



## **Social perspectives on environmental risk and uncertainty**

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Many of the most pressing challenges for uncertainty analysis in the context of natural hazards relate to the human dimensions of the risks. The risks to people arise from a complex function of the dynamics of the natural world and of society, and indeed of the human mind. Understanding the multiple interrelationships between the natural and social realms is needed, both for the analysis of these risks and the process of designing and managing responses to them.

In this presentation, I describe some areas of existing and emerging research into risk and uncertainty at the interface between society and the natural environment, critically reviewed as part of a recent UK Natural Environment Research Council scoping study on the topic. Although a great deal of research into risk and uncertainty has been mobilised in the social sciences, the crossover of insights to the parallel community in the natural and physical sciences is still weak. The main focus of is on the insights obtained from qualitative and theoretical approaches, highlighting methods that consider integrated socio-technical and socio-environmental systems in conceptualising and managing risk and uncertainty. Drawing on the combined evidence of these experiences can provide the constitutive grounds and important operational insights for the development of more integrative frameworks for responses to natural hazards risk.

Three particular domains are highlighted where social dimensions are important factors of uncertainty in natural hazard risk assessment and management. The first and most fundamental of these is the framing of the problem. To date, risk assessments have largely looked at the social and environmental components separately. Secondly, uncertainty features prominently in the comprehensibility of environmental risks and their communication to the people who will be impacted by the hazards. Finally, the rich and nuanced understanding that social research can bring is an important component in responding to natural hazards, along the whole chronology of hazard avoidance, mitigation, adaptation, and post-event recovery. This presentation focuses mostly on social learning, and behaviour at the community level. Even when understanding of the problem is complete, society's choices about what to do about the problem are often difficult. Issues of choice and human agency bring a different "flavour" of uncertainty, which is coming increasingly to the fore as the predictive power of the scientific dimensions of risk assessment grows.