



FLOODS IN URBAN AND SUBURBAN AREAS

INTRODUCTORY NOTE

For a long time, floods have been regarded as “unpredictable events” or unavoidable “acts of God”, and often defined in terms of inescapable fate. The urbanization of river banks and the alteration of floodplains have gradually created an awareness of the power to transform these dynamic environments and to adapt them to accommodate various human activities. Today, while ways to bring this phenomenon under control are being explored, floods are taken to be risks that must be assessed and eventually managed if possible.

This special issue is dedicated to “*Floods in Urban and Suburban Areas*”. The authors address the subject of flood risk in relation to land use planning and management, which brings us to consider land use patterns, urban expansion, and the incoherence of planning and urban development. In their paper, Beucher and Reghezza-Zitt highlight the tension between urban planning and risk management in the Paris metropolitan area, while British cities are the focus of Richards, White and Carter. The first paper presents a report on the major difficulties in flood risk management by reviewing current regional development policies in France that are not always well suited for large metropolitan and densely populated spaces like Paris and its suburbs. Among these difficulties is trying to engage the current structure of the political organisation of the greater Parisian area with actions in favour of a more comprehensive approach towards risk management based on a genuine cooperation between Paris and its suburbs. Richards et al. also discuss the inconsistencies between local planning and flood risk management practices in a number of British cities. Essentially, they express the same concerns about a discrepancy or shortfall in the collective response to integrated risk management. In fact, the planning policies that are introduced do not appear suitable for the collective management of flood-related problems. The authors argue for a review of the current planning policy structure at the local level in order to reach well-

sued strategic solutions that do not overlook particular local community development needs.

Dupont, Valy and Inserguet’s study of the cities and towns that make-up Rennes, Brittany illustrates how land-use planning has been tailored to high-growth metropolitan areas. Their paper stresses the importance of the changing hydro-climatic conditions and their impact on a series of flood events that have occurred, which have provided grounds for re-evaluating and modifying land-use and official plans to help restrict or even forbid urbanization in flood-prone areas. Although homes built in these areas are still exposed to danger, public authorities have shown a willingness to enforce stricter laws to prohibit any further development on these lands. Moreover, this leads to assess whether current regulations and in particular the analytical tools for managing and forecasting floods are efficient enough to effectively respond to these events. To this end, Drouin’s paper develops a simulation model of flood levels using a GIS in order to maximise spatial data on the extent of the water table in periods of overflowing. The result is a detailed mapping of small scale topographical elements, which allows us to visualize with greater accuracy the extent of the water table at various river levels or rates of flow, and therefore draw a list of all buildings, industries, roads and other infrastructure likely to be hit by floods.

In addition, it is necessary to address the hesitation to fully recognize historical events linked to natural catastrophes and floods as valid indicators and insightful bases for research on the underlying mechanisms of this phenomenon and to utilize and integrate these past events so as to facilitate better planning and management of risks, particularly in an urban environment. Piecing together the history of flood events advances our understanding of this phenomenon and its relation to hydroclimatic variations in the attempt to draw parallels between natural hazards and land-use. In this respect, Saint-

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Laurent and Hähni give a nearly 100-year historical account of flood events for cities and towns in Québec's Eastern Townships. Their portrayal of the connections between recurring floods, hydroclimatic variations and the most important land-use changes leads them to the conclusion that despite flood-related damages, which are nearly cyclical in nature, riverside residents are continually exposed to danger, and despite the introduction of public policies on river bank and floodplain protection, flooding remains a major problem. In his paper, Blanchard offers a description of the two great historical floods of 1733 and 1740, which totally devastated the city of Grenoble, France. He includes mechanisms of resilience developed by a community in an effort to cope, mitigate "nature's attacks" and foster more awareness towards risk. By drawing on knowledge about these "catastrophes", mechanisms that increase the acceptability for communities subject to such events can be conceived and give rise to concrete measures, including the preservation of agricultural space at the city's edge effected by the rise in river levels, and the protection of trees in areas liable to flooding.

Flooding and flood-related problems also concern rapidly expanding cities. Pierdet's study of Phnom Penh's hydraulic infrastructure shows how this densely populated city is battling against periodical floods caused by a number of physical and geographical factors that impact directly the swelling of the Mekong River. The paper draws attention to the many difficulties in developing and operating the infrastructure designed to reduce or prevent flooding, particularly in a context where missing data limit the ability to gain knowledge about this great river's dynamics and behaviour. In addition, it is difficult to predict catastrophic flooding caused by extreme events. We therefore have no alternative but to proceed to a re-evaluation of protection strategies. Maret and Goeury suggest a way to reassess strategies aimed at protection against risks of flooding in highly vulnerable areas such as New-Orleans. As everyone knows, the shocking aftermath of Katrina's passage in August 2005 not only resulted in the loss of many lives and a massive exodus of inhabitants, but also in the destruction of large sections of the city. The paper examines the flaws inherent to the security measures and management schemes intended to protect the urban population and existing infrastructure. To that end, we are reminded of the importance of considering the impacts of future developments on the equilibrium between the natural environment and the rapid growth taking place in the urban region.

The last paper presented in this special issue addresses the complex nature of flood risk. Drawing on various levels of understanding and intervention, Tricot gives a critical account of the concepts of risk, catastrophe, suburbanization and proximity. First, she describes the processes involved in developing national policies and plans aimed at the prevention of flood risk. Second, by using case studies from the Pau region located in the Southwest of France, she demonstrates how the various urban areas, cities or towns have adjusted and adapted themselves to the phenomena of urbanization and of flood risk.

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