Chapter 4
Local Knowledge[6]

4.1 Lessons from the Field

Flash floods are frequent events in Chitral District, the north-western most area of Pakistan. Most of the time, villagers manage to save their lives. They know how to interpret local environmental signals and where hazardous places are. But, on 14 July 2006, a foreign engineer lost his life at a tunnel construction site. That day, an intense rainstorm occurred between 4:00 and 5:30pm. The extreme rainfall triggered a flash flood, which rapidly washed away the engineering company's equipment and residential quarters on the fringe of the riverbed. This tragic event, which took the life of one person and damaged a million rupees of equipment, was not a surprise to the locals. "We told them twice!", said the leader of a nearby village. "We knew that the retaining walls were too small to channel the water during the rainy season and that they should have been raised." The villagers had learned from previous experience, remembering that two people died in the same place about 40 years ago in a major flash flood. Unfortunately, the engineering company, interested in settling in an easily accessible and cheap area, neglected local advice.

Many stories like this one can be found in Chitral District and other parts of the Himalayan region. They illustrate that local knowledge, in general, and local knowledge on natural hazards, in particular, is normally ignored by external agencies at both national and international levels. Agencies tend to favour scientific and specialised knowledge, a great deal of which is not in tune with local contexts and realities. The residents, whether they live in a remote village of Pakistan or in the suburbs of Kathmandu, are often the first victims and respondents to natural hazards. In the Himalayas, local knowledge is all the more important because many communities are isolated. Ignoring their knowledge may result in important human and economic costs, especially in the long term. The failure of many disaster management (DM) projects and activities, as illustrated recently by the impacts of relief aid during and following the December 2004 Asian tsunami, is partly attributed to a lack of understanding of local contexts and needs.

4.2 Local Knowledge and Community Participation for Improved Disaster Management

Flash flood management is a major challenge for government and non-government organisations (NGOs) due to difficulties with accurate forecasting and the short warning lead-times. Therefore, community participation in flash flood management is a pre-requisite to improve local preparedness and response capacities. But how can practitioners work with communities to improve disaster management?

This chapter argues that respecting, understanding, and integrating people's knowledge and practices into flash flood management activities, and exploring ways to combine this knowledge with scientific knowledge, can improve community participation in disaster management. Ultimately, a deeper understanding and use of community knowledge can help external organisations to further reinforce the community's strengths and to minimise possible unsustainable practices for improved disaster management. Therefore, this chapter seeks to provide understanding of local knowledge and its role in disaster management. This will be done by investigating the following key questions: what is local knowledge, where is it located, who has it, when and how is it produced, how to identify and document it, what are the advantages and disadvantages of using local knowledge in disaster preparedness and disaster management, and how to make use of local knowledge in flash flood management. Trainings on local knowledge related to disaster preparedness and disaster management should provide an entry point to change attitudes towards local knowledge and improve

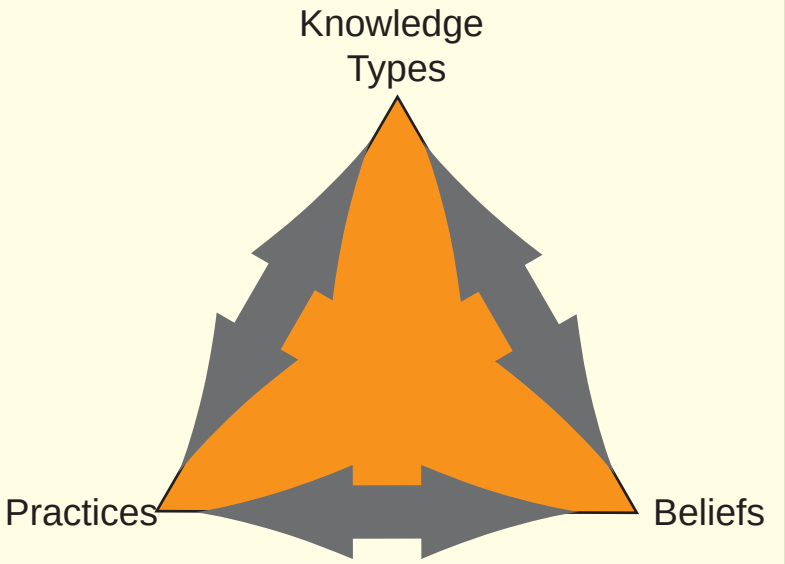
[6] This chapter was contributed by Ms. Julie Dekens, ICIMOD.

communication and tolerance between communities and the different stakeholders working in disaster management. It should also be an entry point to move from the conventional top-down approach in disaster management towards the participation of communities and the mainstreaming of disaster management into development programming.

