

Disaster Preparedness for Natural Hazards Current Status in Nepal

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Disaster Preparedness for Natural Hazards: Current Status in Nepal



Disaster Preparedness for Natural Hazards: Current Status in Nepal

A consultancy report by
Bhubanesh Kumar Pradhan

International Centre for Integrated Mountain Development (ICIMOD)
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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).

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
Environmental Management
ICIMOD

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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I would like to express my gratitude to ICIMOD for giving me the opportunity to prepare this paper on the status of natural disaster preparedness in Nepal. I am indebted to several local NGOs for briefing me and providing me with information on their activities in disaster management. Last, but not least, I would like to thank friends and associates who helped to prepare this report: in particular, Er. D.P. Jaishy.

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)

Chapter 1

Introduction

In mountainous countries, vulnerability, hazard, and risk are everywhere. Nepal is such a country, characterised as it is by a rugged topography with high relief, complex geological features, concentrated rainfall, and a dense population. A larger part of the country is vulnerable to natural hazards such as earthquakes, landslides, debris flows, floods, drought, and other associated phenomena. A variety of physiographic, geological, ecological, and meteorological factors contribute to these hazards; whereas demographic factors such as rapid population growth, improper land use, economic underdevelopment, and the resulting dire poverty and widespread ignorance of the possibilities and means of mitigation exacerbate them (Sharma 1990).

Dense seasonal rainfall triggers hazard events on steep mountain slopes, and at high altitude heavy snows result in avalanches and glacial lake outburst floods. The most frequent events occurring are landslides and debris flows on cultivated, steep terraces, as well as flash floods. All these can lead to disasters.

Disasters are not only caused by natural phenomena, but can also be created by people. Any event that threatens human life, livestock and property, that disrupts economic life and communities and damages infrastructure is a disaster. Disasters affect not only the status quo, but the future well-being of communities living in hazard-prone areas.

Every disaster has a temporal dimension and relative to that is its predictability or unpredictability. Famines are slow in gathering pace; floods are predictable but quick, whereas earthquakes and landslides are unpredictable and sudden. The length of time a disaster takes to occur governs the amount of time people have to respond efficaciously. The time factor ranges from a fairly long time for a famine to no time at all for an earthquake or landslide. The one thing all disasters have in common is that they all affect normal life, health and well-being, and livelihoods negatively.

Human-created disasters can be prevented. We hear much about this in relation to global warming and environmental protection. Natural hazards cannot be prevented, but the disasters they cause can be mitigated so that their impacts are reduced. That is what disaster preparedness means.

Preparedness requires the ability to forecast or assess when a disaster is likely to occur; it also involves assessment of scale. To be prepared, people need the communication facilities to inform communities about disasters, physical and material assets, and the means of monitoring the advent of a disaster, as well as the alertness to know what to do when it occurs. All these involve planning.

The success of response and relief efforts when disaster does occur depends upon the degree of preparedness. Were medical supplies, food, and shelter arranged in safe places; was management of casualties efficient and hygienic; and how quickly were essential services restored? These are crucial questions, and the answers to them following each disaster help a community evaluate and improve its efforts the next time around.

To prepare for disasters is hard work, and it takes meticulous planning and drilling. For these to be successful, careful strategies have to be drawn up and key institutions made responsible and accountable for crucial tasks. It goes without saying that successful disaster planning needs devolution of authority from the top government levels to those coping with the problems on the ground. Hence, key institutions need the means and organisation to respond effectively. In this day and age, the means involve technologies such as early warning systems, remote sensing, and information technology. In the context of private property and government infrastructure, particularly where earthquake preparedness is concerned, building codes should be strictly enforced.

The media can play a positive role in disasters. People need to be informed; and that means not only people in disaster-stricken areas – where portable radios may well be the only medium left in operation – but people in other areas who may well be affected next. In addition, the media can arouse public compassion to help not only compatriots but also people from other nations in times of disaster. A critical role for the media needs to be defined in disaster preparedness because, through popular entertainment, people can learn what to do when disasters strike.

Above all, communities at risk need to be involved in preparedness from the very inception, and this takes training, particularly to convince people that, although natural disasters will continue to occur, the worst impacts are not always inevitable.

In Nepal, natural disasters take place year after year causing immense damage to public property and loss of human life and livestock. Sometimes, the damage is enormous, as experienced during the earthquakes of 1980 and 1988, floods of July 1993 and August 2006, and landslides of August 2006. Apart from these events, natural calamities have occurred time and again in the past, and the 1934 earthquake was one of the most serious disasters the country has ever faced.

Prior to 1982, relief and rescue work was carried out on a voluntary basis. It was only after the advent of the Natural Disaster Relief Act in 1982 that a structured disaster policy came into existence. In 1996, on the occasion of the International Decade for Natural Disaster Reduction (IDNDR), Nepal formulated a National Action Plan for Disaster Preparedness, Disaster Response, Disaster Rehabilitation and Reconstruction, and Disaster Mitigation. This was the first time the government had taken concerted action on disaster management. Even a decade after the introduction of the National Action Plan of 1996, most of the activities undertaken by both government and non-government agencies focus on post-disaster activities: much work remains to be done in the field of disaster preparedness. In an effort to follow-up on disaster preparedness, the 1996 National Action Plan was updated and revised in a National Report of Nepal prepared for the World Conference on Disaster Risk Reduction in Kobe, Japan in 2005.

Objective

The objective of this report is to provide a state-of-the-art account of the National Disaster Preparedness Plan (NDPP) of Nepal by giving as complete an account as possible of existing plans, policies, and strategies in the field of disaster management. The terms of reference are given in Annex 1.

Scope

The report describes the current status of planning for natural disasters in Nepal. It is divided into eight chapters. Chapter 1 introduces the subject of report, and covers the aspects of planning and organisation for three major types of natural hazard: floods and flash floods, landslides, and earthquakes, which are covered in Chapter 2.

Chapter 3 provides comprehensive briefs on the most prominent among the institutions working in the field. Chapter 4 covers planning and legal instruments introduced to promote disaster mitigation, preparedness, and response. District preparedness is the subject of Chapter 5. Chapter 6 examines the lacunae in planning and implementation.

The importance of communicating and sharing knowledge adequately is covered in Chapter 7, and overall conclusions and recommendations in Chapter 8.

There are ten annexes giving additional information that clarifies references made in the text and the organisation of disaster preparedness in Nepal. Annex 1 provides the terms of reference for the consultancy to write this report. Annex 2 is the Kathmandu Valley Earthquake Risk Management Action Plan 1983-2004, Annex 3 lists the projects and programmes carried out by the National Society for Earthquake Technology (NSET) Nepal for earthquake preparedness, Annex 4 is the Natural Disaster Relief Act 1982

and its second amendment, Annex 5 the National Action Plan on Disaster Management in Nepal, 1996. Annex 6 is the document 'Disaster Reduction and Management in Nepal, Issues and Prospects, a national report presented to the World Conference on Disaster Reduction held in Kobe, Japan, in 2005. Annex 7 provides the draft versions of the Disaster Management Policy in English (Annex 7a) and Nepali (Annex 7b), Annex 8 the draft Disaster Management Act, 2063 (in Nepali), and Annex 9 the Chitwan District Disaster Management Action Plan. Annex 10 gives the list of people visited by the author in the course of preparing this report. These annexes, apart from Annexes 1, 7, and 10, have already been published by government offices, and have been reproduced as published with no additional editing. All Annexes are include on a CD-ROM in the pocket at the back of this publication.

Natural Hazards in Nepal

Unstable steep slopes and fragile geological formation of a young mountain range along with heavy monsoon rainfall make Nepal one of the most hazardous areas in the world. Because of its topographical variation and geological characteristics, together with torrential rain during the monsoon season, the country frequently experiences landslides, debris flows, floods, and earthquakes. These phenomena not only cause loss of life and property, they also pose severe threats to physical infrastructure, and disrupt social and economic development.

Floods, landslides, and earthquakes of great magnitude are natural hazards, but their impacts are exacerbated by lack of preparedness and absence of measures for mitigating their impacts. Natural disasters are serious events, disrupting the functioning of a community and causing widespread hardship. They contribute significantly to the total annual loss of life and damage to property in Nepal. Geographically, the nature of damage caused by floods varies according to area. In the high mountains, heavy landslides and mudflows are the main cause of damage. Landslides often sweep away whole villages. The mudflows cover terraced land with boulders and debris damaging standing crops rendering the fields useless for agriculture until massive efforts are made to reclaim them.

In the foothills and floodplains of the river valleys, floods often deposit coarse sediment over the adjoining floodplain damaging standing crops and converting the land into an infertile land mass. River banks in such areas are subjected to severe bank erosion and loss of soil, which in turn provides more sediment for the river to deposit downstream.

Most river systems along the Nepal-India border have wide floodplains which are frequently inundated, damaging crops and nearby settlements. The problem of inundation in these areas is often aggravated by construction of roads, embankments, bridges, and barrages in India. On a temporal scale, damage caused by floods is confined mostly to the four monsoon months June to September, when more than 80% of the total annual precipitation occurs.

Damage to life, livelihoods, and infrastructure can be attributed to several factors: landslides, slope failures, and debris flow caused by dense precipitation are among them. The structural causes include inadequate design provisions and inadequate

use of flood data in designing riverine infrastructure, poor protection measures, and inadequate maintenance of protection infrastructure and hydraulic structures; non-structural causes include unregulated economic activities in flood-prone areas, lack of flood-warning systems, and inadequate preparation in disaster management.

In Nepal, earthquakes are common because of the presence of major fault lines along the Himalayan mountain range, which are a result of the collision of the Indian tectonic plate with the Eurasian plate. However, unlike floods and landslides, severe earthquakes do not occur annually; still, when they do occur, they cause great losses to the community and to the nation.

Not all hazards turn into disasters. Risks, hazards, and preparedness are the key factors that determine whether or not a hazard becomes a disaster. If there is no risk to human life and property, even though the area is extremely hazardous, there will be no disaster; e.g., a large-scale landslide in an uninhabited area poses no risk to human life and property although the area may be extremely hazardous.

Floods and flash floods in Nepal

Floods are a common phenomenon every year in Nepal. There are more than 6,000 rivers and rivulets nationwide. Among these, snowfed rivers, such as the Koshi, Narayani, Karnali, and Mahakali, are perennial rivers. They originate from the Himalayas and, after descending from the hills, flow through the Terai plains. During the monsoon (June-September), these rivers swell and cause damage to the communities residing within their floodplains. In Nepal, flood preparedness activities generally begin with the advent of mid-monsoon rains. Preparedness for flooding along the Koshi River at Chakraghatti, 10 km downstream from the Chatra irrigation intake, is presented in Figure 1.

During the monsoon, rivers originating from the Mahabharat range; viz., the Kankai, Kamala, Bagmati, West Rapti, and Babai, also cause a great deal of damage in the communities residing within their floodplains in the Terai region.

Rivers originating from the Siwalik range have little water flow during the dry season, and some of them are almost dry. Notwithstanding, they are sometimes responsible for flash flooding during the wet season, causing extensive damage to the communities residing in the Terai plains.

Floods are caused by natural phenomena but may be increased by human intervention.



DWIDP

Figure 1: Preparing for flood mitigation along the Koshi River

Natural

- Intense rainfall
- Landslides and glacial lake outburst floods (GLOFs)
- Co-incidence of snow and glacial melt with monsoon precipitation
- Synchronisation of peak flow of rivers

Human intervention

- Land-use changes
- Drainage congestion caused by uncoordinated development activities
- Dam failure

These factors, individually or in combination, cause floods. The intensity or magnitude of flooding depends considerably on the location and pattern of occurrence and synchronisation of these factors.

Floods in Nepal can be classified broadly into the following two categories.

Riverine floods

Rainfall during the monsoon season is caused by the influence of both the south-east and south-west monsoon, characterised by dense rainfall during the four months from June to September, contributing about 80% of the annual rainfall. Widespread and intense monsoon rainfall causes floods and associated damage. Often anthropologic factors exacerbate an already occurring flood. These factors are associated most often with the promotion of hydraulic surcharge in water levels. They include the presence

of natural or man-made obstructions in the flood path such as bridge piers, floating debris, weirs, barrages, and embankments restricting the flow path.

Riverine floods from the major rivers generally rise slowly in the southern Terai plains and the period of rise and fall may extend up to 12 to 24 hours or more. Inundation of large areas because of overflowing river banks causes extensive damage. The flood water erodes the banks, causing permanent damage to the adjacent agricultural land. Typical river bank erosion following the monsoon flooding along the West Rapti River is shown in Figure 2.

As long as the river water is contained within its regime and its banks, flooding is of normal proportions. Riverine floods combined with a sudden outburst of clouds, localised in nature, with incessant rain for days together, cause disastrous floods.

Highly localised rainfall of long duration in the monsoon season often generates water volumes in excess of local drainage capacity, causing localised flooding. The congestion of drainage by infrastructure such as roads, embankments, and bridges, often exacerbates the situation. This type of flood is common in the southern Terai belt, inner Terai, and in the valleys.



DWIDP

Figure 2: Typical bank erosion caused by riverine flooding along the West Rapti River, Dang

Flash floods

Flash floods are severe floods that occur with little or no warning. They are characterised by little time lapse between the start of the flood and peak discharge. Floods of this type are particularly dangerous because of the suddenness and speed with which they occur. They are triggered by extreme rainfall, glacial lake outbursts, or the failure of dams – whether man-made or caused by landslides, debris, ice, or snow. Flash floods can have devastating impact hundreds of kilometres downstream, yet the warning time available is counted in minutes or, at the most, hours. For instance, water flow in the rivers in the Siwalik range in southern Nepal are characterised by a sharp rise of flood water followed by a rapid recession, often causing high flow velocities. The ensuing floods damage crops, property, lives, and livelihoods.

Damming of a river by a landslide is a potentially dangerous situation. Such a blockage of the river flow is more common in narrow valleys where the slopes are steep on both sides of the river. Landslide dams will eventually collapse, causing heavy downstream flooding resulting in loss of life and property.

There have been several cases of landslide damming along the rivers of Nepal in the past. In 1985, such a landslide blocked the flow of the Trishuli River, creating a landslide dam. This dam eventually collapsed resulting in a flash flood that caused heavy damage to the Trishuli hydropower plant and settlements downstream. Fortunately, the formation and development of a landslide dam are relatively easy to monitor and therefore allow for better preparedness.

Glacial lakes are common in the high altitude areas of the country. These lakes often contain huge volumes of water. The lakes are dammed behind moraine ridges which may be more or less stable depending on the amount of ice within these ridges; and their unstable condition may lead to a breakage of the dam, creating a glacial lake outburst flood (GLOF) with the potential to cause great damage downstream.

The main characteristics of the GLOF phenomenon are given below (Xu et al. 2006).

- GLOFs are caused by the sudden bursting of glacial lakes that are either ice-dammed or moraine-dammed.
- Moraine-dammed lakes generally breach by overtopping or by piping whereas ice-dammed lakes drain underneath the ice.
- The flood surge can propagate hundreds of kilometres downstream from the glacial lake.
- Sediment loads during a GLOF are exceptionally high.

Altogether 2,315 glacial lakes have been identified in Nepal and, about 14 GLOFs are recorded to have occurred between 1935 and 1991 in Nepal. In total, 20 glacial lakes have been identified as being potentially dangerous at present.

Major floods in Nepal

The 1978 flood in the Tinao Basin, the 1980 flood along the Koshi River, the 1985 cloudburst and outburst of the debris dam in the Tadi River Basin, the 1987 flood in the Sunkoshi Basin resulting in the submergence of the central and eastern Terai by up to one metre, and the 1989 cloudburst affecting the Central region – some areas of Chitwan and the Western region – the inner Terai, and Butwal and the Parasi areas are among the major floods recorded in Nepal.

The devastating flood that occurred from July 18-20, 1993, in the Central Region surpassed all the floods mentioned above in terms of its ferocity and the damage it caused to the national economy. It caused heavy destruction of life and property, made thousands of people homeless, and destroyed standing crops spread over thousands of hectares of lands. Forty-four districts were affected.

Some 1,336 people lost their lives in that disaster. About half a million people from 73,000 households were affected. Several important bridges on the Prithvi and Tribhuvan highways (seven on the Prithvi Highway alone) were washed away by heavy flooding along many rivers, isolating Kathmandu Valley from the rest of the country. Another setback included the closing down of the Kulekhani 1 and 2 power stations because of damage to the penstock pipe. Bagmati, Manusmara, and Rapti irrigation projects and several farmer-managed irrigation projects were either damaged or washed away by the torrential rain. The total loss in terms of physical destruction was estimated to be Rs 5 billion (see Table 1).

In Nepal, flood disasters induced by glaciers have come into prominence with the GLOF that occurred following the collapse of the moraine dam on the Dig Tsho Lake at the head of the Dudh Koshi River on August 4, 1985. Such occurrences might have been taking place at different intervals in the past in many river basins with glaciers at their head waters within Nepal and beyond, but the flood that occurred on the Dudh Koshi River caused devastation unlike any encountered before. It completely swept away the almost completed Namche hydropower plant leaving no trace of it, damaging roads, bridges, cultivated land, and houses as it surged forward along a destructive course.

A similar event occurred in 1981 on the Bhote Koshi River (Poiqu River in Tibet) with the outburst of the Zhangzangbo glacial lake located in Tibet. Downstream in Nepal, the ensuing flood discharge of 16,000 m³/sec (Daoming 1988) destroyed the Friendship Bridge bordering Nepal and the Tibet Autonomous Region of China; and it damaged a large stretch of the Arniko highway, the Bhote Koshi hydropower plant, and a large area of cultivated land in Nepal. These events signalled the impending dangers of GLOFs to the Nepalese government and highlighted the importance of transboundary dialogue for mitigating GLOF events. Tsho Rolpa glacial lake (Figure 3) was on the point of bursting in 1997. However, with the completion of the 'Tsho Rolpa GLOF Risk Reduction Project' in 2000, the lake was contained.

Table 1: Details of Loss and Damage from Floods, Landslides, Avalanches, Earthquakes, and Other Disasters (1983-2004)

Year/Types	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	
Floods & Landslides	293	263	420	315	391	328	680	307	93	71	1336	
Fire	69	57	52	96	62	23	109	46	90	97	43	
Epidemics	217	521	915	1101	426	427	879	503	725	1128	100	
Windstorms, Hailstorms & Thunder bolts	0	0	0	0	2	0	28	57	63	20	45	
Earthquakes	0	0	0	0	0	721	0	0	0	2	0	
Avalanches	0	0	0	0	0	14	20	0	0	0	0	
Stampedes	0	0	0	0	0	71	0	0	0	0	0	
Total	579	941	1387	1512	881	1584	1716	913	971	1318	1524	
Estimated Loss million Rs	240	49	23	23	2005	6099	4172	139	43	52	5189	
Year/Types	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	Total 1983 to 2004
Floods & Landslides	49	203	258	78	276	209	173	196	441	232	131	6843
Fire	43	73	61	45	54	46	53	26	14	16	10	1185
Epidemics	626	520	494	947	840	1207	141	154	0	0	41	11912
Windstorms, Hailstorms & Thunder bolts	47	34	75	44	23	22	26	41	6	62	10	605
Earthquakes	0	0	3	0	0	0	0	1	0	0	0	727
Avalanches	0	43	4	9	0	5	0	0	0	0	0	95
Stampedes	0	0	0	0	0	0	0	0	0	0	0	71
Total	765	873	895	1123	1193	1489	393	418	461	310	192	21438
Estimated Loss million Rs	184	1933	1579	410	1230	509	1141.5	526.55	525.56	989.93	341.09	27403.63

Sources: 1. Ministry of Home Affairs 2. Department of Water Induced Disaster Prevention



Pradeep Mool

Figure 3: Tsho Rolpa glacial lake ‘sans danger’

Landslides in Nepal

Landslides are very common in the hills and are one of the main natural hazards; they occur mostly during monsoon season. Heavy rainfall in the hills saturates the soil and erodes shear strength, triggering a landslide. Infrastructure such as roads and irrigation canals, built without proper protection measures can trigger landslides in the hills. Landslides cause loss of human life and damage to property. They cause damage to infrastructure and agricultural lands and constant fear and trauma to the people living in and around the area. Several landslides occur every year in Nepal; many go unnoticed, and only those causing loss of human life and damage to property come to public attention. The categorisation of a landslide as simple or disastrous depends upon the extent of damage it causes to the community.

The Department of Mines and Geology (DMG) carried out landslide mapping for some years in the 1980s, and the results are available as unpublished technical reports in the form of raw data. At present, modern tools for landslide hazard mapping and landslide hazard assessment are available, and they should be applied according to the needs of the structures proposed.

In the Himalayan region, damage caused by landslides is estimated to cost more than US \$ 1 billion in economic losses and landslides cause more than 200 deaths every year, which accounts for about 30 per cent of the total losses from landslides worldwide (Li 1990).

Tsho Rolpa glacial lake: successful prevention of an impending natural disaster

Tsho Rolpa glacial lake was much in the news during the mid-1990s with the imminence of glacial lake outburst flood (GLOF). This is how a timely measure saved the day: a success story follows (DHM 2001).

There are many glaciers along the stretch of the Himalayan range and many of these glaciers have glacial lakes. Tsho Rolpa glacial lake, at an altitude of 4,580 masl, is the largest glacial lake in Nepal. It is located 110 km north-east of Kathmandu in the Rolwaling Valley.

The 3.3 km long Tsho Rolpa glacial lake with a maximum depth of 132m is dammed by a 150m high, unconsolidated moraine formation. It is swelling yearly with the melting of the Trakarding glacier. Its estimated volume was put at 90 to 100 million cubic metres of water in 1999. Several past studies of the Water and Energy Commission Secretariat (WECS) and Department of Hydrology and Meteorology (DHM) on Tsho Rolpa had stressed the possibility of a glacial lake outburst flood (GLOF) because of the huge volume of water stored in the lake and water seepage through the dam and the small outlet and freeboard of the dam. The lake would already have reached the critical breaching stage had no immediate measures been taken to lower the lake level. If the moraine dam had collapsed, some 30-35 million cubic metres of water would have been released and the resulting flood would have caused serious damage up to a distance of 100 km downstream, threatening human life, villages, farmland, bridges, foot-trails, roads, and the 60 MW Khimti hydropower plant and other infrastructure.

With the objective of lowering the lake level to reduce the risk of a GLOF, the Nepal-Netherlands' Association installed one trial siphon with the use of a pipe at the Tsho Rolpa Glacial Lake in 1995. Five additional siphons were installed in 1997 using government resources. Although the siphons worked during normal periods, they required heavy maintenance and additional siphon pipes at other times to keep the water at safe levels.

Sensing the imminent danger, the government, with a World Bank loan, established an early warning system (EWS) in 17 villages along the Rolwaling Khola and Bhote/Tama Koshi downstream from Tsho Rolpa to warn people in case of a possible GLOF from Tsho Rolpa Lake.

During the 1997 field investigation, DHM found that a GLOF from Tsho Rolpa was imminent if necessary timely measures were not taken. A project formulation team visiting the site recommended lowering the level of the lake by three metres by cutting out an outlet in the terminal moraine to reduce the risk of a GLOF.

The Netherlands government agreed to fund the Tsho Rolpa GLOF Risk Reduction Project through a grant agreement between the governments of Nepal and the Netherlands in August 1998. The project constructed an open channel to lower the lake by at least three metres. The project was implemented by DHM staff and was realised on June 24, 2000, with the achievement of a three-metre drawdown on the lake level. This is a success story about how measures taken in time prevented a catastrophe from happening. DHM should continue to constantly monitor the Tsho Rolpa glacial lake now and in future and carry out necessary measures to prevent the lake from bursting out when it poses a danger.

The Department of Water Induced Disaster Prevention (DWIDP) has constructed check dams and landslide protection works for specific sites in the country to control debris flow and landslides. The check dams and landslide protection works built by the DWIDP in the Mugling-Narayanghat section and at Jhyalbas along the Giruwari River are shown in Figures 4 and 5. These were implemented by the DWIDP under the Water Induced Disaster Prevention Project (WIDPP) financed by JICA and hailed as very successful by the community. Several such projects have been completed at the special request of communities and with their full participation.

Landslides can be induced by either natural or human factors, or both. Some natural factors that contribute to landslides are high relief or steep slopes, unstable geology, and concentrated rainfall. Human factors can be deforestation, improper land use and construction, and agricultural activities on hill slopes. Additional factors causing landslides are removal of lateral support, surcharge loads, transitory stress caused by earthquakes or blasting, and factors causing low shear strength such as weak soil, high pore-water pressure, and so on. Earthquakes and heavy rainfall are the landslide triggers in most cases.

Landslides often give rise to debris flows. A debris flow has enormous energy which causes widespread damage to physical structures like bridges and hydroelectric power stations on its way downstream. The aggraded river bed caused by the continuing debris flow at the Lothar River crossing is shown in Figure 6.



Figure 4: Check dams built by the DWIDP in the Mugling-Narayan Ghat section to prevent debris flow

DWIDP



DWIDP

Figure 5: Landslide protection work undertaken by the DWIDP at Jhyalbas along the Giruwari River



DWIDP

Figure 6: Aggraded river bed caused by debris flow at the Lothar River bridge site

Major landslides

On August 1, 1968, a huge landslide dammed the Budhi Gandaki River at Labu Besi in central Nepal for 29 hours and created a 60-metre deep lake. When it breached, the debris flow and flood washed away most of the houses and bridges downstream. Arughat Bazaar was the most affected with heavy loss of life and property (Sharma 1990).

A huge landslide at Darbang dammed the Myagdi Khola for some time on September 20, 1988, and the subsequent flood after breaching claimed many lives and caused extensive damage to property. A similar landslide at the same site had buried Darbang Bazaar some 62 years before, killing about 500 people (Yagi et al. 1990).

Earthquakes in Nepal

Nepal is vulnerable to earthquakes because of its location in a tectonically active zone. The presence of three main fault lines: the Main Central Thrust (MCT) at the foot of the Greater Himalaya joining the midland mountains, the Main Boundary Fault (MBF) at the junction of the Lesser Himalaya, and the Siwaliks and the Himalayan Frontal Fault south of the Siwaliks, each running east to west, are the main causes of earthquakes of small and great magnitude in Nepal. These fault lines are a result of the movement of the Indian plate under the Eurasian plate.

The Department of Mines and Geology (DMG) records micro-seismic events through its two independent recording centres: the National Seismological Centre (NSC), Kathmandu, and the Regional Seismological Centre (RSC), Birendranagar. The NSC in Kathmandu records data from twelve stations installed between Pyuthan in the west to Taplejung in the east. The Regional Seismological Centre in Birendranagar in Surkhet district records tectonic events through eight telemetric stations in the far-western and mid-western regions. The National Seismological Centre (NSC) in Kathmandu is the data processing and interpretation centre. The recorded seismic data are processed and presented in the form of regular bulletins, and these are also used by the International Seismological Centre. The vibrations of the earth are continuously recorded by seismometers and transmitted to receiving or relay stations. The network has the capacity to record any seismic event of a magnitude as low as two on the Richter scale in any part of the country.

Earthquakes of major consequence were reported in 1255 AD, 1810 AD, 1866 AD, 1934 AD, 1980 AD, and 1988 AD in Nepal. The earthquake in 1934, which also hit Kathmandu Valley, was in the order of 8.4 on the Richter scale. It did great damage to Kathmandu Valley with the loss of more than 8,500 lives and partial collapse or complete destruction of 38,000 buildings. The devastation caused to the Durbar Square in Bhaktapur by the 1934 earthquake is shown in Figure 7.



Figure 7: Bhaktapur Durbar Square before and after the 1934 earthquake

The earthquake in 1980 measured 6.5 on the Richter scale and its epicentre was in Bajhang in far-western Nepal. It claimed 178 lives and about 40,000 houses were damaged. Similarly, the earthquake in 1988 measured 6.6 on the Richter scale and its epicentre was in Udaypur district in eastern Nepal. It caused a loss of 721 lives and damage to infrastructure. The recurrence interval for large earthquakes in Nepal is reported to be 75 years. There is now great concern in the Kathmandu Valley about the possibility of another earthquake of greater magnitude. Should it happen, there will most likely be colossal losses in terms of human lives and physical infrastructure because of the densely populated area and unsafe residential buildings constructed without taking seismic concerns into consideration (NSET 1999).

Despite the availability of knowledge about historical earthquakes and the continued geological research in the Nepal Himalayas (Bilham et al. 1994; Thapa 1988), public awareness of earthquake hazards and risks were minimal until some years back, and implementation of earthquake risk management efforts were almost non-existent. The earthquake in 1988 in Udaypur district brought about a great deal of consciousness in both government and non-government circles regarding earthquake preparedness and mitigation measures. As a result, many action plans and programmes have been introduced and implemented over the last one and a half decades.

The need for an organised approach to mitigating the effects of a future earthquake in the Kathmandu Valley was advocated by many organisations (Dixit 1991; Dixit 2005). Several initiatives were conceptualised and implemented. The following are major achievements since the 1988 earthquake event:

- Implementation of the 'Earthquake Affected Areas (Udaypur and Dharan areas) Rehabilitation and Reconstruction Project 1989-1994'
- Implementation of the 'National Building Code Development Project (1992-1994)' and the enforcement of a building code subsequent to its approval by the government on July 28, 2003
- Development of a broad-based 'National Action Plan for Disaster Management in Nepal' for the first time in 1996 by the Ministry of Home Affairs (MoHA)
- Implementation of the 'Kathmandu Valley Earthquake Risk Management Project (KVERMP)' 1997-2001

- The 'Study of Earthquake Disaster Mitigation in the Kathmandu Valley (SEDM)', 2001-2002
- Implementation of the 'Municipal Earthquake Risk Management Project (MERMP)', 2003
- Implementation of the 'Kathmandu Valley Earthquake Risk Management Action Plan Implementation Project (APIP)', 2000-2005

Kathmandu Valley Earthquake Risk Management Project (KVERMP) was implemented from 1997-2000 by the National Society for Earthquake Technology (NSET) in association with Geo Hazards International (GHI), USA. They carried out a loss estimation study for a possible repeat of the 1934 earthquake in modern-day Kathmandu Valley using earthquake loss models such as the Applied Technology Council's loss estimation model, ATC-13. The study covered the likely loss of human lives and the damage to existing infrastructure. A scenario document, entitled 'Kathmandu Valley's Earthquake Scenario', explaining the results of the loss estimation, was published in 1999 for the general public in both English and Nepali. The study estimated a minimum of 22,000 and maximum of 40,000 human deaths. NSET and Geo Hazards International, USA, also produced 'The Kathmandu Valley Earthquake Risk Management Action Plan' for managing earthquake risks in the Kathmandu Valley (Annex 2).

A detailed study on earthquake disaster mitigation (SEDM) in the Kathmandu Valley was carried out by Japan International Cooperation Agency (JICA) in collaboration with the Ministry of Home Affairs and several other Nepalese institutions. It provided a detailed assessment of seismic vulnerability and damage analysis for existing buildings and public facilities; and it also gave an account of lifeline networks, including human casualty figures, for different earthquake scenarios in 2001-2002.

Apart from the above, NSET-Nepal has carried out various projects and programmes on earthquake preparedness supported by internal and external agencies (Annex 3).

Major earthquakes

The great earthquake of June 7, 1255, damaged palaces, temples, and houses in the Kathmandu Valley and killed one-third of its population. The reigning monarch, Abhaya Malla, died six days after the earthquake as a result of injuries sustained during the event (Regmi 1965, cited in Bilham 1994).

The earthquake of August 26, 1833, destroyed 4,040 buildings, killed 414 persons, and injured many in the vicinity of Kathmandu where there were hundreds of additional fatalities: it also destroyed houses in the eastern villages. The fort at Chisapani in the Mahabharat range south of Kathmandu was damaged and landslides blocked the passes to Tibet. The Kamala River was dammed by a landslide which burst out four days after the event flooding the village of Baldeah, north of Darbhanga in the Terai (Bengal Hurkaru, 16 Sept., 1833 cited in Bilham 1994).

Chapter 3

National Disaster Preparedness

Prior to 1982, before the enactment of the Natural Disaster Relief Act, there were no plans or activities for disaster mitigation and preparedness. Disasters were dealt with as they came. It was only after 1991, following the declaration of the 'International Decade for Natural Disaster Reduction', that preparation for and management of disasters were taken into consideration. During the monsoon season in 1993, incessant rains for days flooded many parts of the country severely. As a result of these devastating floods, the government took steps to introduce disaster preparedness activities.

A National Action Plan was prepared in 1996 (MoHA 1996), and this is still the focal plan for devising the necessary measures for all kinds of natural disasters. The plan deals with different stages of a disaster: pre-, during, and post-disaster periods. However, even after 10 years of enforcement, satisfactory preparedness activities have not materialised. There is more than one reason for this: there are constraints in terms of resources; lack of coordination among the various institutions involved in disaster management; and the continuing, unstable political situation to name three. A revised version of the 1996 plan (MoHA 2005) is annexed in the Nepal National Report presented at the 'World Conference on Disaster Reduction' in Kobe, Japan 2005 (Annex 6).

Considerable effort has gone into post-disaster activities, but much less effort is given to preparedness despite the fact that there are several institutions involved in this field. Gradually, the realisation has come about in relevant sectors that timely preparation in some cases can mean that disasters are averted completely, and, in many other cases, the negative impacts and the cost of mitigation measures can be reduced.

Two types of institution are involved in disaster management in Nepal: i) institutions that form policy and coordinate activities, and ii) institutions that implement these activities. These institutions work independently within the mandates given to them. However, interdepartmental coordination also takes place as and when required. The activities of different agencies are coordinated at the national level by the Central

Disaster Relief Committee (CNDRC) as an apex body in the Ministry of Home Affairs (MoHA) (MoHA 1996; 2001; 2005; MoHA & UNDP 2004).

The two main groups of institutions are briefly described in the following sections.

Institutions at policy and coordination level

The following government institutions have a stake in policy formulation and coordination for disaster management.

- National Planning Commission
- Water and Energy Commission
- Ministry of Home Affairs
- Ministry of Water Resources
- Ministry of Forest and Soil Conservation
- Ministry of Environment, Science, and Technology
- Ministry of Health and Population
- Ministry of Local Development

In addition to these are other stakeholders within the Government of Nepal. These include the Ministry of Industry, Commerce and Supplies; Ministry of Physical Planning and Works; Ministry of Finance; Ministry of Information and Communication; Ministry of Defence; Ministry of Women, Children, and Social Welfare; the Nepal Army, and the police force. Even within the main institutions listed above, there are several departments that play crucial roles in disaster preparedness and mitigation—the Department of Mines and Geology, and the Department of Water Induced Disaster Prevention being among them. Some of them are covered below in the section on implementation. Coordinating this extensive bureaucracy is not an easy task. Brief descriptions of the roles of the seven main institutions are given in the following passages.

The National Planning Commission

The Prime Minister chairs the National Planning Commission (NPC). It has a vice-chairperson and five members. The NPC is a planning body with jurisdiction over all ministries and public sector agencies and is empowered to formulate periodic and annual plans and oversee their implementation in an advisory capacity. The NPC examines the available resources and allocates them to different sectors as an input to the development budget. The different ministries, in turn, prepare and integrate the budget allocated by the NPC with inputs from field and other offices in a decentralised planning process. The budget is then presented for discussion to a joint committee of the Budget Division of the Ministry of Finance and the Secretariat of the NPC. The committee focuses its attention on those programme heads exceeding the amounts previously made available to the ministries.

The NPC functions under broad directives and guidelines given by the National Development Council (NDC). The main functions of the NPC are to draw up periodic plans according to the long-term goals and guidelines set by the NDC; to issue directives to the ministries about drawing up national development plans; to carry out research and collect data for drawing up the plans; to estimate the resources needed from both external and internal sources to finance the plans; and to monitor and evaluate development projects. Disaster management was discussed for the first time in the 10th Plan (NPC 2002).

Water and Energy Commission

The Minister for Water Resources chairs the Water and Energy Commission (WEC) which was established in 1976. It was reconstituted in January 1999 with broad-based representation from the secretaries of 11 ministries and five other members from outside the government. The WEC functions under broad directives and guidelines given by the National Water Resources Development Council (NWRDC) headed by the Prime Minister. Its functions are to review multipurpose, large- and medium-scale projects and recommend whether or not they should be implemented; to draw up policies and strategies for survey, research, and analysis in aspects of water and energy resources development according to government priorities; to analyse bi- and multilateral projects in the water and energy sectors, draw up policies for them, and evaluate them; to enact laws related to development in the water and energy sectors; and to coordinate between national and sectoral policies.

The Water and Energy Commission Secretariat (WECS) was established in 1980 to provide technical and administrative support to the WEC and carry out its decisions. It also works as the secretariat of the NWRDC. The government designated the WECS as the national water-planning unit. It functions as an advisory body to the Ministry of Water Resources. WECS formulated a National Water Plan in 2005 (WECS 2005).

Ministry of Home Affairs

The Ministry of Home Affairs (MoHA) is the national focal point for managing all natural disasters, and it does so through its 75 district administration offices. Formulation of national policies and their implementation, preparedness and mitigation of disasters, immediate rescue and relief work, data collection and dissemination, collection and distribution of funds and resources are vital functions of this Ministry (see Chart 1 on page 62, for its organisational structure) The Ministry has kept an account of losses caused by natural disasters all over the country annually since 1983 (Table 1).

MoHA is the key agency for immediate response during disasters rather than an agency for activities related to rehabilitation and prevention. The ministry is the nodal agency for the Central Natural Disaster Relief Committee (CNDRC), and is headed by the

Minister for Home Affairs. The committee has tiers at regional and district levels; viz, the regional natural disaster relief committees (RNDRCs) and district natural disaster relief committees (DNDRCs).

CNDRC and DNDRC are functional, whereas the other two RNDRC and community-level committees are constituted only during times of large-scale natural disasters. The CNDRC, chaired by the Minister for Home Affairs, is the apex committee responsible for formulating policies and plans regarding overall aspects of disaster management in coordination with other key disaster actors.

To operate rescue, relief, and rehabilitation activities effectively and efficiently in times of disaster, a Central Disaster Relief Fund and a District Disaster Relief Fund have been established.

CNDRC carries out rescue and relief work in disaster-affected areas; protects and helps reduce the loss of life and property; mitigates suffering; rehabilitates victims of disasters; facilitates control and mitigation of disasters; raises funds for relief materials and distributes them; raises awareness about disasters; coordinates disaster management agencies; mobilises rescue and relief assistance from the non-government sector; forms teams for relief work; assesses damage, collects and analyses data, and disseminates useful information about disaster management.

The disaster management section of the Ministry of Home Affairs (MoHA) is principally responsible for looking after disaster-related activities, but has very few staff and relies heavily on the help of the chief district officers (CDOs) for information about disasters in the 75 districts. Each CDO is the chief administrator in the district and also the head of the District Natural Disaster Relief Committee (DNDRC).

Ministry of Water Resources

The Ministry of Water Resources (MoWR) is responsible for the formulation of policies, plans and programmes related to irrigation; prevention of water-induced disasters; and the electricity sub-sectors. Detailed responsibilities include drawing up policies and plans to develop, manage, and conserve water resources; promoting, constructing, operating, and maintaining irrigation, hydropower, and river training and multipurpose projects; preparing budgets for project implementation annually and periodically; monitoring and evaluating projects; promoting private sector development of electricity; and negotiating multi- and bilateral agreements on use of water resources.

The ministry has three departments: the departments of Electricity Development (DoED), Irrigation (DoI), and Water Induced Disaster Prevention (DWIDP). Nepal Electricity Authority is a public utility that also operates under the general guidance of

the ministry. The DWIDP is responsible for controlling and mitigating the problems of water-induced disasters such as landslides, debris flows, and floods.

Ministry of Forest and Soil Conservation

The Ministry of Forest and Soil Conservation (MoFSC) is concerned with the development, management, and protection of watersheds. It has five departments, of which the Department of Soil Conservation and Watershed Management (DSCWM) is responsible for controlling and regulating floods and landslides in order to protect soil erosion (DSCWM). The department is empowered to prohibit unauthorised blocking, diverting, or storing of water in any river or stream by any means or for any purpose in protected watershed areas under its jurisdiction.

Ministry of Environment, Science and Technology

The Ministry of Environment, Science, and Technology (MoEST) is responsible for the development of available traditional technology and transfer of appropriate technology for the development of the country. Its responsibilities also include research on energy, including alternative energy. The Department of Hydrology and Meteorology (DHM), which functions under the ministry, is responsible for collecting, processing, and publishing data on hydrology and climate, crucial for the planning and development of water resources, agriculture, and for early warning about and mitigation of floods.

Ministry of Health and Population

The Ministry of Health and Population (MoHP) is responsible for making plans, programmes, and policies for the health sector. It directs the Department of Health Services to undertake special training to deal with problems related to public health arising from natural disasters at the central level, so that the department is fully prepared to handle the situation with minimum loss of lives in the event of a natural disaster (MoH 2003).

In 2003, the Epidemiology and Disease Control Division of the then Ministry of Health (later the Ministry of Health and Population) produced a 'Health Sector Emergency Preparedness and Disaster Response Plan for Nepal' with a disaster analysis, management framework, and planning guidelines (MoH 2003). They received help from the World Health Organization (WHO) in technical and logistics aspects for this endeavour. The document covered strategies and definitions and proposes two disaster response approaches:

- i) for frequent, manageable emergencies, and
- ii) for infrequent catastrophic emergencies.

The Plan also discusses hazards already experienced and the impacts noted. The hazards taken into account include earthquakes, floods, epidemics, fires, and conflict situations. The health impacts are dealt with in some detail and the final sections deal with planning guidelines and response activities as well as overall coordination and partnerships. This document was to be revised, but so far there has been no revision.

Institutions at the implementation level

Several departments are primarily responsible for executing or implementing plans and programmes in disaster preparedness. These departments are also responsible for providing policy feedback on disaster preparedness to the respective ministries. They are as follows:

- Department of Water Induced Disaster Prevention
- Department of Soil Conservation and Watershed Management
- Department of Hydrology and Meteorology
- Department of Irrigation
- Department of Health Services
- Department of Mines and Geology

Department of Water Induced Disaster Prevention (DWIDP)

Among the donor countries, Japan has played a meaningful role in providing material support and institutional capacity building in Nepal. In 1991, the Water Induced Disaster Prevention Training Centre (DPTC) was established with the assistance of the Japanese International Cooperation Agency (JICA). Its establishment was a joint undertaking of various government agencies with the MoWR as the lead agency.

Assistance was provided through JICA until 1999. During this period, Japan provided a building for DPTC and a hydraulic model laboratory in Godavari some 15 km south of Kathmandu; this laboratory was working concomitantly on river training and ‘sabo’ (a term used in Japan for activities related to river and soil conservation measures).

Thanks to the continued support of JICA, the training centre became the Department of Water Induced Disaster Prevention (DWIDP) in 2000, capable of handling disasters caused by floods, landslides, and debris flows. It is the focal agency for all water-induced disasters.

Before the establishment of the DWIDP, the Department of Irrigation (DoI) used to undertake river training work through its River Training, Environment, and Mechanical Division at the Department and district irrigation offices throughout the 75 districts of Nepal. The responsibility for river training has now been transferred from this division to the DWIDP. The DWIDP has seven divisions and five subdivisions throughout the various districts of Nepal.

Although exclusive river training work is carried out by the DWIDP, the DoI continues to carry out river training to protect the hydraulic structures used for canal diversion and conveyance and the command area.

The mandate of the DWIDP falls into four categories.

Rescue and rehabilitation

- Supporting the activities of the District Natural Disaster Relief Committee (DNDRC)
- Carrying out rehabilitation work
- Coordinating the involvement of government and non-government agencies in relief and rehabilitation activities

Emergency protection

- Carrying out work identified by DNDRC
- Providing local technology, machinery, and other resources of its divisions and subdivisions for emergency protection work
- Involving government and non-government agencies in emergency protection and increasing awareness among local beneficiaries

Regular maintenance

- Executing regular maintenance work in coordination with the district irrigation and river training committees
- Providing technical support, machinery, equipment, and construction materials for landslide control and flood protection
- Increasing the involvement of local technicians and beneficiaries and coordinating the agencies involved in regular maintenance work

Implementation of central-level master plans

- Carrying out research activities on landslide control and flood protection and preparing flood and landslide hazard maps for Nepal
- Carrying out construction work
- Coordinating stakeholders to implement activities related to water-induced disasters
- Increasing public awareness and involvement in water-induced disasters
- Reclaiming land eroded by rivers and carrying out development activities on reclaimed land

The organisational structure of DWIDP is presented in Chart 2 on page 63.

Department of Soil Conservation and Watershed Management

The Department of Soil Conservation and Watershed Management (DSCWM) is one of five departments under the Ministry of Forest and Soil Conservation. It was established in 1974 and currently has 840 staff in total, with 128 graduate and 349 undergraduate technical personnel from various disciplines. It has district level offices in 55 districts of Nepal. The organisational structure of the DSCWM is given in Chart 3 on page 64.

The mandate of DSCWM is as follows.

- Ensuring proper land use by means of rational land-use planning
- Implementing integrated package programmes, based on sub-watersheds as planning and management units, to include biological, agronomic, and water-management measures to tackle erosion problems
- Ensuring multiple uses of land and water to fulfil diverse needs
- Operating soil conservation and watershed management (SCWM) programmes in line with the integrated watershed management approach
- Establishing linkages and networking with all other related sectors; e.g., forestry, agriculture, livestock, water, and land resources
- Ensuring people's participation by developing appropriate technologies and through conservation extension, education, and demonstration
- Adopting ways and means of keeping damage to the environment at a minimum during construction of development infrastructure
- Protecting watersheds near hydroelectric dams, irrigation systems, and river banks through plantation and other conservation techniques
- Expanding and institutionalising SCWM services in all districts of Nepal
- Focusing conservation activities on the Siwalik range and on other marginal lands

Department of Hydrology and Meteorology

The Department of Hydrology and Meteorology (DHM) is under the Ministry of Environment, Science, and Technology. The central organisation has four divisions and three basin offices at field level, namely, Koshi Basin, Narayani Basin, and Karnali and West Rapti Basin, covering activities throughout the nation. The department operates 154 river-gauging stations and maintains a nationwide network of 337 precipitation stations, 25 sediment stations, 68 climatic stations, 22 agro-meteorological stations, 9 synoptic stations, and 6 aero synoptic stations (Adhikari 2004). The organisational structure of the department is presented in Chart 4 on page 65. The following are its mandates.

