

Enhancing resilience of communities and territories facing natural and na-tech hazards



ENSURE

Enhancing resilience of communities and territories facing natural and na-tech hazards

Modaressi H. (1), Foerster E.(1), Vagner A. (1), Galderisi A. (2), Ferrara F. (2), Van Der Veen A. (3), Bonadonna C. (4), Sapountzaki K. (5), Benenson I. (6), Parker D. (7), Tapsell S. (7), Firus K. (8), Margottini C. (8), Menoni S. (9), Kropp J. (10), Costa L. (10)

Vulnerability has long been a key concept in disaster literature. However, the majority of studies have focused on research related to the hazard, therefore neglecting the influence of the vulnerability of exposed systems to the consequences of such hazards, such as the death toll and losses from natural or man made disasters. There is also a need to better identify and measure the ability of 'at risk' and affected communities and territorial systems to respond to such disasters. This is the starting point of the ENSURE project.

OBJECTIVES

The overall objective of ENSURE is to develop a new methodological framework for Integrated Multi-Scale Vulnerability Assessment.

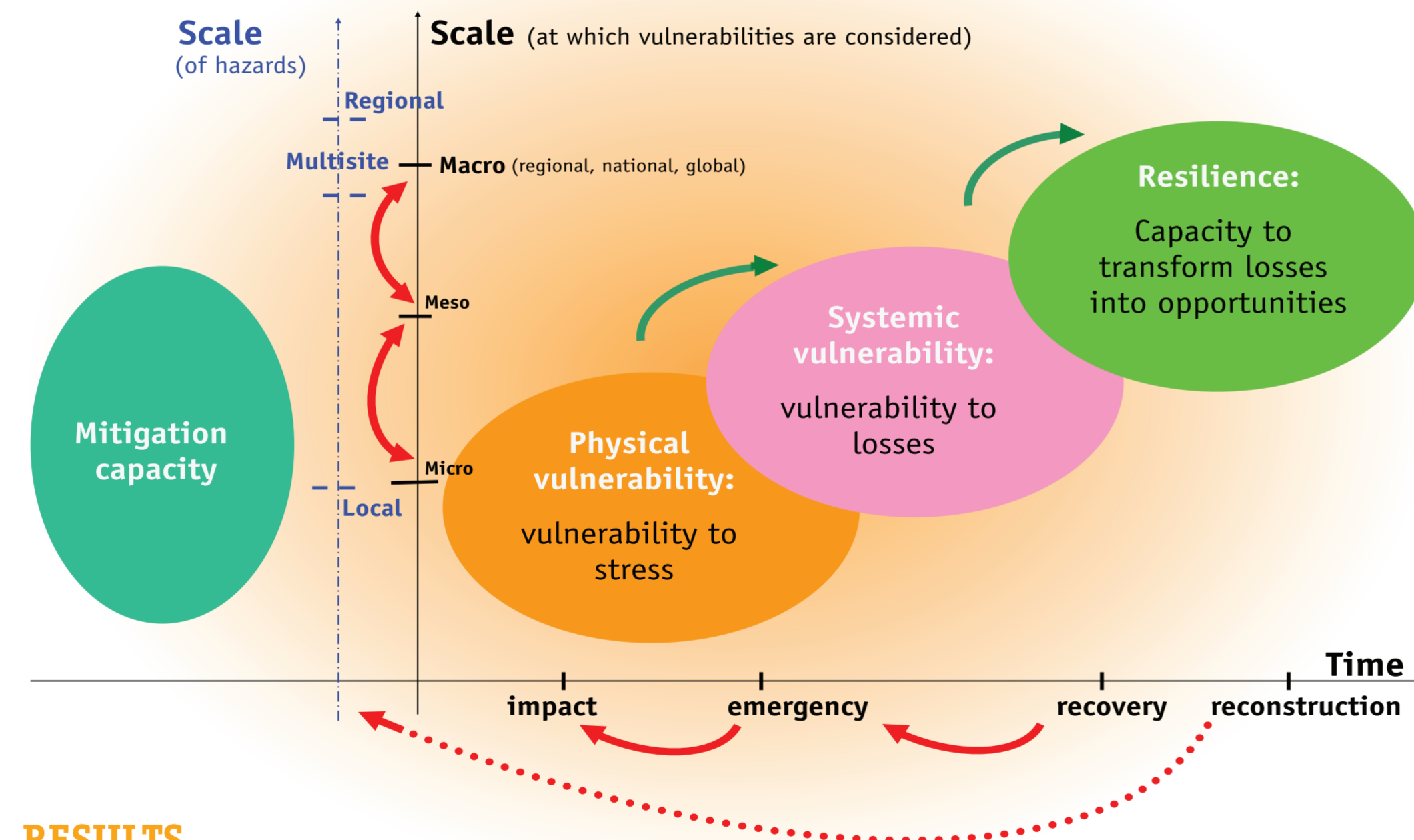
More precisely:

- to improve the understanding of the articulated nature of the concept of vulnerability at different spatial scales;
- to analyze the relationship between the concept of vulnerability and other concepts such as "risk", "damage", "exposure", "resilience" and "adaptation";
- to develop the integration and connection of different types of vulnerability;
- to investigate the temporal and spatial variability of the relations between different types of vulnerability and different types of damage;
- to propose new, and improve existing vulnerability assessment models and parameters;

METHODOLOGY

- State of the art on vulnerability types,
- Analysis of the interactions and connections of different vulnerabilities,
- Analysis of different vulnerabilities through time and space dimensions
- Development of a new methodological framework for an Integrated multi-scale Vulnerability assessment,
- Application of an Integrated conceptual model to 3 case studies.

The framework is based on a comprehensive, integrated and inter-disciplinary understanding of how mitigation strategies can be improved in the future. Such a framework will contribute to the reduction of human losses, economic damage and social disruption due to extreme events striking communities exposed to a variety of natural hazards, as well as to the potential consequences of Climate Change.



RESULTS

ENSURE contributes to an improved analysis of vulnerability for increasing the resilience of communities.

Specific expected impacts are to:

- provide support for policy decisions with key stakeholders at various scales, relating to prevention measures and plans;
- present, through the Integrated Multi-Scale Vulnerability Assessment, a feasible tool to improve communication with local communities in the process of raising risk awareness;
- understand adaptation and resilience factors, and system responses, which help to minimize risks from natural and human-triggered technological disasters;

3 case studies:

- Western Peloponese, Greece**
 - Forest fires
 - Earthquakes
 - Flood
- Vulcano Island, Italy**
 - Volcanic hazards
 - Earthquakes
 - Landslides of volcano slopes
- Northern Negev, Israel**
 - Drought

A multidisciplinary team

- BRGM
- Universita degli Studi di Napoli Federico II
- Universiteit Twente,
- Universit  de Gen ve
- Harokopio University of Athens
- Tel Aviv University,
- Middlesex University Higher Education Corp.
- T6 Ecosystems srl
- Politecnico di Milano,
- Potsdam Institut fur Klimafolgenforschung