This chapter is based on ICIMOD's past experience and publications on local knowledge for disaster management (Dekens 2007a, b, c, d). A training exercise on documenting local knowledge along with necessary supporting documents is provided in Annexes 2a-e.

4.3 What is Local Knowledge?

The term 'local knowledge' is used here in its broadest sense to refer to what the residents (or the people living with risk) know about natural hazard risks, and indirectly what they believe and do about them in a given situation. Peoples' practices, lifestyle, and beliefs influence their knowledge on natural hazards and, therefore, the way they respond to them (Figure 10). Indigenous knowledge is part of local knowledge: it refers to knowledge unique to a given culture or society. The term 'local knowledge' puts the emphasis on a place or a region, rather than time (i.e., a knowledge that is anterior to another). Local knowledge and practices are not static: they are complex adaptive responses to change. In many cases, people have been living with natural hazards for generations and have been able to cope and adapt to minimise, reduce, or avoid the negative impacts of natural hazards to their livelihoods, properties, and lives.



What people know influences, and is influenced by, what people do (practices) and what people believe in (beliefs). Practices refer to local coping and adapting strategies. Local belief systems refer to people's beliefs (e.g., religious belief systems), worldviews (i.e., ways of perceiving the world), values and moral principles (e.g., respect, reciprocity, sharing and humility). Belief systems shape people's understanding, perceptions, and responses to natural hazards. Local knowledge on natural hazards has often only been associated with local technical knowledge (e.g., local methods of construction, use and combination of specific materials for buildings), but many other dimensions of local knowledge (or 'knowledge types') exist – for example, local environmental and agricultural knowledge (e.g., local soil classification).

Figure 10: What is local knowledge?

4.4 Where is Local Knowledge Located? Who has Local Knowledge?

Local knowledge is everywhere: in people's heads, beliefs, buildings and other constructions, farming tools, landscape, urban and rural areas, cultural and religious ceremonies, and practices, taboos, local rules, songs, proverbs, books, and so on. Local knowledge is located at the individual and household level as well as collectively through community stewards and other key social actors (e.g., shamans, elders, local religious and political leaders, healing artists). We all have local knowledge, but knowledge differs among groups (e.g., ethnic, clans, gender, age, wealth groups) due to existing differences concerning access to or control over production resources; access to education, training, and information in general; labour divisions between women and men, farmers and herders, and others; control over the benefits of production; and so on (FAO 2005).

4.5 When and How is Local Knowledge Created, Transmitted, Transformed?

Local knowledge is being created and lost all the time. As opposed to conventional, scientific knowledge it derives more from memory, intuition, and the senses than from the intellect. Local knowledge is always a mixture of experiential and transmitted knowledge. Experiential knowledge refers to knowledge gained through experience (i.e., historical observation). Transmitted knowledge refers to knowledge gained from one generation to another. Depending on the type of knowledge, transmission will occur in different ways. For example, the transmission of shared or specialised knowledge takes place through specific cultural and traditional information exchange mechanisms (FAO 2005).

4.6 How to Identify and Document Local Knowledge

To identify local knowledge relevant to disaster preparedness, practitioners should go to communities and learn from them about local natural hazards. Figure 11 provides a simple framework describing how local knowledge on disaster preparedness is related to: (1) people's ability to observe their local surroundings, (2) people's capacity to identify and monitor environmental indicators (of an upcoming flood), (3) people's ability to develop adaptation strategies for recurrent floods, and (4) people's ability to communicate about past and present floods. Practitioners working in disaster management should always ask questions related to these four key dimensions to understand what people know about natural hazards in their locality and what they do for disaster preparedness. Documentation is not to conserve local knowledge, but to learn from it to strengthen sustainable and equitable local coping mechanisms and to create new concepts, methods, or strategies for improved disaster management. Documenting local knowledge is not enough: it is only a means for the inclusion and participation of local people in disaster management and disaster preparedness activities.