- Collecting and disseminating hydrological and meteorological information for water resources, agriculture, energy, and other development activities (Adhikari 2004)
- Issuing hydrological and meteorological forecasts for the public, mountaineering

- expeditions, and civil aviation, as well as for the mitigation of natural disasters
- Carrying out special studies for policy-makers and for the development of hydrological and meteorological sciences in the region
 - Promoting relationships between the DHM and other national and international organisations in the field of hydrology and meteorology

Department of Health Services

The Department of Health Services (DHS) provides services through 75 district health offices, a number of health posts, and health centres in the districts. District health offices dispatch health teams during disasters to provide first aid for the wounded. The DHS acts to control the epidemics that occur after a disaster hits an area.

Local government institutions

Nepal has 75 district development committees (DDCs), 3,913 village development committees (VDC), and 58 municipalities. These are local-level government institutions empowered by the Local Self Governance Act 1999 to coordinate development activities under the leadership and guidance of the Chief District Officer (CDO) who is the representative of the central government in the district. The CDO acts as a crisis manager during natural disasters. These local-level institutions play a significant role in mobilising the community for disaster mitigation activities such as flood mitigation and river control at local level.

Non-government organisations

Several national and international non-government organisations (INGOs) are working in the field of disaster management in Nepal. The International Red Cross Society, Practical Action, CARE Nepal, OXFAM, and Action Aid are international non-government organisations actively involved in this field. INGOs working in Nepal have been providing resources to local NGOs, enabling them to run their organisations on a professional basis. A list of international organisations actively involved in the field of disaster management in Nepal is presented towards the end of Chapter 7, and those working on pilot projects on Disaster Preparedness for the European Commission's Humanitarian Aid Department's (DIPECHO's) promotion of preventative measures (community-based disaster risk management in Nepal) along with NGOs in Nepal are covered at the end of this chapter. Some of the NGOs actively involved in disaster management in Nepal are described in the following sections.

Action Aid Nepal

Action Aid Nepal is a country office of one of the United Kingdom's biggest INGOs. It was established in Nepal in 1982 and has a strong focus on advocacy and empowerment of the poor and disenfranchised.

It commenced its contribution to disaster reduction by running disaster and risk education in schools and communities. Its goal in disaster risk reduction is both prevention and response to emergencies. It seeks to address vulnerability and hazards by increasing the capacity of poor, excluded, and vulnerable groups in collaboration with appropriate institutions.

The methodology it uses is training with the help of local NGOs and women's groups focusing on disaster response training in schools and communities.

Danish Christian Aid

Danish Christian Aid (DCA) is a core member of the Lutheran World Federation (LWF) (see the end of this chapter). It has been involved in disaster preparedness and response along with LWF almost since LWF's establishment in Nepal in 1984. Besides work related to refugees and internally displaced people, it has valuable experience in disaster response and relief. Currently DCA is involved as a DIPECHO partner in piloting programmes on increased capacity to respond to disasters and improved livelihoods. This work is being carried out in Jhapa, Rautahat, Lalitpur, Kathmandu, and Bhaktapur.

CARE Nepal

Cooperation for American Relief Everywhere (CARE) started working in Nepal in 1978. At that time the focus was on agricultural extension and improving infrastructure. In the early 1990s the emphasis changed to community-based development of 'human infrastructure' and led to activities in capacity building, training, and empowerment.

CARE's focus in disaster management is enabling the poor to survive and recover from disaster. It works with partners at multiple levels to ensure that poor communities are prepared for and can be assisted during natural disasters. CARE is currently working on a project to pilot disaster risk management among socially and economically marginalised communities in Sarlahari, Mahottari, and Dhanusha. The long-term aim is to strengthen the communities' resilience to disasters.

Nepal Red Cross Society

Established on August 4, 1963, Nepal Red Cross Society (NRCS) is one of the main local NGOs working in coordination with MoHA. During natural disasters, it works closely with the Central Natural Disaster Relief Committee headed by the Minister for Home Affairs. It is also one of the few organisations with a countrywide network that can cope with problems on a national scale. At present, it has a nationwide network with 75 district chapters, 816 sub-chapters, 316 cooperation committees, and 3,515 Junior Youth Red Cross Circles (JYRCC). Its interface relationship with MoHA is given in Chart 5 on page 66.

Preparedness and relief measures include both pre-and post-disaster activities, and NRCS implements community-based disaster preparedness programmes in 35 districts of Nepal. It has established 27 warehouses at strategic locations to deliver relief and emergency items, and the society has played a commendable role in the major disasters occurring since its establishment (Devkota 2004; Dhakal 2005). NRCS is currently piloting a community-based disaster preparedness programme as a response to national disasters with the help of the experiences of the Belgian and Danish Red Cross.

National Society for Earthquake Technology

The National Society for Earthquake Technology-Nepal (NSET-Nepal) is a non-government organisation active in dealing with earthquake preparedness and mitigation. It was established in Kathmandu in 1993 and is the only organisation of its kind in Nepal.

NSET-Nepal has been working in the field of earthquake safety and preparedness with a mission to assist all communities in Nepal to prepare to mitigate the impact of earthquakes by implementing organised approaches to managing them and minimising risks. Its vision is earthquake-safe communities in Nepal by 2020.

NSET-Nepal was awarded the Certificate of Merit Sasakawa Award for Disaster Reduction in 2001 and the Tech Museum Award 2004 for its meritorious performance in the field of earthquake preparedness.

NSET-Nepal has been carrying out various projects and programmes (Annex 3) in earthquake preparedness with the support of internal and external agencies.

Jalshrot Vikash Sanstha

Jalshrot Vikash Sanstha (JVS) – Association for Water Resource Development, Nepal – is a non-government, non-profit organisation established in 1999 and works in the field of water resource development. It helps formulate policies on integrated water resource management (IWRM) and works as the Nepal Water Partnership (NWP) office, a local-level institution of the Global Water Partnership (GWP).

JVS was involved in the study of community approaches to flood management in Nepal with financial support from the World Meteorological Organization (WMO). The organisation prepared a manual on community approaches to flood management as part of a regional project that involved Bangladesh, India, and Nepal. The manual was field tested in the Banjaraha VDC of Rautahat district, one of the study areas, during the floods of 2004 and 2005. The involvement of the community in flood management was reported to be very encouraging.

National Centre for Disaster Management

The National Centre for Disaster Management (NCDM) is a fairly new, local non-government organisation established in 2002. It is run by an executive committee of nine members drawn from different disciplines. Members include a geologist, an engineer, a disaster specialist, a medical doctor, a journalist, a police officer, a training specialist, an economist, and an administrator, thereby forming a multi-disciplinary team.

NCDM firmly believes that helping to empower people and improve the capacity of local communities to prepare for and manage disasters through training and awareness are the most effective ways of mitigating the effects of natural disasters. It has held three workshops in 2003, 2005, and 2006 on pre-monsoon disaster preparedness plans. It has also prepared emergency preparedness plans for international non-government organisations such as Oxfam, CARE Nepal, GTZ, and the UNDP. At present, it is working on disaster policy and a legal framework for the government.

Nepal Landslide Society

The Nepal Landslide Society (NELS) is also a fairly new local NGO established in 2003. NELS was established following a number of landslides along the Prithvi Highway which inspired the promoters to do something about landslide mitigation. It went on to hold seminars/workshops and an international conference in September 2005 on landslides with a view to pooling as much knowledge in the field of landslide mitigation and control as possible (NELS 2005).

NELS is run by a seven-member executive committee of dedicated people with ample knowledge of specific local sites with vulnerabilities to landslides. It believes that hazard mapping of the most vulnerable sites should be undertaken on a priority basis. Disaster preparedness plans for landslides should then be formulated and subsequently launched, then work should commence on less vulnerable sites

Nepal Geologic Society

The Nepal Geologic Society (NGS) is a local NGO formed mainly by Nepalese geologists with a view to creating awareness about natural disasters, especially landslides and earthquakes in Nepal.

Until 2000, NGS organised a natural disaster reduction day annually on the occasion of the International Decade for Natural Disaster Reduction (IDNDR). It organises seminars on natural disasters and awareness-raising programmes in the community. Now NGS is organising a day on International Strategies for Disaster Reduction (ISDR) every year, during which it carries out programmes to raise awareness about natural disasters in the community.

NGS has held national meetings and seminars on various topics related to natural disasters in collaboration with the Ministry of Home Affairs, IDNDR National Committee of Nepal, DWIDP, Lutheran World Service, Nepal, and the National Society for Earthquake Technology (NSET-Nepal).

Natural Disaster Management Forum

The Natural Disaster Management Forum (NDMF) was established in 2002 as a non-profit, non-government organisation devoted to helping people who have been suffering from hydroclimatic disasters. It believes that mitigation of natural disasters is best done through sustainable management of natural resources with the involvement of local communities. It is also engaged in the study of environment and natural resource management.

This organisation has been working with victims of disasters and helping them at the time of crisis since its establishment. It is also working with Action Aid Nepal and other I/NGOs on hydroclimatic disaster issues. NDMF has a branch office in Dhanusha.

Friends Service Council Nepal

Friends Service Council Nepal (FSCN) is a non-profit, non-political, and non-government organisation established in 1992 and working in socioeconomic development at the grassroots level in Nepal. It has a head office in Lalitpur and a field office in Rupandehi district, in the southwest part of Nepal. Its aims are to fight poverty and injustice by improving the socioeconomic condition of the poor and disadvantaged. It is affiliated with the Social Welfare Council (SWC) and the NGO Federation of Nepal (NFN).

FSCN is an active local NGO in Nepal and disaster management is one of several of its prominent activities at the community level.

Disaster Preparedness Network Nepal

Disaster Preparedness Network Nepal (DPNeT) was established in 1996 as a non-profit forum of individuals and organisations involved in disaster management and financed by membership fees. It is run by an executive committee of nine members.

DPNeT acts as a resource and information centre and a contact point for agencies and individuals working in disaster management. It aims to create effective linkages between government and civil society and enable communities by building capacities in disaster preparedness. Its methods involve promoting indigenous knowledge, replicating best practices, and organising workshops and seminars to share information on disaster management.

Academic institutions

Institute of Engineering

The Institute of Engineering (IoE) is the oldest engineering institution in Nepal. It offers Bachelor and Master's level courses in different disciplines. IoE has produced engineering professionals and many of its graduates work in the field of disaster management. The Institute offers a course on disaster mitigation management as part of a Master's degree course in Water Resources Engineering. The Centre for Disaster Studies (CDS), which is in the IoE, has prepared a curriculum for disaster mitigation study with the help of DWIDP's Disaster Mitigation Support Project (DMSP) funded by JICA.

Nepal Engineering College

Nepal Engineering College (NEC), located in Changu Narayan, Bhaktapur, is a private engineering college established in 1994. Among other courses, a course on disaster risk management was introduced in 2003 as an elective subject for the undergraduate course leading to the Bachelor of Engineering degree. NEC is also involved in disaster management research.

NEC frequently organises seminars and workshops on disaster preparedness and mitigation. So far it has organised five national-level seminars and workshops in the field of disaster management with the help of Ehime University of Japan. In May 2006 and with the help of Ehime University, it established a Centre for Disaster Risk Studies within the College. This centre is involved in the study of causes and effects of natural disasters such as floods, landslides, and earthquakes.

International organisations

ICIMOD

The International Centre for Integrated Mountain Development (ICIMOD) was established in 1983 to serve poor mountain communities in the Hindu Kush-Himalayan region. As a centre operating at an interface between research and development, ICIMOD has from its inception, been involved in addressing various aspects of mountain disasters such as floods and landslides. It ran a well-documented training course on mountain risk engineering which became an accepted programme on mitigation in many of the premier engineering institutes in the region.

Today ICIMOD continues to build on its substantial contributions to capacity building by providing credible information and technical assistance aimed at prevention and mitigation of landslides, floods, and flash floods (ICIMOD et al. 2001; ICIMOD and WMO 2002). ICIMOD hosts several websites and portals dedicated to topics such as

GIS, space technology, and disaster preparedness. It also facilitates the sharing of knowledge and information on its disaster portal www.disasterpreparedness.icimod.org. Further, ICIMOD also facilitated the sharing of precipitation and river discharge data among five countries through its website www.southasianfloods.icimod.org which is dedicated to improving regional cooperation in sharing flood-related data.

Lutheran World Federation

The Lutheran World Federation–Nepal Programme (LWF-Nepal) was established in 1984 as the country programme of the international LWF Department for World Service which operates relief, rehabilitation, and development programmes in 37 countries. In Nepal programmes are implemented through NGOs and community-based organisations. LWF has a field office in Jhapa where it works with Bhutanese refugees. It also has a coordination unit in Banke district, and a liaison and coordination office in Kathmandu. Committed to responding to the cause of human suffering, it is a strong partner in programmes for disaster mitigation and management among the poorest communities. Its programme has a strong emphasis on emergencies, refugees, and internally displaced people.

Oxfam

The acronym ‘Oxfam’ stands for the Oxford Committee for Famine Relief. Oxfam was founded in Britain in 1942 during the Second World War, when a group of Oxford citizens campaigned for grain ships to be sent through the allied naval blockade to provide relief for women and children in enemy-occupied Greece. Oxfam International was founded in 1995 by a group of like-minded, independent non-government organisations which wanted to work together internationally to achieve greater impact in reducing poverty and providing relief during emergencies through their collective efforts.

Oxfam has been working in humanitarian disaster and emergency situations for over 60 years. It was established in Nepal before the inception of Oxfam International and, as such, was one of the earliest INGOs in the country. Currently it is promoting small-scale mitigation projects in Kapilvastu, Nawalparasi, and Mahottari districts. Its approach is through Dalit empowerment as an avenue for decreasing vulnerability to floods. Oxfam is supporting the Government of Nepal in drafting a new National Disaster Management Act and a National Disaster Management Policy.

Practical Action

Practical Action is a UK-based INGO with 40 years experience in developing countries. In Nepal it works through a locally-established counterpart. Its focus is on establishing the use of appropriate technology by demonstrating and disseminating knowledge and influencing decision-makers.

Practical Action is currently piloting demonstrations of early warning systems (EWS) for floods and landslides in selected VDCs of Chitwan and Nawalparasi districts. Communities are being trained to manage the systems and to establish physical structures (e.g., dikes) and evacuation measures. It is foreseen that communities will be empowered to manage through their own committees and to raise and manage their own finances in the long term (Jaishy 2005).

UNDP

UNDP Nepal has been involved for over two decades in the national-level disaster management sector in Nepal. It has a wide multi-hazard perspective, especially in relation to the Kathmandu Valley, and its role is seen as that of an advisor to national policy-making bodies. UNDP is currently supporting the Ministry of Home Affairs in the development of a national strategy for disaster management.

UNICEF

UNICEF is the United Nations Children's Fund. Over the years it has built a body of expertise in infant immunisation and vitamin supplements, childhood nutrition, drinking water supplies, and emergency relief—especially for women and children. In the context of its expertise in drinking water supply it is working on a project in Lalitpur in the Kathmandu Valley to supply safe drinking water following a possible major earthquake.

Other INGOs

There are other international organisations involved in disaster preparedness and mitigation activities and programme in Nepal. Among them are the following:

- Asian Disaster Preparedness Centre (ADPC)
- Asian Disaster Reduction Centre (ADRC)
- United Nations Office for the Coordination of Humanitarian Affairs (UN/OCHA)
- World Food Programme (WFP)
- Save the Children Fund (SCF)

Other actors

There are other actors involved in implementing measures to mitigate disasters. They are often overlooked when new organisations arise, but continue to play a crucial role. The Department of Mines and Geology, for example, is the oldest department to have carried out research on earthquakes. Another associated institution, which deserves mention is the Department of Geology at Tribhuvan University which offers a course for engineering geologists on mountain risk engineering.

The cities and townships of Kathmandu Valley also have their own disaster management plans and reserves. Many older, voluntary social service organisations such as Lions and Rotary clubs, which, although not specifically established for disaster management, nevertheless play a much-needed role in providing relief materials when needed. It is worth adding that, whereas prevention of disasters is closely related to the state of the environment, the Environment Protection Act and the Forest Act have played roles in raising awareness about the relationship of the environment and natural endowment of the country to disaster mitigation and management.

Conclusion

In examining the roles of the various departments and organisations involved in disaster planning and preparedness in Nepal and their past performance, rescue and relief operations stand out as something for which Nepal has an edge over neighbouring countries. Where it seems to lack is in actual planning for preparedness before a disaster. This will be examined in the following chapters.

National Plans and Legal Instruments

There are no separate action plans for different categories of disaster in Nepal. The National Action Plan 1996 is a consolidated and comprehensive plan which addresses all the phases of a disaster. Sectoral policies and plans address disasters relating to floods and landslides. The Water Resources Strategy (WRS) 2002, National Water Plan (NWP) 2005, and Water Induced Disaster Management Policy (WIDMP) 2006 are sectoral plans and policies that take care of natural disasters relating to floods and landslides at national level. The Building Code of 2003, enforced in 2003 following the approval of the Government on July 28, 2003, was brought in to mitigate the effects of earthquakes in urban areas and as a measure towards earthquake preparedness (Pokharel 2005).

The sub-metropolis of Lalitpur was the first to enforce the Building Code in 2003. In 2004 Kathmandu metropolis also enforced the Code while other municipalities are in the process of enforcing it. According to officials of the Department of Urban Development and Building Construction, instructions have already been issued to all municipalities to enforce the Code through the Ministry of Local Development. The National Society for Earthquake Technology-Nepal (NSET-Nepal) is active in the field of earthquake safety. It prepared a Kathmandu Valley Earthquake Risk Management Action Plan (Annex 2) in collaboration with Geo Hazards International, USA.

The sectoral plans and policies are described in the sections below.

Natural Disaster Relief Act 1982

Prior to the enactment of the Natural Disaster (Relief) Act, 1982, natural disasters were treated as and when they occurred. There were no pre-disaster preparedness plans and post-disaster mitigating measures. Disasters were often treated as acts of God and as a scourge. All forces and resources were used on an ad hoc basis when disasters occurred to alleviate the misery brought to the communities. Following the enactment of the Natural Disaster Relief Act a general awareness was created that, although disasters cannot be prevented we can prepare for them and mitigation measures are possible. The act of preparedness has the beneficial effect of reducing

the risk of disaster and minimising its effects and the cost of post-disaster relief and rehabilitation activities.

The Natural Disaster Relief Act provided for the formation of a 25-member Central Disaster Relief Committee under the chairmanship of the Minister for Home Affairs (See Annex 4 for the composition of the committee). It describes the functions of this committee in relation to natural disasters. It also empowers the government to constitute regional, district, and local level natural disaster relief committees by publishing a notification in the *Nepal Gazette*. The functions of these committees are detailed in the Act.

The Act provides for the setting up of natural disaster aid funds at the central, regional, district, and local levels by authorising the committees at different levels to use such funds in relief operations.

The unofficial translation of the original Natural Disaster Relief Act and the latest amended version on September 30, 1992 are given in Annexes 4 and 5, respectively.

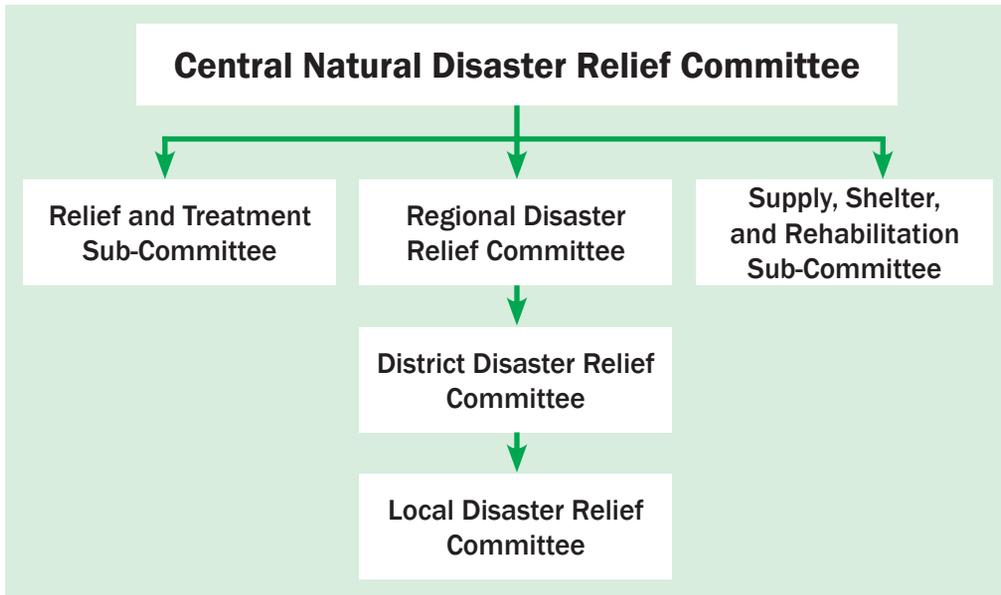
In the light of experience gained over the years since the enactment of the Natural Disaster Relief Act (NDRA) in 1982, it has generally been felt that some amendments need to be made in the present Act to specify the duties and responsibilities of stakeholders, including non-government organisations. The Act also needs to be amended to articulate the roles and accountability of key actors in disaster management. Implementing regulations need to be formulated to facilitate the translation of the Act's provisions into action. A civil defence system should be developed to reduce the current heavy reliance on the army and police for emergency response.

Organisational structure of the Central Natural Disaster Relief Committee

According to the NDRA the organisational structure of the Central Natural Disaster Relief Committee (CNDRC) is presented in the next page.

National Action Plan for Disaster Management in Nepal, 1996

Natural hazards have been playing havoc all over the world in increasing magnitude every year. Sensing the enormity of the problem, the United Nations (UN) General Assembly, in Resolution 44/236 of December 22, 1989, launched a far-reaching global undertaking for the 1990s to save human lives and reduce the impact of disasters from natural hazards. To introduce a process facilitating a global culture of prevention, the UN declared the decade from 1990-2000 the 'International Decade of Natural



Disaster Reduction (IDNDR)'. Responding to the global call for disaster reduction, the Government of Nepal formed an IDNDR National Committee under the chairmanship of the Minister for Home Affairs.

The IDNDR National Committee felt the need to prepare a practical and effective action plan on disaster management, focusing on disaster preparedness, as previous efforts were concentrated on rescue and relief operations following disaster events.

The national committee formed four core groups of experts, administrators, academicians, and security personnel to draw up a national action plan on disaster preparedness, response, mitigation, rehabilitation, and reconstruction. The preliminary National Action Plan was presented at the IDNDR World Conference held in Yokohama, Japan in 1994.

The preliminary National Action Plan was redrawn in 1995 by the IDNDR National Committee in more practical terms and in the light of the Yokohama strategy adopted by the World Conference in 1994. The Government of Nepal approved the National Action Plan on Disaster Management in Nepal on February 18, 1996 (Annex 5). Following this, a report containing amendments to the 1996 plan was prepared for the Kobe conference in 2005 (Annex 6).

The National Action Plan 1996 has four sections: (i) disaster preparedness, (ii) disaster response, (iii) disaster reconstruction and rehabilitation, and (iv) disaster mitigation. The activities involved in each section are presented in matrix form showing priority item groups, priority activities, time of completion, and executing or cooperating agencies.

Looking at the progress so far in the field of disaster management, the launching of the National Action Plan by the government in 1996 was a major achievement. Nepal has committed itself to disaster risk reduction in the world forum, be it the World Conference on Disaster Reduction in Yokohama Japan in 1994, or more recently in the World Conference on Disaster Reduction in Kobe Japan in 2005.

Nepal presented a national report entitled 'Disaster Reduction and Management in Nepal-Issues and Prospects' to the World Conference in Kobe from January 18-22, 2005. The national report also contained a revised version of the National Action Plan, 1996, with revised schedules. This is the revised version of the 1996 plan and is found in Annex 6.

The following points list the progress made in different branches of government to meet its commitments to disaster risk reduction:

- Establishment of an optimum seismic monitoring system within the Department of Mines and Geology
- Preparation of management plans for sub-watersheds in some districts and hazard maps for four districts by the DWIDP; development of a River Policy and Water-Induced Disaster Management Policy
- Preparation and implementation by the Ministry of Health and Population of an Emergency Preparedness and Disaster Response Plan for the health sector
- Revision of the institutional set-up by policy-makers to undertake total disaster risk management
- Promulgation of the Building Act 1999, and formulation of the Building Code in 2003. Lalitpur sub-metropolis and Kathmandu metropolis implemented the Code in 2003 and 2004, respectively. The Code is being introduced gradually in the remaining 56 municipalities.
- The government has accepted the concept of land banks to settle landless people affected by disasters.
- The capacity for disaster management of Kathmandu metropolis and Lalitpur sub-metropolis has increased with the opening of disaster management departments in these municipalities.
- Disaster management capabilities of the Nepal Army and the Police are upgraded annually.
- The Government of Nepal cooperates with national and international partners to manage risks. The Ministry of Home Affairs is currently coordinating the development of a national disaster management strategy. Nepal has expressed its full commitment to the Hyogo Plan of Action and Declaration 2005.
- The Government of Nepal has introduced periodic disaster management plans for water-induced disasters in the recently released National Water Plan.
- The Tenth Five Year Plan (2002-2007) has, for the first time, brought out a National Plan for Disaster Management with clear-cut objectives, strategies, and programmes.

Tenth Five-year Plan (2002-2007)

In order to achieve the envisaged strategy outputs related to water-induced disasters, the Tenth Five Year Plan proposes the following.

1. The present capabilities of institutions involved in water-induced disaster management will be strengthened by formulating policy and action plans on disaster management.
2. Action will be taken to strengthen the collection, storage, and dissemination of information about water-induced disasters. This will include zoning of hazardous areas by preparing risk and vulnerability maps of probable flood, debris flow, and GLOF- prone areas.
3. A comprehensive flood and river control master plan will be prepared and implemented on the basis of priority. Flood forecasting and warning systems will be progressively implemented for main watersheds.
4. Unused lands along the river flood plains will be reclaimed and used for economic development.
5. People's participation will be sought for the effective implementation of safety measures against water-induced disasters by raising people's awareness.
6. Emphasis will be given to managing the watershed and river control programmes in an integrated manner by using local skills and means. Emphasis will be given to promoting study, investigation, and training on landslide, flood, and soil erosion.

A synopsis of the provisions for disaster management in the Tenth Five Year Plan (2002-2007) follows.

Objectives

- To make development and construction work sustainable, reliable, and effective
- To protect people's lives

Strategies

- Adopt a suitable technology to minimise environmental effects and losses caused by disasters
- Make rescue and relief operations following disasters reliable and effective.
- Carry out effective public awareness activities
- Strengthen earthquake measurement stations
- Prepare hazard maps of vulnerable areas
- Designate MoHA as the focal point for disaster activities

Programme

- Develop integrated information systems for water-induced disaster prevention in coordination with national and international agencies
- Develop reliable databases for the mitigation and management of water-induced disaster
- Prepare an inventory of institutions involved in the field of disaster management
- Operate five regional warehouses with sufficient stockpiles of relief materials
- Develop a national fire code
- Prepare a landslide inventory based on hazard maps and create an epicentre map of earthquakes
- Provide immediate information to the public on any kind of disaster
- Adopt disaster preventive systems
- Offer instant counselling and rehabilitation to victims of disaster

Working policy

- Assess environmental and other impacts of disaster
- Enhance people's participation in watershed management and river control
- Carry out timely reformation of legal and institutional frameworks
- Implement regional programmes effectively
- Harness participation of stakeholders in all areas of disaster reduction
- Increase public awareness of disaster

Expected achievements

- Cordial relations established among national and international partners
- Effective sharing of disaster information and experiences
- Reduction of damage
- Hazard maps to help identify vulnerability of communities and thereby contribute to reducing the loss of lives and property
- Strengthened rehabilitation work and availability of relief materials to victims

National Water Plan 2005

The physical geography and climatic regime of Nepal make the country vulnerable to water-induced disasters. Predicted changes in climate are likely to exacerbate this risk. Natural events of a catastrophic nature cannot be avoided, but through careful planning and preparation, their risk can be reduced. Planning and preparation should ideally involve people in local communities. Apart from preparations for emergency response, rescue, and relief, action is necessary to mitigate the effects of disasters in the water sector.

In order to implement the 25-year National Water Resources Strategy, 2002, the government recently ratified the National Water Plan, 2005. The following targets and action programmes are given by this Plan.

Targets

- By 2007, potential disaster zones will be identified by type and located on district maps.
- By 2007, emergency relief materials will be available in all five development regions.
- By 2017, infrastructure to mitigate predictable disasters will be in place in twenty districts.
- By 2017, warning systems will have been established and functioning in the whole country.
- By 2027, social and economic losses caused by water-induced disasters will have fallen to levels experienced in developed countries.

Action programmes

The focus of water-induced disaster management during the first five years of the Plan is to improve the institutional capabilities for managing water-induced disasters. In the following ten years, effective measures will be adopted for better management of water-induced disasters and mitigation of their adverse effects. The long-term goal of the Plan is to make Nepal's water-disaster management system fully functional, effective, and responsive to people's needs. The whole programme is expected to address the needs of the poor and the marginalised directly, thereby improving the living conditions of the poorest sections of Nepalese society.

Seven programmes have been identified under Output 1 to ensure that 'measures to manage and mitigate water-induced disasters are functional'. They are as follows:

- A water-related disaster management policy and programme
- A risk and vulnerability mapping and zoning programme
- A disaster networking and information system improvement programme
- A community-level disaster preparedness programme
- A programme for relief and rehabilitation
- Activation of an inundation committee
- A flood, drought, landslide and debris flow, GLOF, and avalanche mitigation programme

Twenty-six activities have been proposed under these programmes. The key objective is to introduce water-induced disaster management programmes during the first five years in coordination with relevant stakeholders. This should lead to reduction or mitigation of disasters by preventing the loss of life and property. Infrastructure

contributes, albeit indirectly, to the poverty reduction strategy in the Poverty Reduction Strategy Programme (PRSP) and the Tenth Five-Year Plan. In order to contribute to poverty alleviation in a more direct manner, land reclamation work through improved river control and watershed management is anticipated. The key outcome will be institutionalising water-induced disaster management as a regular activity of relevant stakeholders in the field of disaster relief and rehabilitation, emergency protection work, and implementation of disaster mitigation work such as flood mitigation on the basis of master plans, as well as the effective participation of people affected.

Water Induced Disaster Management Policy, 2006

This policy was recently approved for the management of water-induced disasters as a part of management of river basins. The policy is in line with the principle of integrated water resource management (IWRM) and has the following objectives:

- i) Mitigating the loss of life and property arising from water-induced disasters such as floods and landslides
- ii) Preserving rivers, river basins, and water-related environments for the sustainable use of natural resources and facilities such as drinking water, irrigation, river navigation, and road transport
- iii) Reclaiming river banks and flood-affected areas in order to rehabilitate landless people and carry out socioeconomic activities
- iv) Developing or strengthening institutions for the control of water-induced disasters and management of flood-affected areas
- v) Defining the role of local and central government institutions, non-government organisations, community organisations, and private institutions in the management of rivers

To achieve these objectives, the government, through the Ministry of Water Resources, has implemented the following policies.

- i) Emergency relief
- ii) Mitigation of water-induced disasters
- iii) Conservation of natural resources
- iv) Use of river banks and flood-affected areas
- v) Institutional management and development

National Policy and Strategy for Disaster Risk Management, 2007

As of this writing, two processes for the improvement of disaster risk management at the national planning level are ongoing. Both processes are undertaken by the Government of Nepal with the Ministry of Home Affairs as the node. The first process is the development of a National Policy on Disaster Management in Nepal (Annex 7) and the revision of the National Disaster Management Act (Annex 8). This process is facilitated by the National Centre for Disaster Management (NCDM) in collaboration with Oxfam. A participatory approach has been adopted and several stakeholders from all levels throughout Nepal have been consulted in preparing the draft Policy and Act. The final drafts as submitted to MoHA are presented as Annexes 7 and 8. A task force under the MoHA will review the drafts and recommend the documents to the Cabinet for adoption.

The second process ongoing is the development of a national strategy for disaster risk management. This strategy is being developed by the Government of Nepal in consultation with relevant stakeholders at all levels. UNDP is supporting the government in the process with financial support from the European Commission through its humanitarian aid department. The strategy is based on the Hyogo Framework of Action and will contribute to the commitments made by Nepal to the international community in the UN World Conference on IDNDR in Yokohama in 1994, and the UN World Conference on Disaster Reduction in Kobe in 2005. Among other things, the strategy will serve as a set of recommendations for an indicative framework of institutional and legal mechanisms for disaster risk management. It is also expected to be a guide for future action planning for disaster risk management in any of the sectors by government or non-government institutions. The strategy will also be submitted to the Cabinet during 2007.

Planning at District and Community Levels

District disaster preparedness plans are prepared annually by each district disaster relief committee (DDRC) at the district level and not at the community level, even though there may be several communities in each district. The communities concerned are, however, consulted through interaction programmes during preparation of the plans. Alternatively, the communities may approach their DDRC to seek its help in disaster mitigation measures.

District preparedness plans

District disaster relief committees (DDRCs) have been established in all 75 districts as drawn out in the Natural Disaster Relief Act (NDRA), 1982. In addition, there are five regional disaster relief committees representing the five national development regions.

MoHA provides annual budgets to the DDRCs to implement the district action plans for each district. According to the disaster management section of MoHA, an annual budget of Rs 25 million was provided for the fiscal year 2005/2006 for disaster-related work and according to the annual disaster preparedness plans prepared by the DDRC in each district. The budget is dispensed to each district on the basis of requests for requisite funds that had either been spent or on the basis of the amount planned for expenditure by each DDRC.

For now, it is understood that only annual disaster preparedness plans are in place and implemented accordingly. For a long time, it was thought that broad-based district disaster preparedness plans had to be prepared if disasters were to be managed properly. The government has declared 23 districts to be the most vulnerable. They are Chitwan, Sarlahi, Makwanpur, Rautahat, Dhanusha, Tanahun, Jhapa, Ramechhap, Siraha, Khotang, Saptari, Taplejung, Dhading, Mahottari, Gorkha, Sindhuli, Nawalparasi, Udayapur, Myagdi, Arghakhanchi, Sankhuwasabha, Syangja, and Parsa (Figure 8).

Out of the 23 districts, the government has chosen five districts for which district disaster preparedness plans should be drawn up, namely, Chitwan, Makwanpur,

Vulnerable districts of Nepal

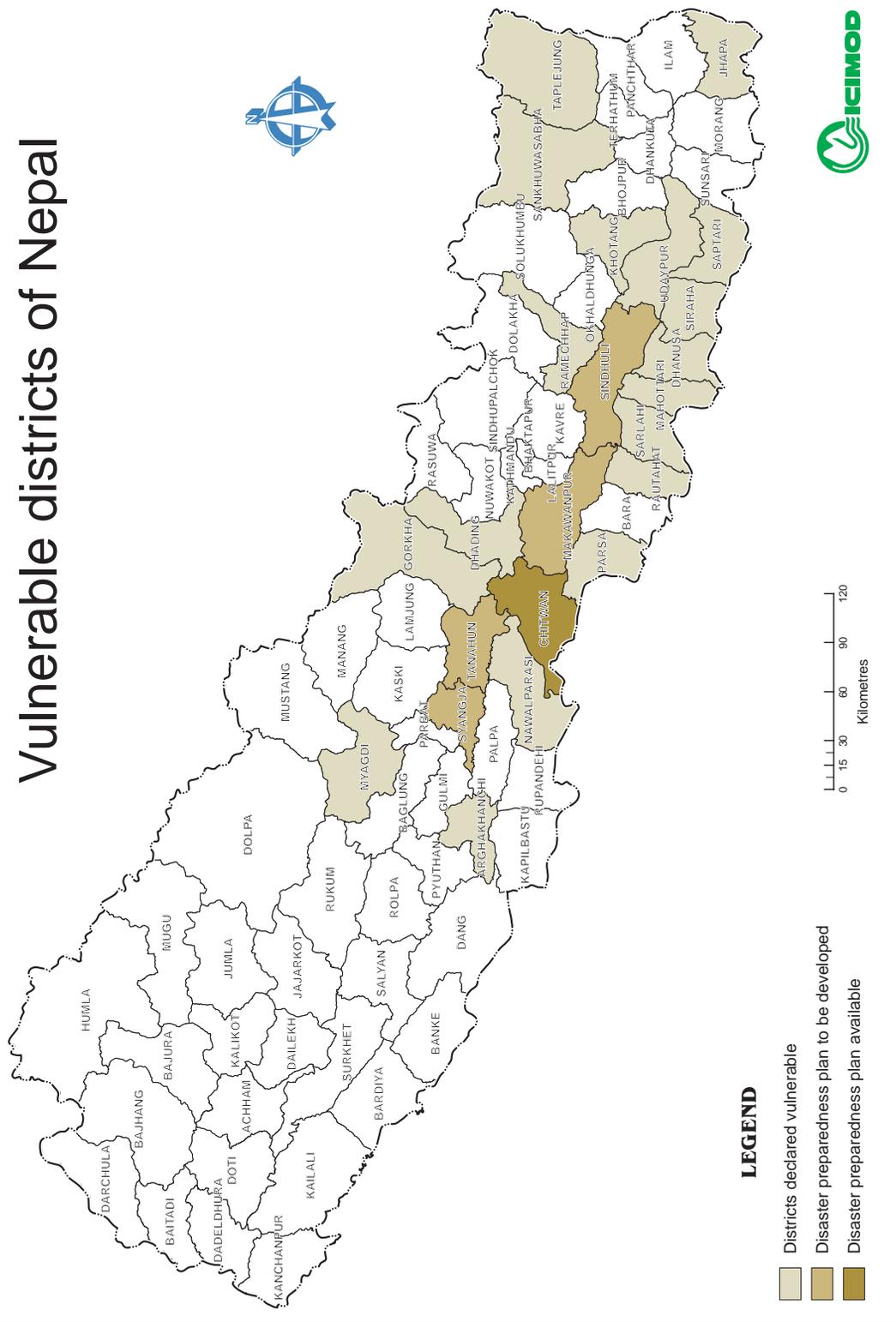


Figure 8: The Government of Nepal has identified 23 districts as being particularly vulnerable. Five of these districts have been chosen for development of district disaster preparedness plans. So far, only Chitwan has developed a district disaster management plan (Annex 9).

Sindhuli, Syangja, and Tanahun. Accordingly, district disaster management action plans for these pilot districts were prepared from 2001-2004. Of the five, 'Chitwan District Disaster Management Action Plan' was officially released recently under the title of 'Total Disaster Risk Management Pilot Exercise'. Other district plans are to follow.

These action plans were prepared with the support of the United Nations Office for Cooperation in Humanitarian Affairs (UN/OCHA) and the United Nations Development Programme, Nepal. The 'Disaster Management Action Plan of Chitwan District' is in Annex 10. It covers policy/legislation, organisational development, plan formulation, human resource development, preparedness, relief and rescue operation studies, and measures for floods, landslides, and earthquakes (before, during, and after disaster) delineating the responsibilities of executing and cooperating agencies. The plan broadly covers the needs of the Chitwan district in respect of natural disaster preparedness.

Disaster preparedness plans for the other districts will be similarly drawn based on knowledge gained from implementation in the five districts. But these district disaster management action plans, which have been so thoughtfully prepared, will only be effective if they are integrated into the periodic plans of the country.

Community-level flood management in Nepal

Jalsrot Vikas Sanstha, Nepal (JVS), a non-government organisation, carried out a study on community involvement in flood management from 2002-2005 as part of a regional project implemented under the supervision of the Global Water Partnership's (GWP) Associated Programme on Flood Management (APFM) and the World Meteorological Organization (WMO). The broad objective of the project was to find ways and means of strengthening the self-help capabilities of communities for improved flood management by using the integrated water resources management (IWRM) framework. The overall goal was to contribute to the process of sustainable development and to improve the quality of life by reducing flood vulnerability with focus was on non-structural measures. The project's study area included Launiya and Tilathi VDCs in Saptari district and Brahmapuri and Banjaraha VDCs in Rautahat district.

The following are the outputs of the study:

- i) Preparation of a manual on community approaches to flood management
- ii) Testing the manual and implementing its measures in Banjaraha VDC of Rautahat District

Community-level preparedness for glacial lake outburst floods

Tsho Rolpa Glacial Lake is located 110 km north-east of Kathmandu in the Rolwaling Valley, Ward No 1 of Gauri Shanker Village Development Committee, Dolkha district of Janakpur zone at an altitude of 4,580 masl. It is the largest glacial lake in Nepal.

Studies carried out by the Water and Energy Commission Secretariat (WECS) and the Department of Hydrology and Meteorology (DHM) on Tsho Rolpa had stressed the possibility of a glacial lake outburst flood (GLOF) because of the huge volume of water stored in the lake and water seepage through the moraine dam and the small outlet and freeboard of the dam. The lake would have breached had no immediate measures been taken to lower the water level. If the moraine dam had collapsed, some 30-35 million cubic metres of water would have been released and the resulting flood would have caused serious damage up to a distance of 100 km downstream, threatening human lives, villages, farmland, bridges, foot-trails, roads, and the 60MW Khimti hydropower plant and other infrastructure.

Sensing the imminent danger, the Government of Nepal, with the assistance of the World Bank, established an early warning system in 17 villages along the Rolwaling Khola and Bhote/Tama Koshi downstream from Tsho Rolpa to warn people of the possible GLOF from the Tsho Rolpa Lake. This was carried out under a community-level preparedness plan.

Fortunately, in 2000 A.D., the Tsho Rolpa GLOF Risk Reduction Project, carried out with the assistance of the Netherlands, managed to lower the water level to three metres below the danger level and the risk of bursting was prevented.

The GLOF warning system can be reactivated in case of GLOF danger at any point in future.

Community-level preparedness for earthquakes

The National Society for Earthquake Technology (NSET-Nepal) launched a Community-based Disaster Risk Management Programme (CBDRMP) at the ward level in some wards of Kathmandu metropolis to provide technical assistance to communities to implement earthquake risk management initiatives through formation of ward-level disaster management committees. This programme already covers eight wards, and the ultimate aim is to bring all the 35 wards in the metropolis area within the fold of community level preparedness through organised ward level disaster management committees. Some wards have published pamphlets and notices to alert residents to the risk of earthquakes.

Gaps in Existing Plans

The National Action Plan for Disaster Management 1996 gives details of the plan at the national level. The Plan is executed in all 75 districts of the country through DDRC and other government agencies at the centre. The districts, therefore, need long-term natural disaster preparedness plans for implementation. However, plans have been made for five pilot districts only (Chitwan, Makwanpur, Sindhuli, Syangja, and Tanahun) with the support of the United Nations Office for Cooperation in Humanitarian Affairs (UN/OCHA). Of these five plans, only the district plan for Chitwan has been formally launched by the government. The plans for the other four pilot districts are yet to be launched. The remaining seventy districts have yet to prepare their district plans for natural disaster preparedness.

In the absence of proper plans, the DDRCs are presently engaged only in post-disaster activities when disasters occur. The annual budget received from MoHA is expended only on post-disaster activities as and when they occur.

Hazard maps of the most susceptible areas have not yet been prepared for all categories of natural disaster such as floods, landslides, mass wasting areas, and areas vulnerable to frequent earthquakes. In the absence of such maps, plans and programmes cannot be implemented to mitigate natural hazards. As a result, valuable lives and property are being lost every year.

Shortcomings in the implementation of disaster preparedness plans

Lack of human and financial resources are the main reasons for not implementing some of the key activities in the National Action Plan formulated on the occasion of IDNDR. This plan was a complete document on the mitigation of natural disasters and included preparedness, response, and rehabilitation activities. Ambitious plans have not been matched with the resources available.

Political instability and insurgency have meant that researchers have failed to carry out field survey work and construction activities in disaster-prone areas of the country. Community participation and stakeholders' consultations at local level could not be held and people were unable to come forward with their specific demands.

Efficient implementation of preparedness activities has often been hampered by lack of coordination between and within government and non-government organisations. The concentration of disaster preparedness has, in general, been on response and recovery and assistance to communities struck by disasters on an ad hoc basis and, in many cases, to an insufficient degree. Lack of coordination has, in cases, led to duplication of work by different organisations.

The priority is still mainly on post-disaster activities, i.e., rescue and relief work, and this is a common mindset of people and organisations working in this field. Because of this mindset, preparedness activities have not received sufficient priority in disaster management activities.

Inadequate policies and a weak legal environment are the biggest impediment to disaster management. Development of an effective institutional mechanism has always been promoted, but without success. Absence of an organisation at the highest level that could provide intellectual and administrative leadership is a serious gap in Nepal. Improving leadership and creating a National Disaster Risk Management Council or a National Emergency Operations Centre, backed by appropriate legislative instruments, are urgently needed.

Although the government has given a mandate to deal with water-induced disasters to the DWIDP, it is working with limited manpower and only seven divisional and five sub-divisional offices throughout the country. The present institutional capacity at DWIDP is not sufficient to manage water-induced disasters throughout the country.

Chapter 7

Sharing Knowledge on Plans

Communicating and sharing knowledge are vital aspects of disaster preparedness. It is through communicating and sharing knowledge that necessary inputs are provided to policy-makers and implementers for preparing natural disaster preparedness plans. Communication helps to provide a common platform for all those who are involved in natural disaster management activities at the national as well as international levels where issues relating to natural disasters have transboundary ramifications.

At the national level, MoHA has a country-wide network through its 75 district offices of chief district officers (CDOs) who provide information about disasters in their respective areas and about their interaction with the communities affected. It has constant communication link with the districts which facilitates preparation of disaster preparedness plans at all times. Among NGOs, only NRCS has the capability to act in case of natural disasters as it has a country-wide network.

With the introduction of modern communication devices such as mobile telephones and the recently introduced Code Division Multiple Access (CDMA) service via satellite, it has become easier for the centre, districts, and communities affected to communicate and share knowledge on disaster preparedness.

