



## **Assessing the costs of hazard mitigation through landscape interventions in the urban structure**

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In this paper we look at an issue rarely approached, the economic efficiency of natural hazard risk mitigation. The urban scale at which a natural hazard can impact leads to the importance of urban planning strategy in risk management. However, usually natural, engineering, and social sciences deal with it, and the role of architecture and urban planning is neglected. Climate change can lead to risks related to increased floods, desertification, sea level rise among others. Reducing the sealed surfaces in cities through green spaces in the crowded centres can mitigate them, and can be foreseen in restructuration plans in presence or absence of disasters. For this purpose we reviewed the role of green spaces and community centres such as churches in games, which can build the core for restructuration efforts, as also field and archive studies show. We look at the way ICT can contribute to organize the information from the building survey to economic computations in direct modeling or through games. The roles of game theory, agent based modeling and networks and urban public policies in designing decision systems for risk management are discussed. Games rules are at the same time supported by our field and archive studies, as well as research by design. Also we take into consideration at a rare element, which is the role of landscape planning, through the inclusion of green elements in reconstruction after the natural and man-made disasters, or in restructuration efforts to mitigate climate change. Apart of existing old city tissue also landscape can be endangered by speculation and therefore it is vital to highlight its high economic value, also in this particular case. As ICOMOS highlights for the 2014 congress, heritage and landscape are two sides of the same coin. Landscape can become or be connected to a community centre, the first being necessary for building a settlement, the second raising its value, or can build connections between landmarks in urban routes. For this reason location plays a role not only for mitigating the effects of hazards but also for increasing the value of land through vicinities. Games are only another way to build a model of the complex system which is the urban organism in this regard, and a model is easier to be analysed than the system while displaying its basic rules. The role of landscape of building roads of memory between landmarks in the reconstruction is yet to be investigated in a future proposed COST action.