



## **Geographically-explicit flood risk assessment (aka Flood Maps): the basis of rational policy response?**

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The last two decades has witnessed the progressive fusion of two major research developments: (1) spatially explicit predictions of the extent of impact of extreme flood events, using latest generation modelling technologies; with (2) GIS-based approaches to estimate vulnerability. The result is a major shift in catastrophe risk management: away from a grounding in statistical analysis of historical losses; towards spatially explicit prediction of those losses, whether or not any losses have been recorded historically. From an insurance perspective, it might be assumed that these new flood maps represent a two-fold opportunity: (1) they allow for the refinement of probable maximum loss estimates, better informing insurance and reinsurance pricing; and (2) they become the basis of more rational flood risk management policy-making, in terms of both prioritisation of public planning and investment decisions and wider elements of risk management such as effecting the right public response (e.g. flood proofing of properties). These are related in the sense that (2), public policy response, is often seen to be the necessary precursor for the continual provision of insurance to properties and businesses identified as being at particularly high risk. In this paper, we reflect upon this supposedly rational interpretation, noting that it makes a number of potentially incorrect assumptions about the rationality of public and policy response to flood risk maps. These assumptions follow from long-established research into the psychological explanation of risk perception which points to the importance of heuristics, or mental short cuts, in the ways in which we come to evaluate risk. Of particular importance is the availability heuristic which notes that our response to risk, whether as a potential victim or as a flood risk decision-maker, depends upon our available and personal experience of that risk. The traditional approach to flood risk management, in which the highest frequency risks are removed by flood defence, creates 'risk-sanitised' landscapes except for those locations unfortunate enough to experience the most extreme events that exceed the associated standard of protection. Flood risk maps are seen as the alternative – a means of effecting public and policy response – in situations where flood risk is no longer experienced. Unfortunately, evidence suggests that such maps do not fulfil this role for a number of reasons. This is not simply because they are not reliable. In fact, they are surprisingly robust. Rather, it is because most decision-making takes place in the context of a full suite of risks, of which only one risk will be flooding. Whether it is decisions over where to site new business developments, or what investments to make in the fabric of your own home, 'rational' decision-making involves trading off the costs and benefits of precautionary responses in relation to a whole suite of risks. This may or may not make investment in flood risk reducing measures a critical priority. We will argue that this implies that if the insurance industry wants to improve its ability to enable measures that reduce flood risk, it needs to consider additional actions in addition to simply arguing for greater public investment in flood risk reducing measures.