



In search of the 'at risk' population: A review of quantitative social vulnerability techniques in the River Parrett catchment

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In the field of Disaster Risk Reduction (DRR), disparate research agendas have led to an increasing divergence in the quantitative approaches used to define community social vulnerability in hazardous places. Though the output of such research methods have been aligned in their aim of producing a universal risk classification or Social Vulnerability Index (SoVI), the conceptual and statistical approaches have often varied greatly. Methodologies have differed in their use of multivariate statistics to classify small area census data, often making use of techniques such as Pareto ranking, Principal Component Analysis (PCA) or more recently, cluster analysis, to derive geodemographic-based assessments. In this research, two alternative paradigms were applied and contrasted to review community social vulnerability to flooding within the River Parrett catchment area, Somerset, UK.

The UK experienced unprecedented rainfall during the winter of 2013/14 resulting in the flooding of 65 km² of the River Parrett catchment area, Somerset. Approximately 600 properties were flooded and a number of towns cut off due to high floodwaters. It has been estimated that 3,300 properties are potentially exposed to a 1 Since the recent flooding, an action plan has been developed by Somerset County Council. However, the focus is predominantly on the physical aspects of the flooding hazard, with very little consideration for the social vulnerability of the communities affected. Within the catchment there are a range of socioeconomic profiles, including highly urbanised areas such as Yeovil, Taunton and Bridgewater, as well as numerous villages and hamlets. Therefore, the catchment provided an ideal case study area to model two divergent approaches for assessing social vulnerability to flooding.

UK Census output information (2011) was used as the primary data source and scale for producing two vulnerability models. The relative weighting, displacement and granularity of both indices was then compared and contrasted to assess social vulnerability to flood risk within the towns and villages of the catchment at census output area level. Research findings highlight the complexity of defining single solutions as well as the importance of understanding social vulnerability within the site-specific context in which it is assessed. Furthermore, this paper questions whether the merits of social vulnerability measures are perhaps better assessed on the use and realistic application such models may hold in disaster communication, preparedness and mitigation.