Communicating and sharing knowledge at national level

Communicating and sharing knowledge is the basis for coordination. Communication between key actors in Nepal about disaster preparedness is not very effective. The CNDRC at the centre coordinates among organisations when disaster strikes a community. Pre-disaster activities are few and most of the activities are concentrated during disasters and in post-disaster periods. The District Natural Disaster Relief Committee under the chairmanship of the Chief District Officer is the most effective organisation in each district for coordinating activities among various government and non-government organisations during emergencies. Even so, this committee also does

very little preparation for disasters and most of its activities are concentrated on post-disaster.

Communication between other organisations and the community in the field of disaster management in Nepal is poor. The community can hardly keep in contact with other organisations during an emergency, resulting in added loss of lives and property.

National and international workshops and conferences on disasters, mostly held in Kathmandu, Nepal's capital city, have provided forums for communicating and sharing knowledge on planning for preparedness at national level. However, these conferences are mostly held in the capital where the relevant government agencies, NGOs, and INGOs have their headquarters and where logistics are favourable. Some are also held in disaster-prone districts by both government agencies and local NGOs with the support of INGOs. This gives a chance to local stakeholders to participate, since their involvement in the decision-making process is crucial. The outcomes of these meetings are always useful.

Communicating and sharing knowledge at regional level

Nepal, being the upper riparian country vis-à-vis India and Bangladesh, has been cooperating with both India and Bangladesh by providing vital data to them for flood forecasting. Nepal has also extended its cooperation in the development of water resources at bilateral and trilateral levels in the region for irrigation, hydropower, and flood mitigation (ICIMOD 2004, 2006).

Nepal-India cooperation

The area near the southern border between Nepal and India frequently experiences flood-related problems caused by changes in the drainage pattern as a result of human intervention on one or the other side of the border. In order to facilitate cross-boundary dialogue on these and similar issues, a Joint Committee on Water Resources (JCWR) at the secretary level has been put into place. There is also a bilateral committee called the Standing Committee on Inundation Problems (SCIP) to facilitate discussions on problems caused by inundation in the vicinity of the border between Nepal and India.

The SCIP was established in 1985 and is headed by the Director General of DWIDP from Nepal, and by the Chairman, Ganga Flood Control Commission (GFCC), from India. Over time, about 35 problem cases have been raised by Nepal and 20 by India. Contact officers from field offices are nominated by both countries and are assigned tasks such as observation, joint survey, verification, and preparation of joint reports as cases arise. A subcommittee for embankment construction under the SCIP looks after the

technical aspects of ongoing and proposed embankments. The committee meets once a year, discusses these problems, instructs the contact officers or the sub committee, reviews the progress made, and makes the necessary decisions.

There are also other forums where flood-related matters can be discussed by India and Nepal. Worth mentioning is the Joint Committee for the Koshi and Gandak projects (JCKGP) which discusses maintenance of the projects and floods in the area. There is also a Joint Committee on Flood Forecasting for Nepal and India with the DHM leading the committee from Nepal.

Nepal-Bangladesh cooperation

After the devastating floods of 1988, Bangladesh undertook visits to India, Nepal, Bhutan, and China to seek regional cooperation in order to arrive at more-lasting solutions to flood problems. A meeting between Nepal and Bangladesh was held in Kathmandu in October 1988, and both parties agreed to establish a joint study team to examine the problems of floods and their causes in both countries.

The joint study team held several meetings, exchanged data and information, and finalised a 'Report on Flood Mitigation Measures and Multi-Purpose Use of Water Resources' in November 1989. The report contains geoclimatic settings, types and causes of floods, probable measures for flood mitigation, multiple and optimal use of water resources in the region, and so forth. Among its recommendations were the following.

i) Flood mitigation

- Development of a flood forecasting and warning system through wireless communication for transmission of water levels and flow discharges between Nepal and Bangladesh
- Introduction of a catchment management and afforestation programme for soil conservation
- Coordination of development activities to reduce drainage congestion

ii) Harnessing water resources in the region

- Creation of reservoirs in upstream reaches for optimal and multipurpose use of water resources to reduce flood peak discharges

iii) Study, research, and investigation

- Study, research, and investigation programmes on appropriate catchment management to reduce problems such as topsoil erosion, landslides, and consequent influx of sediment into the rivers, and glacial and snowmelt phenomena

The 1989 report was adopted for implementation by the 'Tenth Meeting of the Bangladesh-Nepal Joint Economic Commission (JEC)' held in 1989. The DHM of Nepal was identified as the executing agency and the Joint Rivers Commission (JRC) of Bangladesh as the coordinating agency for mitigating floods and flood damage.

In April 2006, at the request of the Government of Bangladesh, the Government of Nepal established a high-level committee, the 'Nepal-Bangladesh Joint Committee on Harnessing Water Resources and Mitigating Floods and Flood Damage'. The committee is headed by the Executive Secretary of WECS. Other members of the committee are from the MoWR, MoEST, DHM, DWIDP, DoI, and the Ministry of Foreign Affairs (MoFA). The Executive Director of WECS is the Member Secretary.

The committee members of the Nepal Bangladesh Joint Committee met in June 2006 in Kathmandu. On the same occasion, WECS and JVS organised a talk programme on the topic 'Opportunities of Nepal-Bangladesh Cooperation in Managing Water Resources of the Region for Mutual Benefits' on June 23, 2006. The role and importance of regional cooperation were emphasised at this programme. Cooperation with India was also emphasised as important if regional cooperation is to be meaningful.

The ICIMOD and WMO project for regional cooperation in flood disaster mitigation

ICIMOD and the World Meteorological Organization (WMO) introduced a project to promote regional cooperation in flood disaster mitigation. The goal of the project is to reduce flood vulnerability in the Hindu Kush-Himalayan (HKH) region and, in particular, in the Ganges-Brahmaputra-Meghna and Indus River basins.

The project involves the following activities.

- The establishment of a regional flood information system for the HKH region which is accessible at www.southasianfloods.org
- Regional sharing of information in order to provide warning to potentially affected areas and to save lives
- Regional sharing of technologies, resources, and scientific knowledge to provide each country with adequate ways and means of collecting and disseminating data and information
- Capacity building with national collaborating institutions

There are numerous non-government organisations in Nepal working with international agencies in the field of flood management. Most of these organisations are active in relief operations during flood disasters. Some of them are engaged in mobilising local resources for flood protection and in increasing awareness.

Conclusions and Recommendations

Conclusions

Looking at the national environment in terms of disaster preparedness for floods, landslides, and earthquakes, there is an overall consciousness on the part of key actors in Nepal working in the fields of disaster management that natural disasters need to be faced with full preparedness, and they are working towards that end. There is also a realisation that natural hazards cannot be avoided, but at least their effects can be minimised if timely measures to mitigate them are taken. The key actors also realise that local communities must be involved in disaster preparedness for pre- and post-disaster activities.

The MoHA's institutional capacity to deal with natural hazards and disaster management should be improved. In doing so, the importance of disaster management should be reflected by giving it more prominence within the institutional structure of MoHA.

Hazard mapping as a tool for disaster management is important. Within the country, a system for sharing hazard maps and making them available to all key actors should be introduced. The CNDRC could undertake to do so.

Activities and components of the National Action Plan should be mainstreamed into the activities of the relevant implementing organisations working in the field of disaster preparedness.

Schools and school children are among the most vulnerable to earthquakes. Utmost care should therefore be taken in school construction and retrofitting should be carried out on structures that have been built without concern for seismic safety.

As general awareness can be created through knowledge and information, education about disasters should be taught in schools right from the preliminary stages. Students often work as propagators by carrying the message to their parents and through them to the community. Some schools have already introduced curricula on disaster preparedness with the support of the Department of Water Induced Disaster

Prevention (DWIDP). Disaster mitigation education (DME) has to be developed through a proper curriculum and training teachers.

The Institute of Engineering (IoE) already runs a course on disaster management in water resources for Master of Science level students. The course has received the support of DWIDP over the years to develop a curriculum and train teachers from the IoE on DME. Similarly, Nepal Engineering College (NEC) has introduced a course on disaster risk management as an elective subject for the undergraduate course leading to a Bachelor's degree in Engineering. Recently, a Centre for Disaster Studies was established in NEC with the support of Ehime University, Japan. This will help to institutionalise research into natural hazards and disasters in Nepal.

The Government of Nepal has approved the National Building Code of 2003. The building code outlines bylaws and standards of building construction such as design guidelines for earthquake-resistant buildings. So far, it has been enforced in Kathmandu metropolis and Lalitpur sub-metropolis only. Taking into consideration the urgent need for earthquake preparedness, it should be enforced in the country's remaining 56 municipalities.

Many NGOs and INGOs are active in the field of disaster management in Nepal. It is high time their activities were channelled properly so that disaster management can be carried out effectively with wide coverage of disaster-prone areas and without duplication and waste of precious resources.

Observations and remarks

Based on the preceding conclusions, this report makes following recommendations.

Institutional matters

In view of the heavy responsibility taken by the Ministry of Home Affairs (MoHA) in disaster management countrywide, the disaster management section should be raised to the status of a department with proper staffing as an independent unit reporting to MoHA. If this cannot become effective immediately, the section should at least be upgraded to division level with appropriate staffing under the joint secretary within the ministry. This will help to facilitate its multifarious activities related to disasters throughout the country in a more efficient manner and enhance the image of MoHA as a centre for disaster risk reduction in the country.

Extension of the district offices of DSCWM to 75 districts

The district offices of the Department of Soil Conservation and Watershed Management (DSCWM) now operating in 55 districts should be extended to all 75 districts, considering

the wide ramifications protected watershed management and soil conservation measures could have in maintaining smoother and safer river regimes and preventing flash floods.

Hazard mapping

Hazard maps are instrumental to all implementation plans related to natural disaster preparedness. As a priority, hazard maps for different categories of natural disaster; e.g., for flood-prone areas, possible landslide and mass wasting areas, and areas susceptible to frequent earthquakes, should be prepared. Natural disaster preparedness plans could be implemented on the basis of hazard maps, starting with the most vulnerable areas and moving to less vulnerable areas.

Raising awareness in the community

Disasters like floods and landslides have a certain periodicity, hence their occurrence can be predicted to some extent and their effects can be minimised through community mobilisation. It is a common belief in the community that structural measures are the only effective means of minimising disasters. The role of the community and non-structural measures often are overlooked. Non-structural as well as structural measures through involvement of the community are effective in the mitigation of natural disasters. The work of NSET, JVS, and other organisations in this field is praiseworthy.

Many organisations work in the field of disaster management, but very few of them have worked with communities; some have but the coverage is not extensive. Some organisations work only occasionally in one field of disaster and with a limited number of activities. The number of organisations working in all the phases of disaster (pre, during, and post) is negligible. Organisations such as the NRCS, with its wide-ranging network, are working effectively with communities in all types of disaster and in all phases. Effective preparedness cannot be achieved unless we involve communities, the end users of the many plans and programmes. Efforts should be directed towards the community and its empowerment to cope with disasters.

Awareness through regular programmes

Awareness programmes presently being carried out about disasters such as earthquakes, floods, and landslides, should be continued by observing 'Earthquake Safety Day' and warning people to be cautious during the monsoon season through regular weekly radio programmes such as those run by Sagarmatha FM Radio in Kathmandu and Annapurna FM Radio in Pokhara. Other FM radio stations should also run awareness programmes on natural disaster preparedness following the examples of Sagarmatha and Annapurna radio stations.

Disaster management education

Disaster management education (DME) should be introduced in schools. Students should work as propagators to disseminate information about natural disasters at home and in the community.

The Master's level course on disaster management introduced by the Institute of Engineering (IoE) could be extended to other campuses gradually with the introduction of an appropriate curriculum and training of teachers. The IoE should be encouraged to introduce a disaster management curriculum at undergraduate level.

The other engineering colleges, now numbering 30 throughout the country, should also be encouraged to follow the path taken by the Institute of Engineering and Nepal Engineering College, Bhaktapur, and develop a suitable curriculum for disaster management.

Implementation and enforcement of the National Building Code

For safety's sake, the Building Code approved in 2003 should be implemented and enforced in all municipalities. People in rural areas should also be encouraged to follow the Building Code through community awareness programmes on disaster preparedness against earthquakes.

Regular monitoring and evaluation

The activities mentioned in the National Action Plan should be monitored and evaluated on an annual basis by the Central Natural Disaster Relief Committee in order to take stock of the status of the Plan's implementation and measures needed to improve implementation.

District disaster action plans

Efforts should be made to prepare district disaster action plans for all 75 districts of the country, commencing with the districts most vulnerable to natural disasters, in line with the ones already prepared for Chitwan, Makwanpur, Sindhuli, Syangja, and Tanahun. These will work as prototypes for other districts.

Channelling the activities of NGOs and INGOs

The Government of Nepal should coordinate the activities of NGOs and INGOs according to types of natural disaster and location to promote wide coverage of disaster-prone areas and to avoid duplication of efforts.

Organograms of Key Organisations in Disaster Management

Chart 1: Organisational Chart of the Ministry of Home Affairs

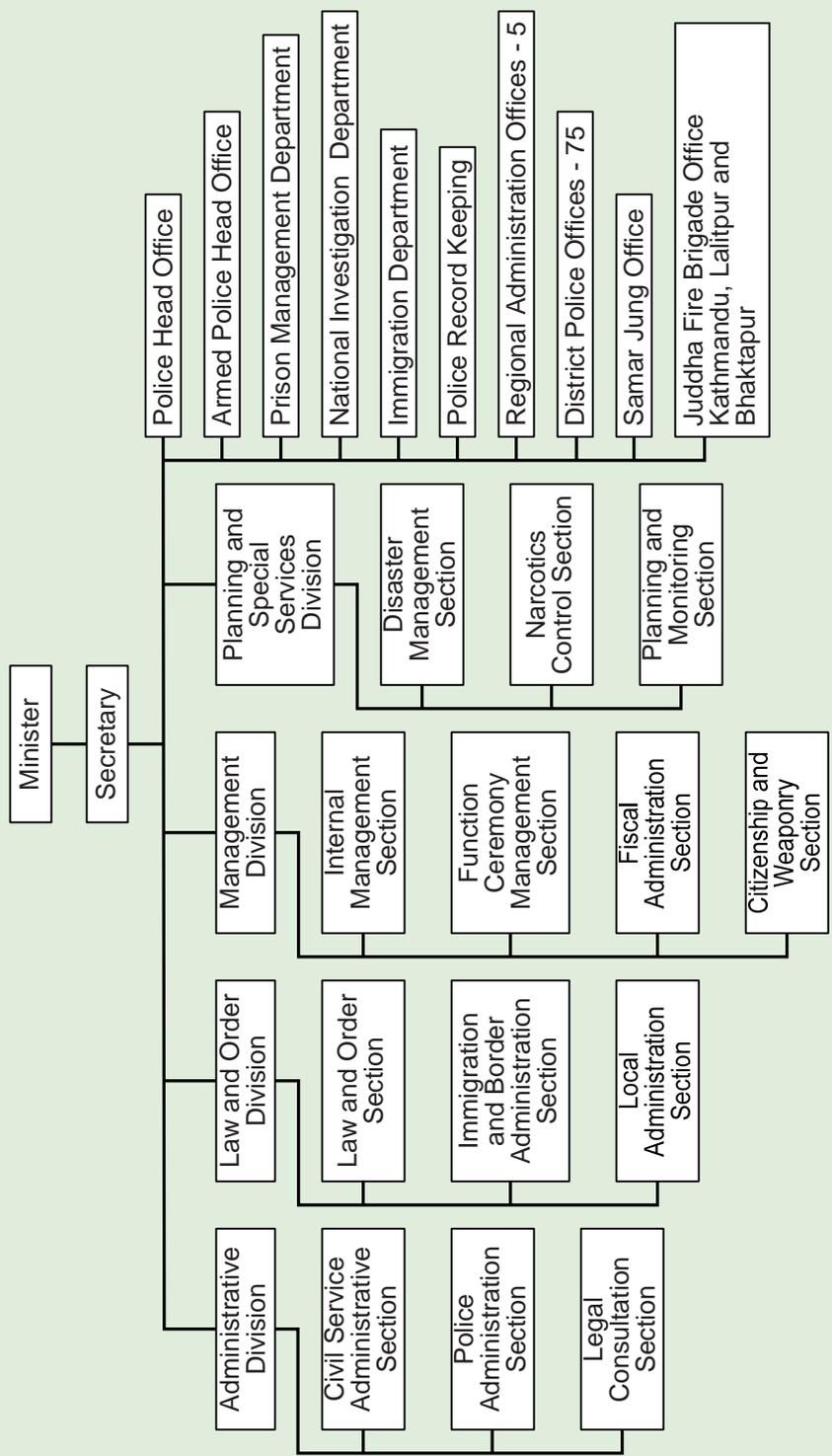


Chart 2: Organisational Chart of the Department of Water Induced Disaster Prevention

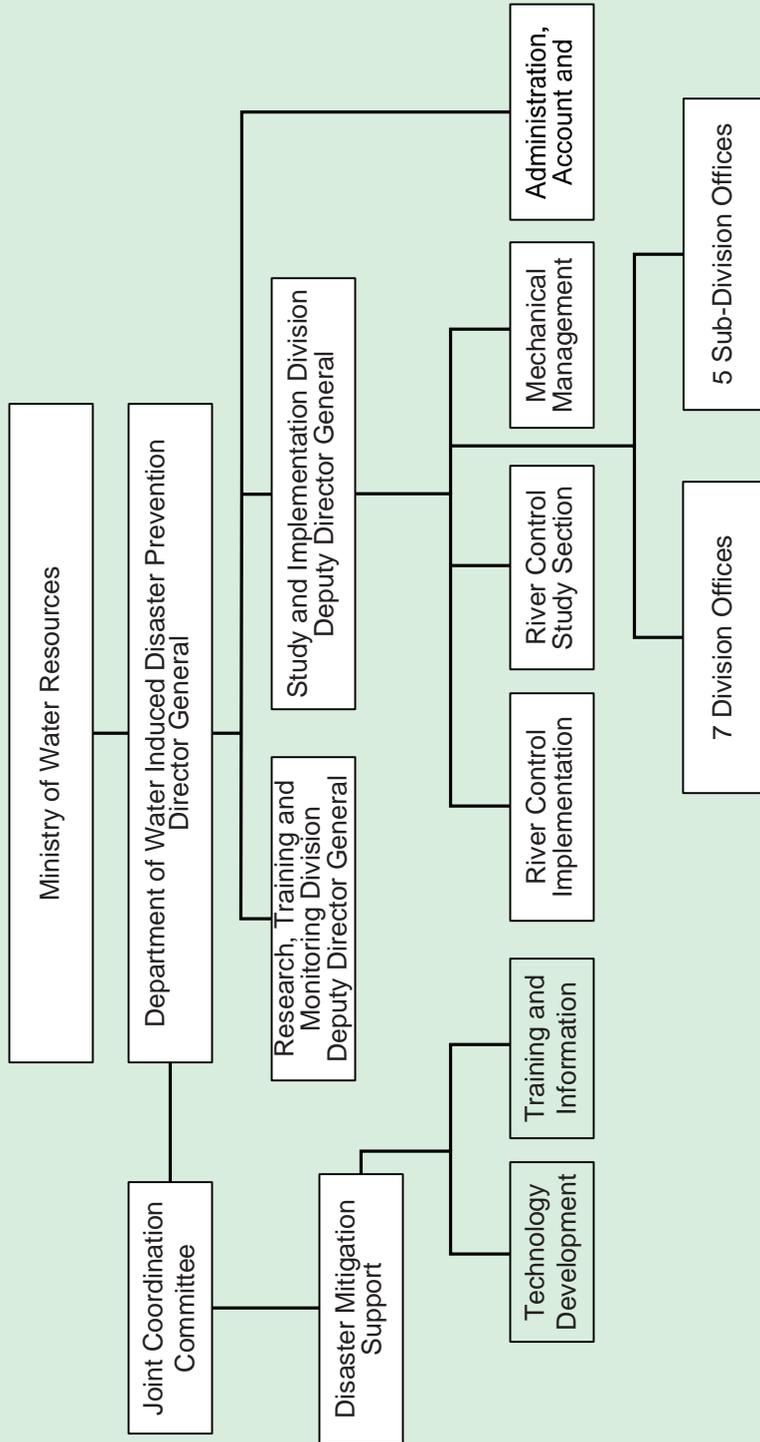


Chart 3: Organisational Chart of the Department of Soil Conservation and Watershed Management

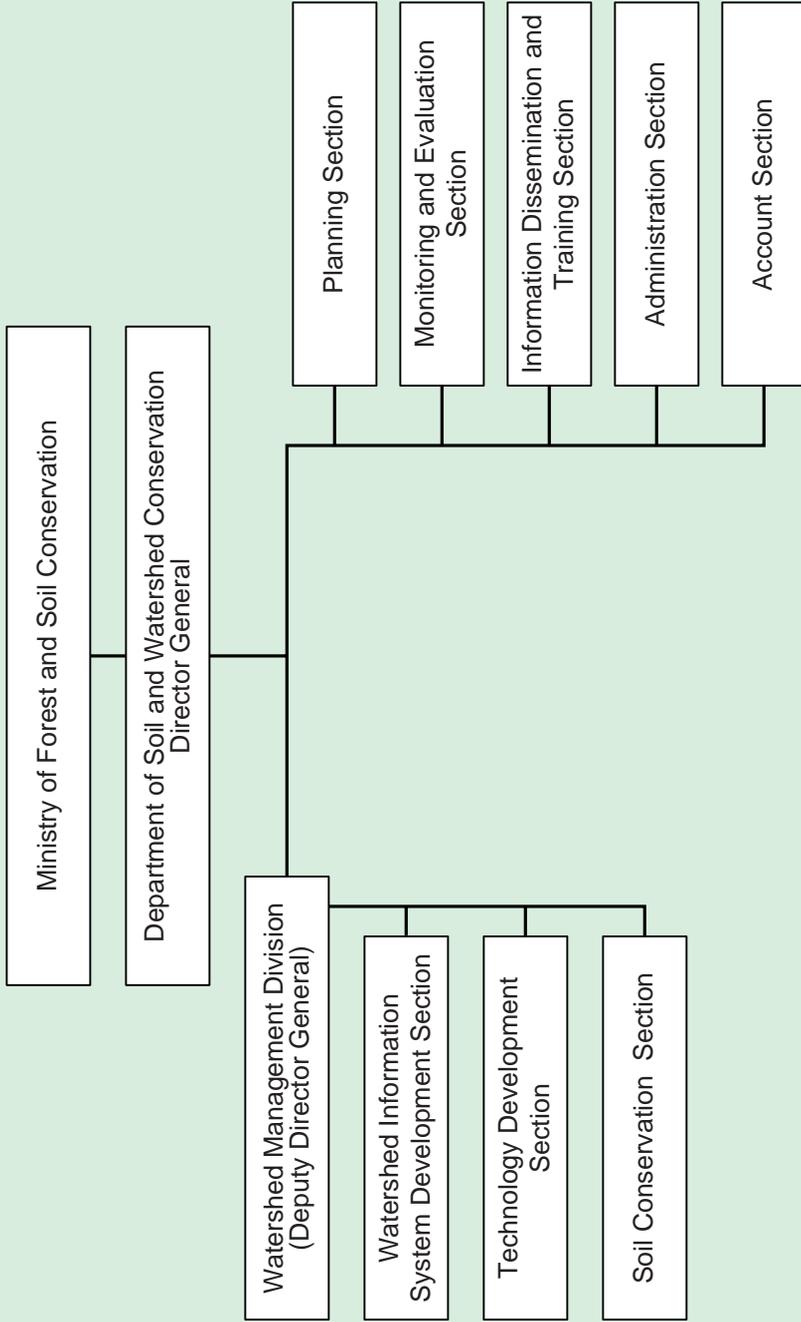


Chart 4: Organisational Chart of the Department of Hydrology and Meteorology

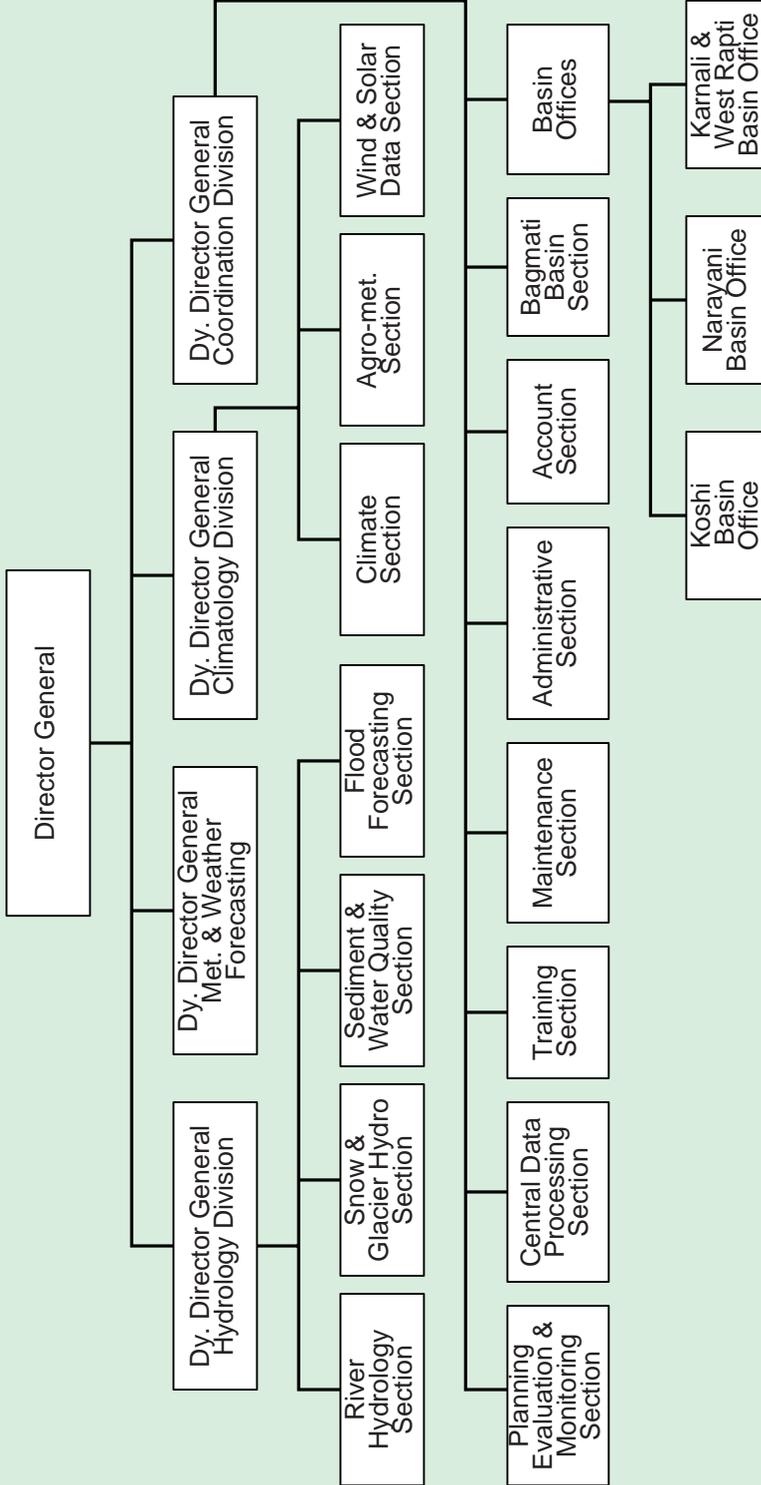
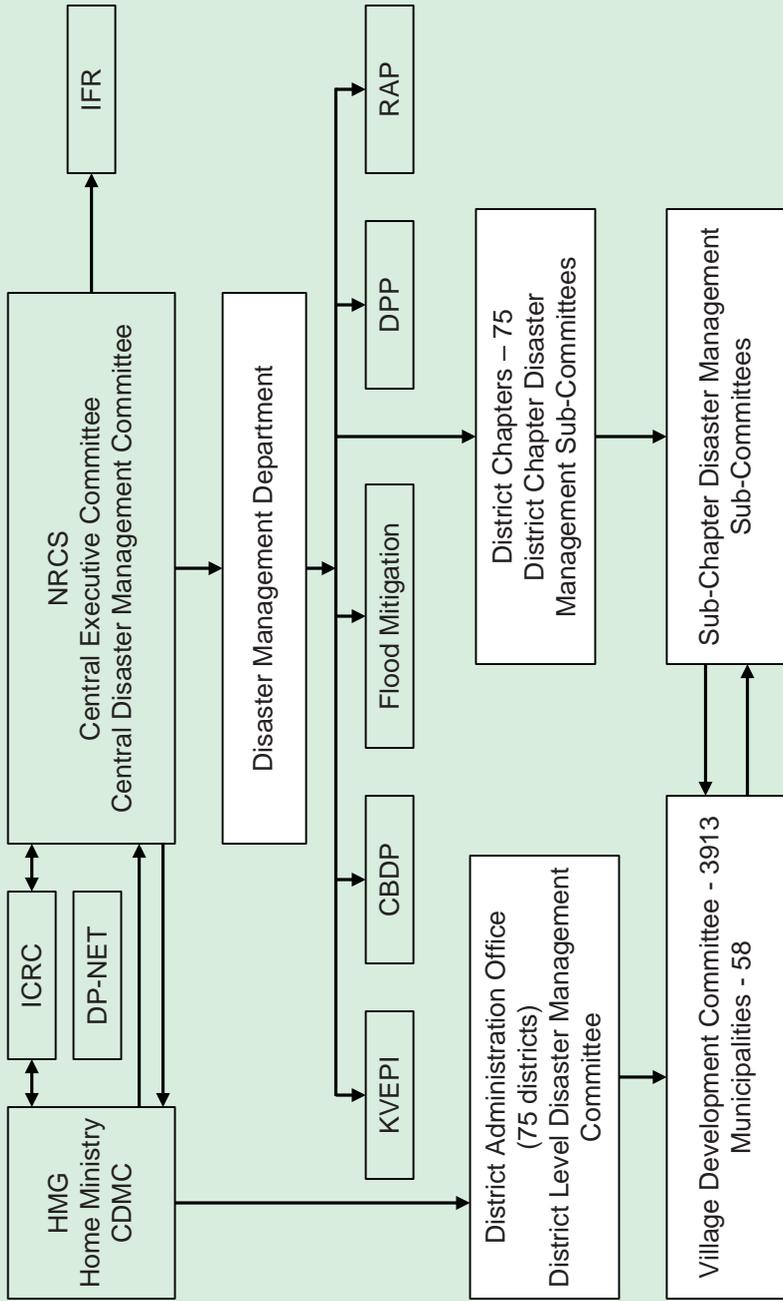


Chart 5: Coordination Mechanism of the Nepal Red Cross Society with the Government



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Annex 1

Terms of Reference Preparation of a Status Report on Natural Disaster Preparedness Plans

Background

There is a growing concern within the international community to improve disaster management and preparedness. As a response, ICIMOD has initiated work on collating important information about disaster preparedness in the region through a project titled '**Living with Risks – Sharing Knowledge on Disaster Preparedness in the Himalayan Region**'. The specific objective of the project is to support key practitioners with current knowledge in the field of disaster preparedness, mainly floods, landslides and earthquakes; and build capacity in multi-hazard risk assessment, as well as provide a platform for interaction and exchange of experiences. The prime target countries for the project are Bangladesh, India, Nepal and Pakistan, and with the mountain areas in these countries being of particular interest.

The project is funded by the European Commission Humanitarian Aid Department (DG ECHO) and will be implemented between 1 April 2006 and 30 June 2007.

As part of the activities, the project will promote exchange of experiences, best practices and cross-learning between practitioners through the arrangement of two **regional workshops** and the establishment of a website as the basis for knowledge networking.

The first workshop is anticipated to take place in early August. The workshop will focus on disaster preparedness in general and **plans** for disaster preparedness in particular. In this case, Plans on a *national* level are of prime interest, but plans on *district* and *community* levels are also of great importance.

Objective of the task

The objective is to provide an account on state-of-the-art on disaster preparedness plans in each of the four target countries: Bangladesh, India, Nepal and Pakistan. There will be a document for each country, with the aim to provide as complete account of existing plans as possible. The account will form basis for a gap analysis during the forthcoming workshop regarding Natural Disaster Preparedness Plans (NDPP) in the four target countries.

Scope of work

The consultant shall prepare a status report on Natural Disaster Preparedness Plans (NDPP) in his/her country.

- A) This report shall list all relevant Preparedness Plans on a national level in relation to three main natural hazards:
- Floods (including flash floods)
 - Landslides (and related land mass movements)
 - Earthquakes

When applicable, a mountain focus shall be taken.

- B) In addition the report shall account for the existence of Preparedness Plans on a district (or similar) and community levels in relation to the three above-mentioned natural hazards. Examples of existing plans shall be attached.
- C) For the national, district, and community plans listed and described, an account of the history of the plans (how they were put into place), institutional ownership and their present functionality, shall be given. Hence, the work encompass a *quantitative* aspect, listing, and describing all relevant Natural Disaster Preparedness Plans, and a *qualitative* aspect, accounting for the functionality of the plans. With functionality means the success with which the plan has been implemented; is it in place and being used? If not, what are the shortcomings and gaps? Case studies may be enclosed from relevant institutions.
- D) The work can be based on individual expertise, or as collaborative work of a group or institution. The work will to a large extent be a desk study using modern communication facilities (internet, telephone, fax), but it *may involve visits to relevant governmental* or other institutions for the collection and assessment of NDPP. In general, the consultant shall try to be as thorough investigating, precise, and objective as possible in his/her study. In cases the consultant may provide his/her own personal analysis on adequacy of plan, impediments to implementation, among others.
- E) All NDPP accounted for and discussed in the report shall appear in the list of References. Relevant plans may also be attached as appendices to the report. In addition, as an appendix, a list of organisations working in Disaster Preparedness in the country shall be provided (it does not need to be exhaustive). From the list it should be clear if the organisation is a governmental, NGO, or other organisation and their role should be stated. Informal networks and/or institutions may also be mentioned.

Reporting

The consultant shall be prepared to present his/her report at the regional disaster preparedness workshop planned for in the end of August 2006.

ICIMOD contacts

For issues or enquiries in relation to the scope of work, please contact Dr. Mats Eriksson (meriksson@icimod.org) or Mr. Vijay Khadgi (vkhadgi@icimod.org) at Water, Hazards and Environmental Management, ICIMOD, tel. +977 1 55 25 313.

Annex 3

Projects/Programmes Conducted by NSET-Nepal on Earthquake Preparedness

Kathmandu Valley Earthquake Preparedness Initiatives

Kathmandu Valley Earthquake preparedness initiatives (KVEPI) is being implemented in 10 locations of Kathmandu Valley working jointly with Nepal Red Cross Society (NRCS) and American Red Cross with the basic objective of raising the building capacity of NRCS volunteers in pre-positioning of critical emergency supplies, rescue equipment, training people in basic first aid and rescue techniques and helping the general public in following safer building practice.

Programme for Enhancement of Emergency Response

Programme for Enhancement of Emergency Response (PEER) is a regional programme involving 5 countries – Bangladesh, Indonesia, India, Nepal and Philippine for enhancing the capabilities and institutionalization of the Medical First Response (MFR), Collapsed Structure Search and Rescue (CSSR) and Hospital Preparedness for Emergencies (HOPE). This programme funded by US Office of Foreign Disaster Assistance (US/OFDA) is being done in Co-operation with the International Resources Group, the Centre for International Emergency, Disaster and Refugees -Studies of John Hopkins University and Safety Solutions Incorporated.

School Earthquake Safety Programme

Following the study of KVERMP, it was found that schools were found to be most vulnerable especially when they were built without the seismic concern. Therefore, it was strongly felt to take necessary measures in light of this. School Earthquake Safety Programme (SESP) is being implemented in 20 schools within the Kathmandu Valley with the sole objective of reducing the earthquake vulnerability, raising awareness among teachers and students and training masons in constructing earthquake resistant buildings.

Public Awareness Programme

NSET-Nepal organizes following programmes to raise Public Awareness:

- Earthquake safety Day observed every year on Magh 2 (January 15/16) of the Nepalese calendar, memorizing the great earthquake of 1934 since 1999 AD.
- Earthquake Safety Radio Programmes on FM Radio Stations through Sagarmatha Radio (Kathmandu) and Annapurna Radio (Pokhara)
- Orientation lectures providing basic information on earthquakes in Nepal
- House Owners Consultation Programmes providing basic information on constructing earthquake resistant buildings.
- Mobile Earthquake clinics providing on the site advice to builders with non-engineered buildings.

Community Based Disaster Risk Management Programme.

NSET has been launching Community Based Disaster Risk Management Programme (CBDRMP) at the ward level providing technical assistance to communities in implementing earthquake risk management initiatives in the wards of Kathmandu Metropolis with the formation of Ward Level Disaster Management Committees. This programme has already covered 8 wards with the ultimate aim of bringing in all the 35 wards of the Metropolis under the programme.

NSET has been providing training to masons, contractors, technicians, engineers, schoolteachers and policy makers towards earthquake risk reduction in collaboration with the Department of Urban Development and Building Construction.

Disaster Inventory/Information Management Systems in Nepal (DIMS)

NSET has established a systematic database of natural disaster events in Nepal covering a period of 33 years (1971-2003) and it entered them into the software "DesInventar" to minimize the effects of disasters applying appropriate measures. "DesInventar" is a methodical tool developed by Latin American Network for Social Studies on Disaster Prevention (LARED)

Seismic Vulnerability Assessment of Major Hospitals of Nepal

NSET conducted the seismic vulnerability assessment of all major hospitals in Nepal (14 in number) for the first time in the South Asian Region in collaboration with the Ministry of Health and WHO and published "Guidelines for Seismic Vulnerability Assessment of Hospitals" jointly with WHO with mitigation and intervention options needed for the safety of hospitals.

Seismic Vulnerability of Drinking Water Supply Network of Kathmandu Valley

Water being the most important element for survival all times more so during the earthquake disaster, a study for the assessment of seismic vulnerability of the drinking water supply system of Kathmandu was undertaken by NSET with the support of UNICEF Nepal in 2002 with damage scenarios and optimum ways of restoring the supply in case of large earthquake events.

Municipal Earthquake Risk Management Project

NSET has been replicating its success stories gained from working within the country. As a replication process of the successes of the Kathmandu Valley Earthquake Risk Management Project (KVERMP), NSET implemented Municipal Earthquake Risk Management Project (MERMP) in 4 municipalities of Nepal viz, Banepa (Eastern Nepal), Vyas (Western Nepal), Pokhara (Western Nepal) and Dharan (Eastern Nepal) during (2002-2003) under the Asian Urban Disaster Mitigation Programme of Asian Disaster Preparedness Centre (ADPC) with the core funding from United States Office of Foreign Disaster Assistance (US/OFDA). Project activities consisted of developing earthquake damage scenarios of the cities including building inventory surveys, preparing an action plan for earthquake risk management for each city, constructing or retrofitting the schools or public structure facilities as demonstration of feasible mitigation measures, raising public awareness, training, building local capacity and institutionalizing the earthquake risk management in the annual development programme. The project was a grand success and NSET intends to replicate the programme in the remaining municipalities covering all 58 municipalities of Nepal within 5 years.

Earthquake Risk Kathmandu Using RADIUS TOOL (UNESCO CCT)

Earthquake Risk Kathmandu Using RADIUS Tool was implemented by Kathmandu Metropolitan City (KMC) with the technical support of NSET as a part of UNESCO Cross Cutting Theme initiative in 2003. The earthquake risk of Kathmandu Metropolis was assessed using RADIUS TOOL, which helped KMC authorities to understand the earthquake disaster risk and develop affordable and effective risk management measures and sound urban growth policies.

Project for Pre-positioning of Emergency Rescue Stores

Project for Pre-positioning of Emergency Rescue Stores (PPERS) was implemented by NSET and different Ward Disaster Management Committees of the Kathmandu Metropolis with the support of Civil Affairs Group of the British Army. Its purpose was to provide a reserve of essential tools and equipment to assist in the immediate community level response to a major disaster such as an earthquake. PPERS is intended to help those "first responders" on the ground at the local level to enable neighbours to rescue neighbours. Organizations such as local level disaster management committees and community emergency response teams are constituted as required assisting in setting up stores and their effective use operation. Such stores are pre-positioned in 8 numbers of wards of the Kathmandu Metropolis under the project.

Nepal Earthquake Risk Management Project (NERMP)

Having worked successfully in many earthquake related projects in Nepal and abroad, NSET is at present working in NERMP to reduce the risk of earthquakes all over Nepal over a period of 5 years. NSET is fully convinced that it is not the shaking of earthquakes that kills the people but the vulnerability of the buildings following such a shaking is responsible. So the message is "Make your building whether residential, school or hospital or any other safe and do not curse the earthquake". NSET is committed to reduce the earthquake risk applying all the ways and means at its disposal.

Annex 4

Natural Disaster Relief Act (Unofficial Translation)*

Preamble:

Whereas, it is expedient to make arrangement for the operation of relief work and the maintenance of people's convenience with a view to protect the life and property of the people in general and public property.

Now therefore His Majesty King Birendra Bir Bikram Shah Deva has enacted this Act on the advice and with the consent of the National Panchayat.

1. Short title and commencement:

- (1) This act shall be called the Natural Disaster (Relief) Act 2039 B.S. (1982 A.D.).
- (2) The Act shall come into force immediately.

2. Definition: Unless the subject or context otherwise requires, in this Act:

- (a) Natural disaster means earthquake, fire, storm, flood, landslide, heavy rain, drought, famine, epidemic and other similar natural disaster. It includes the industrial accident or accident caused by explosions or poisoning and any other kinds of disaster.
- (b) "Disaster area" means the area declared as Disaster area pursuant to Section 3
- (c) "Natural Disaster Relief Work" means any relief work to be carried out in the area affected or likely to be affected by the Natural Disaster in order to remove the grief and inconvenience caused to the people to rehabilitate the victims of the Natural Disaster and to protect the public property and life and property of the people in general and to control and prevent the Natural Disaster and to make advance preparation thereof.
- (d) "Central Committee" means the Central Natural Disaster Relief Committee constituted pursuant to Section 5.
- (d1) "Regional Committee" means the Regional Natural Disaster Relief Committee constituted pursuant to Section 7.

* The document has been translated from Nepali to English for this report.

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- (f) "District Committee" means the District Natural Disaster Relief Committee constituted pursuant to Section 7.
- (g) "Local Committee" means Local Disaster Relief Committee constituted pursuant to section 7.

3. Declaration of Disaster Area :

- (1) His Majesty's Government may if it deems necessary, specify the extent of the area affected or likely to be affected by natural Disaster and declare such area, by publishing a notification in the Nepal Gazette as Disaster Area for a period specified in the same notice.
- (2) In case the situation arising out of the Natural Disaster could not be brought under control within the period specified under subsection (1), His Majesty's Government may, by a notification published in the Nepal Gazette, extend such period according to need.

4. His Majesty's Government may give orders :

His Majesty's Government may, in order to carry out or cause to be carried out the Relief Works in Disaster Area, give orders to any one concerned to undertake any or all of the following works:

- (a) To close down, according to necessity the governmental or nongovernmental offices, educational institutions and other institutions in Disaster Area,
- (b) To prohibit the activities in Disaster Area that may cause adverse effect on Relief Work,
- (c) To depute the employees of governmental or nongovernmental offices or of institutions,
- (d) To evacuate or cause to be evacuated the people from Disaster Area to the areas of safety,
- (e) To requisition the movable and immovable property of any individual or institution on temporary basis for a prescribed period, if such property is required to be used for the purpose of Relief Work.
- (f) To evacuate or cause to be evacuated the goods and commodities from Disaster Area to the areas of safety,

- (g) To make use of the means and resources of the government,
- (h) To requisition and make use of the means of transportation owned by nongovernmental offices, associations and individuals of the concerned district for some fixed period of time,
- (i) To requisition the food grains, clothes, medicine, construction materials and other items belonging to nongovernmental offices, institutions and individuals of the concerned district and distribute it to the victims of natural Disaster.
- (j) To try to save the real estates, factories, temples and shrines and religious places and other significant objects and places from destruction,
- (k) To constitute aid groups and send them to disaster Area,
- (l) To take other necessary security measures for the safeguard of the life and property of the common people,
- (m) To do other works as specified by His Majesty's Government.

4a. Control over foreigner's entry:

His Majesty's Government may issue an order requiring the foreign nationals or agencies to take the approval of His Majesty's Government to enter into any area affected by Natural Disaster for any purpose.

5. Constitution of Central Natural Disaster Relief Committee:

- (1) His Majesty's Government may, by a notification published in the Nepal Gazette, constitute the Central Natural Disaster Relief Committee in order to formulate and implement the policy and programme relating to the Natural Disaster Relief Work and to undertake or cause to be undertaken other necessary works related thereof. The working procedures of the Central Natural Disaster Relief Committee and the term of office of the members shall be as specified in the said notice.
- (2) The Central natural Disaster Relief Committee to be constituted pursuant to sub-section (1) shall be composed of the following members:
 - (a) Home Minister – Chairman
 - (b) Minister of Housing and Physical Planning – Member
 - (c) Health Minister – Member
 - (d) Secretary, Ministry of Finance – Member
 - (e) Secretary, Defense Ministry – Member
 - (f) Secretary, Home Ministry – Member
 - (g) Secretary, Ministry of External Affairs – Member
 - (h) Secretary, Ministry of Water Resources – Member
 - (i) Secretary, Ministry of Communication – Member
 - (j) Secretary, Ministry of Forest and Environment – Member
 - (k) Secretary, Ministry of Labor and Social Welfare – Member
 - (l) Secretary, Ministry of Supplies – Member
 - (m) Secretary, Secretariat of National Planning Commission – Member
 - (n) Brigadier, Royal Nepal Army – Member
 - (o) Inspector General of Police, Police Headquarters – Member
 - (p) Representative, Social Welfare Council – Member
 - (q) Representative, Nepal Red Cross Society – Member
 - (r) Representative, Nepal Scout – Member
 - (s) Director General, Dept. of Mines and Geology – Member
 - (t) Director General, Dept. of Hydrology & Meteorology – Member
 - (u) Two persons of repute nominated by His Majesty's Government – Member
 - (v) Additional Secretary (who looks after Natural Disaster related activities), Home Ministry – Executive Secretary
- (3) The Central Committee shall invite at its meetings the concerning Member of Parliament representing the district effected by natural disaster.
- (4) The working procedures of the central committee may be managed by the central committee itself.

