



# **Disaster Preparedness for Natural Hazards Current Status in Nepal**

# About the Organisations

## International Centre for Integrated Mountain Development

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.

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DIPECHO stands for disaster preparedness in ECHO. It supports projects aimed at increasing the resilience of communities at risk of natural disasters by funding training, capacity building, awareness raising, early warning systems, and advocacy activities in the field of disaster risk reduction.

# **Disaster Preparedness for Natural Hazards: Current Status in Nepal**



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A consultancy report by  
**Bhubanesh Kumar Pradhan**

International Centre for Integrated Mountain Development (ICIMOD)  
Kathmandu, Nepal  
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– *Mats G. Eriksson*

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# Foreword

Inhabitants in the Himalayan region are exposed to many natural hazards. The mountain ranges are young with an unstable geology, steep slopes, and a climate that is difficult to predict. As a result, the region is highly susceptible to natural hazards such as floods and flash floods, landslides, and earthquakes. In populated areas, these can lead to disaster. Vulnerable groups – the poor, women, and children – are often hit hardest.

Since its establishment in 1983, ICIMOD has dedicated much of its work to examining ways to reduce the risk of disasters from natural hazards, thereby working towards the decreased physical vulnerability of people in the Hindu Kush-Himalayas. This work has encompassed training courses, hazard mapping, landslide mitigation and control, mountain risk engineering, watershed management, vulnerability assessment, and much more. ICIMOD has also fostered regional and transboundary dialogue for improved management of both the resources provided and the risks threatened by the big rivers in the Himalayan region; sharing of hydro-meteorological data and information among the countries in the region is of particular importance for mitigating the risk of riverine and flash floods in the major river basins.

This publication is one of a series produced under the project ‘Living with risk – sharing knowledge on disaster preparedness in the Himalayan region’, implemented by ICIMOD during a 15-month period in 2006 and 2007. The project was funded by the European Commission through their Humanitarian Aid department (DG ECHO) as part of the Disaster Preparedness ECHO programme (DIPECHO) in South Asia, and by ICIMOD. Through this project, ICIMOD has endeavoured to encourage knowledge sharing and to strengthen capacity among key practitioners in the field of disaster preparedness and management. This has been done through training courses, workshops, knowledge compilation and dissemination, and the establishment of a website ([www.disasterpreparedness.icimod.org](http://www.disasterpreparedness.icimod.org)).

The publications resulting from this project include baseline assessments of the disaster preparedness status in the four target countries (Bangladesh, India, Nepal, and Pakistan); case studies and a framework on local knowledge for disaster preparedness; and gender and vulnerability aspects in disaster risk reduction. The publications, training sessions, and workshops were undertaken in the context of the ‘Hyogo Framework for Action 2005-2015’ which recommends that regional organisations should promote sharing of information; undertake and publish baseline assessments of disaster risk reduction status; and undertake research, training, education, and capacity building in the field of disaster risk reduction.

The long-term mission to bring the Himalayan region to an acceptable level of disaster risk has only just begun. The countries in the region are among the most disaster prone in the world in terms of number and severity of disasters, casualties, and impact on national economies. Only by strong commitment, hard work, and joint efforts can this situation be improved. It is ICIMOD's hope that our collective endeavours will help improve disaster risk reduction in the mountain region we are committed to serve.

Dr. Andreas Schild  
Director General  
ICIMOD

# Preface

This report is one of four status reports on disaster preparedness planning covering four countries; viz., Bangladesh, India, Nepal, and Pakistan. The purpose of these reports is to provide an opportunity for the reader to get a quick overview of the current status on disaster preparedness documents in place and the institutions governing the implementation of these documents in the respective countries.

The reports are based on consultancies undertaken as part of the project 'Living with risk – sharing knowledge on disaster preparedness in the Himalayan region', implemented by ICIMOD, and funded by the European Commission through its Humanitarian Aid Department (DG ECHO) as part of the Disaster Preparedness ECHO Programme (DIPECHO) in South Asia, and by ICIMOD. The project takes off from the Hyogo Framework for Action 2005-2015 (HFA) which provides guidance on the roles regional organisations, such as ICIMOD, can play in long-term work towards reducing the risks of disaster. One recommendation by HFA is to undertake and publish baseline assessments of the status of disaster risk reduction.

