



Implementing urban resilience to floods in Provence Alpes Côte d’Azur Region: interfacing science and urban engineers of Avignon City Council

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In a global changing – and warming – context, natural disasters have increased of about 2%/year in the world over the past 15 years. Among these disasters, the risk of flooding appears to be the most damaging. Indeed, since 1960, the number of floods has increased considerably, reaching more than 600 events for the year 2007. At the same time, the increasing complexity of cities makes flood risk management more difficult. Over the last ten years, half of the world’s population has become urban. Urbanization of urban areas has increased from 10% in the 1990s to 50% in just two decades. This very quick process has weakened the territory because cities are not prepared or equipped to manage the needs of such a concentration of population, especially when risky situation appears. This, due to a lack of available land, comes to settle in flood prone areas. It is therefore established that, in urban areas, man-made risks tend to have more severe consequences especially because of concentration of issues in more vulnerable areas. Without an awareness of the fragility of these territories, urban areas - a melting pot of economic, social, political and cultural dynamics - will be drastically impacted by the increase, power and recurrence of urban floods. If the resilience concept appears to suit well to study urban areas and to “operate a transition to a general culture of risk prevention and mitigation”, it is still an unclear concept and very few applied by urban communities, probably because its over-use. Indeed, despite the significant increase of the use of the term resilience, concrete advances still have to be made. Most of current researches are mainly based on a technical-organizational resilience without taking into account its social dimension. The aim of this work is therefore to facilitate understanding of this concept, and especially its integration into management and planning policies, at the crossroads of urban, technical and social resilience.

To concretise the notion of resilience on the territory, a spatial decision support tool based on three indicators has been co-created with the Avignon City’s GIS service to measure pre-existing resilience. They consist of an urban resilience indicator (urban structure, economic dynamics, state of structures, etc; an indicator of technical resilience and an indicator of social resilience (age of the population, level of education, knowledge of risk, etc. We created variables in order to study both inherent vulnerabilities and inherent resilience of a society and its territory. It is established here that these variables indicate a potential for resilience in order to revive a social, economic, urban, and systemic activity after a shock.

The preliminary results, based on the social resilience indicator, allow analysing the social structure of Avignon according to the capacity of the populations to support the event and to recover from it. The city has been able to acquire new knowledge about the urban social structure and can see a new way to improve its crisis management strategy, for example.