(5a) Constitution of Sub-Committee:

The Central Committee may constitute Relief and Treatment Subcommittees and Supplies, Shelter and Rehabilitation Sub-Committee to give necessary advice and suggestions to the Central Committee to help execute policies and directives of the Central Committee and to effectively operate the relief and rehabilitation work during natural disaster.

(5b) Relief and Treatment Sub-Committee:

- (1) The Relief and Treatment Sub-Committee shall be composed of the following members:
 - (a) Health Minister, Coordinator
 - (b) Secretary, Ministry of Communication, Member
 - (c) Secretary, Ministry of Works and Transport, Member
 - (d) Brigadier, Royal Nepal Army, Member
 - (e) Inspector General of Police, Police Headquarters
 - (f) Representative, Nepal Red Cross Society, Member
 - (g) Representative, Nepal Scout, Member
- (2) The Secretary of the Relief and Treatment Sub-Committee shall be as designated by the Coordinator.
- (3) The Relief and Treatment Subcommittee itself may manage the working procedures of the Relief and Treatment Subcommittee.
- (4) The functions and duties of the Relief and Treatment Sub-Committee shall be as specified by the Central Committee.

5c. Supplies, Shelter and Rehabilitation Sub-Committee :

- (1) The Supplies, Shelter and Rehabilitation Sub-Committee shall be composed of the following members:
 - (a) Minister of Housing and Physical Planning – Coordinator
 - (b) Secretary, Ministry of Finance – Member
 - (c) Secretary, Ministry of Home Affairs – Member
 - (d) Secretary, Ministry of Supplies – Member
 - (e) Secretary, Ministry of Labor and Social – Member Welfare
 - (f) Secretary, Ministry of Water Resources – Member
 - (h) Secretary, Ministry of Works & Transport – Member
 - (h) Representative, Social Welfare Council – Member
- (2) The Secretary of Supplies, Shelter and Rehabilitation Sub-Committee shall be as designated by the coordinator.
- (3) The working procedures of the Supplies, Shelter and Rehabilitation Sub-committee may be managed by the Supplies, Shelter and Rehabilitation Sub-Committee itself.
- (4) The functions and duties of the Supplies, Shelter and Rehabilitation Sub-Committee shall be as specified by the Central Committee.

6. Functions and duties of the Central Committee:

The Functions and duties of the Central Committee shall be as follows :

- (a) To recommend to His Majesty's Government to declare the areas affected by Natural Disaster as Disaster Area
- (b) To formulate the national policy regarding the relief work including the rehabilitation of the victims of natural disaster and reconstruction in the area affected by Natural Disaster etc. and for the control and prevention of Natural Disaster and the advance preparation thereof and to prepare the programmes in accordance with the said policy and submit it to His Majesty's Government,
- (c) To implement or cause to be implemented the policy and programme formulated pursuant to the clause (b) after His Majesty's Government has approved it,
- (d) To keep the money, food stuff, clothes, medicines, construction materials and other goods received within the Kingdom of Nepal and from outside as aid or donation under the Central Natural Disaster Aid Fund and to send such goods as required for Relief Work in Disaster Area,
- (e) To associate social organization and associations in Natural Disaster Relief Works and to coordinate the activities of those organizations,
- (f) To form groups and send them to disaster area to assist in Natural Disaster Relief Works,
- (g) To give directions to the District Committee and Local Committee on the matters relating to Relief Work,
- (h) To perform the works specified by His Majesty's Government for the execution of Natural Disaster Relief works,
- (i) To submit report on work progress to His Majesty's Government from time to time.

7. **Formation of other Natural Disaster Relief Committees:**
His Majesty's Government may, by publishing a notification in the Nepal Gazette, constitute according to need the Regional Natural Disaster Relief Committee. District Natural Disaster Relief Committee and Local Natural Disaster Relief Committee in order to undertake or cause to be undertaken the Natural Disaster Relief Work. The working procedure of such committees and the term of office of the member shall be as specified in the said notice.

- 7a. **The Functions and Duties of the Regional Committee:**
The functions and duties of the Regional Committee shall be as follows:
- (a) To give necessary suggestions to the Central Natural Disaster Relief Committee regarding the formulation of Regional level policy on Natural Disaster Relief Work and preparation of the progress there under,
 - (b) To coordinate or cause to be coordinated between District Committees regarding Natural Disaster Relief Work,
 - (c) To provide information to the Central Committee about Natural Disaster Relief Work from time to time,
 - (d) To work in accordance with the directives of the Central Committee.

8. @

9. **Functions and Duties of the District Committee:**
- (1) The functions and duties of the District Committee shall be as follows:
 - (a) To coordinate or cause to be coordinated between Local Committees regarding Natural Disaster Relief Work,
 - (b) To formulate district level plans on Natural Disaster Relief Works and submit such plans to the Regional Committee,
 - (c) To monitor the Natural Disaster Relief Work being conducted by the Local Committees and to support the ongoing work,
 - (d) To provide information to the Regional Committee about Natural Disaster Relief Work from time to time,
 - (e) To work in accordance with the directives of the Central and Regional Committees.
 - (2) The activities to be undertaken pursuant to sub-section (1) shall be in accordance with the decision of the District committee.

@...Repealed by Second Amendment 2049/6/14 (Sept. 30, 1992)

- 9a. **Functions and Duties of the Local Committee:**
- (1) The functions and duties of the Local Committee shall be as follows:
 - (a) To prepare detailed description of the loss by Natural Disaster and to submit to the District Committee the estimation of means and resources required for the relief and rehabilitation of the victims of Natural Disaster,
 - (b) To organize volunteer's teams according to need and conduct or cause to be conducted the Relief Work,
 - (c) To make necessary arrangements to take the injured in the Natural Disaster to the nearest hospitals and health posts as soon as possible,
 - (d) To make arrangements for the evacuation of the victims of Natural Disaster to a safe place,
 - (e) Systematically distribute the cash and kind received in assistance from District Committees and local resources to the families of the victims of Natural Disaster,
 - (f) To conduct an awareness programme as a precaution for the prevention and control of the possible events of the Natural Disaster,
 - (g) To hand over the goods and cash balance and the accounts thereof to the District Committee upon completion of Natural Disaster Relief Work.

10. **Rent to be given:**
In case any movable or immovable property of the means of transportation of nongovernmental offices, institutions or individuals is acquired temporarily or used under clause (e) or (h) of Section 4, the rent for such movable or immovable property or the means of transportation shall be given at

prevalent rate to the concerned office, institution or individual by the officer, institution or Relief Committee specified by His Majesty's Government.

Provided that in case the cultivated or cultivable land is also acquired while acquiring the immovable property the necessary compensation shall be given for the crops lost or to be lost.

11. Cost to be given:

In case, the food grains, clothing, medicine, construction materials and other goods are acquired from nongovernmental offices, institutions or individuals under clause (i) of Section 4, the amount equivalent to the cost of such goods at prevailing rate shall be given to the concerned office, institution or individual by the officer, institution or Relief Committee specified by His Majesty's Government.

12. Assistance to be given:

All the governmental, nongovernmental offices, organizations and individuals of the concerned area and in the vicinity should help the central, regional, district and local committees providing assistance in the Relief Works.

13 Funds:

- (1) Natural Disaster Aid Fund
 - (a) Natural Disaster Central Aid Fund
 - (b) Natural Disaster Regional Aid Fund
 - (c) @
 - (d) Natural Disaster District Aid Fund
 - (e) Natural Disaster Local Aid Fund
- (2) The Natural Disaster Central Aid Fund shall be composed of the following amount:
 - (a) The amount provided by His Majesty's Government,
 - (b) The amount received from national and international organizations,
 - (c) The amount received from other sources.
- (3) The Natural Disaster Regional Aid Fund, Natural Disaster District Aid Fund and Natural Disaster Local Aid Fund shall be composed of the following amount:
 - (a) The amount provided by His Majesty's Government,
 - (b) The amount received from Natural Disaster Central Aid Fund,
 - (c) The amount received from other sources.

Repealed by Second Amendment 2049/6/14 (Sept. 30, 1992)

- (4) All the amount of the fund shall be deposited in any bank in the name of Natural Disaster Aid Fund.
- (5) All the expenses to be incurred for Natural Disaster Relief Work shall be borne by this fund.
- (6) The account of the fund shall be operated with the signatures of at least two persons in accordance with the decision of the concerned committee.
- (7) The account of income and expense of food grains, clothes, medicines, construction materials etc. received for the Natural Disaster Aid Fund shall be maintained separately.
- (8) The record of house means of transportation, land etc. made available by anybody for some period of time shall also be maintained.

14. Accounts and Audit:

- (1) The account of the materials or goods and cash amount obtained and expended by the Central Committee, Regional Committee, District Committee and Local Committee shall be maintained in accordance with the prevalent law and the statement of such income and expenditure shall be published upon the completion of audit for the information of the general public.
- (2) The account of the Central Committee, Regional Committee, District Committee and Local Committee shall be audited by the Auditor General's Department or any registered auditor designated by the said Department.
- (3) His Majesty's Government may examine or cause to be examined the accounts, related documents and other cash and kind of the fund.

15. Write-off

The central committee may recommend to His Majesty's Government to write-off the relief materials, goods and cash expended by government office or institution for the relief work and on such recommendation His Majesty's Government may write-off according to the existing law.

16. Penalties

- (1) Any person who will violate the order given under Section 4 shall be punished with imprisonment extending up to three months or with a fine up to one thousand rupees or both.
- (2) Any person who obstructs in Relief work shall be punished with imprisonment extending up to six months or with a fine up to two thousand rupees or both.

17. Authority-to hear the case

The special court, constituted by His Majesty's Government under Special Court Act, 2031 by a notification published in the Nepal Gazette, shall have the authority to hear and decide the case related with the offense punishable under this Act.

18. His Majesty's Government shall be the plaintiff

His Majesty's Government shall be the plaintiff in all the cases under this Act.

19. His Majesty's Government may give directives

His Majesty's Government may give necessary directives, relating to the Relief works to the Central, Regional and District Committee and to any concerned organizations, office or person and it shall be the duty of the concerned agency or officer or person to abide by such directives.

20. Delegation of Power

- (1) His Majesty's Government may, by a notification published in the Nepal Gazette delegate some power conferred upon it under this Act to any officer or committee or person or institution.
- (2) The Central Committee or other committee may delegate some power out of the power conferred upon it under this Act to any committee or person or institution.

21. Power to frame rules

His Majesty's Government may frame necessary rules to carry out the objectives of this Act.

22. Remedy

All that is covered by this Act shall be in accordance with this Act and the rest shall be in accordance with the prevalent law.

Natural Disaster Relief Act, 2039 B.S. (1982 A.D.)
Second Amendment
(Unofficial Translation)*

Preamble:

Whereas it is expedient to make arrangement for the conduct of relief operation and the maintenance of people's convenience with a view to protecting the life and assets of the common people's convenience with a view to protecting the life and asset of the common people and public property, the parliament has made this act in the twenty first year of the rule of His Majesty Birendra Bir Bikram Shahadev.

1. Short title and commencement

- (1) This act has been called the Natural Disaster (Relief) Act (Second amendment) 2039 B.S. (1982 A.D.).
- (2) The Act shall come into force immediately.

2. Definition

Unless the subject or context otherwise requires, in this Act:

- (a) Natural disaster shall mean earthquake, fire, storm, flood, landslide, heavy rain, drought, famine, epidemic and other similar natural disaster. This word also shall mean the industrial accident or other kinds of disaster caused by explosions and poisoning.
- (b) The disaster relief any work designed to prevent and control of the and the precaution against operation means natural disaster at the areas hit or likely to be hit by natural disaster as well as the rehabilitation of the victims and the protection of life and assets of the people and the protection of public property.
- (c) Disaster area shall mean the proclaimed disaster area pursuant to Section 3.
- (d) Central Committee shall mean the Central Natural Disaster Relief Committee constituted pursuant to Section 5.

* The document has been translated from Nepali to English for this report.

- (d1) Regional Committee shall mean the regional Natural Disaster Relief Committee constituted pursuant to Section 7.
- (e) (Repealed)
- (f) District Committee shall mean the District Natural Disaster Relief Committee constituted pursuant Section 7.
- (g) Local Committee shall mean Local Natural Disaster Relief Committee constituted pursuant Section 7.

3. Declaration of Disaster Area

If His Majesty's Government deems necessary it may specify the extent of the area hit of likely to be hit by natural disaster and declare it disaster area by publishing a notice in the Nepal Gazette for a period specified in the notice. If the situation of natural disaster is not controlled within the period specified in the section.

- (2) (1) His Majesty's Government may prolong the period in accordance with necessary by publishing a notice in the Nepal Gazette.

4. His Majesty's Government

His Majesty's Government may give orders to any one concerned to undertake or caused to undertake any or all of the following works:

- (a) To close down, in accordance with necessity, the governmental or nongovernmental offices, education institutions and other organizations in the disaster area,
- (b) To prohibit any action accordingly necessary in the disaster area that might cause adverse effect on relief operations,
- (c) To depute the employees of governmental or nongovernmental offices or of associations,
- (d) To evacuate or cause to evacuate the people living in the disaster areas to the areas of safety,
- (e) To requisition if necessary the movable and immovable property of any individual or organization on temporary basis for the purpose of relief operation,
- (f) To order the evacuation of the goods and commodities in the disaster areas to the areas safety,

- (g) To make use of the means and resources of the government,
- (h) To requisition and make use of the means of transportation owned by nongovernmental offices, associations and individuals for some period of time,
- (i) To requisition the food grains, clothes, medicine, construction materials and other items belonging to nongovernmental offices, associations and individuals of the concerned district and to distribute them to the victims of natural disaster,
- (i) To try to save the real a states, factories, temples and shrines significant and similar religious places and other objects and places from destruction,
- (k) To constitute aid groups and send them to disaster area,
- (l) To take other necessary security measures for the safeguard of the life and property of the common people,
- (m) To do other work specified by His Majesty's Government.

5. Constitution of Central Natural Disaster Relief Committee

- (1) To plan, chalk out and implement the policy relating to Natural Disaster Relief and to execute and cause to be executed other essential works; His Majesty's Government shall constitute a Central Natural Disaster Relief Committee by publishing such notice in the Nepal Gazette. The activity of the Central Natural Disaster Relief Committee and the activity of the members shall be as specified in the notice.

- (2) The members in the Central Natural Disaster Relief Committee constituted pursuant to sub-section (1) shall be as mentioned below:

- | | | |
|-----|--|------------|
| (a) | Home Minister | – Chairman |
| (b) | Minister of Housing and Physical Planning | – Member |
| (c) | Health Minister | – Member |
| (d) | Secretary, Ministry of Finance | – Member |
| (e) | Secretary, Defense Ministry | – Member |
| (f) | Secretary, Home Ministry | – Member |
| (g) | Secretary, Ministry of External Affairs | – Member |
| (h) | Secretary, Ministry of Water Resources | – Member |
| (i) | Secretary, Ministry of Communication | – Member |
| (j) | Secretary, Ministry of Forest & Environment | – Member |
| (k) | Secretary, Ministry of Labor & Social Welfare | – Member |
| (l) | Secretary, Ministry of Supplies | – Member |
| (m) | Secretary, Secretariat of National Planning Commission | – Member |
| (n) | Brigadier, Royal Nepal Army | – Member |
| (o) | Inspector General of Police, Police Headquarters | – Member |
| (p) | Representative, Nepal Red Cross Society | – Member |
| (q) | Representative, Nepal Scout | – Member |
| (r) | Director General, Dept. of Mines & Geology | – Member |
| (s) | Director General, Dept. of Hydrology & Meteorology | – Member |
| (t) | Two persons of repute nominated by His Majesty's Government | – Member |
| (u) | Additional Secretary (who looks after Natural Disaster related activities) | |
| | – Executive Home Ministry Secretary | |

- (3) The Central Committee shall invite at its meetings the concerning Member of Parliament representing the district effected by natural disaster.

- (4) The internal affairs of the Central Committee may be managed by the central committee itself.

5a. Constitution of Sub-Committee

The Central Committee may constitute Relief and Treatment Subcommittee and Supplies, Shelter and Rehabilitation Sub-Committee to give necessary advice and suggestions to the Central Committee to help execute policies and directives of the Central Committee and to effectively run the relief and rehabilitation work during natural disaster.

5b. Relief and Treatment Sub-Committee

- (1) There shall be the following members in the Relief and Treatment Sub-Committee:

- | | | |
|-----|--|---------------|
| (a) | Health Minister | – Coordinator |
| (b) | Secretary, Ministry of Communication | – Member |
| (c) | Secretary, Ministry of Works & Transport | – Member |
| (d) | Brigadier, Royal Nepal Army | – Member |

- (e) Inspector General of Police, Police Headquarters – Member
- (f) Representative, Nepal Red Cross Society – Member
- (g) Representative, Nepal Scout – Member
- (2) The Secretary of the Relief and Treatment Sub-committee shall be as specified by the Coordinator.
- (3) The internal affairs of the Relief and Treatment Sub-committee may be managed by the Relief and Treatment Sub-committee itself.
- (4) The duties and responsibilities of the Relief and Treatment Subcommittee shall be as specified by the central Committee.

5c. Supplies, Shelter and Rehabilitation Sub-Committee

There shall be the following members in Supplies, Shelter and Rehabilitation Sub-Committee:

- (a) Minister of Housing and Physical Planning – Coordinator
- (b) Secretary, Ministry of Finance – Member
- (c) Secretary, Ministry of Home Affairs – Member
- (d) Secretary, Ministry of Supplies – Member
- (e) Secretary, Ministry of Labor & Social Welfare – Member
- (f) Secretary, Ministry of Water Resources – Member
- (g) Secretary, Ministry of Works & Transport – Member
- (h) Representative, Social Welfare Council – Member
- (2) The Secretary of Supplies, Shelter and Rehabilitation Sub Committee shall be as specified by the coordinator.
- (3) The Supplies, Shelter and Rehabilitation Sub-committee may itself manage the internal affairs of the Supplies, Shelter and Rehabilitation Sub-Committee.
- (4) The functions and duties of the supplies, shelter and Rehabilitation Sub-Committee shall be as specified by the Central Committee.

6. Functions and duties of the Central Committee

The Functions and duties of the Central Committee shall be as follows:

- (a) To recommend to His Majesty's Government to declare the region affected by natural disaster as disaster area,
- (b) For the control and prevention of natural disaster and for its prior arrangement and for the rehabilitation of the victims of natural disaster and reconstruction of the area effected by natural disaster etc. and to devise plans and submit to His Majesty's Government of the formulation of national policy for drawing programmes accordingly,
- (c) The policy and programmes pursuant to sub-section (b) shall be executed or cause to be executed with the consent of His Majesty's Government,
- (d) The aid amount, food stuff, clothes, medicines, construction goods and other materials received from within and outside the Kingdom of Nepal shall be kept under the Central Natural Disaster Aid fund and such goods from the fund shall be sent to disastrous area according to the need for relief works,
- (e) To associate social organizations and associations in natural disaster relief works and coordinates the works and programmes of such organizations and associations,
- (f) To form groups and send them to disaster area for natural disaster relief works,
- (g) To give directions to the district committee and local committee to do and get the relief works done,
- (h) To perform the works specified by His Majesty's Government for the execution of natural Disaster Relief works,
- (i) To periodically give the description of work progress to His Majesty's Government.

7. Construction of Other Natural Disaster Relief Committees

In order to undertake or cause to undertake the natural disaster relief operation. His Majesty's Government may organize Regional, District and Local Natural Disaster Relief Committees by publishing notice in the Nepal Gazette according to needs. The working procedure of such committees and individuals shall be as specified in the notice.

7a. The Functions and Duties of the Regional Committee

The functions and duties of the Regional Committee shall be as follows:

- (a) To devise regional level plan and to give necessary suggestions to the Central Natural Disaster Relief Committee in relation with the execution of such works,
- (b) To bring or cause to be brought coordination amongst district committees in the works related to natural disaster relief operation,

- (c) To provide information to the Central Committee on the works relating to natural disaster relief operation from time to time,
- (d) To work in accordance with the directives of the Central Committee.

8. (Repealed)

9. Functions and Duties of the District Committee

The functions and duties of the District Committee shall be as follows:

- (a) To bring or cause to be brought coordination among the local Committees regarding natural disaster relief operation,
- (b) To devise district level plans on natural disaster relief operation and submit such plans to the Regional Committee,
- (c) To monitor the natural disaster relief operation being conducted by the Local Committees and to support the ongoing operation,
- (d) To provide information to the regional committee about natural disaster relief operation from time to time,
- (e) To work in accordance with the directives of the central and regional committees.

9a. Functions and Duties of the Local Committee

The functions and duties of the Local Committee shall be as follows:

- (a) To prepare detailed description of the loss cause owing to natural disaster and to submit to the District Committee the anticipated required means and resources for the relief and rehabilitation of the natural disaster victim,
- (b) To organize volunteer's teams according to need and conduct or cause to conduct the relief operations,
- (c) To make necessary arrangements to take the injured in the natural disaster to hospitals and health posts as soon as possible,
- (d) To arrange for the evacuation of the victims of natural disaster to a safe place,
- (e) To systematically distribute the cash and kind received in assistance from district committees and local resources to the families of the victims of natural disaster,
- (f) To conduct an awareness programme as a precaution for the prevention and control of the possible events of the natural disaster,
- (g) To hand over the goods and cash along with their accounts to the district committee of Natural Disaster Relief operation after the end of the relief works.

10. To be given rent

If, in pursuant to sub-sections (e) or (i) of Section 4 the movable and immovable property of a nongovernmental office or association individual is made use of temporarily, the specified official, association or natural disaster relief committee shall provide rent to the concerned office, association or individual as per the prevalent rate. However, if requisition of movable and immovable property has involved a land with standing or land likely to cultivated crops, compensation shall be provided for the crop lost or likely to be lost.

11. Price to be given

If, pursuant to sub-section (2) of the Section 4 foodstuff, clothes, medicine, construction materials or other objects are requisitioned the specified official of His Majesty's Government Association or the Natural Disaster Relief Committee shall pay the price as per the prevalent rate to the concerned office, association or individual.

12. Assistance to be Given

All the governmental, nongovernmental offices, associations and individuals of the concerned area and in the vicinity should help the central, regional, district and local committees providing assistance in the relief works.

13. Funds

- (1) Natural Disaster Relief Fund may be set up in the following names:
 - (a) Central Natural Disaster Relief Fund,
 - (b) Regional Natural Disaster Relief Fund,
 - (c) (Repealed),
 - (d) Natural Disaster District Aid Fund,
 - (e) Natural Disaster Local Aid Fund.

- (2) The Natural Disaster Central Aid Fund shall constitute the following amount:
 - (a) The amount provided by His Majesty's Government,
 - (b) The amount obtained from national and international organizations and associations,
 - (c) The amount obtained from other sources.

The Natural Disaster Regional Aid Fund, Natural Disaster District Aid Fund and Natural Disaster Local Aid Fund shall constitute the following amount:

- (a) The amount provided by His Majesty's Government,
- (b) The amount obtained from Natural Disaster Central Aid Fund,
- (c) The amount obtained from other sources.

14. Accounts and Audit

- (1) The account of the articles, goods and commodities and cash amount obtained and expended by the Central Committee, Regional Committee, District Committee and Local Committee shall be maintained in accordance with the prevalent law and the description of such income and expenditure shall have to be published after the completion of audit for the knowledge of the general public.
- (2) The audit of the amount expended by the Central Committee, Regional Committee, District Committee and Local Committee shall be done by the Department of Accounts and Audit or by any registered auditor specified by the said department.
- (3) His Majesty's Government can anytime audit or cause to be audited the documents relating to the accounts of the fund along with other cash and kind.

15. Exemption

The central committee may recommend to His Majesty's Government for the exemption of the relief commodities resources and cash amount expended from government office or organization on relief works and if recommended as such, His Majesty's Government may exempt in accordance with the prevalent law.

16. Fine and Punishment

There shall be imprisonment up to three months or fine up to one thousand rupees or both against those violating the orders pursuant to Section 4.

17. Authority to hear the case

The authority to initiate proceedings and give decisions on defaults punishable under this Act shall be vested on the Special Court upon publishing the notice in Nepal gazette by His Majesty's Government.

18. His Majesty's Government shall be the plaintiff

His Majesty's Government shall be the plaintiff in the legal proceedings under this Act.

19. His Majesty's Government may give directives

His Majesty's Government may give necessary directions in relation with natural Disaster Relief works to the Central Committee, Regional Committee, District Committee, and Local Committee and to any related organization, association, office, office bearer or person and it shall be obligatory upon the concerned agency, office bearer or person to abide by such directions.

20. Delegation of Right

- (1) His Majesty's Government may delegate some or any of the rights vested on it pursuant to this Act to any office bearer or committee or person or organization by publishing it in the Nepal Gazette.
- (2) The Central Committee may delegate some of the rights vested on it pursuant to this Act to any committee or person or organization.

21. Right to make rules

His Majesty's Government may make necessary rules to execute the purpose of this Act.

22. Remedy

All that is covered by this Act shall be in accordance with this Act and the rest shall be in accordance with the prevalent law.

Annex 5

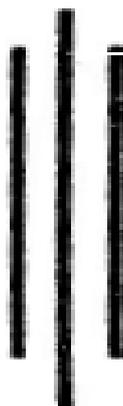
NATIONAL ACTION PLAN

ON

DISASTER MANAGEMENT

IN NEPAL

1996



**His Majesty's Government,
Ministry of Home Affairs,
Singh Durbar, Kathmandu, Nepal**

Acronyms

CDRC	- Central Disaster Relief Committee
DDRC	- District Disaster Relief Committee
DHM	- Department of Hydrology and Meteorology
DMG	- Department of Mines and Geology
DoAD	- Department of Agricultural Development
DoI	- Department of Irrigation
DoL	- Department of Labour
DoR	- Department of Roads
DoSCWM	- Department of Soil Conservation & Water Management
FNCCI	- Federation of Nepal Chamber of Commerce and Industry
IDNDR	- International Decade for Natural Disaster Reduction
INGO	- International Non-Government Organisation
MHPP	- Ministry of Housing and Physical Planning
MoA	- Ministry of Agriculture
MoEC	- Ministry of Education and Culture
MoF	- Ministry of Finance
MoFA	- Ministry of Foreign Affairs
MoFSC	- Ministry of Forest and Soil Conservation
MoHA	- Ministry of Home Affairs
MoHE	- Ministry of Health
Mol	- Ministry of Industry
MoIC	- Ministry of Information and Communication
MoLD	- Ministry of Local Development
MoLJ	- Ministry of Law and Justice
MoPE	- Ministry of Population & Environment
MoWR	- Ministry of Water Resources
NASC	- Nepal Administrative Staff College
NCC	- National Cadet Corps
NFC	- Nepal Food Corporation
NGO	- Non-Government Organisation
NPC	- National Planning Commission
NRCS	- Nepal Red Cross Society
RNA	- Royal Nepal Army
SWC	- Social Welfare Council
WIDPTC	- Water Induced Disaster Prevention Technical Centre

INTRODUCTION

Nepal is characterized by its rugged topography with high relief, complex geology, concentrated rainfall and a high population density. The country faces several natural hazards and larger part of the country is vulnerable to earthquake, landslide, debris flow, flood, drought another forms of hazards. Natural disasters occur year after year causing immense damages of public properties and human lives. Sometimes the extent of damage is enormous as we experienced during the earthquakes of 1980 and 1988 and flood of July 1993. Apart from these events, there are several natural calamities, which struck the country in the past; the earthquake of 1934 was one of the serious disasters, the country ever faced.

The natural disasters may not be stopped, but efforts can be made to reduce the impact of disaster. Considering this fact, the United Nation General Assembly in its resolution 44/236 of 22 December 1989 decided to launch a far-reaching global undertaking for the decade of 1990s to save humanities and reduce the impact of disaster. To initiate a process toward global culture of prevention, the United Nations declared the decade of 1990-2000 as an International Decade of Natural Disaster Reduction (IDNDR). Responding the global call of prevention, Nepal constituted IDNDR National Committee under the chairmanship of Minister for Home Affairs. The National Committee met several times to undertake preventive measures so as to reduce the impact of disasters. The National Committee felt the need of preparing a practical and effective action plan on disaster management as previous efforts were concentrated basically on the rescue and relief operations.

In this connection, four core groups, comprising of experts, administrators, security personnel, academicians, were formed to prepare a National Action Plan on Disaster Preparedness, Response, Mitigation, Rehabilitation and Reconstruction. The preliminary National Action Plan was prepared and also presented in IDNDR World Conference, 1994. The World Conference, after assessing the outcome of the efforts made by member countries, declared the strategy for remaining period of the decade and also accepted a plan of action for disaster reduction.

The Preliminary Action Plan on Disaster Preparedness, Disaster Response, Disaster Rehabilitation and Reconstruction as well as Disaster Mitigation which was presented in the world conference, was prepared by different core groups separately. Due to this fact these Action Plans lacked consistency and inter-relationship. The drafted Action Plan tried to cover every aspect of disaster management with more attention on theoretical and procedural aspects rather than prevailing situation of disaster arrangement in the country. Similarly it recommended estimated cost of each activity irrespective of the national capacity and available resources. So, the Preliminary Action Plan appeared to be difficult for proper execution.

Despite these deficiencies, it must be remembered that the Preliminary Action Plan was prepared prior to the World Conference, 1994; the strategies and Plan of action adopted by the World Conference were not incorporated;

Keeping these shortcomings in mind, the IDNDR National Committee in it's meeting on 27 April 1995, felt the need of incorporating Yokohama Strategy in National Action Plan and simplifying the preliminary draft in order to adopt a more practicable and implementable Action Plan on Disaster Management. Hence, IDNDR National Committee, Nepal, finally prepared an Action Plan on Disaster Management in 13 July 1995 and submitted it to HMG/Nepal for its approval. Later, on 18 Feb. 1996 HMG/Nepal had principally accepted this plan as the "National Action Plan on Disaster Management in Nepal"

A. National Action Plan on Disaster Preparedness

The suggested national action plan on disaster preparedness is presented in the form of a matrix indicating priority item group, activities, the time schedule and the executing agencies with specific co-operating agencies.

The priority item group includes following preparedness activities.

1. Measures related to national policy and planning for making institutional arrangement, providing legal framework, adopting national policy and plan on disaster management.
2. Measures related to geological, hydrological and meteorological hazard assessment and environmental engineering studies.
3. Infrastructure specific and hazard specific preparedness measures.
4. Measures related to strengthening fire-fighting capabilities in fire prone areas.
5. Measures related to awareness raising, training, rehearsal, simulation activities.
6. Measures related to establishment of disaster management information system and stockpiling of emergency supply materials.

The activities involve the formation of appropriate institutional arrangements in terms of National Disaster Management Council at policy level, a National Disaster Management Centre at the central executive level and various disaster management committees at regional, district and village level for effective implementation. The activities also include the enactment of appropriate legislation with specified responsibilities to concerned agencies.

The action plan also proposes the incorporation of disaster management as multi-sectoral activities in next five year development plan. The emphasis is given to the preparation of hazard assessment and mapping of the recurring disasters in Nepal like earthquake, flood, landslides, GLOF etc. The activities further specify the selected areas in this concern so as to attain the objectives in the remaining part of the decade.

Several arrangements have been recommended in the context of capacity building at local level. Public awareness programmes, rehearsal, drills, stockpiling of emergency relief materials are included in the action plan. The environmental, geological studies have been prioritized. The measures related to strengthening the infrastructures for reducing the impact of disasters have been proposed.

Disaster Preparedness Action Plan Matrix

S.N.	Priority Item Group	Priority Item and Activities	Time of Completion	Executing Agency (Co-operating Agency)
A	Measures related to National Policy and Planning	A1. Making institutional arrangements (a) Study of constituting National Disaster Management Council (b) Finalize organizational structure for disaster Management Committees at central, regional, district and village levels (c) Finalize organizational structure and system for disaster management operation unit/agency	Mid 1996	MoHA
		A2. Providing legal framework (a) Review existing laws (b) Identify and finalize changes needed (c) Prepare draft of amendment of new laws and by-laws on disaster management	1996	MoHA
		A3. Adapting National Policy and Plan A3.1 Incorporate Policy on Disaster Management in 9 th 5 Year Plan as a multi-sectoral activities A3.2 Review of National Comprehensive Plan on Disaster Management	1996	MoHA (NPC)
		(a) Prepare TOR for task force for reviewing existing National Comprehensive plan for Disaster Management and prepare updated draft (b) Appoint consultants/task force for the task (c) Consider and finalize draft plan (d) Adopt and publicize plan	1996	MoHA
B B1.	Measures Related to Geographical, Hydrological and Meteorological Hazard Assessment	B1. Earthquake Hazard B1.1 Collect compile and disseminate Earthquake hazard map B1.2 Training support to National Seismological Network of DMG B1.3 Technical support for micro-seismic zonation study on selected geographical locations B1.4 Establish and operate National Accelerometer Network B1.5 Vulnerability assessment of selected public buildings (e.g. Hospitals, Schools etc) and infrastructure (e.g. power station, bridges etc) B1.6 Active fault inventorying and monitoring	Start now and to be continued 1996	DMG DMG
		B2. Landslide hazard assessment B2.1 Landslide hazard mapping of selected areas	1998	MHPP (DMG)
		(a) Identify priority areas (b) Establish standard for landslide hazard mapping (c) Assess existing data on landslides	2000	DMG
			2000	DMG
			2000	DMG

		(d) Introduce remote sensing techniques for landslide detection (e) Collect, compile, produce and disseminate landslide hazard maps and reports	1996	MOFSC, TU, DPTC, DMG
		B3. Planned Engineering and Environmental Geological Studies B3.1 Engineering and environmental geological mapping (a) Kathmandu valley (b) Pokhara valley	1995	DMG
		B4. Hydrological meteorological hazard Studies B4.1 Preparation of flood hazard map (a) Koshi, Bagmati, Tinau, Mahakali (b) Babai, West Rapti	1996 2000	DoI (DPTC, DHM) DoI (DPTC, DHM)
		B4.2 Preparation of debris flow hazard map (a) Bagmati (Palung Khola) Trishuli 9 Agra, Belkhu, Malekhu) (b) Bagmati (Marin)	1995	DPTC (TU)
		B4.3 Preparation of glacier lake location map B4.4 Preparation of rainfall intensity map Start now and to continued	1995	WECS
		B4.5 Establishments of flood forecasting and warning system (a) Bagmati (b) Kamala, East Rapti	1995	
		B4.6 Improvement of hydro-meteorological observation network	Start now and to be continued	DHM
C	Infrastructure Specific and Hazard Specific	B4.7 Collect, compile and disseminate flood hazard maps		
		C1. Preparedness measures Roads and Bridges C1.1 Identify disaster prone sections of highway C1.2 Assess vulnerability of disaster prone sections C1.3 Implement suggested measures	1996 2000	DoI (DPTC, DHM) DoI (DPTC, DHM)
D.		D1. Institutional development of fire brigades D2. Strengthening of fire fighting service in Kathmandu, Lalitpur and Bhaktapur	1997 2000	DHM DoI (DPTC, DGM)
		(a) Improve the fire fighting facility in Kathmandu valley (b) Relocate fire brigades stations to suitable places (c) Provide additional equipment to fire brigades (d) Training of fire fighters	1996	DoR (DMG)
E.	Awareness Raising Programmes	D3. Strengthening of fire fighting facilities in Municipalities	1997 1997	DoR (DMG) DoR
		E1. Raising awareness through mass media (Television, newspaper, radio bulletin etc.) E2. Distribution of pamphlets, posters and other materials E3. Preparation of documentary film, slides for public show E4. Inclusion of disaster management course in secondary school syllabus	1997 1998	MoLD MoHA (MoLD)
F.	Training/ Rehearsals/ Simulations	E5. Poetry, debate and essay competition (Every Year) E6. Regional workshop and national conference (GO, NGOs, INGOs) Every Year	1998	MoLD
G.	Disaster Management Information System	F1. Community leaders training programme at local level (Every Year) F2. Training on disaster management at various level F3. Conduct rehearsals and simulations in vulnerable areas	Start now and to be continued Start now and to be continued 2000	MoIC (MoH) MoIC (MoH)

H.	Stockpiling Emergency Relief Supplies and Rescue Equipment and Personnel	G1. Establish and maintain a communication system in all 75 districts (HF/VHF/UHF-Transceiver System) with access to centre	2000	MoIC (MoH)
		G2. Encourage, support and expand local communication practice	Start now and to be continued	MoEC
		G3. Establish a National Disaster management Information System for disaster information collection and dissemination	2000	MoEC MoHC (NASC)
		H1. Establish/manage emergency supply warehouses in 5 development regions at accessible location	2000	NRCS (DDRC)
		H2. Provide regular supplies of relief materials in warehouses	Start now and to be continued	MoH
		H3. Establish stations with minimum rescue equipment and rescue personnel in all 75 districts	1997	DDRC (Local NGOs) MoIC (MoH, RNA, Police Headquarters etc.)
		H4. Training on warehouse management and supply of relief materials	2000	MoIC
			1997	MoH (INGOs, NGOs)
			2000	MoH (NRCS, NGOs, NFC)
			Start now and to be continued	MoH (NRCS, NGOs, INGOs)
	Start now and to be continued	MoH (RNA, Police, NCC, Scout,NGOs)		
	Start now and to be continued	DDRC		

B. National Action Plan on Disaster Response

As the activities of disaster response start only after a disaster has struck in certain area, the action plan is prepared as a part of preparedness for actual response operations. This action plan is prepared with the assumption that about 15000 families (with an average of 6 members in a family) will be affected by disaster every year. Considering this size, the items and activities included in this action plan should be carried out so as to build the capability of disaster management by the end of 2000 A.D. In this context equipment necessary for disaster response activities have been recommended and the list of it is included in the Annex A-C

The disaster response action plan includes following activities:

1. Evacuation, Search and Rescue:

The main objective of the action plan is to strengthen the capability of the agencies involved in rescue and evacuation operation. Identification of dead bodies, need and damage assessment, supply of necessary equipment needed for rescue operations, appropriate training for the rescue personnel and preparation of emergency evacuation site plan are the main activities recommended in this part.

2. Communication and Transportation:

As the means of communication and transportation should be procured not only for disaster response operations, there is a need for preparing inventory and updating it. Communication equipment should be supplied and necessary transportation vehicles including aircrafts and helicopters should be procured for carrying out efficient operations.

3. Temporary Settlement:

The temporary settlement sites should be identified. For this purpose roadside land, community land, unused government land, public buildings like schools can be taken into consideration. There should be a definite plan of settlement sites which can be used during the disasters.

4. Health, Nutrition, and Sanitation:

For this purpose a disaster unit with minimum facilities should be established in every hospital for emergency operations. The health offices at district headquarters should have necessary emergency medicines.

As the response activities are purely managerial functions, regular trainings and exercise should be carried out at local level every year.

Disaster Response Action Plan Matrix

S.N.	Priority Item Group	Priority Item and Activities	Time of Completion	Executing Agency (Co-operating Agency)
A.	Evacuation, Search and Rescue	A1. Preparation of evacuation plan of public buildings and areas (a) Rehearsal/drills exercise	1997	MHPP (MoH)
		A2. Identification of emergency evacuation sites at local level	2000	DDRC
		A3. Formation of a permanent search and rescue team at district and local level	1996	MoH (DDRC)
		A4. Training for rescue personnel	Start and continue	MoH (RNA, Nepal Police, Scot, NCC, SWC, Local NGOs)
B.	Emergency Need Assessment	B1. Formation of a permanent need assessment team at district level	1996	DDRC
		B2. Preparation dissemination of standard format on need assessment	1996	MoH
		B3. Training and orientation on need assessment	Start ad continue	DDRC
C.	Communication and Transportation	C1. Establishment of emergency and information operation centre level with access to centre	1996	CDRC (RNA, Nepal Police, Experts)
		C2. Equip the centre with necessary communication facilities	1993	CDRC (RNA, Nepal Police)
		C3. Preparation of communication network at the local level	Start and continue	DDRC (RNA, Nepal Police)
		C4. Preparation of Inventory on transportation vehicles for rescue and relief operation	Start and continue	CDRC (DDRC)
		C5. Procurement of appropriate transportation vehicles for rescue and relief operations	Start and continue	CDRC
D.	Temporary Settlement	D1. Include open spaces in urban planning for post-disaster temporary settlement sites	1996	MHPP
		D2. Prepare settlement plan at local level	Start and continue	MHPP
		D3. Establish warehouses and stockpile light shelter materials (Plastic sheets, tents etc) at district level	Start and continue	MHPP (MoH)
E.	Survivor Response, Coping and Security	E1. Health and Nutrition		
		(a) Formation of medical assistance team	Start and continue	
		(b) Storage of emergency medicines and medical instrument at local level	Start and continue	MoHE
		(c) Setting up of mobile hospitals with necessary manpower (predetermined)	Start and continue	MoHE
		(d) Establish disaster unit in each public hospitals	2000	(INGOs)
		E2. Sanitation and drinking water		
		(a) Storage of bleaching powder for chlorination of water in temporary resettlement sites	Start and continue	MoHE
		(b) Storage of polythene pipes in necessary numbers at local level	Start and continue	MHPP
E3. Training for manpower involved in coping mechanism	Start and continue	MHPP		
E4. Establish temporary police post at the affected area.	Start and continue			
		According to need	DDRC (NRCS, local NGOs) MoH (Nepal Police)	

C. National Action Plan on Disaster Reconstruction and Rehabilitation Action

The action plan calls for the development of standard damage assessment format for all types of natural disasters with formation of a permanent damage assessment team at central as well as local level. There is also recommendation on compiling and disseminating the information on extent of damages.

The action plan also includes rehabilitation and reconstruction planning with emphasis on creating permanent committees for such activities centrally and locally. A sectorwise expert group for different types of disasters should review the information of damage assessment and should prepare guidelines for rehabilitation and reconstruction works.

For sustainable rehabilitation, income generating programmes should be implemented for which a feasibility study should be conducted to find out the local trends and availability of local resources. A special directive for loans to the disaster victims with subsidized interest rates is also recommended.

The action plan also emphasizes the need of carrying out regular capability assessment and inventory preparation at various levels including the resources of local community and NGOs.

Disaster Reconstruction and Rehabilitation Action Plan Matrix

S.N.	Priority Item Group	Priority Item and Activities	Time of Completion	Executing Agency (Co-operating Agency)
A.	Damage Assessment	A1. Preparation of standard damage assessment format for recurring types of disaster.	Mid 1996	MoH (MHPP, DoR, DoSC, DMG, DoI)
		A2. Orientation training for damage assessment format users.	1997 & continue	MoH (DDRC)
		A3. Formation of a permanent team for damage assessment at district level	Start and continue	CDRC, DDRC
		A4. Collect, compile and disseminate	Start and continue	MoH, DDRC
B.	Rehabilitation Planning Reconstruction Programme	B1. Formation of a permanent committee for rehabilitation and reconstruction planning at district level	Mid 1996	MoH
		B2. Setup permanent sector wise expert group for different types of disaster to review the damage assessment report.	Mid 1996	MoH
		B3. Prepare guidelines for resettlement rehabilitation and reconstruction (e.g. low cost disaster resistant housing, low cost sanitation measures etc.)	1999	(MHPP, DoR, DoI, DPTC, TU)
		B4. Develop manuals for rehabilitation and reconstruction operations.	1996	MHPP
		B5. Formulation of rehabilitation plan for victims (disabled and orphan) encouraging social institutions.	1997	MoEC
C.	Income Generating Activities	C1. Feasibility study of local income generating activities in each district.	2000	Mol (DoAD, DoL)
		C2. Design special directives for loan with subsidized interest rate to disaster victims.	1997	MoF
D.	Capacity Assessment	D1. Capability assessment of GO, NGO and others.	Start and continue	CDRC, DDRC
		<ul style="list-style-type: none"> a) Regular capability assessment b) Inventory preparation c) Feed back 		

D. National Action Plan on Disaster Mitigation

The action plan recommends the identification and recognition of the major natural hazards by the government for proper management and also for the direction of mitigation measures effectively for rest of the decade.

As the disaster mitigation is multi-sectoral activities, each sector needs proper resources to conduct its programme. Hence, allocation of financial resources for disaster management and mitigation programme to each disaster actor in National Budget is inevitable. As the internal resources could not meet the demand for disaster mitigation activities, international assistance should be encouraged. There should be a special disaster cell in the organization of every key disaster actor to conduct mitigatory works regularly.

The formulation of building codes and by-laws for disaster resistance structures, a preparation and dissemination relevant measure to increase resistance in existing structures is also necessary. The National Land Use and Land Cover Plan and National Disaster Reduction programmes for impending disasters should be formulated and implemented. The action plans call for national programmes on the hazards like earthquake, landslide; flood, drought and fire.

According to the strategies of IDNDR World Conference, 1994, the following activities have been included in the action plan.

- a) Risk assessment for development planning
- b) Policies on the role of NGOs, local community, private sector and also policies on peoples' participation especially women and socially disadvantaged groups.
- c) Incorporation of Environment Impact Assessment for disaster reduction in development planning.
- d) Promotion of regional and sub-regional co-operation between countries exposed to same types of hazards.
- e) Establishment of documentation centre on disaster reduction activities.