As part of this project, a 'regional workshop on disaster preparedness plans' was held in Kathmandu in August 2006. The main objective of this workshop was to discuss the status of disaster preparedness as reflected in policies, strategies, plans, and other relevant documents available, or being developed, in the four countries. Particular interest was given to identifying gaps and shortcomings in the functioning and implementation of these guiding documents. First drafts of these country status reports were prepared for the workshop and formed the basis for the discussion and gap analysis. The reports have since been updated, improved, and extended. The outcome of the workshop was summarised in 15 concluding points, highlighting the status of disaster preparedness (DP), in particular, and disaster management (DM), in general, in the region. These 15 concluding points follow below.

The complete compilation of all documents at all governance levels, covering all types of disaster and providing full descriptions of all implementing institutions is an immense task, and it is beyond the scope of this project. ICIMOD has a mandate to focus primarily on mountain hazards, and therefore the scope of the consultancy has been to cover earthquakes, landslides, and floods, including flash floods (see Annex 1 for Terms of Reference). Furthermore, the study focused on documents and institutions governing disaster preparedness planning at the central, national level, with more limited coverage given to district and community levels. Hence, the reports are not

exhaustive in terms of covering all natural hazards. Nevertheless, the documents and institutions governing disaster preparedness at the national level do, in many cases, take a multi-hazard approach. In conclusion, the present document will give the reader a good, albeit quick, overview of the status of disaster preparedness planning for natural hazards. As such, it is the hope of ICIMOD that it will prove helpful as a source of information and thereby support the joint efforts undertaken by many government and non-government organisations towards a Himalayan region that is better prepared to mitigate the impacts of disasters.

Dr. Mats G. Eriksson  
Water, Hazards and  
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# Conclusions from the Regional Workshop on Disaster Preparedness Plans for Natural Hazards (Kathmandu, 7-9 August 2006)

## General Observations

1. Disaster preparedness (DP) has to be approached **holistically** because it is difficult to isolate preparedness from other components of disaster management (DM) such as reduction, response, and recovery.
2. A **paradigm shift** in DM from a relief-driven approach to a more preparedness-driven approach is occurring.
3. **Local communities** should be at the centre of DM plans. They are the first victims of natural hazards and the first respondents.

## Development and Vulnerable Groups

4. DM should be integrated into **national development plans** for improved sustainable livelihoods and poverty reduction.
5. A **multi-hazard approach** is crucial as most communities are exposed to hazards that have interacting and cascading effects.
6. **Vulnerable groups** and marginalised people are insufficiently addressed in DM plans.

## Institutions and Policies

7. The **political will** to direct sufficient resources is essential for the efficient implementation of existing DM plans.
8. Planning for DM is an iterative **process** that should be based on the efficient use of already existing resources.
9. **Roles and responsibilities** for DM of all stakeholders at the national, regional, and local levels need to be clarified. DM should be a priority on the national political agenda.

## Knowledge and capacities

10. **Local knowledge** should be respected and combined with other knowledge to improve the design and implementation of DM activities.
11. **Learning** from past disaster events through research and documentation is important in order to anticipate and respond to future disasters more effectively than is currently the case.
12. **Education and training** in DM is necessary for awareness and capacity building of all stakeholders.

## Communication and Cooperation

13. **Insufficient coordination** prevails among key actor in the field of DM.
14. Functional and **efficient communication** among key actors at local, national, and international levels needs to be improved.
15. **Data and information sharing** at a regional transboundary level needs to be strengthened and requires appropriate capacity and technology.



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Bhubanesh Kumar Pradhan

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# Executive Summary

This report is an assessment of the status of disaster preparedness in Nepal. There are eight chapters in all, the first four of which describe measures and institutions already in existence to tackle disaster management. It commences with an introduction (Chapter 1) to the topic with definitions of disaster and preparedness. The report then moves on to the topic within the context of Nepal and its topography. The country is prone to a number of natural hazards because of the combination of topography, climate, geological instability, and ill-advised human intervention. The limitations of the report are outlined: its focus is stated to be on three types of natural hazard – floods and flash floods, landslides, and earthquakes, and these are covered in Chapter 2.

