

The Snake and the River Don't Run Straight: Local knowledge on disaster preparedness in the Eastern Terai of Nepal

Location: Belhi, Deuri, Katarait, Malangawa, Pipariya, Phoolparasi, Shreepur, Singyahi, and Sundarpur in Nepal

Date: April 2006 – June 2007

Sector focus: Flood related disasters

Spatial focus: Mountainous village in the Northern Gangetic plains

Organization

The International Centre for Integrated Mountain Development (ICIMOD) is an independent 'Mountain Learning and Knowledge Centre' serving the eight countries of the Hindu Kush-Himalayas – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – and the global mountain community. Founded in 1983, ICIMOD is based in Kathmandu, Nepal, and brings together a partnership of regional member countries, partner institutions, and donors with a commitment for development action to secure a better future for the people and environment of the extended Himalayan region.

ICIMOD's activities are supported by its core programme donors: the governments of Austria, Denmark, Germany, Netherlands, Norway, Switzerland, and its regional member countries, along with over thirty project co-financing donors. The primary objective of the Centre is to promote the development of an economically and environmentally sound mountain ecosystem and to improve the living standards of mountain populations. The Humanitarian Aid department (ECHO) is the service of the European Commission responsible for funding this project as well as other relief operations for victims of natural disasters and conflicts outside the European Union. Aid is channelled impartially, straight to victims, regardless of their race, religion and political beliefs.

Website: www.icimod.org

Bibliographical details

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Language availability

This publication is available in English.

Abstract

The mountain ranges of the Himalayan region are young, unstable in geology, have steep slopes, and a climate that is difficult to predict. The region is highly susceptible to natural hazards such as floods, flash floods, landslides, and earthquakes. The flat lands of the Terai region of Nepal border India and flash floods and riverine floods are a regular occurrence and mainly affect domestic property and agricultural fields. Over the years, local people, especially elders and other critical actors such as farmers have accumulated knowledge about the floods through daily observation and practical experience of their surroundings. Local stories and anecdotes related to floods abound and reveal how people live and interpret their landscape over time. This publication presets a framework that can help to understand local knowledge on disaster preparedness and how this can be used in management activities. By understanding the local knowledge and building upon existing coping strategies and skills, it is the long-term mission of ICIMOD to bring the Himalayan region to an acceptable level of disaster risk.

This ICIMOD study is part of a 15-month project (April 2006 – June 2007) entitled, *Living with risk – sharing knowledge on disaster preparedness in the Himalayan region*, supported by the European Commission through its Humanitarian Aid Department (DIPECHO). This case study can help practitioners to build confidence by providing methodological guidance on how to integrate local knowledge into disaster preparedness activities. It was made possible with the collaboration of many people including: the villagers of Belhi, Deuri, Katarait, Malangawa, Pipariya, Phoolparasi, Shreepur, Singyahi, and Sundarpur; the collaboration of the Action Aid Nepal Team, the implementing partner of PRERANA, the help of CARE-Nepal, and the project staff from the Village Development Committee (VDCs).

Intended users

This case study can help **practitioners** to build confidence by providing methodological guidance on how to integrate local knowledge into disaster preparedness activities. The intention is that by improving understanding of local communities, this will help both **national and international organizations, governments, and non-government organizations** empower the communities they serve. The publication is also intended to enable **development and research organizations** to act as intermediaries that are able to translate messages from government level to communities in a way that is understandable and credible.

Background and context of country, location and project

- The eastern Tarai political unrest has intensified despite a peace accord between the parties to end a decade-long insurgency. Protests - mostly violent, unexpected and continuous strikes have affected accessibility to the communities and delayed visits to communities since January 2007.
- Frequent shifting of rivers has caused homes to be temporarily or permanently displaced. People take shelter at their relatives or in public buildings such as schools during periods of high floods.

Technical description

Hazard/risk type: Floods, flash floods, fires

Type of assessment: Participatory Rapid Assessment

CRA process

Data collection according to this publication 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. The researchers developed a framework for local knowledge on disaster preparedness which relates to four major dimensions of knowledge: observation, anticipation, adjustment, and communication.

Vulnerability analysis: (Social) vulnerability was defined in this publication as sick or elderly persons, or pregnant women.

Capacity analysis: The study identified several examples of local knowledge and coping strategies communities use to pro-actively respond to natural hazards. When heavy and continuous rains start in the village or higher up in the mountains, people know that these are warning signals of an impending flood. As soon as the water starts to overflow, people go to safe places in the village, to friends, or to relatives outside the village. Villagers use high places such as elevated private houses or courtyards, elevated common grounds, and safe public buildings to escape from floods; and they take their cattle with them. This relates back to the framework developed by the researchers which relates to four major dimensions of knowledge: observation, anticipation, adjustment, and communication.

Non-structural coping measures include seasonal and permanent migration, drying and collecting food and firewood in advance for food security, changing land-management strategies, adopting soil conservation methods along the river bed, adopting informal rules for grazing and firewood cutting, and relying on dispersed landholdings.

Oxen are used for transport and increase access to market, and plough the fields. Other livestock includes buffalo, cows and goats which provide households with sources of food, income, fertilizer, and fuel. Labor is largely done manually, though the animals also support human effort as do a few tractors.

Tools: Semi-structured interviews, group discussion, key informant interviews, direct observation, transect walk and oral history were used.

Notes on Methods and Tools

Villages were selected based on the criteria that they were affected by floods (at least once per generation), have been settled for at least 50-100 years to enable the study of traditional coping strategies, and have had little or no exposure to external intervention to ensure that the study examines local responses and coping strategies. Interviews were conducted both at the community and household level across the socioeconomic spectrum. There was also collaboration with other agencies such as CARE and DIPECHO working in the area.

This case study outlines how to facilitate understanding about local knowledge on disaster preparedness. It does not cover how to use the information collected such as integrating it into activities. Guidance questions are provided in 'Did you ask?' dialogue boxes throughout the case study.

Lessons learned

- ◆ Disaster preparedness should be approached as a *learning* experience for both the practitioners and the community members to learn from each other.
- ◆ Some households have learned over time to adjust to recurrent floods; and often the richest households who have more land, manage to turn change into opportunity.

- ◆ Local indigenous structures such as grain stores, multipurpose platforms, and circular mud repositories enable people to store food and keep other important belongings in elevated places.
- ◆ Learning from past mistakes enables people to prepare for future floods.
- ◆ People in the eastern Terai of Nepal have been able to reduce human losses from floods as well as the economic, environmental, social, and psychological impacts. Local knowledge and practices in flood preparedness include people's capacity to do the following:
 - Describe their experience
 - Identify and interpret early warning signals
 - Identify where and when to run (or to stay)
 - Adopt various technical and structural, and non-structural measures of adjustment

Key words

Floods, Rautahat, Sarlahi, Mahottari, and Dhanusha districts of Nepal, indigenous knowledge on disaster preparedness, oral history, mitigation and adaptation

Cross references to other CRA Toolkit case studies (optional)

Dixit A. et. al. (2007) *Flood Disaster Impact and Responses in Nepal Tarai's Marginalised Basins*. in: *Working with the Winds of Change. Towards Strategies for Responding to the Risks Associated with Climate Change and other Hazards*. M.Moench, Dixit, A, (eds), ProVention Consortium, Institute for Social and Environmental Transition-International and Institute for Social and Environmental Transition-Nepal, second edition, Kathmandu, 2007, chapter 6, pp. 119 -157. Case study can be downloaded from: (http://www.proventionconsortium.org/themes/default/pdfs/winds_of_change.pdf)

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