Disaster Mitigation Action Plan Matrix

S.N.	Priority Item Group	Priority Item and Activities	Time of Completion	Executing Agency (Co-operating Agency)
A.	Mitigation Strategies	A1. Identification of major types of natural hazards	1996	CDRC
		A2. Recognize and disseminate the results	1996	CDRC
B.	Financial Strategies	B1. Allocate financial resources for disaster management and mitigation programme for each disaster actor in National Fiscal Budget	Start and continue	MoF
		B2. Encourage international donor (bilateral, multilateral and INGOs)		MoF (MoFA, SWC)
C.	National Land Use and Land Cover Plan	C1. Formulation of National Land Use and Land Cover Plan	Start and continue	MoFSC (MoWR)
		C2. Implementation of Plan		1998
D.	Construction of Earthquake resistant Building	D1. Formulation of building code used and by-laws	1998 and continue	(MHPP, DoR, DoT, DPTC, TU)
		D2. Approval and implementation of building code		MHPP
		D3. Formulation of relevant national legislation		MHPP (MoI)
		D4. Implementation of national laws on relevant measures prepared for increasing resistance		MHPP
E.	Risk Assessment	E1. Develop risk assessment programme for all types of disaster	1995	MHPP
		E2. Incorporate the results of risk assessment in development activities	1996	
F.	Policy on Disaster Reduction Measures	F1. Formulation of policies on disaster reduction	Start and continue	CDRC (Various line agencies) HMG line agencies
		F1.1. National Disaster Reduction Programmes (a) Landslides and debris floods (b) Floods (c) Earth quake (d) Drought (e) Epidemics		Start and continue
	F2. National Programme on developing fire fighting capabilities	1998	MoA (MoLD)	
	F2. Approval and implementation of programmes on disaster reduction as mentioned in F.1		1998	MoH

G.	Policies on NGOs Private Sector and Communities on disaster	F3. Adoption of integrated policies for prevention and preparedness	1998 1998 1998	MoLD (MoH)
		G1. Formulation of national plan on involvement of NGOs, reduction on following areas (a) Community based approach and people's participation (b) Involvement of women and other socially disadvantaged groups (c) Local non-government organization (d) Efforts of private sector	1998 1999 2000	Sectoral Ministries CDRC (NPC)
H.	Environment and Indigenous Technology Disaster Reduction	H1. Incorporation of Environmental Impact Assessment for disaster reduction in development planning	1998	CDRC (NPC, SEC, FNCCI)
		H2. Application of traditional knowledge, practices and values of local community for disaster reduction. (a) Study on Indigenous technology (b) Preparation of reports and dissemination (c) Adoption of the results in developing planning	1997	CDRC (NPC)
I.	Promotion of regional and Sub-Regional Cooperation between Countries Exposed to same Natural Hazards (like Floods and Earthquakes)	I1. Set up bilateral for multilateral Joint Committees on disaster reduction I2. Exchange information and share experiences for disaster reduction issues I3. Implement disaster reduction strategies	1998	CDRC (DDRC)
		J1. Establish documentation centre for compiling collecting, publishing and disseminating information on disaster management	1998 1999 2000	CDRC (DDRC) CDRC (DDRC) CDRC (DDRC, MoFA, MoWR, Mol)
J.	Establishment of Documentation Centre on Disaster management		Start and continue 1997	MoFA (MoWR, Mol) MoWR, Mol
			1998	MoH

Supplement

While implementing the plan, with a view to make it easier and more effective, some amendments were made by IDNDR, National Committee on 29 Sept. 1996 which are as follows:

1. The executing agency for (i) Flood Hazard Mapping and (ii) the establishment of Flood Forecasting & Warning System is to be the Department of Hydrology & Meteorology instead of Department of Irrigation.
2. As a part of Disaster Mitigation Action Plan :
 - (A) Policies on – (i) prevention & preparedness, (ii) participation of NGOs, private sector and local communities and (iii) incorporating environmental impact study in development plan, have to be carried out by Ministry of Population and Environment instead of CDRC.
 - (B) Ministry of Land Reform & Management has to be the co-operating agency for (i) the preparation of land use plan, (ii) rehabilitation plan and (iii) reduction programmes.
3. Regarding the amendments in the specified time frame, it is needed, the concerning agencies are requested to inform the IDNDR National Committee.
4. To monitor the execution of the action plan, a Monitoring and Evaluation Committee comprised of representatives from Ministry of Home Affairs, National Planning Commission, Ministry of Finance, Ministry of Water Resources, Ministry of Industry (Department of Mines and Geology), Nepal Red Cross Society and Royal Nepal Army has been constituted.

ANNEX – A

EQUIPMENT AND MATERIALS FOR RESCUE AND EVACUATION

1. AIR CRAFTS:

- a) C-130 (Hercules) or 1 (one)
CASA –212 4 (four)
- b) Super Puma Helicopter 4 (four)
- c) Allouette/Bell/Equirell Helicopter 4 (four)

2. TENTAGE

- a) Stores Tents (80X40) 5 (five)
- b) Stores Tents (40X40) 10 (ten)
- c) 50 Men Tents 10 (ten)
- d) 30 Men Tents 10 (ten)
- e) 10 to 15 Men Tents 50

3. COMMUNICATION EQUIPMENT

- a) HF Radio Set Complete Stations 10 (ten)
 - aa) Frequency 2-30 MHz
 - bb) RF Power output 100 to 150 watt PEP
 - cc) Power input 220 volt AC, 50 Hz
- b) Hand Held VHF/FM Ratio Set Complete stations 30 (thirty)
 - aa) RF Power output 5 watt
 - bb) Frequency 30.88 MHZ
- c) Mobile VHF/FM Ratio Stations Complete 10 (ten)
 - aa) RF Power output 30.88 MHZ
 - bb) Frequency 50 watt
 - cc) Power input 12 volt DC
- d) Hand Held VHF Am Radio Set Complete 10 (ten)
 - aa) RF Power output 25 watt
 - bb) Frequency Range Aeronautical 118-140 MHZ

4. TRANSPORT

- a) TATA Truck 75 (seventy five)
- b) Bus 20 (twenty)
- c) Jeep 50 (fifty)
- d) Ambulance 12 (twelve)

5. MISCELLANEOUS EQUIPMENT AND MATERIALS.....

- a) Bailey Bridges..... 10 (ten) sets
(if required to erect two 80/100 M.) Bridges
- b) Rubber Boats..... 50 (fifty) sets
(With Accessories)
- c) Boat Assault (Universal type) 10 (ten) sets
(Capacity 10 persons)
- d) Life Jackets 100(hundred) sets
- e) Nissin Huts (30'x80') 5 (five)
- f) Compressor with Rock Drills 10 (ten)

g)	Mini Dumpers	10 (ten)
h)	Tripper Trucks (4WD)	10 (ten)
i)	Dozer (D-50 ND-8-)	10 (ten)
j)	Wheel Loader (125 to 145 HP)	4 (four)
k)	Cranes - 10 Tons	2 (two)
	25 Tons	1 (one)
l)	Excavators (0.8 M)	2 (two)
m)	Suspension Bridges	5 (five) sets
n)	Aerial Cable Way (100 M)	5 (five) sets
o)	Manila Rope (1" Dia.)	2500 Meters
p)	10 KVA Generator	10 (ten)
q)	6 KVA Generator	20 (twenty)
r)	Fire Engine	39(thirty nine)
s)	Leather Gloves	100 (hundred) sets
t)	Carreabina	100 (hundred) sets
u)	Aluminum Ladder	50 (fifty) sets

ANNEX – B

MATERIALS FOR TEMPORARY SETTLEMENT

1. Tarpaulin Polythene Base Blue Sheet 10 sft. Per family
2. Other building materials: (stones, bricks, partition mats, nails, wooden frames, etc.)
3. Other items: (Lanterns, Jerry cans, bedding materials, etc.)
4. Toilet blocks.

ANNEX – C

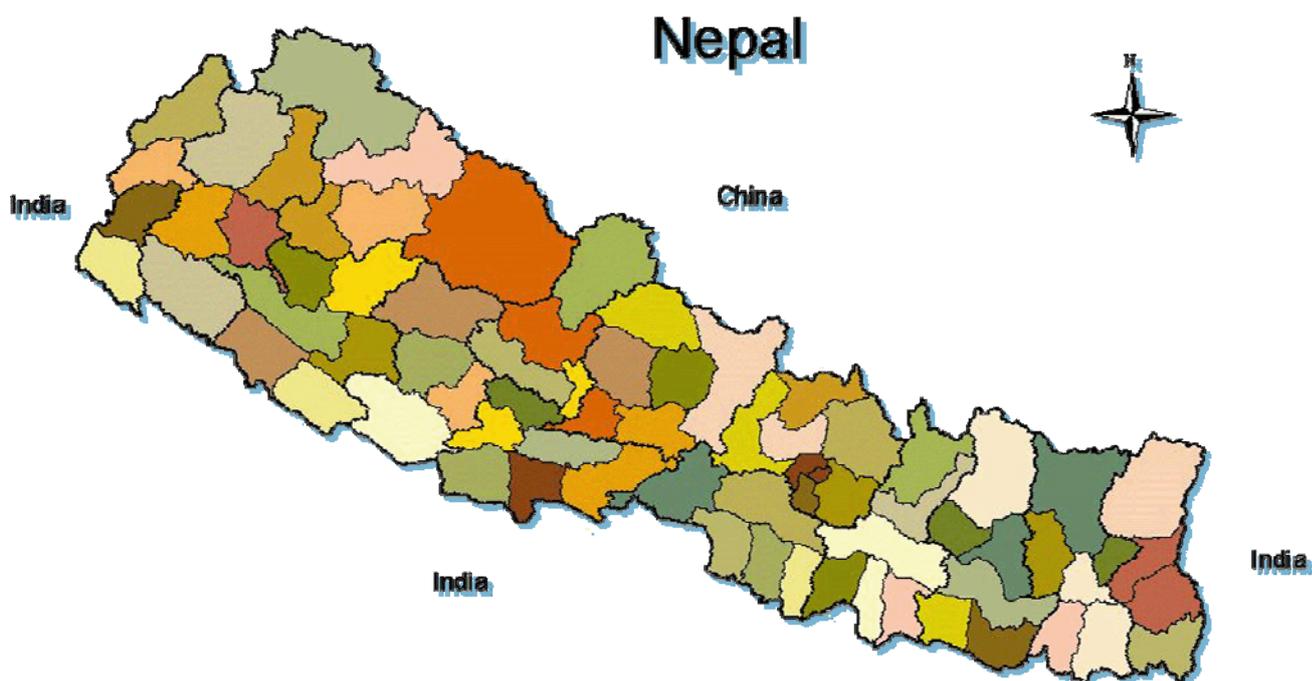
LIST OF MATERIALS AND MEDICINES

1. Vehicles
2. Ambulances, stretchers
3. Cardiopulmonary resuscitation set
 - Ambu bag
 - O2 cylinder
 - ECG Machine
 - O.T. tubes
 - Drugs: Dexona i.v. fluidsAvil, Hydroloetrisene, Astropine
Morphine
Ethidine
Fortwin
Soda. bicarbonate
4. Suture sets
5. Crash injury set
6. Antibiotics, oral, local, parenteral
7. Rehydration fluids
8. Vit A, D, B 12 and Vit C
9. Folic Acid, Iron
10. Antiprotozoal/ Antihelminthic drugs
11. Water container, safe with small mouth
12. Milk powder
13. Nutritious and proteinous
14. Flour



Annex 6

Disaster Reduction and Management in Nepal Issues and Prospects



A National Report of Nepal
presented to the World Conference on Disaster Reduction
Kobe, Japan
18-22 January 2005

HIS MAJESTY'S GOVERNMENT OF NEPAL

Ministry Of Home Affairs

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Kathmandu, January 2005

PREFACE

The National Report and National Action Plan will provide a comprehensive scenario and guidelines of disasters for the activities, which will follow the World Conference on Disaster Reduction (WCDR), 2005, in Nepal. We are looking forward to continue working in close with our partners in order to ensure that it will have a lasting impact on building the resilience of nation and communities to disasters.

This document is the outcome of series of consultations with key actors and responsible agencies of the government and non-governmental agencies Nepal. The valuable inputs and suggestions from all concerned have been incorporated in this report.

The Ministry of Home Affairs avails its opportunity to thank for the contributions made by concerning partners in finalizing the country paper and the National Action Plan

Finally, the draft committee deserves special thanks for taking troubles to preparing this document.

Thank you all.

January, 2005
Kathmandu.

Ministry of Home Affairs
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January, 2005
Kathmandu.

Ministry of Home Affairs
Singha Durbar

ACRONYMS

MoHA	Ministry of Home Affairs
MoAC	Ministry of Agriculture and Cooperatives
MoHe	Ministry of Health
MoLD	Ministry of Local Development
MoLJ	Ministry of Law and Justices
MoFSC	Ministry of Forest and Soil Conservation
MoPPW	Ministry of Physical Planning and Works
MoF	Ministry of Finance
MoEP	Ministry of Environment and Population
MoES	Ministry of Education and Sports
MoWCSW	Ministry of Women, Children and Social Welfare
MoFA	Ministry of Foreign Affairs
MoWR	Ministry of Water Resources
MoST	Ministry of Science and Technology
DWIDP	Department of Water Induced Disaster Prevention
DSCWM	Department of Soil Conservation and Watershed Management
DMG	Department of Mines and Geology
DHM	Department of Hydrology and Meterology
DHS	Department of Health Services
EDCD	Epidemic Disease Control Division
DoF	Department of Forest
DoLIDAR	Department of Local Infrastructures and Agricultural Road
DDC	District Development Committee
NPC	National Planning Commission
NRCS	Nepal Red Cross Society
NSET	National Society for earthquake Technology Nepal
NP	Nepal Police
APF	Armed Police Force
RNA	Royal Nepalese Army
I/NGO	International/ non-governmental Organization
CBO	Community Based Organization
CDRC	Central Disaster Relief Committee
RDRC	Regional Disaster Relief Committee
LDRC	Local Disaster Relief Committee
DDRC	District Disaster Relief Committee
SWG	Sectoral Working Groups
DP-Net	Disaster Preparedness Network
GO	Government Organization
TU/loE	Tribhuvan University/ Institute of Engineering
NASC	Nepal Administrative Staff College
SWC	Social Welfare Council
FNCCI	Federation of Nepal Chamber of Commerce and Industry
UN	United Nations
UNDP	United Nations Development Programme
WHO	World Health Organization
ICIMOD	International Centre for Integrated Mountain Development
NS	Nepal Scout
NCC	Nepal Cadet Corps

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A. INTRODUCTION

A.1. LOCATION

Nepal a Himalayan Kingdom, lies in between 80°4' to 88°12' East longitude and 26°22' to 30°27' North latitude. It has an area of 147,181 sq. km. extending roughly to 885 km. from East to West and varies from 145-241 km. North-South. The country is land locked bordering with India on the East, West and South, and China on the North.

Nepal lies in the central segment of the Himalayan mountain range. A combination of rugged topography, high relief, active tectonic process and intense monsoon rain has made its' fragile environment vulnerable to varieties of hazards and disasters. It is one of the disaster-prone countries in the world. Nepal has been experiencing several natural disastrous events such as floods, avalanches, landslides, hailstorms, droughts and earthquakes causing loss of lives and properties. As the country lies in the high seismic prone zone, large-scale earthquakes were frequent in the country in the past. Every year floods and landslides damage the vital infrastructures and ruin productive farmlands and natural resources. The disasters also create situations demanding emergency evacuation and relocation of people. As a consequence, a significant proportion of GDP is lost every year due to natural disasters.

A.2. GEOGRAPHY AND CLIMATE

Elevation of the country decreases from north to south while the temperature goes on decreasing from south to north along with the increase in altitude. The sharp differentiation in altitude displays extreme variations in natural environment ranging from tropical plain to alpine heights. The country has a unique altitudinal variation from 60 meters from mean sea level at Jhapa on the south to 8,848 meters at Mt. Everest, the top of the world, on the north within a short horizontal distance. Due to the east-west orientation of the mountain ranges, the country has a tropical climate on the south and temperate and alpine climate on the north. Accordingly, there are many different forest types in Nepal.

Nepal has five different types of climate namely; sub tropical, warm, cool, alpine and tundra. Climatic conditions in Nepal vary from region to region. The Terai, southern plains and the Siwalik range experience subtropical climate, while the northern mountainous regions have cold, dry continental and alpine winter climate. Summer and late spring temperatures range from about 28 degrees Celsius in the hilly region to more than 40 degrees in the Terai. In winter, average maximum and minimum temperatures in the Terai range from a brisk 7 degrees to a mild 23 degrees respectively. The central valleys experience a minimum temperatures often falling below the freezing point and a chilly 12 degrees maximum. Much colder temperatures prevail at higher elevation. Kathmandu, the capital, at an altitude of 1,450 meters, has a mild climate, ranging from 19 to 27 degrees in the summer, and 2 to 20 degrees in the winter with occasional temperatures below freezing point.

The main source of precipitation is the summer monsoon (late June to September) of which 80 per cent falls during this period, 15 per cent during the post-monsoon (October) and pre-monsoon seasons (April to May), and the remaining 5 per cent during the winter (November to February) periods. The annual rainfall in Kathmandu generally exceeds 1,300 mm. Most part of the country average between 1,500 and 2,500 mm in annual rainfall.

Nepal can be divided into three major river systems from east to west: the Koshi, Gandaki and Karnali River respectively. All rivers ultimately become major tributaries of the Ganges River in the northern India. After plunging through deep gorges, these rivers deposit a large amount of sediment on the plains, thereby nurturing them and renewing their alluvial soil fertility. Once they reach the Terai Region, they often shift their course and overflow their banks onto wide floodplains during the summer monsoon season. The country is traditionally classified into three major geographic regions, notably, Mountain, Hill, and Terai regions.

A.3. GEOLOGY

Nepal can be divided into five major tectonic provinces from south to north separated by major thrusts and faults. These provinces extend to a general east-west direction. From south to north these include: Terai, Sub-Himalaya (Siwaliks), Lesser Himalaya, Higher Himalaya, and Tibetan-Tethys

Himalaya. These tectonic zones nearly correspond to the currently used five-fold classification of the physiography of Nepal into Terai, Siwalik, Middle Mountain, High Mountain, and High Himalaya. The Terai and Indo-Gangetic alluvial plain is separated from Siwalik Hills by the Himalayan Frontal Thrust (HFT); the Siwaliks are separated from the Lesser Himalayas by the Main Boundary Thrust (MBT); the Lesser Himalayas are separated from the Higher Himalayas by the Main Central Thrust (MCT); and the Higher Himalayas are separated from the Tibetan-Tethys Himalayas by the South Tibetan Detachment Fault (STDF). The boundary between the Indian and Eurasian plate is marked by the Indus –Tsangpo Suture Zone (ISZ) in Tibet.

The Terai is characterized by broad alluvial plains, and by extensive alluvial fans near the boundary with the Sub-Himalaya. The plain is composed of alluvial deposits that have been derived from the Hinterlands, and are estimated to be a few kilometers thick at the foot of the range.

The Siwaliks, comprising the Churia Hills consist predominantly of the uniformly dipping, openly folded members of the Tertiary Siwalik Group, which is composed of a thick series of mudstones, shales, sandstones, and conglomerates of mid-Miocene to Pleistocene age.

The Lesser Himalaya consist primarily of thick accumulations of low-grade metasedimentary rocks that include phyllites, quartzites, and carbonates, with minor amounts of granitic and metabasic rocks. Therefore, the age of the sequence is not well constrained, and is thought to range from Precambrian to Mesozoic age. Crystalline thrust sheets composed of schists, quartzites, and high-grade gneisses have overridden these metasediments.

The Higher Himalaya consist of a 3.5 to 10 km thick section of high-grade metamorphic rocks that has been thrust over the Lesser Himalaya to the south along the MCT. This crystalline basement consists of schists, gneisses, migmatites, etc., and is succeeded upwards by Tethyan fossiliferous rocks of Palaeozoic to Cretaceous age. These crystalline and sedimentary rocks were intruded by leucogranites 18 to 25 million years ago.

The Tethyan Himalaya, located between the Higher Himalaya and the ISZ, consists of a nearly continuous sequence of conformable sediments ranging in age from the Palaeozoic to early Tertiary. The sediments are up to 6 km thick and consist of shales, limestones, and flysch deposits.

In the broader sense, Himalayan region is characterized by the presence of highest peaks in the world covering about 14% of the total landmass, the mid hills with mountainous range and various river valleys covering about 68% and the southern plain region, Terai belt, which is considered as the grainary of Nepal covers about 17%. The Himalaya is said to be the most active and fragile mountain range in the world. The Himalaya is still rising and its rocks are under constant stress as the northward –moving Indian Plate is pushing it against the more stable Tibetan block. This pressure forces the Himalaya to rise and move horizontally southward along major thrusts. Frequent earthquakes also manifest the active nature of the range. Moreover, the inherently weak geological characteristics of the rocks make the Himalaya fundamentally very fragile. Triggering factors such as rainfall and earthquakes make the mountains highly vulnerable to landslides and other mass wasting processes. The combination of weak geology and a monsoonal climate makes each physiographic zone of Nepal unique in its vulnerability to landslides; at present the most active vulnerable parts of the Himalayas are the Siwalik and the Mahabharat ranges.

A better understanding of the geological nature of the terrain and the interplay of various triggering factors will greatly help in the development of safe infrastructures, mitigation of natural hazards, and the control of environmental degradation.

A.4. POLITICAL SYSTEM AND ADMINISTRATIVE DIVISION

Nepal is a multiethnic, multilingual, democratic and independent Hindu Kingdom with parliamentary democracy. The sovereignty of Nepal is vested in its people. The country is administratively divided into five development regions (Eastern, Central, Western, Mid-western and Far-western), which is further divided into 75 administrative districts corresponding to 14 Zones. A district consists of Municipalities and Village Development Committees (VDCs). There are 58 Municipalities and 3,915 VDCs in the country. Municipalities consist of 9 to 35 wards (the smallest administrative unit) and each VDC has 9 wards.

A.5. DEMOGRAPHY

Based on the results of the population census of 2001, Nepal has an estimated total population of 23,151,423. At present there are more than 60 ethnic groups residing in the country. The annual population growth rate is estimated at 2.24 percent. Urban centers, with well-developed public facilities, and lower fertile plains had relatively high population density (985.31 people per sq. km. in 2001). About 14.2 percent of total population live in urban areas. There are all together 4,253,220 households in the country. The overall literacy rate is 53.74 percent and 65.08 per cent of male population are found to be literate as against 42.49 per cent of females

A.6. ECONOMY

The economy of this country is mainly based on agriculture. The contribution of non-agricultural sector is gradually increasing in GDP. Over 58 per cent of the population fall under the category of economically active segment of population (in 2001). In the Terai, rice is the main cereal crop and other crops include pulses, wheat, barley and oilseeds. In the lower mountain valleys, rice is produced during the summer and wheat, barley, oilseeds, potatoes, and vegetables are grown in the winter. Corn, wheat, and potatoes are raised at higher altitudes, and terraced hillsides are also used for agriculture. Large quantities of medicinal herbs, grown on the Himalayan slopes, are sold worldwide.

Transportation and communication difficulties have hindered the growth of industry and trade. Hydropower is the main source of electricity in Nepal, and there are plans to further develop the potential of the nation's rivers. Nepal's trade is overwhelmingly with India. In recent years, significant deforestation and a growing population have greatly affected the country.

Poverty is pervasive in Nepal. According to unofficial sources there are still around 30 per cent of Nepalese people living below the poverty line. In Kathmandu Valley, the poverty rate is found only 4% and in other urban centres it is about 34%. The national average GDP per capita of Nepal is \$269, whereas that for the Kathmandu municipal area is around \$500. The overall urban unemployment rate is 7.4%, however, that for Kathmandu Valley is 9.6%. Informal employment rate of the country stands at around 375 per thousand.

A.7. DEVELOPMENT INITIATIVES

The Maoist insurgency in the country for almost one decade has caused to curtail the development works either dropped or lingered. Thus, human and nature induced disasters are jeopardizing the pace of development in the country. Despite these hurdles, the HMG/N, with its limited financial resources, along with its development partners are trying their best to meet the Millennium Development Goals (MDGs) by implementing its poverty reduction strategies.

Poverty alleviation is the overarching goal of the planned development initiatives of HMG/N. The Tenth Plan (2002 – 2007) has envisaged to reduce the poverty, unemployment, population growth as well as improving the basic need facilities of the people such as the supply of safe drinking water, electricity, food, health, housing facilities, etc. The long-term vision of the plan is also to increase the annual economic growth rate by 8.3 per cent, domestic production by 30 per cent and national investment by 34 per cent. The development of the physical infrastructure including road connectivity to be completed to all 75 districts, extension of irrigation facilities, expanding communication facilities to the rural areas are also on the priority agenda of the HMG/N.

As the country has been facing natural disasters every year, the Tenth Plan has given special emphasis to reduce disaster risk in the country. Attempts have been made to establish linkages between disaster and development. The government has also realized that the MDGs in general and poverty alleviation in particular cannot be achieved without reducing the disaster risk in the country. The Tenth Plan has allocated a separate sub-chapter on disaster risk management stating mainly the policies, approaches and broader strategies (refer Annex 3). The necessity of proactive approaches with greater emphasis on pre-disaster mitigation and preparedness planning has also been given adequate attention. Disaster management has been explicitly mentioned for the first time in the planned document in such manner and has provisioned for its proper implementation for the

sustainable, reliable and more effective mobilization of the resources to contribute to the safety of the people.

B. HISTORY OF DISASTER

The historical records show that Nepal has been suffering from various types of high degree disaster hazards. The entire country is prone to several types of disasters. The whole country is seismically active. The hilly areas, with rough topography and very young geology are very prone to landslides while the Terai¹ plains are prone to floods. Avalanches, Glacial Lake Outburst Floods (GLOF) and snowstorms affect high hills of Nepal

The biggest recorded disasters in Nepal are the earthquakes of 1934 and 1988 and the floods and landslides of 1993. The earthquake of 1934 put the country's economy in the shambles with 60 per cent of the houses damaged in Kathmandu Valley alone. Loss of lives due to different disasters in the country for last two decades is attached herewith in the table overleaf. Similarly, the earthquake of 1988 ruined the vital infrastructures in the eastern parts of Nepal. Similarly, damage caused by the flood and landslides of 1993 was about NRs 4 billion (equivalent to US\$ 55 million) in the five most affected districts among a total of 43 districts which had undergone through the impacts of it. This figure is equivalent to about 3 per cent of the country's annual government budget in that year. Besides disruptions in the normal life of the Nepalese the loss due to it in economic terms was 24 per cent of the total export earnings and 27 per cent of the gross fixed capital formation. Few predictions reveal that a major earthquake is in waiting in Nepal because of the nature of the seismic movements, which may affect the country severely.

It was estimated that the floods of 1993 retarded the country's development performance by at least two decades. Thus the disaster, among others, has been the instrument for underdevelopment and impoverishment process of the country. The recent on going predictions, based on the seismic movements, is that a major earthquake is due soon in the central hills and mountain region of Nepal, which is sure to affect the country severely.

¹ "Terai" is the plain and fertile land area of Nepal that stretches from east to west and is border to India to the south.

Table 1: Loss of Lives by Different Types of Disasters (1983-2003)

Year/Types	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Total
Earthquake	0	0	0	0	0	721	0	0	0	2	0	0	0	3	0	0	0	0	1	0	0	727
Flood & Landslides	293	363	420	315	391	328	680	307	93	71	1336	49	203	258	78	276	209	175	196	441	232	6714
Fire	69	57	52	96	62	23	109	46	90	97	43	43	73	61	45	54	46	53	26	11	8	1164
Epidemics	217	521	915	1101	426	427	879	503	725	1128	100	626	520	494	947	840	1207	141	154	0	0	11871
Windstorms, Hailstorm & Thunder bolts	0	0	0	0	2	0	28	57	63	20	45	47	34	75	44	23	22	26	38	6	60	590
Avalanche	0	0	0	0	0	14	20	0	0	0	0	0	43	4	9	0	5	0	0	0	0	95
Stampede	0	0	0	0	0	71	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	71
Total	579	941	1387	1512	881	1584	1716	913	971	1318	1524	765	873	895	1123	1193	1489	395	415	458	300	21232

Source: Ministry of Home Affairs, Disaster Management Section

C. DISASTER SCENARIO

Nepal faces a myriad of hazards, which combined with the growing population and severe lacking in education and awareness, result in very high degree of risks. Nepal, according to the recent study by UNDP/BCPR (UNDP, 2004) stands at 11th and 30th country with respect to relative vulnerability to earthquake and flood respectively. Another study ranks Kathmandu Valley as the at-risk city in the world with respect to risk measured in terms of potential death due to an earthquake.

Despite such bleak scenario, Nepal has made a steady and sustained stride towards disaster risk management in the last decade. The country responded positively to the Yokohama Strategy and Plan of Action, and has initiated several commendable strategies and initiatives, at government and non-government levels. Several initiatives in disaster risk management implemented by Nepalese NGOs have been regarded as successful cases and replicated in other countries of the region and the world. Such works includes, earthquake risk assessment, action planning, implementation of school level earthquake risk management programme, community-based local and district level disaster planning and preparedness, emergency response to high altitude hazardous events such as snow avalanches in the Mt. Everest region and so on. However, considering the magnitude of the problem there remains still other areas to be adequately addressed with additional efforts by HMG/N and non-governmental sectors.

This paper presents a brief account of Nepalese achievements and aspirations, and also portrays a scenario of challenges that needs to be addressed. It also contains the need for developing synergy among stakeholders from within and outside the country including the UN system, bi-lateral and multi-lateral agencies to cope with the impending disasters in the country. The paper also identifies priorities that Nepal, would like World Conference on Disaster Reduction (WCDR) to discuss for enhancing and strengthening Nepal's capability in disaster risk management including development of an effective emergency response system.

Nepal is exposed to several types of disasters ranging from earthquakes, floods, landslides, droughts, wind storms, avalanches, debris flow, GLOF, cloudburst, hailstorms, fires, epidemics, lightning (thunderbolts) and ecological hazards. A wide range of physiological, geological, ecological, meteorological and demographic factors contributes to the vulnerability of the country to disasters. Other major factors contributing to disasters are rapid population growth, slow economic development, high degree of environmental degradation, fragility of the land mass and high elevation of the mountain slopes. The recent disaster trends in the country are as following:

C.1. FLOOD

In Nepal floods affect mainly the Terai plains and some of the hilly valleys. The topographical feature of Nepal allows for flash flood during the rainy season. Even the small and dry streams can cause havoc during monsoon. As the altitude of Nepal decreases from north to south, the heavy rain in the northern hill areas and the catchment area of major rivers generate heavy flood in the Terai plains, which is densely populated. It is also found that the rapid melting of snow and ice in high mountains often trigger the floods. Every year, during the monsoon season flood of minor and major types affect a large area of agricultural land and leads to a colossal loss of various types of crops.

Beyond these, GLOF, torrential rainfall/cloudbursts in the middle mountains and foothills, landslides/debris flow in the rugged mountain regions also cause floods in Nepalese southern plains. Floods are found to be frequent incurring heavy damages to the life and property during the monsoon seasons in Nepal.

The ever-increasing settlements along the riverbanks, encroaching the rivers, and valleys are creating more hazards by floods in recent years. During the last ten years (1994–2003), 2,115 people were reported killed and 288,205 families were affected due to the floods and landslides in the country. In this way, floods and landslide disasters are the contributing factors of around 35 per cent of the total death and 65 percent of the total affected families from all kinds of natural disasters in the country.

C.2. EARTHQUAKE

Nepal is at high-risk from the point of view of earthquakes. One main reason for Nepal's vulnerability to earthquake is the poor construction of public buildings and private houses especially in densely populated areas like Kathmandu. Situated in the Himalayas and sitting squarely atop several thrust and fault zones, it experiences several tremors of earthquakes every year.

Nepal falls under the seismically active zone mainly due to the subduction of Indian plate under Tibetan plate. The country's high seismicity is related to the presence of active faults between tectonic plates along the Himalayas, mainly in the main boundary fault and the main central thrust. Chains of active faults run for around 100 km, interrupted by inactive sections. There are also active faults in the lower Himalayas and along the southern slope of the Siwaliks. The earthquake reported in Nepal dates back from 1255 A.D. However the first-ever severe earthquake had occurred in 1833 A.D. The most disastrous earthquake so far had hit the country in 1934, with 8.4 Richter scale in magnitude, and had completely or partially collapsed more than 38,000 buildings. It also took away human lives of 8542 people. In 1980, a tremor of 6.5 Richter scale magnitudes with its epicentre lying in Bajhang claimed 178 human lives and about 40,000 houses were damaged. Even more devastating earthquake with 6.6 Richter scale in magnitude struck the country in 1988 with epicentre in Udayapur district and a total of 721 lives were lost and several physical infrastructures damaged.

C.3. LANDSLIDE

Landslide is a chronic problem faced by Nepal encountering heavy losses of lives and properties, obstructions in development works and so on. The causes of landslides in Nepal are mainly due to the complex interaction of several natural and man-made factors. The natural phenomena like high relief, concentrated rainfall, soil erosion withdrawal of underlying as well as lateral supports by toe cutting and bank erosion, intense folding and fracturation of rocks, active geotectonic movements are responsible for landslides and debris flow. The human activities like deforestation, improper agriculture and irrigation practices, overgrazing on the slopes, unplanned quarrying for construction materials and building infrastructures on the hills slopes overlooking the bearing capacity are also responsible factors. Mainly during monsoon season, large area of mountain region succumbs under landslides and debris flow causing immense damages to agricultural lands and human settlements.

In Nepal floods, landslides and soil erosions are often interrelated. Some landslides are triggered by riverbank erosion and similarly landslides in the adjoining riverbanks aggravate most of the times the flash floods. Both these phenomenon occur during the monsoon season.

C.4. EPIDEMIC

The epidemic of cholera, gastroenteritis, encephalitis, meningitis are common during hot and rainy seasons. It is usually on the peak during the month of May and June (beginning of the rainy season). But the recent studies have revealed that the epidemics got into peak during the month of August also. The remote villages are found to be highly affected by epidemics outbreak in the community, every year, during short span of time by the diseases like diarrhoea, measles, typhoid and cholera and so on. During the last ten years (1994 – 2003) a total of 4,933 people have lost their lives due to such epidemics.

C.5. FIRE

Most of the fire problems occur during the dry season (March to May), especially in the Terai region when the temperature is high and the occurrence of strong winds. A total of 959 people were reported killed and about 60,243 houses were destroyed by fire during the last ten years. Some of the reasons for the fire outbreaks are improper use of fire for cooking and other domestic purposes and lack of adequate fire safety measures. As about 90% of the population of the country inhabit in the rural areas mainly in thatched houses and closely clustered, the fire hazards in the settlement area are more common.

On the other hand, every year fire has been destroying considerable amount of forest resources in Nepal. Forest fires occur annually in all major physiographic /climatic regions of Nepal, including the Terai, Siwalik and High Mountainous regions mainly during the dry season. Forest fire is the sole

cause of degrading biological diversity in Nepal's forests. It also causes soil erosion and induces floods and landslides due to the destruction of the natural vegetation indirectly. The main causes of forest fire are anthropogenic due to negligence and occasional deliberate burning of bushes to induce succulent grass growth for domestic animals. The embers from forest fire also causes fire in nearby villages, especially in the Terai region where the roofs are made of thatched grass.

The management of forest fire is a new phenomenon in Nepal. Though with a limited knowledge of planning for the systematic prevention and control of fire it is appreciable that the community forest user groups are exercising control over the forest fires through indigenous methods.

C.6. DROUGHT

The uneven distribution of monsoon rainfall is responsible for the drought situation. The northern part of the kingdom is generally dry. Primarily, the Terai region and western hilly areas are affected by drought almost every year. The insufficient irrigation facilities make the problem even more serious as prolonged drought condition has adverse effect in crop production. The process of desertification is also noticed in the northern hilly areas mainly in Mustang and Manang districts.

Unfortunately, the country lacks a clear and systematic picture of the effect of the drought in the country. However, the rough estimates show around 5,000 families are affected in different parts of the country due to drought and a significant amount of food grain production particularly the cereal production is decreased.

C.7. OTHERS

The hailstorm, windstorm, thunderbolt, glacier lake outburst floods and cold as well as hot wave are other forms of natural disasters that occur frequently with localized effects. The sudden avalanche and heavy snow fall in fair season sometimes cause heavy losses of human lives. Thousands of villagers in Nepal's remote mountainous districts fall in the grips of an unprecedented famine, which demands for the government's additional efforts to ensure the emergency food supplies. Unexpected and heavy hailstones and rainfall occasionally destroy seasonal crops of paddy, millet, wheat and maize leading to widespread hunger in remote mountain districts. Famines are not frequently reported as other natural disasters but it has been increasingly affecting the people every year. However, there has not yet been recorded any loss of human life due to famine so far.

D. RISK ASSESSMENT

D.1. GENERAL

Assessment of hazards and risk is a continuous process. In developing country, a blanket and uniform coverage by hazard mapping of all types of disasters may not be easy. But the initiation of hazard mapping of the country in a systematic manner is the best way to mitigate. The most adaptable strategies in the country, like Nepal, for mapping and assessment of hazard, vulnerabilities and risk, should be a consensus strategy based on a perfect understanding of the country's requirements. Such directives have not yet been developed in the country. However, there are few instances where some government agencies as well as few agencies in the non-government sector have prepared hazard maps based on their requirements. See Table 2 for some of the available hazard map informations.

D.2. RISK ASSESSMENT AND IMPACT ANALYSIS

So far, the country has not adopted any systematic approach for risk assessment. In this connection, UNDP has recently completed the disaster information/ inventory of the entire country for the last 33 years (1971 – 2003). The data/inventory could be shared among the concerned stakeholders benefitting the partners within and outside the country.

Nepal also lacks the impact analysis of disasters. The country has the information and analysis pertaining to the damage assessment of few disasters, mainly the larger ones.

The DHM, DWIP and MOAC have also done some exemplary works in analysing the risk and its impact in concerned areas including drought related hazards.

D.3. EARLY WARNING

There is no well-developed and well-structured early warning system in Nepal. However, a basic early warning system was erected in 1996/97 after the threat of Tsho-Rolpa GLOF in northern part of Nepal. It is considered as a perfectly installed system, which needs to be strengthened.

Though, Department of Hydrology and Meteorology provides basic weather forecast on a daily basis through the media, the degree of its reliability is not sufficient. Hence, the weather forecast system of the country needs to be upgraded.

Based on the weather forecast from national media, NRCS headquarters alerts district branches to be prepared for the probable disaster. Quickest communication channels are used for this purpose. As soon as the district chapters receive the information, possible means are immediately taken by the district chapters to inform the communities. Locally appropriate and available communication channels such as hand mikes, shouting, crying aloud or indigenous practices are used by the communities to make people aware and prepare themselves for the probable disaster. Community people themselves take initiatives in such activities.

Ministry of Health has established Early Warning Reporting System (EWARS) for reporting of major communicable disease outbreak i.e. epidemic. This system is functioning well in 28 districts of the country.

Table 2: Availability of Geologic and Hydrologic Hazard Maps and early warning system in other sections.

Type	Available Map scales	Coverage	Agency	Remarks
Geological Mapping	1:50,000	Almost the whole country	Department of Mines & Geology	
	1:125,000	Whole country	Dept. of Survey	
Landslide Hazard Maps (Inventory maps)	1:125,000 and others	Mountainous parts of eastern and central development regions, and for Bajhang, Baitadi, Bajura, Doti, and Dadeldhura Districts	Department of Mines & Geology, ICIMOD, TU, UNDP, DOLIDAR and others	
Topographic maps	1:125,000	Whole country	Dept. of Survey	
	ONE INCH	Gorakha, Myagdi, districts	RCUP (MOLD)	
Hydrologic, Climatic maps	Small scale	Nation-wide	DHM	Hydro-met details can be obtained for very large to large basins.
Earthquake Hazard Map: Epicentre Map	1:1 and 1:2 million		DMG	
Earthquake Hazard Map: Microseismicity map	1:1 and 1:2 million		DMG	
Earthquake Hazard Map: Potential Max. Magnitude Map	1:1 million		DMG	
Earthquake Hazard Map: Liquefaction susceptibility map	1:50,000	Kathmandu	MOHA	
Health/Early warning reporting system for epidemic communicable disease	System in place	28 districts	MOH/DHS/EDCD	Supported by WHO
Fire	In place	Whole country/Media information	MOHA	
Flood	At local level	Some districts of CBDMP	MOHA/DDC/DDRC	Supporting agency UNDP

E. DISASTER MANAGEMENT CAPABILITIES

E.1. GOVERNMENT INSTITUTIONS / PARTNERS/ PROCEDURES

Currently, various agencies of HMG/N are assigned with different aspects of disaster risk management in Nepal. The Ministry of Home Affairs (MoHA) is designated as the lead agency responsible for implementation of the Natural Calamity (Relief) Act, 1982, which has provision for adequate legal backups to implement HMG/Ns policies and strategies addressing to overall disaster management and risk reduction. As per the Act, the other partners in this process are National Planning Commission Secretariat, Ministries for Finance; Foreign Affairs; Information and Communication; Water Resources; Physical Planning and Works; Health; Defence; Population and Environment; Forest and Soil Conservation; Women Children and Social Welfare; Industry Commerce and Supplies. A host of other government and non-government agencies including RNA, NP, DMG, DHM, SWC, NRCS, NS are also included in the present set up. The notable omissions, regarding organizational representation, in the Act is discovered to be the Prime Minister's Office and cabinet secretariat, Ministries of Local Development; Agriculture and Cooperatives; Education and Sports, DWIDP, APF in the government sector and none of the organizations presently contributing from the NGO sector. however, the important ones are represented in the Committee as the invitees.

As the lead responsible agency, MoHA is accountable for preparing national policies and ensuring its implementation. MoHA is also responsible for rescue and relief works, data collection, dissemination and collection and distribution of funds and resources to the affected population through the structured process.

Natural Calamity (Relief) Act 1982 is the legal instrument for handling disasters in the country. The Act provides for the establishment of Disaster Relief Committees at the central, regional, district and local levels. However, for all practical purposes the committees at the central level (CDRC) and district level (DDRC) are functional and the local level (LDRC) have yet to operate on a regular basis. Efforts are underway to operationalize the Regional (RDRC), which is chaired by the Regional Administrator.

CDRC, the committee consisting of 25 representatives from above mentioned government and non-government organizations and Chaired by the Minister for Home Affairs, is the apex body in the field of disaster management. CDRC is mostly found to engage in formulating short-term directives and approaches for dealing with disasters, particularly large event. While the CDRC has the privilege to meet as many times as required, it is found to be meeting at least two times a year, normally before and after the monsoon season.

The district-level DDRC have been constituted in all 75 administrative districts of the country. DDRCs draw representatives from the district level offices of the various line agencies related with law and order, emergency response (army, police and the district chapter of Nepal Red Cross Society), critical facilities and development institutions such as irrigation, road, livestock, health, etc. The Chief District Officer (CDO) is the chairperson of the committee, who is empowered to be the highest-level government official to take disaster-related decisions including rescue and distribution of relief materials following a disaster. S/he is also responsible for collecting disaster data with aim of assessing the disaster and providing rescue and relief.

DDRC also enjoys the privilege of meeting as many times as required. The decisions taken by DDRC include assessment of the situation and the need of government support. If the impact area is larger than a district, the CDOs have to recommend the matter to RDRC and MoHA for further appropriate actions.

In view of the fact that the NCRA, 1982 basically focusses on the rescue and relief works and does not specify the duties and responsibilities of other stakeholders, including the non-governmental sector. The Act is in need of comprehensive amendment to articulate the roles and accountabilities of key actors in disaster management. There is also an urgent need to formulate subsequent regulation to back up the provisions of the Act to be translated into action. The fire codes have to be formulated and the Fire Brigades should be strengthened. Similarly it is felt necessary to develop the civil defence system to replace the existing heavy reliance on army and police as the emergency responders.

E.2. ACHIEVEMENT SO FAR

Despite ongoing insurgency and paucity of resources, Nepal has been gradually picking up the momentum towards improving the disaster management in the country. Policy makers/ planners have shown interest in looking into the problems of disaster management from the economic and developmental point of view, an approach that is gaining broader support in the country.

A further positive feature is the considerable experience accrued by various levels of government in managing risk, reducing vulnerability and increasing preparedness and response capabilities at the community level. However, these experiences are not yet systematically analysed to extract lessons and feed into the macro-level policy and decision-making. The same can be observed at the sectoral level, where some sectors have advanced towards a more comprehensive approach to managing risk.

During the decade of 1990-1999, as the International Decade of Natural Disaster Reduction (IDNDR), HMG/N responded with the formation of IDNDR-National Committee within the MoHA auspices, which developed a National Action Plan for Disaster Management. This Action Plan includes important policy and institutional perspectives such as the establishment of the National Disaster Management Council and National Disaster Information System, which were supposed to be accomplished by the year 2000 but not have been materialized yet. This Action Plan was also approved in principle by HMG/N in 1996. A copy of the, recently, revised Action Plan is *Annexed in 1*. Nevertheless, there have been significant developments in the disaster management arena in the country during the decade and afterwards as following:

1. Disaster management has been incorporated with due preferences in the Tenth Plan.
2. Increasing involvement of the academicians, researchers, INGOs, NGOs, local bodies and civil societies in the disaster response;
3. Establishment of the Disaster Prevention Technical Centre (DPTC) which has been transformed into the Department of Water Induced Disaster Prevention;
4. Establishment of the Emergency Operations Centre within the UN premises;
5. Establishment of optimum seismic monitoring system within the Department of Mines and Geology;
6. Formulation of National Action Plan on Disaster Response; Implementation of pilot community led disaster mitigation programmes with the support of UNDP and Nepal Red Cross Society (NRCS);
7. The successful conduction of Community Based Disaster Management (CBDM) Programmes for the 300 communities in 33 districts by the NRCS.
8. Development of disaster related Action Plans in the 5 districts by the DDCs with support from UNDP.
9. Development and implementation of cost-effective water induced disaster such as landslide and participatory disaster mitigation measures by DSCWM;Preparation of management plan of sub-watersheds of some districts by DSCWM;
11. Detailed hazard maps of 4 districts by DWIDP.
12. Development of River Policy and Water Induced Action Plan by DWIDP
13. Establishment of National Mobilization Centre within MoHA in accordance with UNDAC provisions;
14. Formation and functioning of sectoral working groups in Food and Agriculture, Health and Logistics;
15. Health Sector Emergency Preparedness and Disaster Response Plan prepared and implemented since 2003 by the MoHe.
16. MoAC has also prepared its Response Plan.
17. Preparation of sectoral working manuals and sector specific work plans. This exercise helps facilitate the communication between HMG/N and other stakeholders, actors in following manners:
 - Exploring local financial and technical support;
 - Assisting HMG/N to assess the losses, identifying needs and formulating response strategies;
 - Liasoning with HMG/N to explore the external financial and technical supports;
 - To help monitor disaster situations on continual basis; and
 - To provide a forum for information exchanges.