The report holds that, in Nepal, the concentration is on post-disaster activities. However, realisation that preparedness is extremely necessary has gradually taken hold in decision-making circles and there are now several institutions involved in policy-making and coordination and implementation. The report gives comprehensive briefs on the most prominent among these institutions (Chapter 3) and carries on to describe plans and legal instruments (Chapter 4) introduced to promote disaster mitigation, preparedness, and response. Among them are the Natural Disaster Relief Act and revisions, the Tenth Five-year Plan, the National Water Plan, and a Water Induced Disaster Management Policy. Concomitant with these, the government of Nepal introduced a National Building Code in 2003 which stipulates measures against earthquakes. Attempts are being made to include district and rural communities in all of these measures and to encourage them, through the district development offices, to prepare their own plans specific to their areas. District preparedness is the subject of Chapter 5.

Chapter 6, following the discussion of legal instruments and district planning, examines the lacunae in planning and implementation. It puts forward the view that although detailed plans are made at national level, only five out of seventy-five districts of the country have plans particular to their areas. This leads activities to focus on rescue and relief and expenditure on those activities rather than taking the necessary steps towards disaster mitigation and preparedness. The report suggests that hazard maps should be prepared for all areas prone to disaster as a sine qua non for sound disaster preparedness.

The author cites lack of resources as the main reason for failure to implement the national plan for disaster mitigation. Nonetheless, it is also evident that lack of political will in an unstable political climate and lack of proper coordination among key stakeholders also play prominent roles in this failure. Policies have not addressed

disaster management adequately, responsible departments are buried inside unwieldy bureaucracies of ministries, and committees are top heavy with policy-level rather than practical-level actors. Manpower is also extremely limited in the key department for dealing with water-induced disasters, namely, the Department of Water Induced Disaster Prevention (DWIDP).

The report goes on to deal with the importance of communicating and sharing knowledge adequately (Chapter 7). Several international organisations are involved in disaster management in Nepal. This means that international response is often secured. At the same time some of these organisations are working on training communities in disaster preparedness and the conclusion is that there is an increased national awareness of the needs, and attempts are being made to match this awareness with provision of the requisite skills.

The report concludes (Chapter 8) by proposing that a fully-fledged government organisation is needed to deal wholly and solely with all aspects of natural disasters. At the same time how independent can such an organisation be if the recommendation is to lodge it within the Ministry of Home Affairs (MoHA)? The recommendation is to strengthen and institutionalise this proposed organisation in order to ensure its independence.

The report also proposes that hazard mapping be carried out on a priority basis and that earthquake awareness become part of school curricula. Other recommendations include extension of the Department of Soil Conservation Management offices to all districts of Nepal; increasing the number of radio programmes; and stricter enforcement of the national building code. Coordination of NGOs and INGOs comes across as a continuing concern, and it is suggested that regular monitoring and evaluation be carried out for activities already undertaken.

The report gives a picture of many organisations, in both the government and private sector, involved in disaster management in Nepal. It also gives several useful recommendations for improvement of institutional capacity at government level, increased use of hazard mapping, and mainstreaming of activities of implementing organisations in line with those recommended by the National Plan. It implies that until there is clarity from the government about who is to do exactly what and when, relief and rescue will continue to receive more attention than preparedness. The recommendations are given with a view to facilitating such clarity.

The report asserts that there is an overall consciousness on the part of key actors working in respective fields of disaster management that natural disasters need to be faced with full preparedness, and that they are working towards that end. Natural hazards cannot be avoided, but at least their effects can be minimised if timely measures to mitigate them are taken. The importance of involving local communities in disaster preparedness before and after disaster is also emphasised.

