

## Chapter 2

# Collecting Data

**C**ollecting information on local knowledge related to disaster preparedness involves four major steps: (1) understanding the nature of local knowledge; (2) understanding how local knowledge is being (or not being) produced, used, transmitted, and adapted; (3) understanding the four pillars of local knowledge on disaster preparedness; and (4) understanding the wider context, that is the linkages between local knowledge, disaster management, sustainable livelihoods, and poverty reduction.

### Step 1: Understanding the nature of local knowledge

*“Local knowledge refers here to knowledge generated through observation and experience of the local environment by a specific group of people.”* (Berkes 1999)

What people know is influenced by, and influences, what people do and do not do, and what people believe in. To understand local knowledge one has to understand and account for people’s

various ways of knowing as much as people’s practices and beliefs. In this report, we use the term ‘local knowledge’ in the broadest sense to include each dimension: knowledge types, practices, and beliefs (Berkes 1999) because these dimensions are closely interrelated. As such, the nature of local knowledge tends to be more holistic than other forms of knowledge in the sense that it is highly embedded in people’s livelihoods. ‘Indigenous knowledge’ is part of ‘local knowledge’: it refers to, *“local knowledge held by indigenous people, or local knowledge unique to a given culture or society”* (Berkes 1999).

**Firstly, with respect to knowledge types** – Local knowledge is often associated with local technical knowledge probably because it is the most visible/concrete aspect of local knowledge. Technical local knowledge includes, for instance, local methods of construction, use and combination of specific local materials for houses, retaining walls, terraces, and so on. Additionally, many other types of local knowledge exist (e.g., ecological, social, and historical knowledge). For instance, local ecological knowledge provides local methods such as agroforestry and polyculture which can contribute

to conservation of ecological diversity. Local non-technical knowledge is often not easily identifiable by outsiders because it is closely embedded in people's livelihoods and worldviews. Local knowledge is scattered and institutionally dispersed: it is located at the individual/household level as well as collectively through community stewards and other key social actors (e.g., shamans, elders). One can also make a distinction between everyday knowledge about the environment and specialist knowledge retained by a few individuals or local experts. Local knowledge also tends to derive more from memory, intuition, and the senses than from the intellect. Finally, another distinction can be made between experiential knowledge (i.e., knowledge gained through experience) and transmitted knowledge (i.e., knowledge gained through transmission from stories, poems, songs, and religious practices, for example). Obviously local knowledge is always a mixture of the two. However, transmitted knowledge does not meet with the same problems of legitimacy in the community as experiential knowledge (personal communication, James Gardner).

**Secondly, with respect to local practices, institutions, and skills** – In the literature, local practices are also referred to as 'risk-spreading strategies', 'preventive measures', 'adaptation strategies', 'coping strategies', 'adjustment strategies', 'safety nets', and so on. Local practices are mediated by local institutions and associated power relations. Local institutions constitute a set of formal and informal rules, norms, values, organisations, and patterns of behaviour that define who is allowed to use what

kind of assets (i.e., natural, sociocultural, economic, political) at what time and under what circumstances. At the local level, various types of institutions exist. For instance, institutions can be classified in terms of social, religious, political, judicial, and economic institutions (Appiah-Opoku and Hyma 1999) or in terms of familial, communal, social, and collective institutions (Bingen 2001). Examples of local institutions are: the family, the household, marriage, the caste system, kinship exchange networks, traditional rural reciprocity networks, schools, and so on. Institutions shape every aspect of a livelihood system<sup>1</sup> from the type and amount of assets individuals, households, and organisations can build upon, together with the creation, transformation of, access to, returns from, and accumulation or reduction of assets (Bingen 2001), to their livelihood strategies (e.g., whether people manage to diversify, innovate, intensify), their livelihood outcomes (e.g., whether people manage to increase social services or promote a certain type of rights), and the 'vulnerability context' (e.g., crisis, shocks, trends) that people face. Ostrom (1992) identifies several reasons why institutions matter. First, "institutions shape the patterns of human interactions and the results that individuals achieve" through monitoring, sanctioning, and conflict resolution mechanisms for instance (Ostrom 1992). Second, institutions can increase and/or decrease the benefits from a fixed set of inputs. Third, "institutions shape human behaviour through their impact on incentives" (Ostrom 1992). Incentives are rules,

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<sup>1</sup> A livelihood system refers to a combination of modes of livelihood at one time - e.g., farming, migrant labour, and informal activities (Murray 2001).

norms, values that control material, energy, and information flows, and therefore livelihood decisions and strategies.