18. Increasing realization on the part of the HMG/N and policy makers towards updated institutional set up to undertake Total Disaster Risk Management;
19. ADRC supported, and MoHA organized, Public Awareness Raising Program was highly applauded by the trainees of ten disaster prone districts. The beneficiary of this program included over 600 people from different parts of life including local leaders, schoolteachers, social workers and women leaders of the area.
20. MoHA, in joint collaboration with JICA, concluded a widely accepted Kathmandu valley earthquake study which paved the way for HMG to devise appropriate strategies to prepare and cope with the earthquake hazard.
21. Emergence and commendable works of institutions like the Nepal Engineering Association, Kathmandu Municipal Corporation, National Society for Earthquake Technology (NSET), Nepal Centre for Disaster Management (NCDM), Centre for Disaster Studies (CDS) in the Institute of Engineering, Nepal Geological Society, Nepal Landslide Society, Nepal Disaster Management Forum, etc.
22. Enactment of Local Self-governance Act, 1999 which bestows the responsibilities of disaster management at the local level by the local bodies (DDC/VDC);
23. Creation of Disaster Preparedness Network (DP Net) represented by government and non-government stakeholder, basically to exchange the information and experiences among the partners in the field of disaster management;
24. The successful implementation of the programs carried out by NSET such as KVERMP, SESP, SVAHN etc,
25. Pre monsoon Disaster Preparedness works carried out by NCDM
26. Compilation of the local and indigenous knowledge on local disaster management;
27. Promulgation of Building Act, 1999 and the formulation of the Building Codes. These Codes are implemented by Lalitpur Sub-Metropolitan City since 2003, which paved the way for HMG/N, by a decree, to make such Codes mandatory to all public buildings.

E.2.1. CAPABILITY ASSESSMENT

1. In 1997, UNDP has done a national level empirical study on the disaster management capability of different organizations. There is a need of updating these information as many new organizations have initiated activities in the field of disaster management.
2. MoHe has recently conducted an earthquake vulnerability assessment of the major nineteen hospitals of the Kathmandu valley. The findings of the study are available and indicate that majority of the hospitals in the Kathmandu Valley are in vulnerable conditions.
3. Several other stakeholders have also done assessments of different areas of the country. These information are scattered and scanty.

E.3. KNOWLEDGE MANAGEMENT

Several studies in the field of indigenous knowledge reveal that indigenous knowledge in the field of disaster management also exists in the country. Likewise, good practices also prevail in different parts of the country in the field of disaster preparedness, mitigation and prevention. However, such information and knowledge are scattered and scanty in the country.

Recently, UNDP has supported to prepare DesInventor software and database for time- series geo-referenced disaster information for the last 33 years (1971 – 2003).

The courses relating to disaster management is introduced at the secondary level and the undergraduate level in the schools and some colleges respectively.

Governmental and non-governmental organizations have been organizing disaster management training programmes especially in the field of total disaster risk management, training for instructor, community-based disaster management, hospital emergency preparedness management, collapse search and rescue, medical first responders, first aid, etc. at the regional, central, district and local/ community levels.

Earthquake Safety Day (Second week of January/ 2 Magh of the Nepali Calendar) and ISDR Day on the second Wednesday of October is continuously observed at the central and district levels, which have helped to raise awareness among the people.

E.4. PREPAREDNESS AND CONTINGENCY PLANNING/ EARLY WARNING:

Several agencies involved in the field of disaster realm have been organizing different types of disaster management training programmes at various levels such trainings include; basic disaster management, community-based disaster management, total disaster risk management, collapsed search and rescue, hospital emergency preparedness, mass casualty management, etc. Likewise, in the recent past few District Development Committees have prepared district disaster management action plans in GIS based multi-hazard mapping and vulnerability assessment.

At the macro level, contingency planning is still a new area to be ventured. Few development agencies like UN, bilateral agency like USAID has prepared contingency planning for their own agency specific mandate and/or need. However, there is a great need to expand the contingency planning at both the macro and micro/ agency level.

At the central level there is Central Disaster Relief Fund as an emergency fund, with the HMG/N, to be disbursed to the disaster victims. Similarly, the Nepal Red Cross Society also possesses some emergency funds to be distributed primarily to the disaster victims. Nepal Red Cross Society also maintains stocks of relief materials at different strategies locations.

So far, the country is still utilizing the traditional mechanisms to monitor the weather movement and lacks the latest technology (both the devices and trained human resources) for reliable weather forecasting and warning system. Because of the lack of latest weather forecasting devices and trained human resources, the extreme weather events are sudden and not possible to issue any effective warning in due time. This is aggravated due to the poor communication mechanism in the country. The communication mechanisms, both the system and devices, have suffered in the recent past due to the insurgency in the country. This also jeopardized the effective warning system in the country.

F. GOOD PRACTICES

F.1. COMMUNITY BASED DISASTER MANAGEMENT IN NEPAL:

Since 1996, UNDP and Nepal Red Cross have initiated the Community Based Disaster Management (CBDM) programme to address the challenges of recurrent disasters in the country. CBDMP is centred around people, not technology. Therefore, it relies on social mobilization process and promotes indigenous/ local knowledge on disaster mitigation and preparedness ensuring participatory, sustainable and cost effective measures. It has tried to link disaster with development and help local disaster victims, the men and women, to be organized.

F.2. EARLY WARNING INTRODUCED IN TSHO ROLPA GLACIER LAKE OUTBURST FLOOD:

Tsho Rolpa Glacier Lake, situated at an altitude of 4,580 meters a.s.l., with 80 million cubic meters of water is a living threat to 18 Village Development Committees of Dolakha and Ramechhap districts. Upon receipt of the experts warning that the lake could outburst any moment, the Central Natural Disaster Relief Committee (CNDRC) had immediately taken essential countermeasures in 1997 to save the lives and properties of the villagers. These measures include, reducing volume of water by installing five siphons, moving the settlements to higher elevations from vulnerable riverbanks, installing eleven early warning sirens, establishment of surveillance posts and 24 hr radio announcement to warn the community of foreseen danger. The outburst of the glacier lake has not yet occurred.

F.3. KATHAMNDU VALLEY EARTHQUAKE RISK MANAGEMENT PROJECT (KVERMP)

KVERMP, a model of earthquake risks assessment for the city of developing countries, included a wide variety of activities aiming at self-sustaining earthquake risk management program for Kathmandu Valley. It has developed an earthquake scenario and recommended an action plan for earthquake risk management in the Valley. The other components included School Earthquake Safety Program (SESP) and awareness raising and institutional strengthening.

Under the SESP, more than 60 percent of the school buildings were found highly vulnerable to use even in normal conditions. In this regard, a pilot demonstration of retrofitting of a school in 1999 and

training to the masons in the technology of earthquake resistant construction have helped encourage several schools to undergo retrofitting and the spreading of this technology to the wider part the community and institutions in Nepal. These initiations have also helped develop a technical manual for designers and the builders to undertake earthquake safety measures. It has drawn wide international attention and exchanges made with similar initiatives in Kobe, Istanbul, Bandung and Uttaranchal in India.

Under the awareness-raising component, demonstration of an improvised shake table to enhance the personalized earthquake risk perception has become very popular in Nepal and in the Asian countries. NSET, a Nepali NGO, has received Tech Museum Laureate (Microsoft Education Category) award by the Tech Museum of San Jose California for this innovative venture.

F.4. HOSPITAL VULNERABILITY REDUCTION

The Disaster Health Working Group created a National Disaster Preparedness and Emergency Response Plan, and embarked upon seismic vulnerability assessment of the major hospitals of Nepal. The task was performed jointly by the Ministry of the Health and the World Health Organization (WHO-Nepal). This effort has resulted in the development of structural and non-structural seismic vulnerability assessment of hospital system including the building, the content and their functionality. The work was the first of its kind in South Asia and hence the methodology has been published for wider access in the region.

G. DISASTER MANAGEMENT CHALLENGES AND OPPORTUNITIES

Nepal is exposed to several types of disasters every year. It is found that there are 1.06 reported events of disasters per day on the average in Nepal causing the loss of lives and properties as well as destructing the development works. HMG/N is compelled to spend large amounts to recover such losses but very little have been done to reduce the risk of it so far.

The plans and policies also lack adequate attention in the field of pre-disaster works. Large parts of the population in the country are still not aware of natural disasters. Though, the country is suffering from disasters on a continual basis the studies regarding to identify most vulnerable places and types of disasters are still inadequate. Prioritized disaster events/hazards and their preparedness and mitigation parts are completely lacking except for few urban centers. Similarly, the prior, during and post disaster activities for different hazards are yet to be established.

In Nepal, the disaster related works are done on an ad-hoc basis. The priority, so far, is mostly focussed on the post disaster activities i.e. rescue and relief works.

The past decade has witnessed several achievements made by Nepal in the field of disaster risk reduction. These include development of methodology for risk assessment and action planning at municipal and district levels for the implementation of complex community-based programs successfully. In order to efficiently manage the disaster in the pre, during and post period, Nepal has also tried to get engaged into it in a more professional manner. As a result there had been enough efforts made in formulating perspective and periodic plans of disaster management. Nepal is generally regarded very proactive in:

- a) Implementation of community-based programs,
- b) Earthquake risk management and implementation of school earthquake safety programs,
- c) Informal education and awareness, and
- d) Successes in implementing joint programmes by local bodies and NGO/INGO.

Inadequate policy and legal environment is the biggest impediment. Such condition inhibits replication of the successful cases to other places although there are high potentials for the same. Development of an efficient and effective institutional mechanism had always been preferred but without any successes. Absence of organizational outfit at the highest level that could be tasked to provide intellectual and administrative leadership is seriously noted in Nepal. In fact, the country could learn from the experiences of the other countries like Japan, India, Bangladesh and many other nations to provide a strong and efficient leadership to undertake all issues of disaster reduction and management. Thus, improving on the role of leadership and the creation of the National Disaster Risk

Management Council or National Emergency Operations Centre, backed by appropriate legislative instrument, seems to be the priority agenda for Nepal. UN system may also be interested to assist in such ventures.

Responsible stakeholders have been meeting frequently at the governmental as well as non-governmental level to review the performances of the programs. The monitoring and evaluation of disaster-related projects and programmes have also been conducted on regular basis. Such serious attentions of all stakeholders have brought a sense of belongingness with the sector to guide its future priorities and actions.

H. NATIONAL, REGIONAL AND INTERNATIONAL COOPERATION

Several government agencies are involved in disaster prevention and mitigation works in close cooperation with various international agencies such as: JICA, ADRC, ADPC, UNDP, WHO, UNISDR, UNOCHA, UNDAC, USAID/OFDA, UMN, CARE, WFP, SCF alliance, GTZ, LWF, Action Aid Nepal, ADRA, etc. Besides, various other professional and non-governmental organizations like NRCS, NS are providing highly valuable support at the time of natural disasters. Some other professional and non-governmental organizations of Nepal like DWIDP, NSET, NCDM, NGS, NLSS, NDMF, and few others have contributed significantly by conducting research and capacity building programmes to enhance public awareness in the country.

The IFRC, through the Nepal Red Cross Society, is actively engaged in community-based activities and raising disaster management capacity at the community and district levels. ICIMOD has also been assisting to develop hazard maps assessing the risks and analyzing vulnerability in the Hindu Kush area. The Government of France provided assistance to the Department of Mines & Geology to establish 21 microseismic stations to record the magnitude of the earthquake.

I. NATIONAL PRIORITIES

Following are the main priority areas of the country:

- Emergency response planning and capacity enhancement,
- Strengthening policy and legal environment
- Efficient and effective reconstruction and rehabilitation.
- Institutional reform
- Human resources development in disaster preparedness

ANNEX I (A)

Component-1

Political Commitment and Institutional Aspects

1.1. Are there National policy, strategy and legislation addressing disaster risk reduction?

Nepal has enacted Natural Calamity (Relief) Act in 1982, which is amended thrice. Being enacted earlier it has focused basically on the relief/ rescue activities and opts to be amended in the field of comprehensive disaster risk management in general and preparedness and mitigation in particular.

1.2. Is there a national body for multi-sectoral coordination and collaboration in disaster risk reduction, which includes ministries in charge of water resource management, agriculture/land use and planning, health, environment, education, development planning and finance?

Under the Disaster Relief Act there is the provision of Natural Relief Committees at Central, Regional, District and Local levels. The Central Natural Disaster Relief Committee is comprised of as a national body for multi-sectoral coordination and collaboration in disaster management. This committee is primarily comprised of government agencies excluding the Ministry of Education and Sports, Ministry of Local Development and Ministry of Agriculture and Cooperatives. However, there are few other forums such as Sectoral Working Groups (Food and Agriculture, Health and Logistics) and Disaster Preparedness Network (DP-Net), where government agencies, multilateral, bilateral and I/NGOS are also the members.

1.3. Are there sectoral plans or initiatives that incorporate risk reduction concepts into each respective development area (such as water resource management, poverty alleviation, climate change, adoption, education and development planning)?

For the first time in Ninth Plan (1997-2002) the base paper was initiated for disaster management. His Majesty's Government of Nepal has initiated activities for integrating disaster risk reduction into development initiatives. The Tenth Plan (2002 -2007) has made it compulsory that there should be environment impact and natural disaster appraisal of each infrastructure or projects before its implementation. However, it is much more essential for its proper implementation and regular monitoring aspect of the plan.

1.4. Is disaster risk reduction incorporated into your national plan for the implementation of the UN Millennium Development Goals (MDGs), Poverty Reduction Strategy Paper (PRSP), National Adaptation Plans of action, National Environmental Action Plans and WSSD (World Summit on Sustainable Development) Johannesburg Plan of Implementation?

In the recent past several sectoral ministries/ agencies have initiated to incorporate the disaster risk reduction initiatives in their plan. In the recent the review exercises of the MDGs and PRSP, disaster aspect has been identified as one of the threat to achieve the MDGs and poverty reduction in the country.

1.5. Does your country have building codes of practice and standards in place, which takes into account seismic risk?

Yes, Nepal developed National Building Code in 1994. However, due to several factors (technical, social and economic) it is not yet implemented effectively. Nonetheless, few Municipalities, particularly in the Kathmandu Valley have initiated to implement parts of its in their respective locality/ area.

1.6. Do you have an annual budget for disaster risk reduction?

In the national budget, the government has not allocated separate budget line for disaster risk reduction. There are some mechanisms to respond post disaster scenario such as the provision of the Central Disaster Relief Fund and Prime Minister Relief Fund, which are used on relief, reconstruction

and rehabilitation activities. Likewise, several non-governmental organizations are contributing significantly in the field of disaster risk reduction efforts through the direct implementation of activities and/or working/ supporting government initiatives.

1.7. Are the private sector, civil society, NGOs, academia and media participating in disaster risk reduction efforts?

Yes: Private sectors, civil society, I/NGOs, Academia and Media are participating in disaster risk reduction efforts in many ways. Civil Societies are also active and creative in disaster prone areas for safeguarding people's wealth and property. Academicians have shared their knowledge and experience to minimize the possible losses due to disasters. Similarly, media also has played significant role pointing out the crucial aspects of disaster management at the national level. Several I/NGOs and other actors are actively working in the field of disaster management since the natural disasters of 1993. In every districts (75) there is a District Natural Disaster Relief Committee (DDRC) chaired by the Chief District Officer, which gives attention on the possible measures of disaster risk reduction.

Component -2

Risk Identification.

2.2 Has your country carried out hazard mapping/assessment?

Yes, Department of Mines and Geology, Department of Water Induced Disaster Prevention and United Nations Development Programme have carried out GIS based hazard mapping and vulnerability assessments at very micro level. However, there is a need to carryout the GIS based multi-hazard mapping and vulnerability assessment at the national level.

2.3 Has your country carried out vulnerability and capacity assessments?

To date, we have not carried out capacity assessment in details. Sporadic assessments have taken place from time to time by different organizations according to their needs. Such capacity assessments are not adequate and don't represent the assessment of the entire country.

2.4 Does your country have any mechanisms for risk monitoring and risk mapping?

We have some mechanisms at the micro level, such as the Glacial Lake Outburst Flood mechanism initiated by the International Center for Integrated Mountain Development, however, lacks the macro level for risk monitoring and mapping mechanism.

2.5 Is there a systematic socio-economic and environmental impact and loss analysis in your country after each major disaster?

So far several agencies both governmental and non-governmental are engaged in collecting post-disaster related information. However, there is lack of systematic socio-economic and environmental impact analysis of such collected information and disaster.

2.6 Are there early warning systems in place?

Not at the national level. But one early warning system was put in place in 1996/97 after the threat of Tsho-Rolpa Glacial Lake Outburst Flood (GLOF) in northern part of central Nepal. Likewise, Department of Hydrology and Meteorology provides basic weather information daily. However, the weather forecast mechanisms need to be upgraded.

Component -3

Knowledge Management

3.1 Does your country have disaster risk information management systems (governmental and /or non-governmental)?

The Ministry of Home Affairs and the Nepal Red Cross Society (NRCS) collect the post disaster information of the entire country through the DDRC, district police offices and district and sub-district

chapters of NRCS respectively. The collected information is disseminated through different government/non-government agencies. Recently, UNDP has also prepared a DesInventor software and database for geo-referenced disaster information of the last 33 years (1971–2003).

3.2 *Are the academic and research communities in the country linked to national or local institutions dealing with disaster reduction?*

Disaster is not taken as the issue of the priority. Therefore, at present neither academic institutions nor the research organizations have given due attention in this field. Nevertheless, such institutions have shown interest to work in this area. However, in the government sector DWIDP has conducted the survey of the water induced disaster prone areas in the country. Similarly, Ministry of Home Affairs has carried out research work on the earthquake menace of the Kathmandu valley in collaboration with JICA Nepal.

3.3 *Are there educational programmes related to disaster risk reduction in your public school system?*

Yes, we have initiated educational programmes relating to disaster risk reduction in the level of secondary schools. Some of the colleges also have introduced disasters management in their curriculum at the undergraduate level.

3.4 *Are there any training programmes available?*

Yes, several governmental and non-governmental organizations have been organizing different types of disaster management training programmes such as total disaster risk management, training for instructor, community-based disaster management, hospital emergency preparedness management, collapse search and rescue, medical first responders, first aid, etc. at the regional, central, district and local/ community levels.

3.5 *What kind of traditional indigenous knowledge and wisdom is used in disaster-related practices or training programmes on disaster risk reduction in your country?*

Several kinds of indigenous knowledge on disaster management exists in regularly disaster hit isolated remote areas of the country. Unfortunately, we have not documented such practices. Such practices include, early warning, river training/ flood control/landslides control/management with the use of locally available materials. There is a great potentiality to enhance/ replicate such low cost mechanisms to reduce disaster risk in the country.

3.6 *Do you have any national public awareness programmes or campaigns on disaster risk reduction?*

Every year we commemorate the Earthquake Safety Day (Second week of January / 2 Magh of the Nepali Calendar) and ISDR Day on the second Wednesday of October. For the several years such days are celebrated not only at the central level but at the district levels as well. IDNDR day was commemorated in the previous decade through out the country. The Ministry of Home Affairs is seriously paying attention to raise awareness basically in the disaster prone areas.

Component –4

Risk Management Applications/Instruments

- 4.1** *Is there any good example of linking environmental management and risk reduction practices in your country (key areas of environmental management may include coastal zone, wetland and watershed management, reforestation and agricultural practices amongst other's)?*

So far no, however, the Tenth Plan has cast eyes over disaster reduction and environment linkage.

- 4.2** *Are financial instruments utilized in your country as a measure to reduce the impact of disasters (e.g. insurance/reinsurance, calamity funds, catastrophe bonds, micro-credit finance, community funds etc.)?*

Such financial mechanisms (Insurance etc) are non-existent in the country. However, at the national level there is a Disaster Relief Fund, which supports disaster relief/ rescue activities. The Central Disaster Relief Fund is managed by the Central Disaster Relief Committee, which is chaired by the Home Minister. Such fund is provided to the natural disaster victims as a means to meet the immediate need of the victims.

- 4.3** *Please identify specific examples of technical measures or programmes on disaster risk reduction that have been carried out in your country.*

Several initiatives have been implemented by different agencies in the country such as school earthquake safety measures, sabo countermeasures, bioengineering, embankment, terrace improvement and so on.

Component –5

Preparedness and Contingency Plan

- 5.1** *Do you have disaster contingency plans in place? Are they prepared for both national and community levels?*

Yes, we have prepared national plan of action on disaster management in 1996 and now we are in final stage to update it. Likewise, for the first time in Nepal, District Disaster Management Action Plans have been developed for few districts based on GIS multi-hazard mapping and vulnerability assessment.

- 5.2** *Has your government established emergency funds for disaster response and are there national or community storage facilities for emergency relief items-mainly food, medicine, tents/shelters?*

At the central level there is a Central Disaster Relief Fund, which is established according to the Natural Calamity (Relief) Act, 1982. This fund is disbursed to the disaster victims. Likewise, the Nepal Red Cross Society also has provision of such funds primarily for the disaster victims. Nepal Red Cross Society has also maintained storage facilities in different strategic location of the country, where they have stockpiles of such relief materials. From the Government side the expansion of the warehouses in five development regions is proposed to establish sooner.

- 5.3** *Who is responsible for the coordination of disaster response, preparedness and is the coordination body equipped with enough human and financial resources for the job? Please comment on the effectiveness of the coordination work done so far?*

So far, the Ministry of Home Affairs is responsible for the coordination of disaster relief/ rescue activities. Due to paucity of financial resources and inadequate legal backups the Ministry of Home Affairs is lacking to address the issue effectively. Therefore, there is a felt need in the country to enhance the comprehensive disaster relief/ rescue and preparedness/ mitigation activities in the country.

Component –6

Call for good Practices in disaster risk management

1. **Early warning system introduce in Tsho Rolpa Glacier Lake Flood**

Tsho Rolpa Glacier Lake is situated at an altitude of 4580 meters from the sea level. Water volume in this lake has been estimated to be 80 million cubic meters. It has been observed that the physical size of this lake has increased by five times since 1960. In 1997 Glacier Lake Outburst (GLOF) Specialist warned that the lake might burst in the summer of the same year, which may affect 18 VDCs of Dolakha and Ramechhap districts. Therefore, in view of the above danger, CDRC decided to adopt necessary countermeasures and constituted a "Tsho Rolpa Glacier Lake Water Induced Disaster Prevention Committee". As a result, some countermeasures were adopted in June 1997 which include:

- Reduction of the volume of water in the glacier by fixing five siphons and cutting down the mouth of the lake.
- Moving up the possible affecting inhabitants of the downstream by 20 meters from the Rolwaling riverbank.
- Establishment of the early warning system by installing sirens in 11 vital points.
- Establishment of surveillance posts and the team comprised of Royal Nepal Army, communication personnel and specialists from the DHM to carry out regular monitoring of the glacier out flow and to provide instant information to the concerned authorities.

2. **Community Based Disaster Management Programme (CBDMP)**

Inaccessibility to remote parts of the country causes most of the victims and injured ones to die in absence of medical care. The emergency relief materials often arrive too late or not at all.

Since 1996, UNDP and Nepal Red Cross have initiated the CBDMP in order to meet the annually increasing challenges of recurrent disaster in the country. This is a major shift from a stereo typed disaster management approach to a more holistic one that strengthens the community's capacity to cope with hazards by encouraging them to live with disaster. CBDMP model is heavily relied on social mobilization promoting indigenous knowledge on disaster mitigation and preparedness, which is based on more participatory, sustainable and cost effective approaches. The CBDMP is successful to mobilize the local expertise and resources through extensive consultations locally. It is also found to emerge as an avenue to link disaster with development and to help lessen the social conflicts in the country. In addition, this approach has not only helped the communities to be prepared to mitigate disaster but also helped the local disaster victims to be organized.

3. **The Kathmandu Valley Earthquake Risk Management Project (KVERMP)**

KVERMP is implemented with the objectives to evaluate Kathmandu Valley's earthquake risk and prescribe an action plan for managing it. The other areas of consideration included reduction of the public school's earthquake vulnerability; raising awareness among the people residing in the valley and building local institutions that could sustain the work of this project.

KVERMP has drawn a suggestive action plan to address the risk of earth quake in the Kathmandu valley. The other components such as School Earthquake Safety Program (SESP), Mason Training Program, Awareness Raising are regarded as the comprehensive programs with several advantages. The experiences through this programme are replicated in several cities around the world under the UN project RADIUS, and in several municipalities in Nepal as the Municipal Earthquake Risk Management Project.

Under SESP component, based on the survey of vulnerability assessment of about 1100 buildings of 643 public schools, it was discovered that the public schools that more than 60% of the buildings were highly vulnerable to operate even in normal conditions. It encouraged having a pilot program for retrofitting of one of the public schools in 1999, which lead more than 20 other schools in different parts of the country to retrofit their buildings. This Programme has also helped educate local masons in earthquake resistant construction techniques who later became the trainers to their own

communities. The experiences of this program have been translated into a technical manual in designing and implementing earthquake resistant school building constructions. Presently, exchanges have been made with similar initiatives in Kobe (Japan), Istanbul (Turkey), Bandung (Indonesia) and Uttranchal (India).

Awareness raising component of it has also been widely acclaimed. The notable among it is the 'Shake Table' model with earthquake-resistant elements produced by NSET, which usually sustains minor damage even at higher levels of shaking. These damages, when in real buildings, can be easily repaired after the earthquake without expecting any outside resources. This model is popular among the international NGOs, US agencies, Iran, Uttranchal and Himanchal Pradesh in India, Tajikistan, Afghanistan. This model has been recognized by the Tech Museum of San Jose, USA as an innovative technology and has awarded the prestigious Tech Museum Award under the Microsoft Education Award category.

4. Seismic Vulnerability Assessment of Hospitals of Nepal

The studies, based on its sample analysis, have shown that about 80% of the hospitals fall in the unacceptable performance category for new construction and remaining 20% of the hospitals are at life safety to collapse prevention performance level. It had recommended that the improvement in the seismic performance were very much necessary. The securing of all equipment and contents, strengthening of critical systems, training for hospital personnel and provisions of some backups in critical systems were proposed for implementation in the first phase. Seismic retrofitting of hospital buildings, further strengthening of critical systems and provision of extra back up systems were the activities for second phase. Considering the opportunity of immediate implementation of non-structural risk mitigation, some examples of mitigation options to solve the problems were developed during the study. As a result of its acceptability by the concerned agencies the Guidelines are also produced, which are being used as the training materials for such assessments.

Component –7

Priorities to be addressed at world conference on disaster reduction.

Following are the priority areas of the country:

- Emergency response planning and capacity enhancement,
- Strengthening policy and legal environment
- Efficient and effective reconstruction and rehabilitation.
- Institutional reform
- Human resources development in disaster preparedness

ANNEX -1

DISASTER RESPONSE ACTION PLAN MATRIX

S. No.	Priority Segment	Item and Activity	Current Status	Future Plan	Completion date	Lead Agency	Supporting Agency
A.	Evacuation, Search and Rescue	A1. Preparation of evacuation plan of public and other establishments	Incorporated in the housing policy.	<ul style="list-style-type: none"> Implementation of evacuation plan for public buildings Replication of such plans in other establishments Enforcement of evacuation plan for all buildings through local authorities. 	<ul style="list-style-type: none"> 2006 2008 2006 	MPPW	MoHA, MoLD
		A1.1 Rehearsals/simulation exercise	Already started	Will be extended to more geographical locations	Ongoing	MoHA, NRCS	UN, NGOs
		A2. Identification of emergency evacuation sites at local level	In process of identification in vulnerable districts	At least one site will be identified in the vulnerable district headquarter	2005	DDRC	CBOs
		A3. Formation of permanent search and rescue team at district and local levels.	Already formed in some identified vulnerable districts	Strengthen the teams with logistic and equipment support	Ongoing	MoHA, RNA, APF, NP	NRCS, DDRC, NGOs, CBOs
		A4. Capacity enhancement in search and rescue operation	Training for rescue personnel are conducted on annual basis	Training for rescue personnel, municipal police and other stake holders will be continued	Ongoing	MoHA, RNA, NP, APF	NS, NCC, SWC, NGOs, CBOs
B.	Emergency Need Assessment	B1. Formation of a permanent need assessment team at district level	Formed in all districts during disaster.	Permanent teams will be formed and capacity enhanced.	Ongoing	DDRC	
		B2. Preparation and dissemination of standard format on need assessment	Already prepared and disseminated to DDRCs	Further improvement will be done as required	Ongoing	MoHA, NRCS	
		B3. Training and orientation on need assessment	Already started in some districts	To be extended in other disaster prone districts	On going	DDRC	Other line agencies

C.	Communication and Transportation	C1.	Establishment of Emergency Operations Centre (EOC) at district level with access to the centre level	Not yet established; DDRRC communicates RDRRC and CDRC on an ad hoc basis	Establishment of well equipped and functional EOC at district and Central level	Central level EOC by 2005. District level in a phased manner.	MoHA	
		C2.	Equip EOC with necessary communication facilities	NA	Installation of necessary communication facilities at EOC	At the central level by 2005	MoHA	
		C3.	Communication network at the district level	Communication network exists for general purpose only	Installation of reliable communication facilities in the districts and the EOC	2006	MoHA	
		C4.	Preparation of inventory on logistics/ transportation facilities and its updating.	Already prepared in 1997	Will be updated	2005	UNDP	Other donors
		C5.	Procurement of appropriate transportation vehicles for rescue and relief operations	Only limited number of ambulances are available mostly in the urban areas	Procurement of more ambulances and vehicles for rescue and response	2008	CDRC, NRCS	DDRRC, private sectors and civil societies
D.	Temporary Settlement	D1.	Include open spaces in urban planning for post disaster temporary settlement sites	Identified in some districts	Will be identified in all districts	2006	MoPPW, Local bodies	
		D2.	Prepare settlement plan at local level	Already started in some areas	Will be continued	Ongoing	MoHA, MoPPW	
		D3.	Establish warehouses and stockpile light shelter materials (Plastic sheets, tents etc) at district level	Already established by NRCS in some strategic locations	Increase number of warehouses and stockpile light shelter materials	2008	NRCS, MoPPW	
E.	Health Preparedness for Survivor Response and Coping	E1.	Health Sector Emergency Preparedness and Response					
		a)	Include emergency preparedness and response component in health sector program implementation plan.	Process already initiated	Implementation of health sector emergency preparedness and response programme	Ongoing	MOHe	WHO
		b)	Develop Standing Operating Procedures (SOPs) to respond to health sector disaster.	Tools and reference for health emergency responders on progress	Develop full fledged SOPs	2005	MOHe	WHO
		c)	Extend emergency preparedness programs from central to regional and district level.	Training for district rapid response teams initiated	Will be continued	Ongoing	MOHe	NGOs

d)	Enhance capacity of hospitals and health facilities for responding to disasters.	Several medical and health workers have been trained	Capacity and health facilities of hospital will be enhanced	2006	MOHe, Hospitals, medical colleges	WHO,
e)	Formation of medical assistance team to counsel depressed victims.	Teams are formed as and when required	Strengthen capacity of the teams	Ongoing	MOHe, Hospitals, medical colleges	WHO, NGOs
f)	Implement seismic vulnerability reduction (structural and non-structural) measures in the major hospitals.	Assessment of 19 major hospitals (14 in Kathmandu Valley and 5 outside) already completed	Piloting of seismic vulnerability reduction in some hospitals.	2006	MOHe, Hospitals, medical colleges	WHO, NGOs
g)	Storage of emergency medicines and medical instrument at local level	Implemented	The storage of emergency medical supplies will be ensured	Ongoing	MOHe, Hospitals, medical colleges	WHO, NRCS,
h)	Setting up of mobile medical teams to respond to disaster.	Mobile health teams are deployed as and when necessary	Training to medical officers and nurses including other health workers will be continued	Ongoing	MOHe, Hospitals, medical colleges	NRCS, NGOs, WHO,
i)	Establish disaster unit in each public hospitals	Established in some hospitals	Establishment of disaster units in all hospitals	2006		MOHe, Public Hospitals
E2.	Sanitation and drinking water					
a)	Storage of bleaching powder for chlorination of water in temporary resettlement sites	Procured and stored according to the needs.	Will be maintained with adequate quantity	Ongoing	MOHe	Hospitals, medical colleges, UNICEF, WHO, I/NGOs
b)	Storage of polythene pipes at local level for drinking water supply	Provisioned in some districts.	Will be replenished	Ongoing	MoPPW	MoLD, NRCS,
E3.	Enhance coping mechanism skills	Some micro level training programmes have been organized	At least 50 local people are trained every year in sanitation in each district.	Ongoing	DDRC, NRCS,	I/NGOs, WHO,
E4.	Establish temporary Local Emergency Management Authority.	Established as and when required.	Will be continued	Ongoing	MoHA,	Other line agencies, NGOs

DISASTER PREPAREDNESS ACTION PLAN MATRIX

S.No.	Priority Segments	Items and Activities	Current Status	Future Plan	Completion date	Lead Agency	Supporting Agency/supporting agencies
A.	Reformulate appropriate Policy and Planning	A1. Identify responsible institutions.	Institutions are identified	Will be continued	Ongoing	MoHA	
		a) Establishment of the National Disaster Management Council (NDMC)	Not yet constituted	Establishment of a fully functional NDMC	2005	MoHA	NPC, MoF
		b) Finalize organizational structure, role and responsibility for disaster Management Committees/ Units/ agencies at central, regional, district and local levels.	Not yet developed.	Will be developed	2005	MoHA, MoLD	MoLJ, MoWR
		A2. Providing legal framework					
		a) Review existing laws on disaster management	Under progress.	A high-level committee will be formed for such reviews.	2005	CNDRC	NPC, MoHA, MoLJ, MoLD
		b) Prepare draft amendment and formulate new laws and by-laws on sustainable disaster management	Preliminary draft on River Management Policy and Disaster Management Policy are prepared.	Will be approved and implemented	2005	MoHA, CNDRC	MoLJ, NPC, MoWR,
		A3. Adapting National Policy and Plan					
		A3-1 Incorporate Disaster Management policy in 10 th Plan	A sub-chapter is especially entrusted for disaster management in the 10 th Plan				
		A3-2 Review of National Action Plan (NAP), 1996 on Disaster Management	Under progress	National Action Plan will be reviewed	2005	MoHA, NPC	Line ministries
		a) Prepare TOR for task force to review the NAP	Under progress	A comprehensive National Action Plan will be developed	2006	MoHA, NPC	Line ministries
b) Appoint national consultants/ task force for the review	Under progress	Will be appointed	2005	MoHA,	Line ministries and other disaster actors		

B.	Measures related to Geological, Hydrological and Meteorological Hazard Assessment	c)	Adoption of the NAP		Will be adopted	2006	NPC, MoHA	
		d)	Publish the NAP		Will be published and disseminated	2006	NPC, MoHA	
		B1	Earthquake Hazard					
		B1-1	Collect compile and disseminate Earthquake hazard maps	Seismic Hazard Map; Microseismic Epicentre Map and Himalayas and Adjoining Region, Epicentre Maps of Nepal have been completed.	Hazard maps will be update and distributed to line agencies.	2005	DMG	
		B1-2	Training support to National Seismological Network of DMG	Professional staffs have received trainings in different aspects of Seismological works.	Training support will be continued to include new emerging fields.	Ongoing	DMG	
		B1-3	Technical and financial support for micro seismic zonation study on selected geographical locations	Some initiations were made by installing several broadband and seismic stations.	Collection and analysis of data will be continued	Ongoing	DMG	
		B1-4	Establish and operate National Accelerometer Network.	Not yet done	This network will be used to study the effects of earthquakes.	2007	DMG	
		B1-5	Vulnerability assessment and retrofitting of selected public buildings such as hospitals, schools etc .	Carried out in several public buildings and the technique is disseminated to the concerned agencies.	Further vulnerability assessment of the public buildings will be initiated	2006	MoPPW, MoHe	DMG
		B1-6	Active fault inventory and monitoring	Active fault inventory of Nepal Himalaya is prepared.	Detailed studies will be carried out in new areas.	2008	DMG	
		B2.	Landslide hazard assessment					
		B2-1	GIS based Landslide hazard mapping of selected districts	Completed in Chitawan and Rupandehi districts	Will be continued in more disaster prone districts	Ongoing	DWIDP, DMG	DOLIDAR, DSCWM, TU
		a)	Identify priority areas	Priority areas identified, few hazard maps developed and information disseminated to concerned agencies.	Will be continued in more disaster prone areas.	Ongoing	DWIDP, DMG	DOLIDAR, DSCWM, TU

	b)	Establish standards for landslide hazard mapping	Completed			DMG	DOR,DSCWM, DOLIDAR
	c)	Assess existing data on landslides	Data collected in some districts	Will be conducted in more districts	Ongoing	DWIDP, DMG	
	d)	Introduce GIS/ remote sensing techniques for the detection of landslide prone areas	Completed in Chitwan district	Will be conducted in more landslide prone districts	Ongoing	DMG, DWIDP	NGOs, UN and other donors.
	e)	Collect, compile, produce and disseminate landslide hazard maps and reports	Landslide hazard maps prepared for some districts and disseminated	Will be conducted in more landslide prone districts	Ongoing	DWIDP, DMG	Other disaster actors
	B3.	Planned Engineering and Environmental Geological Studies					
	B3-1	Engineering and environmental geological mapping	Completed in few districts	Will be done in Makwanpur and Morang districts.	2007	DMG, DWIDP	
	a)	Kathmandu and Pokhara valley mapping	Completed	Will be conducted in other urban areas.	2007	DMG	
	B4.	Hydrological and meteorological hazard Studies					
	B4-1	Preparation of flood hazard map	Flood hazard maps of Bagmati and part of Tinau completed	Will be conducted in more areas	2006	DWIDP	MoWR, DHM, ICIMOD
	a)	Koshi, Mahakali, Babai, West Rapti, Rato, Lakhandehi, Kankai, Ratuwa etc	Not yet done	Will be carried out according to the priority	2007	DWIDP	MoWR, ICIMOD, DHM, JICA
	B4-2	Preparation of debris flow hazard map of Bagmati, Palung Khola, Trishuli, Agra, Belkhu, Malekhu etc	Not yet done	Will be carried out	2007	DWIDP	MoWR, TU, ICIMOD, JICA
C.	Health Preparedness for Survivor Response and Coping	C1. Health Sector Emergency Preparedness and Response					
	a)	Include emergency preparedness and response component in health sector program implementation plan.	Process already initiated	Implementation of health sector emergency preparedness and response programme	On going	MOHe	WHO

D.	Fire	b)	Develop Standing Operating Procedures (SOPs) to respond to health sector disaster.	Tools and reference for health emergency responders on progress	Develop full fledged SOPs	2005	MOHe	WHO, DHWG
		c)	Extend emergency preparedness programs from central to regional and district level.	Training for district rapid response teams initiated	Will be continued	On going	MOHe	NGOs
		d)	Enhance capacity of hospitals and health facilities for responding to disasters.	Several medical and health workers have been trained	Capacity and health facilities of hospital will be enhanced	2006	MOHe	WHO, Hospitals, Medical colleges
		i)	Establish disaster unit in each public hospitals	Established in some hospitals	Establishment of disaster units in all hospitals	2006	MOHe	WHO
		D-1	Fire hazard mapping	Not initiated	Will be carried out	2007	MoHA, MoLD	CAAN
		D-2	Research and mitigation of fire hazard during building construction and infrastructure	Not yet done	Will be conducted	2006	MoHA, MoLD	CAAN
E.	Awareness Raising Programmes (up to community level)	E1.	Awareness raising through mass media (Television, newspapers, radio bulletin etc)	Initiated at the central level	Will be expanded throughout the country	Ongoing	MOIC	MoHA, DWIDP, MoLD, and other disaster actors
		E2.	Distribution of disaster management awareness raising pamphlets, posters and other materials	Different types of materials has been published and distributed	Additional materials will be prepare and widely circulated.	Ongoing	MOIC	MoHA, DWIDP, MoLD other disaster actors
		E3.	Preparation of documentary film, slides for public show	Initiated by few organizations	Will be continued	Ongoing		All disaster actors
		E4.	Inclusion of disaster management related course in secondary schools and Higher level syllabus	Already commenced in few establishments.	Will be extended to higher level degree programmes	2007	MoES	
		E5.	Informal forms of awareness education such as poetry, debate and essay competition etc	Initiated in some schools	Will be extended to new educational institutions and the selected localities	Ongoing	MOES, NGOs	Other disaster actors
		E6.	Regional workshop, and national conference	Organized as and when needed	Will be organized annually	Ongoing		All actors including GO, NGOs, INGOs and professional societies

F.	Training/Rehearsals/ Simulation	F1.	Community-based disaster management training programme at local level	Organized regularly	Will be extended to more districts.	On going	MoLD, NRCS	NASC, UNDP, DDRC, other actors
		F2.	Training on disaster management at various level	Regularly organized by different organizations	Will be expanded in a large scale	Ongoing		All disaster actors
		F3.	Conduct rehearsals and simulations in vulnerable areas	Have been initiated at the Kathmandu Valley	To be expanded in more vulnerable districts/ areas of the country	Ongoing	RNA, Police, NRCS, NGOs	DDRC
G.	Disaster Management Information System	G1.	Establish and maintain a communication system in all 75 districts (HFNHF/IJHF-Transceiver System) with access to centre	Already started	Strengthen the capability	Ongoing	MOIC	MOHA, RNA, NP, APF, etc.
		G2.	Encourage, support and expand community level communication practice.	Exists in some disaster prone districts.	Will be extended to additional areas	On going	MOIC	MoLD
		G3.	Establish a National Disaster Management Information System for better disaster management planning.	Process has been initiated	A fully functional information management system will be established	2006	MoHA	NGOs, UN and other donors
H	Stockpiling emergency relief supplies and rescue equipments and personnel	H1.	Establish/manage emergency supply warehouses in 5 development regions at strategic location	Process has been initiated to establish at least one in Eastern Development Region	One Regional level warehouse will be established.	2005	MoHA, NRCS,	
		H2.	Replenish relief materials in warehouses	Regularly replenished	Will be continued	Ongoing	MoHA, NRCS	I/NGOs, UN and other donors
		H3.	Strengthen rescue team's capability	System is in place	Provide more equipments and training to upgrade the skills	Ongoing	MoHA, RNA, NP, APF,	NCC, Scout, I/NGOs, CBOs
		H4.	Training on warehouse management and supply of relief materials	NRCS has been conducting such trainings	Will be strengthened.	Ongoing	NRCS	DDRC, I/NGOs,

DISASTER RECONSTRUCTION AND REHABILITATION ACTION PLAN MATRIX

S.No.	Priority Segment	Priority Activities	Current Status	Future Plan	Completion date	Lead Agency	Supporting Agency
A.	Damage Assessment	A1. Preparation of standard and updated damage assessment format for recurring types of disasters developed by DDRC, in consultation with central level agencies, for rehabilitation and reconstruction.	MoHA and MoAC, have developed and updated the standard format in 2003. NRCS's format is updated in 2004. The formats are presently under implementation.	The format will be developed and updated on an annual basis.	Ongoing	<u>MOHe, MoHA</u>	MoPPW, MoAC, MoLD, NRCS, CDRC, DDRC, CBOs, NGOs
		A1.1 Pretesting of the damage assessment format.	Occasionally done by NRCS and MoHA.	Will be continued	Ongoing	<u>NRCS, MoHA</u>	MOHe MoPPW, MoAC, DDRC
		A2. Formation of permanent team for damage assessment at district level	Teams are formed only during the disasters.	Set up a permanent structure at the district level	2005	<u>CDRC, DDRC</u>	RDRC and local authorities
		A3. Orientation training for damage assessment format users	Very few so far.	Large scale training to cover more users	Ongoing	<u>NRCS, MoHA</u>	MOHe MoPPW, MoAC, MoLD
		A4. Collect, compile and disseminate information on extent of damage	System is in place	Update database system based on ATF and disseminate on yearly basis	Ongoing	<u>MoHA</u>	MoLD, DWIDP, DDRC, and other concerned agencies
B.	Planning/Programme for Rehabilitation and Reconstruction	B1. Formation of permanent technical subcommittee of DDRCs, inclusive of selected NGOs and CBOs, for rehabilitation and reconstruction planning and implementations at district level	Not yet done	Set-up such technical subcommittee under the chairmanship of LDO at district level.	2005	<u>MOHA, MoPPW, DDRC</u>	MoLD and all other HMG and none governmental institutions
		B2. Setup permanent sector wise/ disaster wise expert group for review of damage assessment for planning and programming.	Not yet done	Will be established	2005	<u>MOHA, MoAC</u>	MoHe, MoLD, MoES, other line agencies UN and other donor agencies