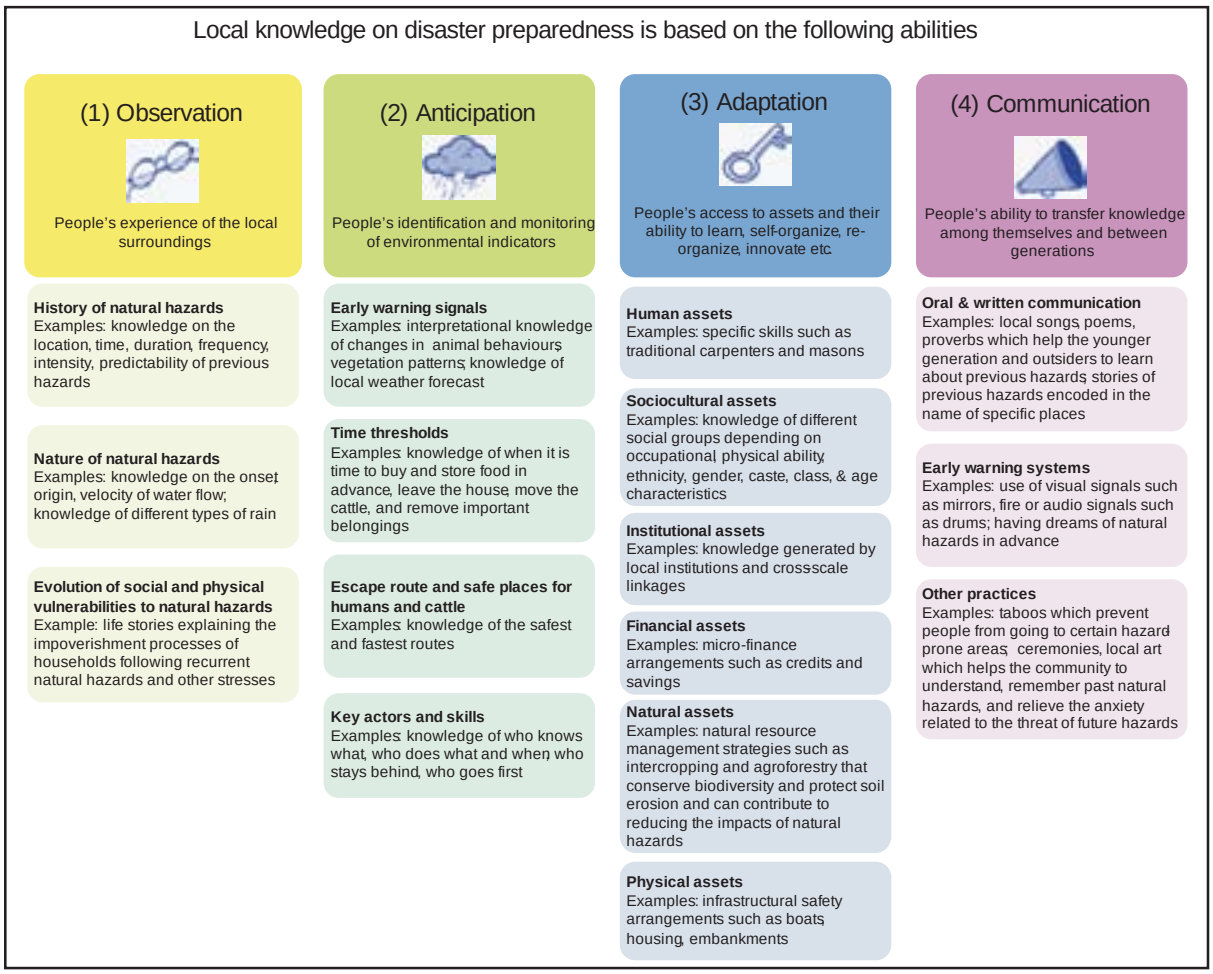


Figure 11: The four pillars of local knowledge on disaster preparedness

4.7 What are the Advantages of Using Local Knowledge in Disaster Preparedness and Disaster Management Activities?

Local knowledge and practices often, but not always, have the following advantages compared to most external, top-down strategies:

