



Networks and Narratives: Qualitative GIS for Understanding Urban Flood Resilience

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This paper presents results from workshops in three informal settlements across the Global South that used GIS in 'non-traditional' ways to reveal and spatially-document residents' understandings about flood resilience. Globally, it is estimated that around one-eighth of the world's population live in informal settlements (UN Habitat, 2016), which are often sited on marginal urban land at risk of flooding and other hazards. The rapid growth and absence of official data within informal settlements is a challenge for typical flood risk management strategies which often rely on detailed GIS data to assess and inform resilience planning. The research presented here takes a bottom-up approach to generating spatial data and visualises this data within a qualitative web-GIS which was presented to urban planners and hazard managers. Throughout 2017, we undertook a series of workshops in informal settlements in three cities: Nairobi (Kenya), Manila (Philippines) and Cape Town (South Africa). Using arts and performance techniques, we asked residents to document how they are impacted by floods and who did (or did not) help during the floods. For each city, a web-GIS containing four data layers was generated using Google MyMaps. The four data layers are: (i) flood footprints to show the extent of previous flooding, which closely match (or are more detailed) than standard flood hazard maps; (ii) multi-media pop ups containing narratives, photographs, audio and video to explain the impacts and coping strategies for floods; (iii) a spatial map of the social network of actors that help residents during 'peace times' and how this changes during a flood event; and (iv) virtual reality StorySpheres containing 360° photographs with audio to present key narratives from the settlement. In each city, these prototype maps were presented to city technical experts such as planners, engineers and consultants for reflection and feedback. We will summarise this feedback and lessons learnt from the overall project in this presentation. Experts reported that the qualitative GIS layers provided a richer, more immersive depiction of the settlements. In conjunction with more 'traditional' GIS hazard layers, the qualitative GIS maps created with residents from informal settlements can better inform resilience planning interventions.