



Community Resilience to Flooding Risks Under Climate Change: Case of Cultural Cities



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INTRODUCTION

Disasters of various kinds with increased sphere of influence and frequency are on the rise all over the world. (UNDDR, 2019). And with the rapid urbanization, urban areas are increasingly exposed to natural hazards like flooding (Paliaga, et al., 2020). Changes in the climate and global warming associated with it are expected to exacerbate the problem of extreme rainfall and subsequent hazards even higher. Even if the concept of resilience has several definitions, in the area of engineering, Cimellaro & Bruneau, (2010) defined it as the capability of a system to maintain its functions and structure in the face of internal and external change and to degrade gracefully when it must. With all the research out there on urban and community resilience, the application of resilience models still remains a grey area requiring more exploration. (Paliaga, et al., 2020).



Fig 1: The 1966 Arno flood

OBJECTIVE OF THE RESEARCH

- To study the dynamic interaction among various elements of a resilience model
- To devise a robust and easy-to-apply resilience model for cultural heritage sites and urban metropolis.

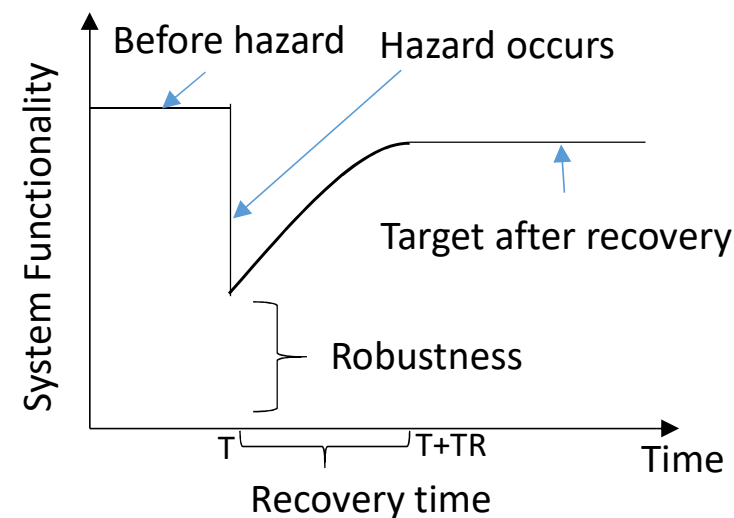


Fig 2. Conception of Resilience (adopted from Cimerallo et.al.,2010)

METHODOLOGY

The research applies System Dynamic Modelling (SDM) to study interaction among various resilience elements. SDM has been applied to study often complex and intricate interactions among disparate variables which affect one another dynamically.(J Sterman, 2010)

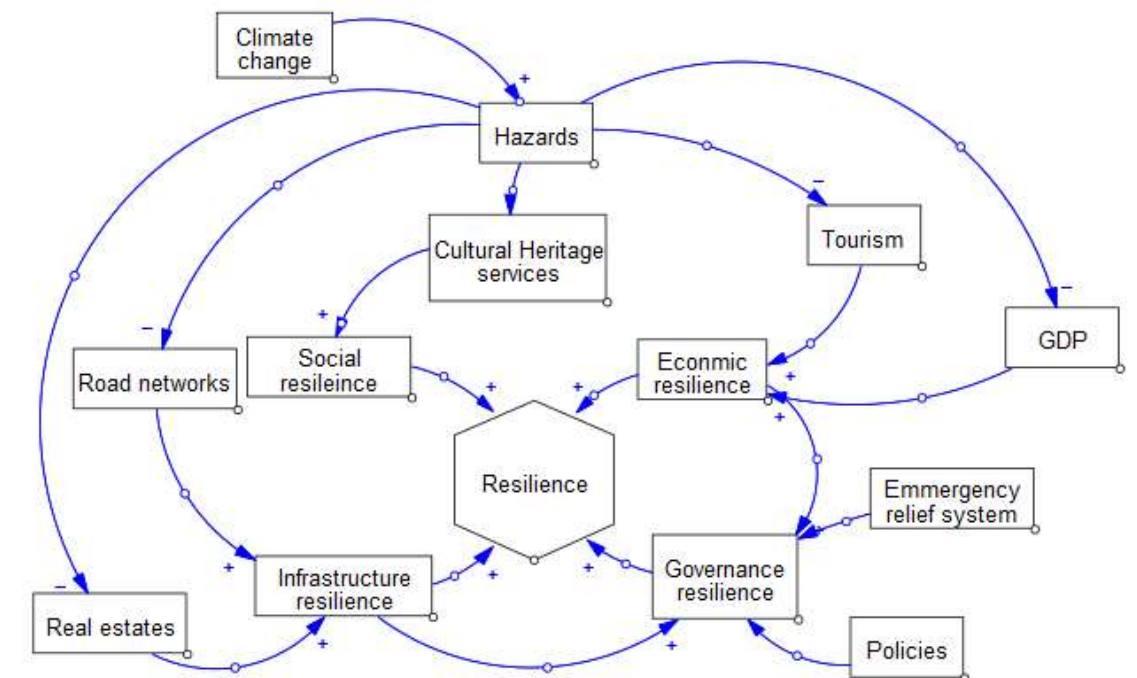


Fig 3. Proposed Causal loop Diagram for System Dynamics Modelling

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