		B3.	Prepare, guidelines for resettlement rehabilitation and reconstruction	Some work has been initiated	Need to implement at all sites by all actors		<u>MoPPW</u>	NRCS, NGOs
		B3.	Prepare guideline and manuals for resettlement and rehabilitation of victims and for rehabilitation and reconstruction of physical infrastructure (eg. low cost disaster resistant housing, low cost sanitation measures etc.).	Some works including drafting of the manuals have been done.	Separate guidelines will be prepared for resettlement and rehabilitation of victims and for rehabilitation and reconstruction of physical infrastructure	2005	<u>MoPPW</u>	Line agencies as above and NRCS, NGOs
		B4.	Formulation of reconstruction and rehabilitation plans.	Not yet done	Such plans will be developed	2006	<u>DDRC</u>	As in B3
		B5	Implementation of above plans under the supervision of DDRCs technical sub committees.	Not yet done	Will be implemented	Ongoing	<u>DDRC</u>	DDRC's, Technical sub committees
		B6.	Formulation of rehabilitation plan for victims (disabled and orphan)	Not yet done	Specific rehabilitation plan for disable and orphan victims will be developed	2006	<u>MoES</u>	SWC, MoLT
		B7	Provisioning of adequate budget to implement the above plans and programmes.	NA	Adequate budget will be allocated on an annual basis.	Ongoing	<u>MoHA</u>	Concerned HMG agencies including and MoF
C.	Income Generating Activities	C1.	Identified possible area of income generating activities at local level.	Initiated in some districts	Will be carried out on priority basis	On going	<u>DDRC's</u>	CBO's, NGOs,
		C2.	Design special directives for loan with subsidized interest rate to disaster victims	System is in place	Will be updated	2006	<u>MoF, NPC</u>	Commercial banks
D.	Capability Assessment/ strengthening	D1.	Capability assessment of HMG organizations, NGOs CBOs and other concern stakeholders.	Capacity assessed in 1997	Will be updated annually	Ongoing	<u>MoHA, UN</u>	other donor agencies
		D2	Capacity strengthening of HMG organizations, NGOs, CBOs and other stakeholders	Not yet done	Will be strengthened	On going	<u>MoHA, UN</u>	other donor agencies
		a)	Disaster Inventory	Exists in micro level	Need to be expanded to the macro level	2006	<u>UN</u>	GOs, NGOs

DISASTER MITIGATION ACTION PLAN MATRIX

S.No.	Priority Segments	Priority Activities	Current Status	Future Plan	Completion date	Lead Agency	Coordinating Agency
A.	Mitigation Strategies	A1. Identification of major types of natural hazards	Already completed			<u>CDRC</u>	
B.	Financial Strategies	B1. Allocate financial resources annually for disaster mitigation activities in the national budget	Only few GOs have allocated resources for mitigation purpose	More resources have to be allocated to the concerned line ministries.	ongoing	<u>NPC, MOF</u>	
		B2. Encourage donor communities to contribute more resources in disaster mitigation activities.	Few agencies have been involved in disaster mitigation activities at micro level.	<ul style="list-style-type: none"> • Develop national disaster management strategy, • Identify national priority areas on DM, • Disseminate the strategy and priority areas to the donor communities for their consideration 	2005	<u>MOF, NPC, MoHA</u>	MoFA
C.	National Land Use and Land cover Plan	C1. Formulation of National Land Use and Land cover Plan and Policies at central and district level	Not yet done	Plan will formulated	2006	<u>MoFSC, NPC, MoWR,</u>	MoLRM, MoLD, DDC, Municipality, VDC
		C2. Implementation of Plan	NA	Will be Implemented	2007	<u>MoFSC, MoWR,</u>	MoLRM
D.	Construction of Earthquake resistant Building	D1. Formulation of building code and by-laws	National Building Code has been formulated	Will be implemented in all areas	2006	<u>MoPPW</u>	MoLD
		D2. Implementation of relevant national legislation	Not yet done	Will be formulated and implemented.	2006	<u>MoPPW</u>	MoLD and concerned GOs
E.	Risk Assessment	E1. Develop risk assessment programme for all types of disasters.	Initiated in small scale	Will be expanded.	Ongoing		Disaster stakeholders
		E2. Incorporate the results of risk assessment in development activities	NA	Will be taken up as an integral part of development initiatives	Ongoing		NPC and all development actors
F.	Policy on Disaster Reduction Measures	F1. Formulation of disaster reduction policies.					
		F1-1 National Disaster Reduction programme					
		a) Landslides debris flows and Floods	Has been initiated in micro level	Will be expanded to cover large geographical areas.	Ongoing	<u>DWIDP, DSCWM</u>	DoF

		b)	Earthquake	Seismic zonation has been completed and 21 earthquake monitoring centers have been established	Earthquake monitoring centres will be strengthened	Ongoing	<u>DMG</u>	MoPPW
		c)	Drought, epidemics, GLOF, cold wave, and other hazards	Very little done so far	Will receive adequate attention	Ongoing		Concerned line ministries and agencies
		F2.	<ul style="list-style-type: none"> Developing National Fire Code Strengthening fire fighting capabilities 	Not yet done	<ul style="list-style-type: none"> Comprehensive national fire code will be developed and implemented Fire fighting capabilities will be strengthened 	<ul style="list-style-type: none"> 2006 Ongoing 	<u>MoHA, MoLD</u>	
		F3.	Adoption of integrated policies for preparedness and mitigation	NA	Comprehensive policy for disaster preparedness and mitigation will be developed	2006	<u>NPC, MoHA, MoLD</u>	MoAC, MoFSC
G.	Partnership enhancement amongst stakeholders		Formulation of national plan on involvement of NGOs, CBOs, and private sectors in disaster risk reduction following areas					CDRC (NPC, SEC, FNCCI)
		a)	Community based disaster management approaches	Few agencies have developed policies on community-based disaster management	A comprehensive policy on Community-based disaster management will be developed and implemented	2005	<u>MoLD, NRCS</u>	NGOs, and other actors
		b)	Involvement of women and other socially disadvantaged groups	National level study has been completed on the impact of disaster on gender	Future programmes/ projects will be developed based on the specific needs of women and men	2005	<u>MoWCSW</u>	SWC, MoLD and Disaster actors
		c)	Local non-government organization	NA	Local NGOs/ CBOs will be consulted in formulating DM policies programmes	2005	<u>DDC</u>	GOs, SWC, NGOs
		d)	Efforts of private sector	NA	Private sectors will be consulted in formulating DM policies programmes	2005	<u>DDC</u>	GOs, FNCCI, NGOs
H.	Environment and Indigenous skills on Disaster Reduction	H1.	Incorporation of Environmental Impact Assessment and disaster impact assessment in all in development initiatives	EIA has been mandated in major development projects	DIA will be developed and made mandatory to all development projects	2005	<u>NPC</u>	MoF, MoEP, MoHA

		H2.	Application of traditional knowledge, practices and values of local community for disaster reduction	NA	Will be carried out	2005		NPC, concerned line ministries and agencies
		a)	Study on Indigenous knowledge and its dissemination	Information on IK on DM is scattered and scanty	Design and implement a national empirical study IK on DM and disseminate the results.	2006	<u>TU</u>	IoE, NASC
I.	Promotion of Regional and Sub-Regional Cooperation among Countries Exposed to similar hazards	I1.	Setup a joint committee of bilateral and multilateral on disaster risk reduction at the national level	Not yet done	A joint committee of bilateral and multilateral organizations will be formed to support initiatives in disaster risk reduction	2006	<u>NPC, MoHA</u>	
		I2.	Exchange information and share experiences on disaster risk reduction issues	Forums like Sectoral Working Groups and Disaster Preparedness Network are serving as information exchange platforms.	Strengthen and expand the works of such platforms	2005	<u>SWG, DP-Net,</u>	DDRC
		I3.	Implement disaster reduction strategies	Major issues related to disaster reduction are incorporated in the 10 th Plan	Comprehensive disaster risk reduction strategies will be developed and implemented	2006	<u>NPC, CDRC</u>	
J.	Establishment of Documentation Centre on Disaster management	J1.	Establish documentation centre for compiling collecting, publishing and disseminating information on disaster management	Not yet established	Well equipped disaster resource centre will be established	2006	<u>MoHA</u>	MoLD, NRCS

ANNEX -2

Synopsis of the provisions on Disaster Management in the Tenth Plan (2002-2007)

OBJECTIVES

- To make development and construction works sustainable, reliable and effective
- To keep life of the common people secured.

STRATEGIES

- Adopting suitable technology to minimize environment effects and losses due to disaster.
- Making rescue and relief reliable and effective
- Carrying out effective public awareness activities.
- Strengthening Earthquake measurement stations.
- Preparing hazard maps of vulnerable areas.
- Designating MoHA as the focal point of disaster activities.

PROGRAMME.

- Develop integrated information system in coordination with national and international agencies.
- Develop reliable database.
- Prepare institutional inventory
- Operate five regional warehouses with sufficient stockpile of relief materials.
- Develop national fire code.
- Prepare landslide inventory based on hazard maps and create epicenter map.
- Provide immediate information to common people of any mode of disasters.
- Adopt disaster preventive system.
- Offer instant counseling and rehabilitation to the victims.

WORKING POLICY

- Assessments of environmental and disaster impacts
- Enhance people's participation in watershed management and river control
- Timely reform legal and institutional frameworks.
- Effective implementation of regional programmes.
- Harness participation of stakeholders in all areas of disaster reduction.
- Increase public awareness

EXPECTED ACHIEVEMENTS

- Cordial relations will be established among national and international partners.
- Effective sharing of disaster information and experiences.
- Reduction of damages
- Hazard maps will help identify vulnerability thereby contributing to lessen the loss of lives and property.
- Strengthened rehabilitation works and immediate availability of relief materials to the victims.

Annex 7a

**Disaster Management Policy
Final Draft**

Submitted to

**Government of Nepal, Ministry of Home Affairs
and
National Planning Commission**

Jointly by



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POLICY ON DISASTER MANAGEMENT

1. Background

Nepal is a disaster prone country and it has been facing different disasters every year. Due to the geologic, geographic and climatic conditions of the country majority of the people are exposed to one or the other kind of disaster risks at any time. Available data from the last three decades demonstrates that a significant number of human lives are lost and physical infrastructure damaged every year due to disasters. Nepal suffers annually to monsoon floods, landslides, and epidemics. In addition, it remains highly vulnerable to disasters like earthquakes, fire, draught, famine, glacial lake outburst flood (GLOF), windstorms, hailstorms, thunderstorms, hot and cold waves etc. Several natural and human factors are responsible for the occurrence and high impact of disasters in the country. Encroachments along the riverbanks and floodplains and unplanned land use patterns in the watersheds of hills and mountains exacerbate the impacts of disaster and accelerate soil erosion problems. The nation's development efforts and poverty alleviation programmes are being negated by frequent disasters. Hence, increased focus on mainstreaming disaster risk reduction in development plans is needed to protect lives and property, as well as to sustain development benefits.

The factors such as (i) Very little public awareness; (ii) insufficient preparedness work; (iii) lack of coordination among related agencies; (iv) inadequate financial resources; and (v) limited use of available indigenous knowledge, skills and coping capacity have inhibited mitigation of disaster impacts in the country. The community based disaster management programmes, which have been implemented in some parts of the country are found to be effective and therefore needs replication in other areas. Underprivileged groups of people are found to be more prone to disasters as majority of them reside in vulnerable areas. Only rescue and relief operations have received priority in the field of disaster management so far. Therefore, the activities concerned with preparedness, reconstruction and rehabilitation also need to be sufficiently addressed in the future.

2. Vision

Transformation of Nepal into a country safe from disasters.

3. Objectives

1. To manage hazards and reduce the vulnerability and risk of disaster to protect and minimize the loss of life and property thereby alleviating human suffering through effective responses at all levels of disaster management.
2. To contribute in poverty alleviation through effective disaster management.
3. Mainstreaming disaster risk reduction as priority action to attain sustainability of development activities of the nation and recognizing disaster management consideration as a precondition variable before undertaking development projects.

4. To minimize the impact of disaster on the environment and also to prevent and mitigate the impacts of earthquakes and other recurring disasters including water induced disasters, draught, landslides, fire, epidemics, thunderbolts, cold and hot waves and others.
5. To strengthen the coping capacity of communities to mitigate the impacts of disasters through knowledge based preparedness programmes.
6. To improve disaster governance in the country.

4. Strategy

The following strategies shall be adopted to accomplish the above mentioned objectives.

1. Emphasize disaster preparedness and mitigation activities,
2. Ensure, reliable and effective rescue and relief operations,
3. Restore livelihoods of the affected communities and facilitate timely completion of reconstruction and rehabilitation activities,
4. Adopt right based approach to the affected people in disaster response activities,
5. Apply advanced technologies to protect communities from disasters,
6. Provide special attention for protecting poor, marginalized and special need population from disasters and help them to restore livelihoods by extending income generating opportunities,
7. Incorporate disaster management components as an integral part of national development, policies, plans and programmes,
8. Formulate and update National and sectoral Disaster Management Plans,
9. Introduce disaster impact assessment in development projects,
10. Prepare hazard and risk maps of vulnerable areas for different kinds of disasters,
11. Build physical infrastructure that are resistant to disasters,
12. Utilize water to ensure conservation of natural resources and protection of the environment,
13. Develop sector specific strategies to address disaster related issues in agriculture and food security, livelihoods, health services, physical infrastructure, water supply and sanitation, information and communication, logistics, gender and social inclusion, human resource development and other crosscutting sectors,
14. Adopt environment-friendly approaches in infrastructure and other development activities to reduce the occurrence and impact of disasters,
15. Enhance public awareness on disaster management,
16. Provide education and training down to the grass roots level on disaster management to strengthen the coping capacity of the people ,

17. Give priority to community engaged disaster management programmes,
18. Make the disaster management activity financially sustainable,
19. Develop effective legal instruments for disaster management,
20. Develop appropriate institutional framework for effective implementation of disaster management activities,
21. Strengthen participatory processes and encourage networking among stakeholders.

5. Policy

Disaster management shall be recognized as a national and local level priority and also taken as a continued and sustainable activity. The emphasis shall be on promotion of a culture of safety, strengthening and optimum utilization of local skills, resources, capacities and technologies to lessen the impact of disasters. The community shall be an entry point of all disaster management related activities.

During all the three phases of disaster management such as preparedness, response and recovery, special priority shall be given but not limited to the special need population such as children, women, senior citizens, differently abled and underprivileged groups.

The Government shall seek partnership with national stakeholders, friendly countries and international organizations to supplement its efforts in management of disasters. The commitments made by the Government in several international forums shall also be honoured accordingly.

5.1 Preparedness and Mitigation

Public awareness programmes shall be carried out through the effective and maximum use of media; interaction and consultations; education; and other informal means to sensitize the people about disasters. The nongovernmental sector, civil society and community based organizations; and local social groups shall be encouraged to undertake such activities.

The media networks shall be effectively utilized in disaster preparedness works to disseminate information on weather, and probability of occurrence of disasters to help prevent people from possible consequences. All forms of communication shall be kept in running condition during the potential disaster seasons.

The Government shall strengthen the information and communication network through the establishment of resource centres.

Emphasis shall be given to educate people and the community to properly act during disasters through rehearsals, mock-up drills, and simulation exercises.

Strengthening of the local coping capacity, extension of indigenous knowledge and skills, and the implementation of community based programmes shall be taken up on a priority basis to mitigate the impacts of disaster. It shall also be supplemented by the application of suitable advanced technologies in the field of disaster risk reduction.

Special programmes shall be initiated for protecting poor and underprivileged people who are incapable of coping with the disasters.

Establishment of regional response centres to monitor the disaster incidences in the country and prompt mobilization of critical facilities such as fire brigade, ambulance and other machinery and equipment shall be ensured. Similarly, adequate stocks of rescue and relief materials shall also be stored at appropriate locations.

A national land use plan of the country shall be formulated and implemented.

Hazard and risk maps of disaster prone areas; and vulnerability and capacity assessment, especially at the local level, shall be prepared and implemented accordingly.

Strengthen and extend facilities for research and development in the fields of seismology, hydrology and meteorology and remote sensing for disaster preparedness and mitigation including early warning system.

Water disaster management system shall be made fully functional, effective and responsive to people's needs by undertaking programmes related with mapping; zoning; networking of information system; community level preparedness; relief and rehabilitation; and mitigation of water related hazards.

Health sector preparedness plans shall be formulated at both public and private levels to ensure adequate health care facilities during disaster and also preventing epidemics at all levels.

Settlements, which are located in disaster prone areas such as riverbanks and floodplains or on steep, landslide prone terrain, shall be relocated to safer areas.

5.2 Search, Rescue, Relief and Immediate Response

Response Action Plans shall be immediately formulated in consultation with stakeholders for the central and field level activities and shall be implemented and continuously followed up. The preliminary loss and damage assessment shall also be made accordingly.

Search and rescue teams shall be promptly mobilized by involving security personnel, groups of skilled people, and local representatives of political parties, local bodies, national and international NGOs, community organizations, volunteer groups, etc.

The personal security and access to essential services shall be made for all affected people with priority to children, women, senior citizens and differently abled people by creating sufficient shelter and sanitation facilities.

Health support activities shall be activated realising the importance of 'golden hours', to minimize morbidity, mortality and disability of affected people by providing timely on-site health care facilities or transporting them to better equipped hospitals. Establishment of temporary field level hospitals or health camps shall be undertaken as required. Public and private medical institutions shall also be mobilized for the purpose.

Government shall prepare its own standard norms of relief packages taking into consideration international practices such as Sphere standards. These packages shall be distributed to the affected people irrespective of their caste, creed, religion, community or sex. Every affected citizen shall have the right to receive relief packages and materials.

Reliable and effective communication systems shall be established. Media shall be encouraged to disseminate correct information in the event of disasters.

Regular assessment of relief distribution shall be carried out and adjusted accordingly.

5.3 Rehabilitation and Reconstruction

Rehabilitation and reconstruction plans shall be drawn on the basis of the detailed damage assessment of the disaster. The timely completion of the rehabilitation and reconstruction works shall also be ensured. The rehabilitation and reconstruction works shall ensure proper use of disaster resistant technologies. Settlements may also have to be relocated as required.

Suitable grant and/or soft loan packages shall be extended to rehabilitate the affected communities to repair and reconstruct their private houses and damaged properties. Livelihood improvement programmes shall be launched for all affected people by introducing income generating activities, including few special programmes to help poor, marginalized and special need population.

Psychosocial debriefing process shall be carried out for the affected people. Alternate health care facilities shall also be provided till the impacted people are fully recovered.

The Government shall provide necessary agriculture inputs and extension services and facilitate the affected people to restore their agricultural activities.

5.4 Planning, Programming and Monitoring

Disaster risk reduction component shall be embodied in the national as well as local level development policies, plans and programmes and updated regularly.

A comprehensive Disaster Management Plan for the country shall be formulated. The development sectors of the government shall be directed to have their

individual sector specific disaster management plans also covering cross cutting areas of their concerns. Besides, the nongovernmental sectors shall be encouraged to have their own plans. The contingency plans shall also be developed as necessary.

All new physical infrastructures shall have to be environment-friendly and earthquake resistant, and have to pass disaster impact assessment. The elements of disaster risk reduction shall be made mandatory in all development projects. Similarly, retrofitting residential houses, other physical infrastructures and public buildings including schools, hospitals, and offices shall be given special priority.

A reliable mechanism shall be developed in collection, compilation and dissemination of disaster related data and information.

5.5 Human Resource Development

The activities of agencies working in disaster management shall be coordinated to produce a synergetic effect.

Trainings shall be conducted, especially at the local level, in the areas of preparedness, rescue, relief, medical services, risk and capacity assessment, and other relevant fields. Nongovernmental sector shall be encouraged to establish new institutions to conduct training and research in the field of disaster management.

Educational institutes shall be encouraged to include disaster related curriculum in formal education.

Attempts shall be continually made towards enhancement of disaster related knowledge. In this regard constant follow-up of world events, technologies, climate change, and other relevant information shall be made and accordingly updated.

6. Financial Arrangement

Adequate funds shall be ensured for carrying out disaster management activities at all times.

A modality shall be developed for sharing of expenses between the Government and beneficiaries in disaster management. New options for generating additional financial resources shall also be explored which may include micro finance and loans, bonds and tax saving schemes.

Implementation of insurance schemes on disaster shall be encouraged.

The financial contributions made by institutions and individuals for the affected people or other disaster management activities shall be exempted from tax.

7. Governance

7.1 Legal Instruments

A new and comprehensive Act on disaster management shall be promulgated, and subsequent Regulations shall also be enforced. Similarly, ambiguities on disaster related issues provisioned in different Acts and Regulations shall also be rectified.

Drafting and updating of the policies, plans, laws, codes (e.g. fire, building codes etc.), implementing procedures, and manuals shall receive preference.

7.2 Institutional arrangement

An autonomous central and nodal institution, Disaster Management Council (DMC), shall be established with full responsibility to carryout all facets of disaster management inter-alia formulation, implementation, supervision and monitoring of the policies, plans and other procedural matters. The Council shall be headed by the Prime Minister and the Executive Director serves as the member secretary in the DMC. The Secretariat of the DMC shall be in Kathmandu and establish its contact with the government through the Office of the Prime Minister and Council of Ministers. The composition of the DMC is stated in Annex 1.

Three Committees, namely (i) Preparedness; (ii) Rescue and Relief; and (iii) Reconstruction and Rehabilitation shall be formed under the convenorship of the Ministers of Local Development, Home Affairs, and Physical Planning and Works respectively. These Committees shall perform their works independently. The Executive Director of the DMC serves as the member secretary in all of these Committees. The composition of the Committees is stated in Annex 2.

At the field level, District Disaster Management Committees (DDMCs) shall be established in all districts under the Chairmanship of the Chief District Officer. These committees shall be responsible to carryout all activities concerned with disaster management in the district. The DDMC shall have the authority to form subcommittees as necessary. The DDMC shall also have the representation of the President of the District Development Committee (DDC) or his/her nominee and the Local Development Officer serves as its member secretary. The composition of the DDMC is stated in Annex 3.

In order to implement, coordinate and supervise all disaster management activities at the field level, the disaster management related units shall be constituted in the District Administration Offices, DDCs, and Village Development Committees (VDCs).

Local Disaster Management Committees (LDMCs) shall be constituted at the municipality or village level. The LDMC shall be headed by the Mayor or the Chairman of the VDC. The LDMC can constitute the ward level sub committees as required. Preference shall be given to women or disadvantaged groups to head and or participate in such committees and sub committees. The composition of the LDMC is stated in Annex 4.

Teams for disaster management, search and rescue, damage assessment, medical response and similar other volunteer groups shall be formed at all levels and promptly deployed as necessary during disasters.

The Government shall ensure the support and participation of the local bodies; Nepal Red Cross Society, community-based organizations, communities, national and international nongovernmental organizations (NGOs); private sector; civil society, academia and professional experts in all aspects of disaster management. Their roles shall also be clearly defined through the legal provisions. The participatory process shall be further strengthened by establishing effective networks like the existing Disaster Preparedness Network in the areas of preparedness.

An effective coordination shall be ensured among related government organizations on disaster management such as Ministry of Home Affairs; Departments of Water Induced Disaster Prevention, Hydrology and Meteorology, Mines and Geology, Irrigation, Health, Agriculture, Roads, Urban Housing Development etc.

7.3 *Operating Procedure*

Decentralization, devolution of authorities and active participation of stakeholders shall be the operating model of disaster management.

Standard Operating Procedures and respective guidelines shall be developed and implemented to facilitate effective implementation programmes at all phases of disaster management.

The operating procedures shall be simplified for emergency situations. Customs clearance procedures shall also be simplified and duty free provisions shall be granted for the import of relief materials from donors.

Government shall adopt one stop policy in all matters related with disaster management.

Each ministry of the Government shall have a focal unit responsible for disaster related matters, which shall closely liaise with the DMC secretariat.

The graphic representation of the operating procedure is stated in Annex 4

Annex 1
Disaster Management Council

1.	Prime Minister	Chairman
2.	Minister for Home Affairs	Vice Chairman
3.	Minister for Defense	Member
4.	Minister for Local Development	Member
5.	Minister for Physical Planning and Works	Member
6.	Vice-Chairman, National Planning Commission	Member
7.	Chief of Army Staff, Nepalese Army	Member
8.	Chief Secretary	Member
9.	Secretary, Ministry of Home Affairs	Member
10.	Secretary, Ministry of Finance	Member
11.	Secretary, Ministry of Health and Population	Member
12.	Secretary, Ministry of Women, Children & Social Welfare	Member
13.	Secretary, Ministry of Water Resources	Member
14.	Secretary, Ministry of Forest & Soil Conservation	Member
15.	Secretary, Ministry of Environment, Science and Technology	Member
16.	Secretary, Information and Communication	Member
17.	Secretary, Ministry of Industry, Commerce & Supplies	Member
18.	Inspector General, Nepal Police	Member
19.	Inspector General, Armed Police Force	Member
20.	President, Nepal Red Cross Society	Member
21.	President, Association of District Development Committee of Nepal (ADDCN)	Member
22.	President, Municipalities Association of Nepal (MUAN)	Member
23.	President, National Association of Village Development Committees (NAVDC)	Member
24.	Chairperson, Federation of Nepal Chamber of Commerce and Industries (FNCCI)	Member
25.	Member secretary, Social Welfare Council (SWC)	Member
26.	Chief Commissioner, Nepal Scout	Member
27.	Three members nominated by the Government from among the Non Government Organizations working in the field of disaster management	Member
28.	Two disaster management experts nominated by the Government	Member
29.	Executive Director	Member Secretary

Annex 2

Disaster Management Committees

(A) Preparedness Committee

1.	Minister for Local Development	Convener
2.	Member in charge of disasters, National Planning Commission	Deputy Convener
3.	Secretary, Ministry of Home Affairs	Member
4.	Secretary, Ministry of Physical Planning and Works	Member
5.	Secretary, Ministry of Agriculture and Cooperatives	Member
6.	Secretary, Ministry of Finance	Member
7.	Secretary, Ministry of Information and Communication	Member
8.	Secretary, Ministry of Education and Sports	Member
9.	Secretary, Ministry of Local Development	Member
10.	Secretary, Ministry of Environment, Science and Technology	Member
11.	Major General, Nepalese Army	Member
12.	Additional Inspector General, Nepal Police	Member
13.	Additional Inspector General, Armed Police Force	Member
14.	Director General, Department of Soil Conservation and Watershed Management	Member
15.	Director General, Department of Mines and Geology	Member
16.	Director General, Department of Hydrology and Metrology	Member
17.	Director General, Department of Water Induced Disaster Prevention	Member
18.	Director General, Department of Forests	Member
19.	Director General, Department of Urban Development and Building Construction	Member
20.	Director General, Department of Health Services	Member
21.	President, Nepal Red Cross Society	Member
22.	President, ADDCN	Member
23.	President, MUAN	Member
24.	President, NAVDC	Member
25.	Member secretary, SWC	Member
26.	Three members nominated by the Government from among the Non Government Organizations working in the field of disaster management	Member
27.	Two disaster management experts nominated by the Government	Member
28.	Executive Director	Member Secretary

(B) Rescue and Relief Committee

1. Minister for Home Affairs	Convener
2. Minister for Health and Population	Deputy Convener
3. Minister for Physical Planning and Works	Member
4. Minister for Local Development	Member
5. Secretary, Ministry of Defense	Member
6. Secretary, Ministry of Home	Member
7. Secretary, Ministry of Finance	Member
8. Secretary, Ministry of Foreign Affairs	Member
9. Secretary, Industry, Commerce and Supplies	Member
10. Secretary, Ministry of Information and Communication	Member
11. Lt. General, Nepalese Army	Member
12. Director General, Department of Mines and Geology	Member
13. Director General, Department of Water Induced Disaster Prevention	Member
14. Director General, Department of Urban Development and Building Construction	Member
15. Director General, Department of Agriculture	Member
16. Director General, Department of Livestock Services	Member
17. Inspector General, Nepal Police	Member
18. Inspector General, Armed Police Force	Member
19. President, Nepal Red Cross Society	Member
20. President, ADDCN	Member
21. President, MUAN	Member
22. President, NAVDC	Member
23. President, FNCCI	Member
24. Chief Commissioner, Nepal Scout	Member
25. Two members nominated by the Government from among the Non Government Organizations working in the field of disaster management	Member
26. Two disaster management experts nominated by the Government	Member
27. Executive Director	Member Secretary

(C) Reconstruction and Rehabilitation Committee

- | | |
|---|------------------|
| 1. Minister for Physical Planning and Works | Convener |
| 2. Member in charge of disasters, National Planning Commission | Deputy Convener |
| 3. Secretary, Ministry of Local Development | Member |
| 4. Secretary, Ministry of Finance | Member |
| 5. Secretary, Ministry of Defense | Member |
| 6. Secretary, Ministry of Physical Planning and Works | Member |
| 7. Director General, Department of Agriculture | Member |
| 8. Director General, Department of Water Induced Disaster Prevention | Member |
| 9. Director General, Department of Urban Development and Building Construction | Member |
| 10. Director General, Department of Irrigation | Member |
| 11. Director General, Department of Forests | Member |
| 12. President, Nepal Red Cross Society | Member |
| 13. Two members nominated by the Government from among the Non Government Organizations working in the field of disaster management | Member |
| 14. Two disaster management experts nominated by the Government | Member |
| 15. Executive Director | Member Secretary |

Annex 3
District Disaster Management Committee

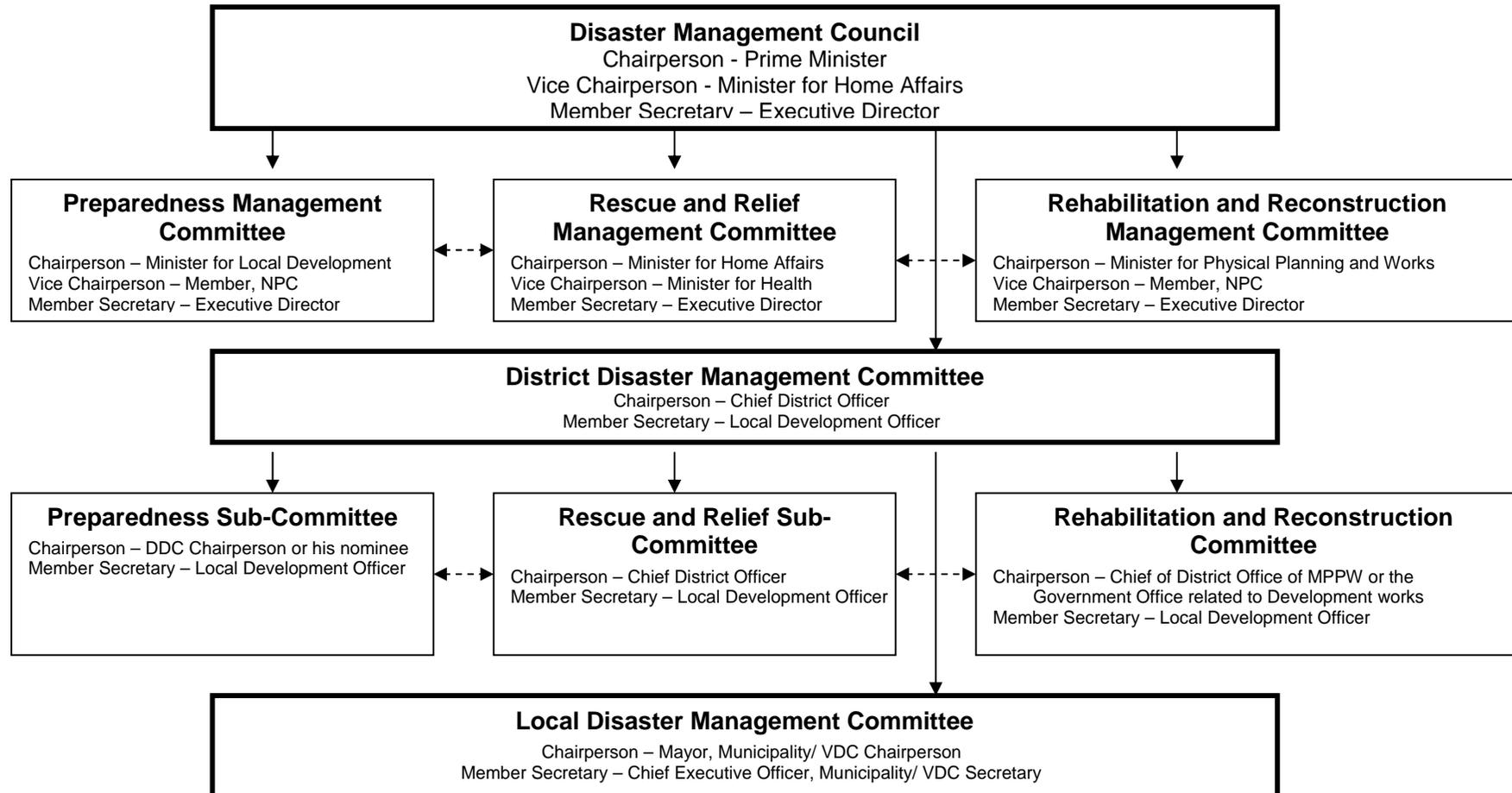
- | | | |
|-----|---|------------------|
| 1. | Chief District Officer (CDO) | Chairperson |
| 2. | President of the DDC or his nominee | Member |
| 3. | Chiefs of the district level Government Offices | Member |
| 4. | Chiefs of the district level Security Offices | Member |
| 5. | Chief of the district level Nepal Red Cross Society | Member |
| 6. | Representative of the district level national political parties | Member |
| 7. | Mayor, Municipality | Member |
| 8. | Three Chairpersons of VDC nominated by the DDC | Member |
| 9. | Three persons nominated by the CDO from among the district level national and international nongovernmental organizations, social institutions and distinguished social workers | Member |
| 10. | Two district level disaster management experts | Member |
| 11. | Local Development Officer | Member Secretary |

Annex 4
Local Disaster Management Committee

- | | |
|---|------------------|
| 1. Mayor, Municipality/ Chairperson of the concerned VDC | Chairperson |
| 2. Three Ward Chairpersons nominated by the Municipality/ Village Councils | Member |
| 3. Ward Chairperson of the disaster affected wards | Member |
| 4. Two Ward members from among the Ward members nominated by the Municipality/ Village Councils | Member |
| 5. Representatives of the municipality/ village level national political parties | Member |
| 6. Three persons nominated by the municipality/ village council from among municipality/ district level national and international nongovernmental organizations, community organizations, social institutions and distinguished social workers | Member |
| 7. Two locally available disaster management experts nominated by Municipality/ Village Council | Member |
| 8. Chief Executive Officer of the Municipality/ Secretary of VDC | Member Secretary |

Annex 5

OPERATING STRUCTURE



Annex 7b

**Disaster Management Policy
Final Draft**

Submitted to

**Government of Nepal, Ministry of Home Affairs
and
National Planning Commission**

Jointly by



**Nepal Centre for Disaster Management
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विपद् व्यवस्थापन नीति

Disaster Management Policy

१. पृष्ठभूमि

नेपाल विपद्बाट प्रभावित भईरहने देश हो र हरेक वर्ष यसले विभिन्न प्रकारका विपद्हरूको सामना गरिरहनुपरेको छ । देशको भौगर्भिक, भौगोलिक तथा हावापानीजन्य अवस्थाले गर्दा बहुसङ्ख्यक नेपालीहरू हर समय एक वा अर्को विपद्को सम्भावित जोखिमयुक्त अवस्थाबाट गुज्रिरहेका हुन्छन् । प्रत्येक वर्ष विपद्बाट उल्लेख्य सङ्ख्यामा मानिसको निधनको साथै भौतिक पूर्वाधारहरूको ठूलो क्षति भईरहेको कुरा विगतका तीन दशकका उपलब्ध आँकडाहरूले प्रष्ट पार्दछ । नेपाल मनसुनी बाढी, पहिरो तथा महामारीबाट वर्षेनी प्रभावित हुने गरेको छ । यसका अतिरिक्त भूकम्प, आगलागी, सुख्खा, अनिकाल, हिमताल विष्फोटनबाट हुने बाढी, आँधीबेहरी, असिना, चट्याङ्ग, उष्ण तथा शितलहर आदि जस्ता विपद् तर्फ सदैव सङ्घट्टाभिमुख (vulnerable) समेत रहेको छ । देशमा विपद् दोहोरिदै जानु र यसबाट प्रतिकूल प्रभाव बढ्दै जानुमा विविध प्राकृतिक एवं मानवजन्य कारणहरू जिम्मेवार छन् । नदी किनारा एवं बगरहरूको अतिक्रमण, डाँडा पाखाका जलाधारक्षेत्रहरूमा योजना बेगर भू-उपयोग गर्ने प्रवृत्तिले विपद्को दुष्प्रभावलाई बढाउँदै भूक्षयजन्य समस्या अझ चर्को बन्दै गएको छ । बारम्बार घटिरहने विपदले गर्दा देशको विकास प्रयास तथा गरिबी निवारण कार्यक्रमलाई नकारात्मक असर परिरहेको छ । त्यसकारण जिउधनको सुरक्षार्थ तथा विकासको प्रतिफललाई दिगो राख्न विपद् जोखिम न्यूनीकरणलाई विकास योजनाको मूलधारमा समावेश गराउने तर्फ बढी केन्द्रीत हुनु आवश्यक हुने देखिन्छ ।

मुलुकमा विपद्को प्रभावलाई कम गर्न (क) जनचेतनाको कमि, (ख) अपर्याप्त पूर्वतयारी कार्य, (ग) सम्वद्ध संस्थाहरूबीच समन्वयको कमि, (घ) अपुग वित्तीय स्रोत, र (ङ) समुदायमा विद्यमान ज्ञान, सीप तथा विपद्को सामना गर्न सक्ने क्षमताको सिमीत प्रयोग, आदि तत्वहरू वाधक बनेका छन् । देशका केही भागमा कार्यान्वयन गरिएको समुदायमा आधारित विपद् व्यवस्थापन कार्यक्रमहरू प्रभावकारी पाइएकाले यस्तो कार्यक्रमहरू अन्य क्षेत्रहरूमा पनि पुनरावृत्ति गर्दै लानु उपयुक्त हुने देखिन्छ । बहुसङ्ख्यक पिछ्छडिएका समूहहरू संकटाभिमुख क्षेत्रमा बसोवास गर्ने हुनाले विपद्बाट बढी रूपमा प्रभावित हुने गरेको पाइएको छ । विपद् व्यवस्थापन क्षेत्रमा हालसम्म उद्धार तथा राहत कार्यले मात्र बढी प्राथमिकता पाइरहेको स्पष्ट छ । तसर्थ, पूर्वतयारी, पुनर्स्थापना तथा पुनर्निर्माणसम्बन्धी कार्यहरूलाई पनि आगामी दिनमा पर्याप्त मात्रामा सम्बोधन गरिनु पर्ने देखिन्छ ।

२. दीर्घकालीन सोच

नेपाललाई विपद्बाट सुरक्षित देशका रूपमा रूपान्तरण गरिने छ ।

३. उद्देश्यहरू

१. विपद् व्यवस्थापन सम्बन्धी हरेक तहका कार्यहरूलाई प्रभावकारी रूपमा सम्बोधन गर्दै धनजनको सुरक्षा एवं हुनसक्ने क्षतिबाट जोगाउन सङ्कट व्यवस्थापन (Hazard Management), सङ्कटाभिमुखता एवं विपद्को जोखिमको न्यूनीकरण (Disaster Risk Reduction) सम्बन्धी कार्यहरू सन्चालन गरी जनसमुदायको दुःखलाई कम गर्ने,
२. प्रभावकारी विपद् व्यवस्थापनका माध्यमबाट गरिबी निवारणमा योगदान पुर्याउने,
३. विपद् जोखिम न्यूनीकरणसम्बन्धी कार्यलाई प्राथमिकताकासाथ मुलुकको विकास कार्यलाई दिगो बनाउने मूलधारमा समाहित गराउने र विकास आयोजनाहरूको चयन गर्दा विपद् व्यवस्थापनसम्बन्धी विषयहरूलाई समेत अनिवार्य रूपमा समावेश गर्ने ,
४. विपद्बाट वातावरणमा पर्ने प्रभावलाई कम गर्ने तथा भूकम्प एवं बारम्बार पर्ने आउने जल उत्पन्न, खडेरी, पहिरो, आगलागी, महामारी, चट्याङ्ग, उष्ण तथा शितलहर आदिको नियन्त्रण वा त्यसबाट हुने प्रभावलाई कम गर्ने,
५. ज्ञानमा आधारित पूर्वतयारीका कार्यक्रमहरूद्वारा विपद्को प्रभाव कम गर्न जनसमुदायहरूको विपद् सामना गर्न सक्ने क्षमता (Coping Capacity) लाई सशक्त बनाउने,
६. देशको विपद् सम्बन्धी शासन व्यवस्था (Governance) मा सुधार ल्याउने ।

४. रणनीति

उपर्युक्त उद्देश्यको परिपूर्तिका लागि निम्न रणनीतिहरू अवलम्बन गरिने छन् :

१. विपद् सम्बन्धी पूर्वतयारी तथा न्यूनीकरण क्रियाकलापमा जोड दिने,
२. भरपर्दो एवं प्रभावकारी उद्धार तथा राहत कार्य सुनिश्चित गर्ने,
३. प्रभावित जनसमुदायको जीवनवृत्तिलाई पूर्वस्थितिमा ल्याउन एवं पुनर्स्थापना तथा पुनर्निर्माण कार्यलाई समयमा सम्पन्न गर्न सघाउने,
४. विपद् सम्बोधन (Disaster Response) सम्बन्धी क्रियाकलापमा प्रभावित जनसमुदायको अधिकारमा आधारित पद्धति अवलम्बन गर्ने,
५. जनसमुदायलाई विपद्बाट जोगाउनका लागि उपलब्ध उन्नत प्रविधिको प्रयोग गर्ने ।
६. गरिब, सीमान्त तथा विशेष ध्यान दिन आवश्यक जनसमुदायलाई विपद्बाट जोगाउन विशेष व्यवस्था गर्ने तथा तिनीहरूको जीवनवृत्तिलाई पुनर्स्थापना गर्न आयमूलक अवसरहरू प्रदान गर्ने,
७. विपद् व्यवस्थापन सम्बन्धी कार्यहरूलाई राष्ट्रिय विकास नीति, योजना तथा कार्यक्रमहरूको एक आधिक पक्षको रूपमा अवलम्बन गरी समावेश गर्ने,
८. राष्ट्रिय तथा क्षेत्रगत विपद् व्यवस्थापन सम्बन्धी योजनाहरू तर्जुमा एवं अद्यावधिक गर्ने,

९. विकास आयोजनाहरूमा विपद् प्रभाव मूल्याङ्कन (Disaster Impact Assessment) व्यवस्था लागू गर्ने,
१०. विभिन्न प्रकारका विपद्सम्बद्ध सङ्कटाभिमुख क्षेत्रका सङ्कट एवं जोखिम नक्साहरू (Hazard and Risk maps) तयार गर्ने,
११. विपद् प्रतिरोधात्मक भौतिक पूर्वाधारहरूको निर्माण गर्ने,
१२. प्राकृतिक स्रोत एवं वातावरणको संरक्षणलाई सुनिश्चित गर्न पानीको समुचित प्रयोग गर्ने,
१३. कृषि तथा खाद्य सुरक्षा, जीवनयापन, स्वास्थ्यसेवा, भौतिक पूर्वाधार, खानेपानी र सरसफाई, सूचना तथा सञ्चार, साधन तथा स्रोत व्यवस्थापन, लिङ्ग तथा सामाजिक समावेशीकरण, मानव संशाधन विकास र अन्य अन्तरसम्बद्ध विषयहरूमा विपद्सम्बन्धी प्रावधानहरूको सम्बोधनसहित विशेष क्षेत्रगत रणनीतिहरू विकास गर्ने,
१४. पूर्वाधार निर्माण एवं अन्य विकास क्रियाकलापहरू कार्यान्वयन गर्दा वातावरण मैत्री अवधारणाहरू अँगाल्दै विपद् हुन नदिने वा विपद्बाट हुन सक्ने क्षतिलाई न्यून गर्ने,
१५. विपद् व्यवस्थापनका क्षेत्रमा जनचेतना अभिवृद्धि गर्ने,
१६. विपद् व्यवस्थापन कार्यमा तल्लो तहसम्मका जनसमुदायले समेत सामना गर्ने क्षमताको प्रवलीकरण गर्न शिक्षा तथा तालिम प्रदान गर्ने,
१७. जनसमुदाय संलग्न विपद् व्यवस्थापन कार्यक्रमहरूलाई प्राथमिकता दिने,
१८. विपद् व्यवस्थापन क्रियाकलापलाई आर्थिक रूपले दिगो बनाउने,
१९. विपद् व्यवस्थापनको लागि प्रभावकारी कानुनी संयन्त्रको विकास गर्ने,
२०. विपद् व्यवस्थापन कार्यलाई प्रभावकारी तवरले कार्यान्वयन गर्नको लागि उपयुक्त संस्थागत संरचनाको विकास गर्ने,
२१. सहभागितामूलक प्रक्रियाको प्रवलीकरण गर्ने तथा सरोकारवालाहरूबीच सन्जालको विकास गर्न प्रोत्साहन गर्ने ।

५. नीति

विपद् व्यवस्थापनलाई राष्ट्रिय तथा स्थानीयतहको प्राथमिकता प्राप्त कार्यका रूपमा अँगाल्दै यसको दिगोपनाको सुनिश्चितता एवं कार्यान्वयनमा निरन्तरता प्रदान गरिने छ । विपद्को प्रभावलाई कम गर्न सुरक्षाको संस्कृति (Culture of Safety) को प्रवर्द्धनमा जोड दिनुका साथै स्थानीय सीप, स्रोत, क्षमता तथा प्रविधिको सम्मान एवं त्यसको सवलीकरण र अधिकतम उपयोगलाई प्रोत्साहन गरिने छ । जनसमुदायलाई सबै प्रकारको विपद् व्यवस्थापन सम्बन्धी क्रियाकलापको प्रवेश विन्दुको रूपमा लिइने छ ।

पूर्वतयारी, उद्धार तथा राहत र पुनर्स्थापना तथा पुनर्निर्माणजस्ता विपद् व्यवस्थापनका तीनवटै अवस्थामा सबै समुदायलाई र खास गरी विशेष ध्यान दिन आवश्यक समूहहरू जस्तै बालबालिका, महिला, ज्येष्ठ नागरिक, अन्य प्रकारले सक्षम (Disabled) तथा पिछडिएका वर्गलाई प्राथमिकता दिइने छ ।

विपद् व्यवस्थापनका सम्बन्धमा आफ्ना प्रयासहरूलाई सघाउन नेपाल सरकारले राष्ट्रिय सरोकारवालाहरू, मित्रराष्ट्रहरू एवं अन्तर्राष्ट्रिय संघ, संस्थाहरूसँग सहकार्य गर्ने छ । नेपाल सरकारले अन्तर्राष्ट्रिय अवसरहरूमा गरेका सबै प्रतिवद्धताहरूको समेत पूर्ण सम्मान गर्ने छ ।

