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## Description

In studying and addressing vulnerability and adaptation, different formulations of vulnerability lead to confusion. These need to be distinguished from each other, and clear statements are needed on how terms are being defined. The 'official' definition of vulnerability used by the Intergovernmental Panel on Climate Change (IPCC) is very similar to long-established definitions of risk used in the natural hazards community. Clarity might be enhanced by distinguishing between this kind of 'biophysical vulnerability' and the socially constructed vulnerability focused on by social scientists.

The natural hazards approach is generally one in which risk is a function of hazard and (socially constructed or underlying) vulnerability. The social science approach is to focus mostly or entirely on socially constructed vulnerability, and to pay little attention to the hazard component. In this way there is a danger that social vulnerability is examined in a vacuum that ignores the wider risk context.

A third approach is adopted by many people working in the area of climate change, and forms the 'official' IPCC definition. This is to define vulnerability as a function of sensitivity (very similar to social vulnerability) and the nature of the hazard to which a system/population is exposed. The term 'biophysical vulnerability' could be used for this kind of formulation, to distinguish it from the more social science oriented formulation of (social) vulnerability as something that arises from a system/society/population's internal properties.

Social vulnerability is measured in terms of predictive variables representing factors such as economic well being, health and education status, preparedness, and the ability to cope with particular hazards. The adaptive capacity of a human system represents the potential of the system to reduce its social vulnerability and thus to minimise the risk associated with a given hazard. Some aspects of adaptive capacity will be hazard-specific. The nature of the hazards faced by a human system, and the timescales associated with them, will determine the nature of its adaptive capacity and of appropriate adaptation strategies.

Future studies of vulnerability, adaptive capacity and adaptation should ask the following questions at the outset in order to ensure better communication between researchers from different backgrounds:

Are we principally concerned with biophysical or social vulnerability?

What are the principal hazards with which we are concerned and how do they affect the adaptation process and the relationship between vulnerability and adaptive capacity?

Are we defining adaptive capacity at the system and sub-system level only, or does our definition include the 'exogenous' factors that facilitate or inhibit the realisation of sub-system capacity?

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