Local practices and institutions encompass various dimensions. Practices may be different from one level to another. For instance, some local disaster preparedness practices may only be found at the household level while others may only be found at the community/village level. Further, practices may be different from one social group to another. For instance, Sinclair and Ham (2000) documented adaptive strategies related to household livelihoods in the Western Himalayas and concluded that, “not all strategies are viable for each group within the village. Some strategies may be village-wide, while others are specific to socioeconomic status, age, or caste, or any mixture of variables. [...] This picture of complexity is deepened when it is recognised that some strategies are only viable when others are in place.”

Some practices may be directly designed for disaster preparedness; others may be designed for other purposes (e.g., making a living) but may contribute indirectly towards disaster preparedness. Finally, some practices may help people to deal with natural hazards in the short term; while others may help them to be prepared and to adapt in the long term.

**Thirdly, with respect to local belief systems** – Local belief systems are understood here as the combination of people’s

beliefs (e.g., sociocultural, religious belief systems), worldviews (i.e., ways of perceiving the world), values/moral principles (e.g., respect, reciprocity, sharing, humility), and ethics. Belief systems shape people’s understanding, perceptions, and response to natural hazards. Understanding local beliefs, perceptions, and values is crucial therefore because it gives one insight into why people do things the way they do. In that sense, “with some groups, how people say things [and in which context they say things – author] may be more important than what they say” (Berkes 1999) because the outcome can be interpreted in many ways unless you understand the context. In other words, understanding the process is more important than understanding the outcome per se. For instance, the perceived fatalism of the rural poor in the Himalayas in accepting natural hazards as the ‘will of God’ cannot be understood simply as equivalent to the western connotation of fatalism, which is associated with passivity and apathy. As Hutton and Haque (2003) put it, “the perceived powerlessness among the poor reflects not resignation and passivity but a realistic perception of their position vis-à-vis dominant resource relationships”.

As such what is perceived as fatalism is part of a sociocultural and psychological coping response for people who lack individual choice and power. At the same time not all beliefs are sustainable or relevant. Some values have led to massive environmental degradation and the collapse of entire societies (Diamond 2005).

## Step 2: Understanding the processes surrounding local knowledge

All three dimensions of local knowledge (knowledge types, practices, and beliefs) are interrelated and influence one another constantly. Local knowledge and knowledge in general emerges from a dynamic process of knowledge creation, use, management, and transmission. In fact, local knowledge is disappearing and being created all the time (Berkes 1999). Before trying to build upon local knowledge and practices, one needs to understand the processes involved. How is local knowledge disappearing and being created? How is local knowledge used in a specific context and by whom? How is local knowledge being transmitted within the community and between generations and who is transmitting it? How is local knowledge managed at the household and community levels? What are the key local institutions that influence knowledge management? Who has access to local knowledge, how, and under which conditions?

The process of knowledge creation itself is complex and includes aspects of internalisation, socialisation, and externalisation of knowledge, as well as the combination of one type of

knowledge with other types (Nonaka 1991). For the purpose of this report, two important points need to be highlighted. First, the internalisation of practices means that, “local people often have difficulties identifying specific practices or institutions as specifically oriented toward coping with hazards, even though those same practices do play a role in reducing risk. This makes sense given that most of these practices have been developed over centuries of trial and error. Also, some of the very practices that do reduce risk can be remarkably oppressive in other ways. In some cases [...], for example, the need to create social obligations outside of the community (that can protect households in the event of disaster) leave little options for women when it comes to choosing a marriage partner. They have virtually no voice in the matter, but their enforced silence helps to ensure the security of their natal household (and the household they are married into)” (personal communication, Ken MacDonald).