# Acronyms and Abbreviations

CARE	Cooperation for American Relief Everywhere
CNDRC	Central Natural Disaster Relief Committee
DDC	district development committee
DDRC	district disaster relief committee
DHM	Department of Hydrology and Meteorology
DME	disaster management education
DNDRC	district natural disaster relief committee
DoI	Department of Irrigation
DPTC	Water Induced Disaster Prevention Training Centre
DSCWM	Department of Soil Conservation and Watershed Management
DWIDP	Department of Water Induced Disaster Prevention
FSCN	Friends Service Centre Nepal
GHI	Geo Hazards International
GLOF	glacial lake outburst flood
ICIMOD	International Centre for Integrated Mountain Development
IDNDR	International Decade for Natural Disaster Reduction
IoE	Institute of Engineering
JICA	Japan International Development Agency
JVS	Jalsrot Vikas Sanstha (Association for Water Resource Development)
KVERMP	Kathmandu Valley Earthquake Risk Management Project
MoEST	Ministry of Environment, Science, and Technology
MoHA	Ministry of Home Affairs
MoWR	Ministry of Water Resources
NCDM	National Centre for Disaster Management
NDRA	Natural Disaster Relief Act
NELS	Nepal Landslide Society
NGS	Nepal Geologic Society
NPC	National Planning Commission
NRCS	Nepal Red Cross Society
NSET	National Society for Earthquake Technology
NWRDC	National Water Resources Development Council
OXFAM	Oxford Committee for Famine Relief
SCIP	Standing Committee on Inundation Problems between Nepal & India
UN/OCHA	United Nations Office for the Cooperation of Humanitarian Affairs
UNDP	United Nations Development Programme
US/OFDA	US Office of Foreign Disaster Assistance
VDC	village development committee
WECS	Water and Energy Commission Secretariat
WMO	World Meteorological Organization



# Some Key Terms

**Capacity** – A combination of all the strengths and resources available within a community, society, or organisation that can reduce the level of risk, or the effects of a disaster.

**Disaster** – A serious disruption of the functioning of a community or a society causing widespread human, material, economic, or environmental losses which exceed the ability of the affected community or society to cope using its own resources.

**Disaster risk reduction (disaster reduction)** – The conceptual framework of elements considered with the possibilities to minimise vulnerabilities and disaster risks throughout a society, to avoid (prevention) or to limit (mitigation and preparedness) the adverse impacts of hazards, within the broad context of sustainable development.

**Hazard** – A potentially damaging physical event, phenomenon or human activity that may cause the loss of life or injury, property damage, social and economic disruption or environmental degradation.

**Mitigation** – Structural and non-structural measures undertaken to limit the adverse impact of natural hazards, environmental degradation and technological hazards.

**Preparedness** – Activities and measures taken in advance to ensure effective response to the impact of hazards, including the issuance of timely and effective early warnings and the temporary evacuation of people and property from threatened locations.

**Resilience/resilient** – The capacity of a system, community or society potentially exposed to hazards to adapt, by resisting or changing in order to reach and maintain an acceptable level of functioning and structure. It is determined by the degree to which the social system is capable of organising itself to increase its capacity for learning from past disasters for better future protection and to improve risk reduction measures.

**Risk** – The probability of harmful consequences, or expected losses (deaths, injuries, property, livelihoods, economic activity disrupted or environmental damaged) resulting from interactions between natural or human-induced hazards and vulnerable conditions. Conventionally risk is expressed by the notation  $\text{Risk} = \text{Hazards} \times \text{Vulnerability}$ . Some disciplines also include the concept of exposure to refer particularly to the physical aspects of vulnerability. A disaster is a function of the risk process. It results from the combination of hazards, conditions of vulnerability and insufficient capacity or measures to reduce the potential negative consequences of risk.

**Risk assessment or analysis** – A methodology to determine the nature and extent of risk by analysing potential hazards and evaluating existing conditions of vulnerability that could pose a potential threat or harm to people, property, livelihoods and the environment on which they depend.

**Vulnerability** – The conditions determined by physical, social, economic, and environmental factors or processes, which increase the susceptibility of a community to the impact of hazards.

Adapted from UN/ISDR (2004)

