to their resilience.

The framework for research and innovation on urban risk reduction and resilient communities is defined by societal challenges at different levels, such as health and well-being; adaption to climate change and coping with foreseen accidental and extreme events; green building and sustainable practice; clean and efficient energy; resource efficiency and intelligent mobility; and secure and educated society. Building more resilient cities is based on developing sustainable practices that will reduce disaster risk and inherently improve resilience through the safety and well-being of communities. This topic is clearly on the international agenda. The assessment of “multi-hazard disaster risks and the development of disaster risk assessments and maps, including climate change scenarios” was pointed out by the United Nations, within the Sendai Framework for Disaster Risk Reduction 2015-2030, as one of the priorities for action. The European Union has followed the same line of action, defining the adoption of climate change adaptation strategies and risk mitigation measures as strategic priorities within the Europe 2020 Strategic Framework. Raising awareness toward urban risk reduction and resilience is a shared commitment among communities, local authorities, national governments and international organizations, such as UNISDR and IPCC.

Urban risk is a very complex multi-dimensional matrix that covers multiple elements at risk (people, buildings and infrastructures), multiple hazards (geophysical, meteorological and hydrological), multiple temporal scales (the present and future scenarios) and multiple sources of vulnerability. Therefore, understanding the impacts of multiple hazards, including those arising from climate change, is a fundamental requirement to support more focused and participated engagement on policy actions by various stakeholders. The development of reliable and accurate multi-hazard risk assessment approaches is seen as a crucial step toward risk mitigation in urban areas. Such approaches should include the identification and prioritization of the urban elements wherein risk mitigation strategies should be focused, i.e. the creation of insurance and reinsurance schemes to transfer and share the risk between governments and the private sector, the elaboration of emergency planning and response strategies at different scales (from the single elements at risk to the urban scale) and the definition of guidelines to promote more resilient, robust and sustainable urban areas.

Besides emergency planning methodologies, new tools to deal with resilient management is crucial for a constantly evolving sustainable approach of urban areas. From public managers, engineers, suppliers, contractors, institutions, local government to end-users, all actors have to be part of a predictive and planned maintenance action.

Ultimately, the challenges of demographic growth in urban areas and the adaptation of the existing building stock to climate change, as well as the need to comply with functional requirements, is a key parameter for urban resilience. Buildings have long life-cycles and



inherently create an energy use “lock-in” that needs to be reassessed to redefine updated and realistic compliance criteria at all levels supported on evidence-based decisions.

In light of the exposed, this special issue presents a selection of papers resulting from a special session organized by the guest editors as part of the 41st World Congress on Housing, Sustainability and Innovation for the Future on September 13, 2016. The session, aimed at stimulating the exchange of ideas and knowledge on urban resilience and disaster risk reduction, counted with the participation of several internationally recognized researchers coming from Algeria, Belgium, Cyprus, Italy, Norway, Portugal and Turkey, whose works and views have greatly enriched the discussion. The editors sincerely thank all the authors for their valuable contribution and enthusiastic collaboration.

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