Sometimes, prior experience of a natural hazard is forgotten because the event does not happen frequently enough for people to remember and internalise it. The combination of local knowledge with external knowledge is not new. Communities totally isolated from outside influence are rare. Local knowledge is not isolated: it has always been connected to other places and other types of knowledge.

### Step 3: Understanding the four pillars of local knowledge on disaster preparedness

The framework in Figure 1 can be employed to identify the four pillars of local knowledge on disaster preparedness. It can be used as a checklist of the key characteristics to identify and take into consideration during project planning and implementation. Local knowledge on disaster preparedness relates to four major dimensions of knowledge: observation, anticipation, adjustment, and communication.

**Firstly, with respect to observation** – Local knowledge on disaster preparedness relates to people’s observations of natural hazards through their daily experiences of their local surroundings.

**Secondly, with respect to anticipation** – Local knowledge on disaster preparedness also relates to people’s anticipation of natural hazards through identifying and monitoring local indicators such as early warning and environmental signs of imminent hazards as well as time thresholds, escape routes and safe places for humans and cattle, and key skills, actors, and the roles they play within the community.

**Thirdly, with respect to adjustments** – Local knowledge on disaster preparedness also relates to people’s adjustment strategies through trial and error. It includes aspects of how people cope, adapt, experiment, and innovate in the face of natural hazards and how they learn from previous hazards they have faced. Their capacity to adjust is based on their access to assets (or people’s strengths, or capital endowments including human, sociocultural, institutional, financial, economic, political, physical, and natural aspects) which – as mentioned previously – is mediated by local institutions and influenced by external institutions and global factors and trends. Importantly, not all adjustment strategies are sustainable in the long term.

**Fourthly, with respect to communication** – Local knowledge on disaster preparedness also relates to the communication strategies about natural hazards among community members and between generations. Here communication refers to the sharing of information related to past and imminent natural hazards. In traditional rural communities, knowledge is usually transferred orally, but not exclusively so. Understanding local knowledge on disaster preparedness therefore requires us to pay attention to informal education and internal learning processes.

## Step 4: Understanding the wider context: the relationship of local knowledge, disaster preparedness, and livelihoods to poverty reduction

Local knowledge is influenced by the type, frequency, and intensity of past and present natural hazards, as well as by other shocks and global trends and factors – for instance, the impacts of climate change, globalisation, road construction, and national policies on natural resources. Indeed, in many cases, natural hazards, although constituting an important stress, are not the major stressor faced by communities. From a local knowledge perspective, as suggested by Battista and Baas (2004), it is more interesting to, *“look at shocks that are recurrent and chronic and that contribute to gradually increasing the vulnerability of the community instead of exceptional natural events which require emergency operations from outside”*.

The lack of an explicit connection between local knowledge and disaster management in the literature reflects the lack of

linkages between poverty reduction and disaster management, and, more generally, the dominance of a sectoral approach to disaster management. Did we forget that **disaster risk reduction is also poverty reduction**? The issue of local knowledge on disaster preparedness needs to be understood and integrated into the wider issues of sustainable livelihoods and poverty reduction. Ultimately, improving implementing agencies’ understanding of the linkages between local knowledge and disaster preparedness can help implementing organisations to promote livelihood security and build resilient communities. Local knowledge can be used as a key entry point for this.

The four steps outlined above can be used as a checklist to verify that you have incorporated the key aspects of local knowledge on disaster preparedness into your project. The next part of the report presents the information collected in Nepal on local knowledge related to flood preparedness. The case study is organised according to the framework in Figure 1. Chapter 3 focuses on local knowledge related to the observation and experience of floods. Chapter 4 focuses on local knowledge related to the anticipation of floods. Chapters 5 and 6 focus on technical and non-structural adaptation strategies. Finally, Chapter 7 focuses on how local people communicate and share information about past and imminent hazards.