## POST-QUAKE SMALL ITALIAN HISTORICAL CENTRES: URBAN RESILIENCE BETWEEN RHETORICS AND REALITY. THE CASE STUDY OF NOCERA UMBRA AFTER THE 1997 EARTHQUAKE

E.Cianci<sup>1\*</sup>, C.Fontana<sup>1</sup>, G.Occhipinti<sup>1</sup>, G.Romagnoli<sup>1</sup>

<sup>1</sup>Institute of Environmental Geology and Geoengineering (IGAG), Italian National Research Council (CNR) Rome, Italy {eleonora.cianci,cora.fontana,gino.romagnoli,giuseppe.occhipinti}@jgag.cnr.it

## **ABSTRACT**

The small and medium size Italian historical centres are characterized, inter alia, by destructions and reconstructions that have occurred over the centuries following major disasters. While on the one hand a major disaster, as earthquake, determines physical damages, human losses, and in general the loss of the functionality of an urban system, on the other it points out the path of opportunity for the settlement – through the reconstruction process - to correct previous imbalances, to improve the physical and socio-economical structure of the system as a whole. However, considering that reconstruction planning must be distinguished from good implementation [1], the theme of the reconstruction challenge emerges: the complexity of imagining the city in time and the decision-making process that the reconstruction program requires. As well known, the capacity of a system to resist and restore after a major shock is defined as resilience. According to the literature, although a unique definition is not still coined, mainly in the particular context of cities [2], some methodological approaches that contribute to the theoretical debate about urban resilience has been framed and experimented [3,4,5]. Starting from a short literature review focuses on methodological approaches to evaluate urban resilience in terms of recovery goals, resilience dimensions and analysis of strategic recovery urban functions, the paper analyses - through an interdisciplinary approach – the case study of Nocera Umbra after the 1997 earthquake. More than twenty years after the seismic event, research aims to identify, starting from the pre-earthquake conditions, on the one hand the strategic urban functions and conditions that have been considered fundamental for the recovery; on the other if the implementation of reconstruction strategies have made the urban system more resilient in terms of vulnerability of both the built environment and the socio-economic one.

## REFERENCES

- [1] E.L. Quarantelli, (1993). "Converting disaster scholarship into effective disaster planning and managing: possibilities and limitations", in International Journal of Mass Emergencies and Disasters, 11,15-39.
- [2] L. Chelleri, J.J. Waters, M. Olazabal and G. Minucci, (2015), "Resilience trade-offs: addressing multiple scales and temporal aspects of urban resilience" In Environment and Urbanization, 27 (1), 181–198.
- [3] G.P. Cimellaro, C. Renschler, A.M. Reinhorn and L. Arendt (2016), "PEOPLES: A framework for evaluating resilience" In Journal of Structural Engineering, 142(10).
- [4] S.L. Cutter, L. Barnes, M. Berry, C. Burton, E. Evans, E. Tate and J. Webb. (2008), "A place-based model for understanding community resilience to natural disasters." In Global Environmental Change ,18 (4): 598–606.
- [5] O. Kammouh, A. Zamani Noori, G.P. Cimellaro and S. Mahin, (2019), "Resilience Assessment of Urban Communities" In SCE-ASME Journal of Risk Uncertainty Engineering System, Part A: Civ. Eng., 2019, 5(1): 0401900