Chapter 2

Why Don't Abundant Data and New Technology Always Help?

The rise in vulnerability to and risks from natural hazards

Despite advances in knowledge and technology (e.g., satellite coverage or surveillance techniques), vulnerability to and the risks from natural hazards have been rising in developed and developing countries – and this may be the case even with the frequency and magnitude of hazard events remaining constant (Gardner 2002; Van Aalst and Burton 2002). In other words, what has been increasing is not the number of disasters as a result of natural hazard events per se, but the impacts of these events on people and property (Twigg 1998, p 1). The increase in risks and vulnerability is the result of changes in people's social, economic, cultural, political, and environmental contexts. The incidence of and toll disasters take have increased for decades both because of development processes and because of lack of development. For example, development processes (e.g., dams and road construction) have affected the allocation and distribution of resources between different groups of people and have created new natural hazard risks. When people are displaced, the poorest among them are forced to settle on marginal land and in risk-prone areas because of demographic and socioeconomic pressures.

The importance of local knowledge and coping strategies is entering national policies. For example, the Nepal Disaster Management Policy mentions the need to strengthen communities' coping strategies. This policy was drafted by the Nepal Centre for Disaster Management (NCDM) and Oxfam-Nepal and is currently being reviewed by the Government of Nepal, Ministry of Home Affairs, and the National Planning Commission (NCDM and Oxfam-Nepal 2007). However, most policies, plans, building codes, or land-use standards are not implemented and enforced effectively in developed countries (as illustrated recently in 2005 by the effects of floods in New Orleans, USA, following Hurricane Katrina) and this is more so the case in developing countries.

Dependence on public and humanitarian aid

International disaster relief and reconstruction funds have not kept up with the growing demand, and public support systems and services have eroded significantly as a result of privatisation of services (Alam 2006, p 2). International humanitarian aid for developing countries has been increasing (rather than reducing) their dependency on developed countries, creating new vulnerabilities (Jigyasu [2002] on earthquake rehabilitation in India and Nepal). Dependence on external aid is probably due to the nature of aid, which has mainly focused on short-term, immediate relief activities, and the lack of political will to implement the regulations and standards required. The influx of external help and the related dependency have created little incentive for governments to capitalise on their own resources (including local knowledge and practices) (Mercer no date, p 8). Public aid has also created dependencies at local level. As Schware (1982, p 215) states in the context of India:

"Monitoring and providing gratuitous relief – for unpreventable natural calamities such as droughts, floods, and famines – dates back at least to 1880. Since the Indian Famine Commission Report of 1880 and subsequent famine codes modelled after it, such public relief measures have become institutionalised. Thus the government has created a relief mentality that fosters expectations and reliance on government as well as international aid [...]. The informal warning process may be seen as a reaction to non-existent, irregular, or late formal flood warning messages."

This realisation about humanitarian and public aid has led to a change in paradigm towards disaster preparedness rather than just focusing on relief. In light of this trend, certain questions come to mind: why is it that abundant data and new technology do not always help to decrease the level of risk from natural hazards? Is knowledge lacking? Is knowledge not used? Is knowledge used ineffectively? How are the increasing numbers of people affected by disasters going to cope with the deficit in supply of public goods (Alam 2006, p 2)? Does appropriate anticipation of natural hazard always lead to appropriate action (Howell 2003)? Whose interests are served by research into natural hazards and disasters? Is such research in the interests of those at risk or is it in the interest of the participating technical and research organisations which can gain through perpetuating and elaborating upon research and technology (Parker and Handmer 1998, p 48)? The realisation that technology and data alone will not be enough to improve people's lives is growing. Research has to be tailored to people's capacities (i.e., local knowledge and practices), based on their assets and needs, and based on building their trust (ISDR 2004) because:

"despite various systems (national warning systems, red crescent cyclone preparedness programme), household preparedness and survival potential appear to be very much dictated by economic and social circumstances." (Howell 2003, p 4)

The literature shows that people affected by disasters play a crucial role in disaster preparedness and mitigation, but their knowledge is often ignored by both international aid agencies and by their national and regional governments. The failure of relief aid following the 2004 tsunami, for example, is now being attributed to a general misunderstanding of people's needs and practices.