

# Introduction

**T**his publication attempts to give an overview of and framework for local knowledge in disaster preparedness; an understanding of how it can be used in disaster management; and the benefits and problems it can involve. It is addressed to development and research organisations working in the field of disaster management mainly, but not exclusively; any development organisation working to ensure sustainable livelihoods and promote community resilience should take natural hazard risks into account.

Since the 1970s, a growing body of literature has highlighted the importance of integrating local knowledge and practices into development and conservation projects. A less well-known but also growing body of literature comes to a similar conclusion in relation to natural hazards and disasters. Literature reviews on early research findings in Sociology (Dynes 1974; Fritz 1968; Barton 1970; Quarantelli 1978), Geography (White 1974; Burton et al. 1978); and Anthropology (Torry 1979) are available elsewhere.<sup>1</sup> Most of the work on human response and adaptation to natural hazards and disasters advanced more in the developing world than in developed countries; much of it, especially on drought, focused on indigenous peoples, peasant farmers, and herders and much of it directly challenged mainstream academia, the media, government, and aid agencies' policies and practices. Similar work began in the Himalayas from the early 1980s. Journals like 'Cultural Survival', 'Human Ecology', and 'Mountain Research and Development' promoted this work.

Notwithstanding, the mainstream literature on natural hazards and disasters and the mainstream institutions charged with disaster management ignored local knowledge and practices until recently. The existence and usefulness of local knowledge rarely received attention. The emphasis of most academic work, both nationally and internationally, has been on the latest, 'advanced' geophysical knowledge and technical systems as the most effective disaster response mechanisms. The considerable body of work on local knowledge remained as marginal as many of the peoples whose knowledge it was. This is partly due to the enormous technical-social perspectives' divide and the privilege accorded the 'expertise' approach which emphasises formal education and degrees instead of life experience. Since the 1980s, however, increasing numbers of institutions have recognised the importance of integrating 'local knowledge' into development. The same applies to disaster management, with increasing research

<sup>1</sup> Examples of early case studies on human responses to natural hazards and disasters can be found in Latin America (e.g., Oliver-Smith 1973, 1977a, b; Dougherty 1971; Bode 1977 on the 70s Peruvian earthquake); in the Sahel and East Africa (e.g., Copans 1975; Watts 1983; Campbell 1984); and in New Guinea (e.g., Waddell 1975 contrasts disastrous official relief to damaging frosts with indigenous strategies). In the 1970s-80s, drought was the hazard studied most, especially among African pastoral people, but not exclusively (e.g., Jodha 1975 about community adaptation to drought in Rajasthan, India). (Torry 1979; personal communication Dr. Ken Hewitt)

initiatives, national and UN agencies, and major international NGOs beginning to take local knowledge and its stakeholders into account. Many NGOs have been established locally, regionally, and globally to address these issues or engage in activism on behalf of those at risk. To what extent the latest work on local knowledge and related participatory disaster management approaches are less vulnerable to marginalisation by national and international disaster management strategies than earlier work remains to be seen. A comprehensive framework through which to understand local knowledge on disaster preparedness cannot be found in mainstream literature, by and large. Many case studies about local knowledge exist, especially local environmental knowledge, but usually the links between this local knowledge and disaster management and preparedness are not made explicit.

## **Approach**

Much of the literature on local knowledge is dispersed in various fields, for example, geography, anthropology, natural resource management, climate change, development, rural sociology, urban planning, and engineering. Based on the assumption that much can be learned from other fields, this paper is based on a cross-disciplinary literature review. The resulting framework enables identification of key findings and trends in current literature on local knowledge related to disaster preparedness. The literature review mainly draws from English language reports available on the Internet and from peer-reviewed research journals.

The great diversity of languages in the South Asian region make it difficult to tap into the resources available on local knowledge, as most of it is not recorded or is embedded in old religious and cultural works. Although the aim was to focus on disaster preparedness in South Asia, references and studies from a broader geographical area (i.e., other developing countries) were included to take advantage of lessons learned elsewhere.

