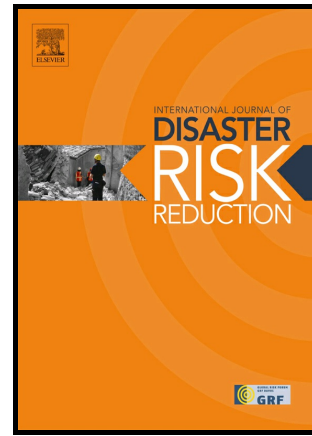


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Crisis information to support spatial planning in post disaster recovery

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**Abstract**

In this paper we propose to explore the complex node of post disaster reconstruction, knowledge and data necessary to support spatial planning, and new information technologies. The methodology that is illustrated assumes that post-event damage assessments are useful to verify to what extent hazard and risk assessments that were available to planners to make decisions before the disaster were correct and if they were actually used as a basis for locational and zoning choices. Our contribution is aimed at the creation and design of knowledge bases accounting for the dynamic evolution of disasters. New web based technologies provide the opportunity to collect and analyse dynamic territorial crisis data using crowdsourcing and crowdmapping platforms. The proposed methodology permits to sort and classify a very large set of different types of data generated through the web. Semantic conceptualization using ontologies is performed to identify and select the information produced during the emergency that can support spatial planning in the post disaster reconstruction. The city of Tacloban in the Philippines, affected by the Super Typhoon Haiyan in November 2013 constitutes the test case for applying the methodology that has been developed.

**Keywords:** Crisis information; spatial planning; resilience; knowledge management; ontologies; crowdsourcing

**1. Introduction**

Post disaster reconstruction is a complex process entailing huge investments and requiring significant human and material resources. Among the latter, data and information regarding the damage that has occurred and how a given place has changed as a consequence of the disaster are key. The proposed contribution is part of an exploratory research which focuses on the type of damage and loss data that can better feed urban and spatial planning for post-disaster reconstruction. In particular the article explores the emerging opportunities that open data generated and shared through the web during the crisis may offer to support post-disaster reconstruction planning.

In their pioneering book Haas et al. (1977) indicated reconstruction as the longest phase of the disaster cycle, distinguishing it from recovery, intended as a first return to normalcy, that follows the emergency phase, when immediate relief operations to rescue the population

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