- They are low-cost strategies using local resources and know-how.
- They are well-accepted, trusted, and understood (internalised).
- Community ownership and involvement are more prominent.
- They are culturally sensitive.
- They provide continuous monitoring.
- They include time-tested reliability.
- They are in tune with local contexts and needs (more data and technology alone will not improve people's lives unless they are combined with an understanding of local contexts and needs).
- They empower the community, including the most vulnerable and disadvantaged groups, to take action instead of relying on external help only.
- They are holistic (take into account other stresses or priorities that affect the vulnerability of social groups, households, or individuals).
- They provide clues on how recurrent shocks gradually increase the vulnerability of communities and their environment.

Flash flood in Chitral, Pakistan, 4 May 2007
How to make use of local knowledge

In order to identify local knowledge on disaster preparedness, practitioners should go to the communities and learn from them by observing their day-to-day life and asking questions about at least four key aspects of local knowledge on disaster preparedness: (1) people's observations of natural hazards through daily experience of their local surroundings; (2) people's anticipation of natural hazards through identifying and monitoring local indicators such as early warning or environmental signs of imminent hazards, time thresholds, safe places for humans and cattle, and key skills and actors; (3) people's adaptation strategies (i.e., how people adjust, experiment, and innovate in the face of natural hazards and how they learn from them); and (4) people's strategies for communicating about natural hazards among community members and between generations.

4.8 What are the Limitations/Barriers to the Use of Local Knowledge in Disaster Preparedness and Disaster Management?

At the same time, practitioners also need to be aware of the limitations or barriers to the use of local knowledge in disaster management and disaster preparedness. They include the following aspects:

- The dominent belief that conventional or scientific knowledge is 'superior' to local knowledge.
- Local knowledge is difficult to identify, use, assess, validate, generalise, and replicate because it is very context specific and often taken for granted by local people themselves.
- Local knowledge is often monopolised by dominant groups in the community.
- Some local practices, beliefs, adaptations, and strategies are unsustainable or not socially equitable.
- Due to rapid changes in socio-cultural, politic, economic, technological, institutional, and environmental contexts, some local knowledge and practices are becoming inappropriate, irrelevant, or inaccessible over time. For example, government development projects may restrict people's access to natural resources

they used earlier, and people cannot 'read' their local environment anymore due to rapid changes in climatic conditions and excessive human interventions.

- Local knowledge lacks accountability within communities themselves, especially with the younger generations.
- The focus on local knowledge can be perceived as a threat to national interests and political structures, especially in authoritarian regimes.
- Natural hazards and disasters have been conceived primarily as an issue pertaining to national defence and security, which makes decentralisation efforts in this sector difficult.
- The documentation and use of local knowledge can be used by outsiders against local people to maintain control over communities and their resources.
- Exceptional disasters often require external means, beyond normal coping strategies.

4.9 How to Use Local Knowledge in Flash Flood Management

Case studies undertaken by ICIMOD in Pakistan and Nepal demonstrate that communities, based on experience and close relationships with their local environment, know about flash floods and have developed strategies that help save life and reduce damage to property. Local knowledge can provide information related to local environmental variability and specificities; local perceptions of natural hazards; risk tradeoffs in the context of multiple stresses; vulnerable groups and individuals; the local elite and power relations; and changes in people's vulnerability to natural hazards over time. Examples of potential applications of local knowledge in flash flood management include local advice about safe locations and construction sites (buildings and roads), combining local knowledge with conventional knowledge for hazard mapping, early warning systems, surveys, and other inventories to verify information, adapting communication strategies to local understanding and perceptions, and integrating local values into decision-making processes.