## **Organisation of the report**

This report is in four parts. Following this introduction, a short academic background gives a historical perspective of local knowledge and disaster preparedness. The limitations of current disaster management activities are highlighted as well as an understanding of how local knowledge has been marginalised by mainstream development, in general and in the literature, about natural hazards and disasters. The importance of local knowledge is discussed in the context of participation of local people in disaster management and preparedness activities. The third part of the report discusses the framework for understanding local knowledge related to disaster preparedness. The framework (Part 2) is based on four steps: (i) understanding the nature of local knowledge, (ii) the transformation processes surrounding local knowledge, (iii) the key dimensions of local knowledge on disaster preparedness, and (iv) the links between local knowledge, disaster preparedness, and livelihoods and poverty reduction. The concluding part (Part 3) contains an overview of lessons learned together with a list of the cited literature. Controversial aspects related to local knowledge on disaster preparedness that are often disregarded or misunderstood are also highlighted (box – ‘Did you know?’).

## Beyond the framework

The present framework does not cover how to use local knowledge related to disaster preparedness and how to integrate it into disaster-related activities, plans, and policies. It aims to promote sensitivity towards and an understanding of local knowledge on disaster preparedness. **The assumption here is that local knowledge and practices, whether they are relevant or not in a specific context for a specific project, should not be ignored. Local knowledge always needs to be taken into account. However, and importantly, this does not mean that all local knowledge and practices are appropriate or sustainable.** Therefore, the next important step in providing policy recommendations involves assessing how to integrate local knowledge into your activities; which local knowledge and practices you can support within your timeframe; for whom and for what objectives; how it can be combined with other knowledge for disaster preparedness; and in which context local knowledge and practices contribute to improvement of disaster preparedness activities.

## Definitions

The current report proposes investigation of natural hazards from a people-centred perspective: that is what the residents know about natural hazard risks and what they believe and do about them in a given situation. As such local knowledge is used here in its broadest sense.<sup>2</sup> We all have local knowledge: it refers to the relationship people develop with their surroundings over time. The terminology is diverse: the literature refers to: ‘indigenous knowledge’, ‘traditional knowledge’, ‘folk knowledge’, ‘folk science’, and ‘citizen science’ among others. 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)

Local refers to, and emphasises, a place, a region, a location as much as the regular movements between different points (e.g., knowledge related to the routes or different locations of groups of people who migrate on a routine basis such as nomads, commuters, seasonal migrants (Antweiler 1998, p 17) rather than time (a knowledge that is anterior to another, traditional versus contemporary knowledge).

It is important to learn how people (local and indigenous) in a particular area view and interact with their environment; whether or not they have local knowledge that helps monitor, interpret, and respond to dynamic changes in ecosystems and the resources and services that people generate; and whether or not their knowledge can be used to design appropriate interventions, including disaster preparedness (Berkes et al. 2000; Langill 1999). Local knowledge is dynamic and is always changing over time through experimentation and adaptation to environmental and socioeconomic changes (Thrupp 1989, p 15).

<sup>2</sup> ‘Data’ refers to pure and simple facts, ‘information’ refers to structured data, and ‘knowledge’ refers to the ability to use information to achieve objectives ([www.pascaru.net/English/1.html](http://www.pascaru.net/English/1.html)).

Disaster preparedness refers to a combination of short- and long-term strategies that help minimise or reduce the negative effects of natural hazards, prevent their impacts on assets, and escape certain peak values (e.g., during periods of excessive rainfall, etc) or their consequences. As such disaster preparedness is defined broadly and goes well beyond emergency preparedness which is used by nations to refer to crisis management based on command-and-control (civil defence) and short-term response strategies. It is difficult to isolate disaster preparedness from other components of disaster management (e.g., disaster relief) as they are inter-related.