

Ameen Benjamin. Analysing Urban Flood Risk In Low-Cost Settlements Of George, Western Cape, South Africa: Investigating Physical And Social Dimensions. (Disaster Risk Science MA 2008)

The main theoretical question of the research concerns the importance of considering both the physical and social dimensions of urban flood risk. The following analytical questions are therefore considered: i) What constitutes urban flooding? ii) What processes influence the urban flood hazardscape? iii) What makes people vulnerable to urban flooding? iv) How does one assess urban flood risk? A realist and constructivist society-environment epistemology are considered. In particular, the platform generated through the aforementioned epistemologies for opening up the opportunity to incorporate an integrated hazardscape and vulnerability paradigm for integrated urban flood risk management is considered. The research adopts an analytical framework that includes elements of the Pressure and Release model, the Sustainable Urban Development framework and the Extended Alternative Adjustments framework to study flood risk in low-cost settlements. The research incorporates a review of the damage following three extreme weather events over George during 2006 and 2007. It selects a worst affected low-cost settlement for further flood risk analysis. In the flood risk assessment the research investigates the flood hazardscape of the settlement and physical adjustments undertaken by residents. Human flood vulnerability and vulnerability adjustments undertaken by the residents are also investigated. The research adopts a participatory hazardscape methodological approach drawing from hydrological methods within the physical sciences and qualitative methods from within the social sciences. Both primary and secondary sources are considered. The findings allow for a guiding Urban Flood Risk Circulation framework that explains the importance of considering both the flood hazardscape and human vulnerability in urban flood risk management. The study demonstrates that traditional physical science approaches to urban flood risk management are not sufficient for understanding the complexity of the hybrid character of the urban flood hazardscape in low-cost settlements. A broader definition of the urban flood hazardscape that considers more localized forms of flooding becomes necessary. Such localized forms of flooding require both hydrological as well as qualitative methods for assessment. The study is able to trace the root causes of the flood hazardscape to the processes of urban development. The study notes that human vulnerability is the product of physical exposure, poor livelihoods and a lack of adjustments that is also rooted in the processes of urban development. Finally, the study reveals innovative physical adjustments that are either purposive or responsive, to the hazardscape as well as adjustments to the vulnerability. The study concludes that for effective integrated urban flood risk management, especially in low-cost settlements, it is necessary to understand the hazardscape and human vulnerability. This should be accompanied by an understanding of the human adjustments to the hazardscape as well as the human vulnerability. In this respect, an integrated urban flood risk management plan should be incorporated into the broader integrated development and environmental management planning of a city.