५.१ पूर्वतयारी तथा न्यूनीकरण

विपद्बारे जनमानसको चासो बढाउन सञ्चार, अन्तरक्रिया तथा सम्पर्क, शिक्षा तथा अन्य अनौपचारिक माध्यमको प्रभावकारी एवं अधिकतम उपयोग हुने गरी जनचेतना अभिवृद्धि कार्यक्रमहरू सन्चालन गरिने छन् । गैरसरकारी क्षेत्रका संस्थाहरू, नागरिक समाज, जनसमुदायमा आधारित संस्थाहरू र अन्य स्थानीय सामाजिक समूहहरूलाई यस्ता क्रियाकलापहरू सन्चालन गर्न प्रोत्साहन गरिने छ ।

विपद्को पूर्वतयारी, मौसमी अवस्था, विपद्को सम्भाव्यता एवं पर्नसक्ने प्रभावबाट जनसमुदायलाई जोगाउनका लागि सूचना प्रवाह गर्ने कार्यमा सञ्चार माध्यमको सन्जाललाई प्रभावकारिताका साथ उपयोग गरिने छ । विपद्को सम्भाव्य समयमा सञ्चारका सबै माध्यमहरूलाई चालु अवस्थामा राखिने छ ।

स्रोत केन्द्रको स्थापना गरी नेपाल सरकारले सूचना तथा सञ्चार सन्जाललाई प्रबल बनाउने छ ।

विपद्को समयमा उपयुक्त तवरले गर्नुपर्ने कार्यहरूकाबारेमा व्यक्ति एवं समुदायलाई सिकाउन विभिन्न प्रकारका पूर्वाभ्यास कार्यक्रमहरू सन्चालन गर्न जोड दिइने छ ।

विपद्को प्रभावलाई न्यून गर्नका लागि स्थानीय समुदायको सामना गर्न सक्ने क्षमता, पारम्परिक सीप एवं ज्ञानमा अभिवृद्धि तथा यसको विस्तार र समुदायमा आधारित कार्यक्रमहरूको कार्यान्वयनलाई प्राथमिकता दिइने छ । यसका अतिरिक्त, विपद् जोखिम न्यूनीकरणका क्षेत्रमा उपलब्ध उपयुक्त उन्नत प्रविधिको प्रयोगलाई पनि बढावा दिइने छ ।

विपद्को सामना गर्न नसक्ने गरिब एवं सुविधाविहीन समुदायको रक्षार्थ विशेष कार्यक्रमहरू कार्यान्वयन गरिने छन् ।

देशभित्र पर्न सक्ने विपद्का घटनालाई निरन्तर रूपमा अनुगमन गर्न र अत्यावश्यक सेवाहरू जस्तै वारूण यन्त्र, एम्बुलेन्स र अन्य यन्त्र तथा उपकरणको परिचालन सुनिश्चित गर्न क्षेत्रीयस्तरमा सम्बोधन केन्द्रहरूको स्थापना गरिने छ । त्यसै गरी उपयुक्त स्थानहरूमा उद्धार तथा राहत सामग्रीहरू पर्याप्त मात्रामा भण्डारण गरिने छ । मुलुकको भू-उपयोग योजना तर्जुमा गरी कार्यान्वयन गरिने छ ।

विपद् सम्भाव्य क्षेत्रहरूको सङ्कट तथा जोखिम नक्साहरू, सङ्कटाभिमुखता एवं क्षमता मूल्याङ्कन, आदि स्थानीय तहसम्म नै तयार गरी कार्यान्वयन गरिने छ ।

विपद् पूर्वतयारी एवं जोखिम न्यूनीकरणका निमित्त पूर्वचेतावनी संयन्त्र लगायत भूकम्प विज्ञान, जल तथा मौसम विज्ञान तथा दूर संवेदन (Remote Sensing) प्रणालीका क्षेत्रमा अनुसन्धान कार्यलाई अगाडि बढाउन आवश्यक सुविधाहरूको विकास तथा विस्तार गरिने छ ।

नक्साङ्कन, भू-विभाजन, सूचना प्रणालीको सञ्जाल, समुदायतहको तयारी, राहत तथा पुनर्स्थापना, जलसम्बद्ध विपद्हरूको न्यूनीकरणसम्बन्धी कार्यक्रमहरू सन्चालन गर्दै जल उत्पन्न विपद् व्यवस्थापन प्रणालीलाई पूर्ण रूपमा क्रियाशील, प्रभावकारी एवं जनसमुदायका आवश्यकताप्रति उत्तरदायी बनाइने छ ।

विपद्को समयमा सार्वजनिक तथा निजी क्षेत्रबाट पर्याप्त रूपमा स्वास्थ्यसेवा तथा सुविधा उपलब्ध हुने सुनिश्चित गर्न एवं सम्भावित महामारीलाई नियन्त्रण गर्न सबैतहका स्वास्थ्यक्षेत्रको पूर्वतयारी योजनाहरू तर्जुमा गरिने छन् ।

नदीका किनार तथा बगर एवं पहिरो जान सक्ने भिरालो क्षेत्र आदि जस्ता विपद् सम्भाव्यक्षेत्रका बस्तीहरूलाई सुरक्षित स्थानमा स्थानान्तरण गरिने छ ।

५.२ खोजी, उद्धार, राहत तथा तात्कालीक सम्बोधन

सरोकारवालाहरूसित समेत परामर्श गरी केन्द्रीय तथा स्थानीयतहका क्रियाकलापहरूको लागि सम्बोधन कार्य योजनाहरू तत्काल तर्जुमा गरी तिनको कार्यान्वयनका साथै निरन्तर रूपमा अनुगमन समेत गरिने छ । यसै अनुरूप विपद्बाट भएको क्षतिको प्रारम्भिक मूल्याङ्कन पनि गरिने छ ।

सुरक्षाकर्मी, दक्ष मानिसहरूको समूह, राजनीतिक दल, स्थानीय निकाय, राष्ट्रिय तथा अन्तर्राष्ट्रिय गैरसरकारी संस्था, सामुदायिक संस्था, स्वयंसेवक समूह आदिका स्थानीय प्रतिनिधिहरूलाई संलग्न गरी खोजी तथा उद्धार टोलीहरू तत्काल परिचालन गरिने छन् ।

पर्याप्त रूपमा आवास तथा सरसफाइको व्यवस्था गरी बालबालिका, महिला, ज्येष्ठ नागरिक र अन्य प्रकारले सक्षम व्यक्तिहरूलाई प्राथमिकता प्रदान गर्दै सबै प्रभावित व्यक्तिहरूका लागि व्यक्तिगत सुरक्षा तथा आधारभूत सेवाहरूमा पहुँचको व्यवस्था मिलाइने छ ।

विपद्बाट प्रभावित व्यक्तिहरूलाई समयमै स्थानीयस्तरमा स्वास्थ्यसेवा एवं सुविधा उपलब्ध गराई वा आवश्यकतानुसार बढी सुविधासम्पन्न अस्पतालमा पुऱ्याई तिनीहरूलाई रोगब्याध, मृत्यु वा असक्षम हुनबाट जोगाउन तत्काल उद्धार गर्नु पर्ने समय (Golden Hour) को महत्वलाई महशुस गर्दै स्वास्थ्यसेवा कार्यहरू क्रियाशील बनाइने छ । आवश्यकतानुसार स्थानीय तहमै अस्थायी रूपमा अस्पताल एवं स्वास्थ्य शिविरहरू पनि स्थापना गरिने छन् । यस कार्यमा सरकारी एवं निजीक्षेत्रका स्वास्थ्य संस्थाहरूलाई पनि परिचालन गरिने छ ।

स्फेयर मापदण्डजस्ता अन्तर्राष्ट्रिय अभ्यासहरूलाई दृष्टिगत गर्दै नेपाल सरकारले आफ्नो राहत सामग्री प्याकेजको मापदण्ड तयार गर्ने छ र यी राहत प्याकेजहरू जात, धर्म, समुदाय, लिङ्ग आदिका आधारमा भेद

नगरी सबै प्रभावित व्यक्तिहरूलाई वितरण गरिने छ । प्रत्येक प्रभावित नागरिकहरूको यस्ता राहत प्याकेज तथा अत्यावश्यक सामग्रीहरू प्राप्त गर्ने अधिकार हुने छ ।

भरपर्दो एवं प्रभावकारी सञ्चार प्रणालीको स्थापना गरिने छ । विपद्को समयमा सही सूचना प्रसार गर्नका लागि सञ्चार माध्यमहरूलाई प्रोत्साहन गरिने छ ।

राहत वितरणको प्रभाकारिताका बारेमा निरन्तर अनुगमन गरी आवश्यकता अनुरूप सुधार गर्दै लगिने छ ।

५.३ पुनर्स्थापना तथा पुनर्निर्माण

विपद्को विस्तृत क्षति मूल्याङ्कनको आधारमा पुनर्स्थापना तथा पुनर्निर्माण योजना बनाई समयमै त्यस्ता योजना पूरा गरिने छ । पुनर्स्थापना तथा पुनर्निर्माण कार्य गर्दा उपयुक्त विपद् प्रतिरोधक प्रविधिको प्रयोगको सुनिश्चितता गरिने छ । साथै आवश्यकता अनुसार विपद् प्रभावित बस्तीलाई अन्यत्र सुरक्षित स्थानमा सार्न सकिने छ ।

विपद्बाट असर परेका समुदायको पुनर्स्थापनाका निमित्त तिनीहरूको निजी भवन तथा क्षतिग्रस्त सम्पत्तिको मरमत वा पुनर्निर्माणका लागि उपयुक्त आर्थिक अनुदान वा सहूलियतपूर्ण ऋण उपलब्ध गराइने छ । सबै प्रभावित जनसमुदाय र विशेषगरी गरिव, सीमान्त तथा विशेष ध्यान दिन आवश्यक वर्गको जीवनवृत्तिमा सुधार ल्याउनका निमित्त विभिन्न आयमूलक कार्यक्रमहरू सन्चालन गरिने छन् ।

विपद् प्रभावित व्यक्तिहरूलाई मनोसामाजिक परामर्शको सुविधा प्रदान गरिने छ । त्यस्ता प्रभावित व्यक्तिले पूर्ण लाभ नगरेसम्म स्वास्थ्यसम्बन्धी अन्य वैकल्पिक हेरचाह सुविधा प्रदान गरिने छ ।

नेपाल सरकारले विपद् प्रभावित समुदायको कृषिजन्य क्रियाकलापलाई पुनर्स्थापना गर्नका निमित्त आवश्यक कृषि सामग्री तथा प्रसार सेवाको व्यवस्था मिलाउने छ ।

५.४ योजना, कार्यक्रम तथा अनुगमन

विपद् जोखिम न्यूनीकरणसम्बन्धी कार्यलाई राष्ट्रिय तथा स्थानीयतहका विकास नीति, योजना तथा कार्यक्रममा समावेश गरिनुका साथै नियमित रूपमा अद्यावधिक गरिने छ ।

मुलुकको लागि एक विस्तृत विपद् व्यवस्थापन योजनाको तर्जुमा गरिने छ । नेपाल सरकारका विकास कार्यमा संलग्न विभिन्न निकायहरूलाई अन्तरसम्बद्ध विषयहरूलाई समेत समावेश गरी आ-आफना क्षेत्रगत विशेष विपद् व्यवस्थापन योजनाहरू बनाउन लगाइने छ । साथै गैरसरकारी क्षेत्रहरूलाई आ-आफना योजनाहरू बनाउन प्रोत्साहन गरिने छ । आवश्यकता अनुसार आपतकालीन योजनाहरू पनि तर्जुमा गरिने छन् ।

सबै नयाँ भौतिक पूर्वाधारहरू वातावरण मैत्री, भूकम्प तथा अन्य विपद् प्रतिरोधात्मक हुनुका साथै विपद् प्रभाव मूल्याङ्कनबाट योग्य ठहरिनु पर्ने छ । विपद् जोखिम न्यूनीकरणसम्बन्धी विषयहरू सबै विकास आयोजनाहरूमा अनिवार्य रूपमा समावेश गरिने छ । साथै विद्यमान आवासीय भवनहरू, अन्य भौतिक पूर्वाधारहरू, विद्यालय, अस्पताल तथा कार्यालयजस्ता सार्वजनिक भवनहरूको सवलीकरण (Retrofitting) लाई प्राथमिकता दिइने छ ।

विपद्सम्बद्ध तथ्याङ्क तथा विवरणहरूको सङ्कलन, संग्रह एवं वितरणको लागि एक भरपर्दो संयन्त्रको विकास गरिने छ ।

५.५. मानव संसाधन विकास

विपद् व्यवस्थापनमा कार्यरत संस्थाहरूको संयुक्त क्रियाकलापलाई बढी प्रभावकारी हुने गरी समन्वय गरिने छ ।

पूर्वतयारी, उद्धार, राहत, स्वास्थ्यसेवा, जोखिम तथा क्षमता मूल्याङ्कन र अन्य सम्बन्धित विषयहरूमा विशेष गरी स्थानीयतहमा तालिम सन्चालन गरिने छ । विपद् व्यवस्थापनसम्बन्धी प्रशिक्षण तथा अनुसन्धान कार्यहरू सन्चालन गर्नका लागि गैरसरकारी क्षेत्रलाई नयाँ संस्थाहरूको स्थापना गर्न प्रोत्साहन गरिने छ ।

औपचारिक शिक्षामा विपद् सम्बन्धी पाठ्यक्रमलाई समावेश गर्न शिक्षण संस्थाहरूलाई प्रोत्साहन गरिने छ ।

विपद्सम्बन्धी ज्ञानको अभिवृद्धिका लागि निरन्तर रूपमा प्रयासहरू गरिने छन् । यस सन्दर्भमा, विश्व घटना, प्रविधि, हावापानी परिवर्तन तथा अन्य सम्बद्ध विषयहरूको निरन्तर अनुगमन गर्दै अद्यावधिक रूपमा जानकारी राखिने छ ।

६. वित्तीय व्यवस्था

विपद् व्यवस्थापनसम्बन्धी कार्यहरू सन्चालन गर्नका लागि हर समय आर्थिक स्रोतको उपलब्धताको सुनिश्चय गरिने छ ।

विपद् व्यवस्थापन कार्यमा लाग्ने खर्च नेपाल सरकार तथा सहयोग प्राप्त गर्ने समुदाय दुबैका तर्फबाट व्यहोरिने प्रणालीको विकास गरिनेछ । यी कार्यहरूका लागि थप आर्थिक स्रोतहरू जुटाउन लघुवित्त, ऋण, बण्ड तथा कर बचत जस्ता नयाँ कार्यक्रमहरू पहिल्याइने छन् ।

विपद्सम्बन्धी बीमा कार्यक्रमहरूको सन्चालनलाई प्रोत्साहन गरिने छ ।

संस्था तथा व्यक्तिहरूद्वारा विपद्बाट प्रभावित व्यक्ति वा विपद् व्यवस्थापनसम्बन्धी कार्यका लागि प्रदान गरिएको सहयोग रकममा कर छुट दिइनेछ ।

७. शासन व्यवस्था

७.१. कानुनी संयन्त्रहरू

विपद् व्यवस्थापनसम्बन्धी एउटा नयाँ तथा विस्तृत ऐन कार्यान्वयनमा ल्याइने छ र तदनुरूप आवश्यक नियम एवं विनियमहरू पनि लागू गरिनेछन् । त्यसैगरी विभिन्न ऐन तथा नियममा विपद्का सम्बन्धमा विद्यमान दोहोरोपनालाई पनि सच्याइनेछ ।

नीति, योजना, नियम, संहिता (जस्तै आगलागी, भवन निर्माण संहिता आदि) कार्यान्वयन प्रणाली एवं निर्देशिकाहरूको तर्जुमा तथा अद्यावधिक गर्ने कार्यलाई प्राथमिकता दिइनेछ ।

७.२. संस्थागत व्यवस्था

विपद् व्यवस्थापनसम्बन्धी नीति, योजना तथा अन्य प्रक्रियागत कार्य लगायत सम्बद्ध सबै विषयहरूको तर्जुमा, कार्यान्वयन, सुपरीवेक्षण तथा अनुगमन गर्ने गरी केन्द्रीय तहमा एक स्वायत्त एवं तालुकवाला (Nodal) संस्थाका रूपमा विपद् व्यवस्थापन परिषद् स्थापना गरिनेछ । परिषद्को अध्यक्षता प्रधानमन्त्रीले गर्ने छन् र कार्यकारी निर्देशकले परिषद्को सदस्य सचिवको रूपमा कार्य गर्नेछन् । परिषद्को सचिवालय काठमाडौंमा रहनेछ र यसले प्रधानमन्त्री तथा मन्त्रीपरिषद्को कार्यालयमार्फत नेपाल सरकारसंग सम्पर्क कायम गर्नेछ । परिषद्को गठन अनुसूची १ मा उल्लेख गरिएको छ ।

स्थानीय विकास, गृह, र भौतिक योजना तथा निर्माण मन्त्रीहरूको संयोजकत्वमा (क) पूर्वतयारी, (ख) उद्धार तथा राहत, (ग) पुनर्स्थापना तथा पुनर्निर्माणसम्बन्धी तीनवटा समितिहरूगठन गरिनेछन् । यी समितिहरूले स्वतन्त्रतापूर्वक आफ्नो कार्य गर्नेछन् । परिषद्को कार्यकारी निर्देशकले यी तीनवटै समितिहरूको सदस्य सचिवको रूपमा कार्य गर्नेछ । समितिहरूको गठन अनुसूची २ मा उल्लेख गरिएको छ ।

स्थानीयतहमा सबै जिल्लामा प्रमुख जिल्ला अधिकारीको अध्यक्षतामा जिल्ला विपद् व्यवस्थापन समितिहरू गठन गरिनेछन् । यी समितिहरू आफ्नो जिल्लाभित्रका विपद् व्यवस्थापनसम्बन्धी सम्पूर्ण कार्यहरू सन्चालन गर्नका लागि जिम्मेवार हुनेछन् । जिल्ला विपद् व्यवस्थापन समितिलाई आवश्यकता अनुसार उपसमितिहरू गठन गर्न सक्ने अधिकार हुनेछ । जिल्ला विपद् व्यवस्थापन समितिमा अन्य सदस्यहरूका अतिरिक्त जिल्ला विकास समितिका सभापति वा निजले मनोनयन गरेका व्यक्ति समेत सदस्य र स्थानीय विकास अधिकारी सदस्य सचिवको रूपमा रहनेछन् । जिल्ला विपद् व्यवस्थापन समितिको गठन अनुसूची ३ मा उल्लेख गरिएको छ ।

स्थानीयस्तरमा विपद् व्यवस्थापनसम्बन्धी कार्यहरूको कार्यान्वयन, समन्वय तथा सुपरीवेक्षण गर्नका लागि सबै सरकारी कार्यालयहरूमा र विशेष गरी जिल्ला प्रशासन कार्यालय, जिल्ला विकास समिति एवं गाउँ विकास समितिमा समेत विपद् व्यवस्थापनसम्बन्धी जिम्मेवार एकाइहरू स्थापना गरिनेछन् ।

नगर वा गाउँस्तरमा स्थानीय विपद् व्यवस्थापन समितिहरू गठन गरिने छन् । स्थानीय विपद् व्यवस्थापन समितिको अध्यक्षतासम्बन्धित नगरपालिकाका प्रमुख वा गाउँ विकास समितिका अध्यक्षले गर्नेछन् । स्थानीय विपद् व्यवस्थापन समितिले आवश्यकता अनुसार वडास्तरीय उपसमितिहरू गठन गर्न सक्नेछ । यस्ता समिति एवं उपसमितिहरूमा महिला तथा पिछ्छडिएका वर्गलाई अध्यक्ष बन्न वा संलग्न हुन प्राथमिकता दिइनेछ । स्थानीय विपद् व्यवस्थापन समितिको गठन अनुसूची ४ मा उल्लेख गरिएको छ ।

विपद्का अवस्थामा आवश्यकता अनुसार विपद् व्यवस्थापन, खोजी तथा उद्धार, क्षति मूल्याङ्कन एवं चिकित्सा सम्बन्धितसम्बन्धी टोलीहरू र अन्य स्वयंसेवक समूहहरू सबै तहमा गठन गरी तत्कालै परिचालन गरिनेछ ।

नेपाल सरकारले विपद् व्यवस्थापनका सम्पूर्ण क्षेत्रहरूमा कार्यरत स्थानीय निकायहरू, नेपाल रेडक्रस सोसाइटी, समुदायमा आधारित संस्थाहरू, समुदायहरू, राष्ट्रिय तथा अन्तर्राष्ट्रिय गैह्रसरकारी संस्थाहरू, निजी क्षेत्र, नागरिक समाज, प्राज्ञिक समुदाय तथा पेशागत विज्ञहरूको सहयोग तथा सहभागिता जुटाउनेछ । तिनीहरूको भूमिकालाई स्पष्टताका साथ कानुनी रूपमै परिभाषित पनि गरिने छ । विपद् व्यवस्थापनको क्षेत्रमा प्रभावकारी सञ्जालहरू विकास गरी सहभागितामूलक प्रक्रियालाई थप सवलीकरण गरिनेछ ।

गृह मन्त्रालय, जल उत्पन्न प्रकोप नियन्त्रण विभाग, जलवायु तथा मौसम विज्ञान विभाग, खानी तथा भूगर्भ विभाग, सिंचाइ विभाग, स्वास्थ्यसेवा विभाग, कृषि विभाग, सडक विभाग, शहरी विकास तथा भवन निर्माण विभाग, आदिहरू बीच प्रभावकारी समन्वय स्थापना गरिनेछ ।

७.३ सन्चालन प्रक्रिया

विकेन्द्रीकरण, अधिकार निक्षेपण तथा सरोकारबालाहरूको सक्रिय सहभागितानै विपद् व्यवस्थापन कार्यको सन्चालनको प्रारूप हुनेछ ।

विपद् व्यवस्थापनको सबै तहमा सहज एवं प्रभावकारी रूपमा कार्यक्रमहरूको कार्यान्वयन गर्नका लागि निश्चित सन्चालन मापदण्ड तथा निर्देशिकाहरूको तर्जुमा गरी कार्यान्वयन गरिनेछ ।

आपतकालीन समयका लागि सन्चालन प्रक्रियालाई सहज बनाइनेछ । दाताहरूबाट प्राप्त हुने राहत सामग्रीको आयातमा भन्सार छुट एवं जाँच प्रक्रियालाई पनि सरल बनाइनेछ ।

विपद् व्यवस्थापनसित सम्बन्धित सबै कार्यहरू एकै स्थानबाट गरिने नीति नेपाल सरकारले अवलम्बन गर्ने छ ।

नेपाल सरकारले प्रत्येक मन्त्रालयमा विपद्सम्बन्धी विषयहरू हेर्न एउटा एकाइको व्यवस्था गर्नेछ जसले विपद् व्यवस्थापन परिषद्सित निकटतम रूपमा सम्पर्कमा रही कार्य गर्नु पर्नेछ । सन्चालन प्रक्रियाको सचित्र वर्णन अनुसूची ५ मा उल्लेख गरिएको छ ।

अनुसूची १
विपद् व्यवस्थापन परिषद्

क.	प्रधानमन्त्री	अध्यक्ष
ख.	गृहमन्त्री	उपाध्यक्ष
ग.	रक्षामन्त्री	सदस्य
घ.	स्थानीय विकासमन्त्री	सदस्य
ङ.	भौतिक योजना तथा निर्माणमन्त्री	सदस्य
च.	उपाध्यक्ष, राष्ट्रिय योजना आयोग	सदस्य
छ.	प्रधान सेनापति, नेपाली सेना	सदस्य
ज.	मुख्य सचिव	सदस्य
झ.	गृहसचिव	सदस्य
ञ.	अर्थसचिव	सदस्य
ट.	स्वास्थ्य तथा जनसङ्ख्यासचिव	सदस्य
ठ.	महिला, बालबालिका तथा समाज कल्याणसचिव	सदस्य
ड.	जलश्रोतसचिव	सदस्य
ढ.	वन तथा भू-संरक्षणसचिव	सदस्य
ण.	वातावरण, विज्ञान तथा प्रविधिसचिव	सदस्य
त.	सूचना तथा सञ्चारसचिव	सदस्य
थ.	उद्योग, वाणिज्य तथा आपूर्तिसचिव	सदस्य
द.	महानिरीक्षक, नेपाल प्रहरी	सदस्य
ध.	महानिरीक्षक, सशस्त्र प्रहरी बल	सदस्य
न.	अध्यक्ष, नेपाल रेडक्रस सोसाईटी	सदस्य
प.	अध्यक्ष, जिल्ला विकास समिति महासंघ	सदस्य
फ.	अध्यक्ष, नगरपालिका महासंघ	सदस्य
ब.	अध्यक्ष, गाउँ विकास समिति महासंघ	सदस्य
भ.	अध्यक्ष, नेपाल उद्योग वाणिज्य महासंघ	सदस्य
म.	सदस्य सचिव, समाज कल्याण परिषद्	सदस्य
य.	प्रमुख आयुक्त, नेपाल स्काउट	सदस्य
र.	विपद् व्यवस्थापनसम्बन्धी कार्य गर्ने गैह्रसरकारी संघ संस्थाहरू	
	मध्येबाट नेपाल सरकारले मनोनयन गरेका तीन जना प्रतिनिधि	सदस्य
ल.	नेपाल सरकारबाट मनोनित विपद् व्यवस्थापनसम्बन्धी प्राविधिज्ञ दुई जना	सदस्य
व.	कार्यकारी निर्देशक	सदस्य सचिव

अनुसूची २
विपद् व्यवस्थापन समितिहरू

(१) पूर्वतयारी व्यवस्थापन समिति

क.	स्थानीय विकासमन्त्री	संयोजक
ख.	राष्ट्रिय योजना आयोगका विपद् हेर्ने सदस्य	उप संयोजक
ग.	गृहसचिव	सदस्य
घ.	भौतिक योजना तथा निर्माणसचिव	सदस्य
ङ.	कृषि तथा सहकारीसचिव	सदस्य
च.	अर्थसचिव	सदस्य
छ.	सूचना तथा सञ्चारसचिव	सदस्य
ज.	शिक्षा तथा खेलकुदसचिव	सदस्य
झ.	स्थानीय विकाससचिव	सदस्य
ञ.	वातावरण, विज्ञान तथा प्रविधिसचिव	सदस्य
ट.	उपरथी, नेपाली सेना	सदस्य
ठ.	अतिरिक्त महानिरीक्षक, नेपाल प्रहरी	सदस्य
ड.	अतिरिक्त महानिरीक्षक, सशस्त्र प्रहरी बल	सदस्य
ढ.	महानिर्देशक, भू तथा जलाधार संरक्षण विभाग	सदस्य
ण.	महानिर्देशक, खानी तथा भूगर्भ विभाग	सदस्य
त.	महानिर्देशक, जलवायु तथा मौसम विज्ञान विभाग	सदस्य
थ.	महानिर्देशक, जल उत्पन्न प्रकोप नियन्त्रण विभाग	सदस्य
द.	महानिर्देशक, वन विभाग	सदस्य
ध.	महानिर्देशक, शहरी विकास तथा भवन निर्माण विभाग	सदस्य
न.	महानिर्देशक, स्वास्थ्य सेवा विभाग	सदस्य
प.	अध्यक्ष, नेपाल रेडक्रस सोसाईटी	सदस्य
फ.	सदस्य सचिव, समाज कल्याण परिषद्	सदस्य
व.	अध्यक्ष, जिल्ला विकास समिति महासंघ	सदस्य
भ.	अध्यक्ष, नगरपालिका महासंघ	सदस्य
म.	अध्यक्ष, गाउँ विकास समिति महासंघ	सदस्य
य.	विपद् व्यवस्थापनसम्बन्धी कार्यमा संलग्न गैह्रसरकारी संघ संस्थाहरू	
	मध्येबाट नेपाल सरकारले मनोनयन गरेका तीन जना प्रतिनिधि	सदस्य
र.	नेपाल सरकारबाट मनोनित विपद् व्यवस्थापन सम्बन्धी प्राविधिज्ञ दुई जना	सदस्य
ल.	कार्यकारी निर्देशक	सदस्य सचिव

(२) उद्धार तथा राहत व्यवस्थापन समिति

क.	गृहमन्त्री	संयोजक
ख.	स्वास्थ्य तथा जनसङ्ख्यामन्त्री	उप संयोजक
ग.	भौतिक योजना तथा निर्माणमन्त्री	सदस्य
घ.	स्थानीय विकासमन्त्री	सदस्य
ङ.	रक्षासचिव	सदस्य
च.	गृहसचिव	सदस्य
छ.	अर्थसचिव	सदस्य
ज.	परराष्ट्रसचिव	सदस्य
झ.	उद्योग, वाणिज्य तथा आपूर्तिसचिव	सदस्य
ञ.	सूचना तथा सञ्चारसचिव	सदस्य
ट.	रथी, नेपाली सेना	सदस्य
ठ.	महानिर्देशक, खानी तथा भूगर्भ विभाग	सदस्य
ड.	महानिर्देशक, जल उत्पन्न प्रकोप नियन्त्रण विभाग	सदस्य
ढ.	महानिर्देशक, शहरी विकास तथा भवन निर्माण विभाग	सदस्य
ण.	महानिर्देशक, कृषि विभाग	सदस्य
त.	महानिर्देशक, पशु स्वास्थ्य सेवा विभाग	सदस्य
थ.	महानिरीक्षक, नेपाल प्रहरी	सदस्य
द.	महानिरीक्षक, सशस्त्र प्रहरी बल	सदस्य
ध.	अध्यक्ष, नेपाल रेडक्रस सोसाईटी	सदस्य
न.	अध्यक्ष, जिल्ला विकास समिति महासंघ	सदस्य
प.	अध्यक्ष, नगरपालिका महासंघ	सदस्य
फ.	अध्यक्ष, गाउँ विकास समिति महासंघ	सदस्य
ब.	अध्यक्ष, नेपाल उद्योग वाणिज्य महासंघ	सदस्य
भ.	प्रमुख आयुक्त, नेपाल स्काउट	सदस्य
म.	विपद् व्यवस्थापनसम्बन्धी कार्यमा संलग्न गैह्रसरकारी संघ संस्थाहरू मध्येबाट नेपाल सरकारले मनोनयन गरेका दुई जना प्रतिनिधि	सदस्य
य.	नेपाल सरकारबाट मनोनित विपद् व्यवस्थापनसम्बन्धी प्राविधिज्ञ दुई जना	सदस्य
र.	कार्यकारी निर्देशक	सदस्य सचिव

(३) पुनर्स्थापना तथा पुनर्निर्माण व्यवस्थापन समिति

क.	भौतिक योजना तथा निर्माणमन्त्री	संयोजक
ख.	विपद् हेर्ने राष्ट्रिय योजना आयोगका सदस्य	उप संयोजक
ग.	स्थानीय विकाससचिव	सदस्य
घ.	अर्थसचिव	सदस्य
ङ.	भौतिक योजना तथा निर्माणसचिव	सदस्य
च.	महानिर्देशक, कृषि विभाग	सदस्य
छ.	महानिर्देशक, जल उत्पन्न प्रकोप नियन्त्रण विभाग	सदस्य
ज.	महानिर्देशक, शहरी विकास तथा भवन निर्माण विभाग	सदस्य
झ.	महानिर्देशक, सिंचाई विभाग	सदस्य
ञ.	महानिर्देशक, वन विभाग	सदस्य
ट.	प्रतिनिधि, नेपाल राष्ट्र बैंक	सदस्य
ठ.	अध्यक्ष, नेपाल रेडक्रस सोसाईटी	सदस्य
ड.	विपद् व्यवस्थापनसम्बन्धी कार्य गर्ने गैह्रसरकारी संघ संस्थाहरू मध्येबाट नेपाल सरकारले मनोनयन गरेका दुई जना प्रतिनिधि	सदस्य
ढ.	नेपाल सरकारबाट मनोनित विपद् व्यवस्थापनसम्बन्धी प्राविधिज्ञ दुई जना	सदस्य
ण.	कार्यकारी निर्देशक	सदस्य सचिव

अनुसूची ३

जिल्ला विपद् व्यवस्थापन समिति

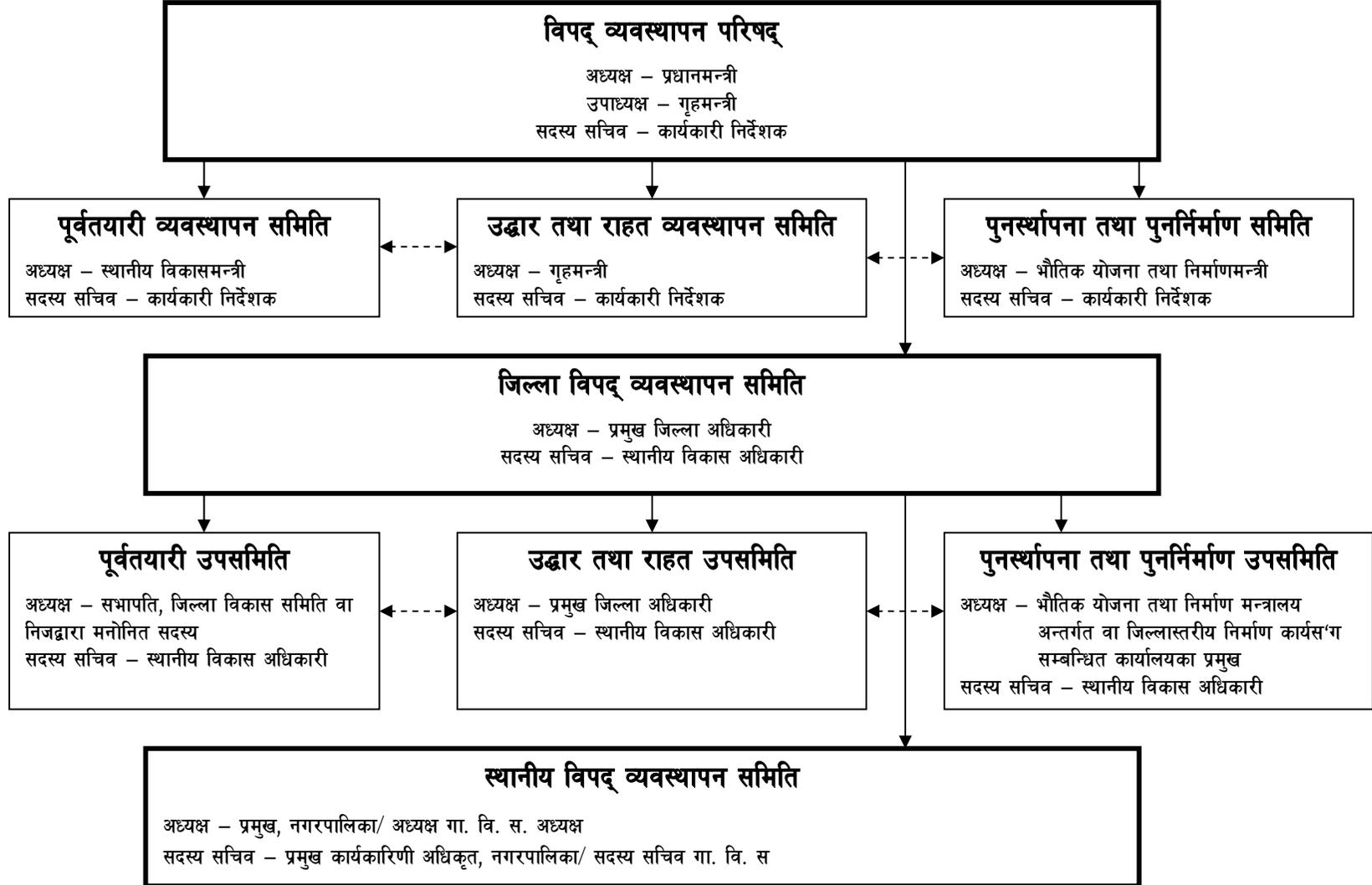
क.	प्रमुख जिल्ला अधिकारी	अध्यक्ष
ख.	जिल्ला विकास समितिको सभापति वा निजले जिल्ला विकास समितिको सदस्यहरू मध्येबाट मनोनयन गरेको व्यक्ति	सदस्य
ग.	नेपाल सरकारका जिल्लास्तरीय कार्यालयका प्रमुखहरू	सदस्य
घ.	जिल्लास्थित सुरक्षा निकायका प्रमुखहरू	सदस्य
ङ.	जिल्लास्थित नेपाल रेडक्रस सोसाईटी कार्यालयका प्रमुख	सदस्य
च.	राष्ट्रियस्तरका राजनीतिक दलका जिल्लास्तरीय प्रतिनिधिहरू	सदस्य
छ.	सभापति, जिल्ला उद्योग वाणिज्य संघ	सदस्य
ज.	प्रमुख, नगरपालिका	सदस्य
झ.	अध्यक्ष, गाउँ विकास समितिहरू मध्येबाट जिल्ला विकास समितिले मनोनयन गरेका तीन जना	सदस्य
ञ.	जिल्लास्तरीय राष्ट्रिय तथा अन्तर्राष्ट्रिय गैरसरकारी संघ, संस्था, सामाजिक संघ संस्था तथा जिल्लाका प्रतिष्ठित समाजसेवीमध्येबाट प्रमुख जिल्ला अधिकारीले मनोनयन गरेका तीन जना	सदस्य
ट.	जिल्ला अवस्थित विपद् व्यवस्थापनसम्बन्धी प्राविधिज्ञ मध्येबाट प्रमुख जिल्ला अधिकारीले मनोनयन गरेका दुई जना	सदस्य
ड.	स्थानीय विकास अधिकारी	सदस्य सचिव

अनुसूची ४

स्थानीय विपद् व्यवस्थापन समितिको गठन

क.	सम्बन्धित नगरपालिकाका प्रमुख/गाउँ विकास समितिका अध्यक्ष	अध्यक्ष
ख.	वडाअध्यक्ष मध्येबाट नगर/गाउँ परिषद्ले मनोनयन गरेका तीन जना वडा अध्यक्षहरू	सदस्य
ग.	विपद् परेका वडाको वडा अध्यक्ष	सदस्य
घ.	वडासदस्यहरू मध्येबाट नगर/गाउँ परिषद्ले मनोनयन गरेका दुई जना वडासदस्यहरू	सदस्य
ङ.	राष्ट्रियस्तरका राजनीतिक दलका नगरपालिका र गाउँ विकास समितिस्तरीय प्रतिनिधि	सदस्य
च.	स्थानीय गैह्रसरकारी संस्था, सामुदायिक संस्था, सामाजिक संघ संस्था वा प्रतिष्ठित समाजसेवीमध्ये नगर/गाउँ परिषद्ले मनोनित गरेका तीन जना	सदस्य
छ.	स्थानीयस्तरमा उपलब्ध विपद् व्यवस्थापनसम्बन्धी विज्ञमध्ये नगर/गाउँ परिषद्ले मनोनयन गरेका दुई जना	सदस्य
ज.	नगरपालिकाका कार्यकारी प्रमुख/गाउँ विकास समितिका सचिव	सदस्य सचिव

अनुसूची ५
संचालन प्रक्रिया



Annex 8

विपद् व्यवस्थापन ऐन, २०६३
(Disaster Management Act, 2063)
विपद्को प्रभावकारी रूपमा व्यवस्थापन गर्नको लागि
बनेको ऐन, २०६३

Submitted to
Government of Nepal, Ministry of Home Affairs and
National Planning Commission

Jointly by



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विपद् व्यवस्थापन ऐन, २०६३

विपद्को प्रभावकारी रूपमा व्यवस्थापन गर्नको लागि बनेको ऐन

प्रस्तावना : विपद्को पूर्वतयारी, न्यूनीकरण, उद्धार तथा राहत, पुनर्स्थापना तथा पुनर्निर्माण तथा यससित सम्बन्धित विभिन्न कार्यहरू व्यवस्थित तथा प्रभावकारी रूपमा समन्वय गरी जनजीवनलाई असर पार्ने विभिन्न प्रकारका विपद्हरूबाट जनताको जीउधन तथा व्यक्तिगत एवं सार्वजनिक सम्पत्तिको सुरक्षा र सुविधा कायम गर्न वाञ्छनीय भएकोले,

नेपालको संसदले यो ऐन बनाई जारी गरेको छ ।

परिच्छेद - १ प्रारम्भिक

१. संक्षिप्त नाम र प्रारम्भ :

- (१) यस ऐनको नाम विपद् व्यवस्थापन ऐन, २०६३ रहेको छ ।
- (२) यो ऐन तुरुन्त प्रारम्भ हुनेछ ।

२. परिभाषा : विषय वा प्रसंगले अर्को अर्थ नलागेमा यस ऐनमा :

- (क) “विपद्” भन्नाले कुनै पनि ठाउँमा विपत्तिपूर्ण अवस्था सिर्जना भई जनधनको क्षतिको साथै जीवनयापनमा प्रतिकूल असर परी स्थानीय उपलब्ध साधन, स्रोत एवं क्षमताबाट समाधान हुन नसक्ने, बाह्य सहयोगको पनि आवश्यकता पर्न सक्ने, दुःखद तथा कष्टपूर्ण प्राकृतिक वा गैह्रप्राकृतिक दुबै अवस्थाको विपत्तिलाई जनाउने छ ।
- (ख) “प्राकृतिक विपद्” भन्नाले जल एवं जलवायुजन्य विपद् जस्तै हिमपात, हिमपहिरो, हिमताल विस्फोटन, खडेरी, बाढी, हरिबतास, शीतलहर, तातोहावाको लहर, चट्याङ्ग, असिनापानी; भौगर्भिक विपद् जस्तै भूकम्प, पहिरो; एवं अन्य प्रकारका विपद् जस्तै महामारी, अनिकाल, डढेलो, कीटआतङ्क, सूक्ष्मजीवाणु आतङ्क, जनावरआतङ्क तथा यस्ता अन्य कुनै पनि प्रकारको विपद्लाई समेत जनाउने छ ।
- (ग) “गैह्रप्राकृतिक विपद्” भन्नाले औद्योगिक विपद् जस्तै खानी दुर्घटना, औद्योगिक विस्फोटन, आगलागी, विषाक्त ग्याँस तथा रसायन चुहावट, विकीरणस यातायातजन्य विपद् जस्तै हवाई, सडक, रेल, पानीमा चलाइने सवारी साधनको दुर्घटना, प्राकृतिक

ग्याँसको विष्फोटन र अन्य प्रकारका घटना जस्तै भागदौड, हुलदङ्गा, आतङ्क सिर्जना गर्ने खालका क्रियाकलाप, भौतिक संरचना भत्किई हुने क्षति आदिलाई जनाउने छ ।

- (घ) “पूर्वतयारी अवस्था” भन्नाले विपद् हुनु पूर्वको समयलाई जनाउने छ ।
- (ङ) “उद्धार तथा राहत अवस्था” भन्नाले विपद् हुनासाथको समय र उद्धार तथा राहत कार्य जारी रहेको अवस्थालाई जनाउने छ ।
- (च) “पुनर्स्थापना र पुनर्निर्माण अवस्था” भन्नाले उद्धार एवं राहत कार्य सम्पन्न भईसकेपछिको पुनर्स्थापना तथा पुनर्निर्माणको अवस्थालाई जनाउने छ ।
- (छ) “विपद् व्यवस्थापन अधिकारी” भन्नाले विपद् व्यवस्थापन कार्यमा संलग्न सरकारी, गैह्रसरकारी सामुदायिक एवं सामाजिक संघ संस्था, नागरिक समाजका पदाधिकारीलाई समेत जनाउने छ ।
- (ज) “विपद् व्यवस्थापन परिषद्” भन्नाले दफा ७ बमोजिम गठित विपद् व्यवस्थापन परिषद् सम्भन्नु पर्दछ ।
- (झ) “सचिवालय” भन्नाले दफा १० अन्तर्गतको परिषद्को सचिवालयलाई सम्भन्नु पर्छ ।
- (ञ) “समिति” भन्नाले पूर्वतयारी, उद्धार तथा राहत र पुनर्स्थापना तथा पुनर्निर्माण व्यवस्थापन समिति समेत सबै समितिलाई जनाउने छ ।
- (ट) “कार्यकारी निर्देशक” भन्नाले दफा १० अन्तर्गत नियुक्त भएको परिषद्को सदस्यसचिव सम्भन्नु पर्दछ ।
- (ठ) “विपद् व्यवस्थापन कक्ष” भन्नाले आपतकालीन खोजी लगायत उद्धार तथा राहत अवस्थामा व्यवस्थापन कार्यका लागि स्थापना गरिएको कक्षलाई जनाउने छ ।
- (ड) “स्थानीय निकाय” भन्नाले स्थानीय स्वायत्त शासन ऐन, २०५५ अन्तर्गत गठित स्थानीय निकाय सम्भन्नु पर्दछ ।
- (ढ) “नगरपालिका” भन्नाले महानगरपालिका, उप-महानगरपालिका तथा नगरपालिका समेतलाई जनाउने छ ।

- (ग) “विपद् व्यवस्थापन” भन्नाले विपद्वाट हुने क्षतिको न्यूनीकरणका लागि गरिने पूर्वतयारी, उद्धार तथा राहत, पुनर्स्थापना र पुनर्निर्माण समेतका सम्पूर्ण क्रियाकलापहरू सम्भन्नु पर्दछ ।
- (त) “आपतकालीन अवस्था” भन्नाले उद्धार तथा राहत तत्काल उपलब्ध गराउन आवश्यक हुने परिस्थितिलाई जनाउने छ ।
- (थ) “विपद् उद्धार समूह” भन्नाले विपद् परेका अवस्थामा खोजी तथा उद्धार गर्न सहयोग पुऱ्याउनुका साथै विपद् व्यवस्थापनका अन्य अवस्थामा परिचालन गर्न तयार गरिएका विशिष्टीकृत उद्धार समूहलाई जनाउने छ ।
- (द) “तोकिएको वा तोकिए बमोजिमको” भन्नाले यस ऐन वा यस ऐन अन्तर्गत बनेको नियम वा विनियममा तोकिएको वा तोकिए बमोजिम सम्भन्नु पर्दछ ।

परिच्छेद -२

विपद् व्यवस्थापनका विभिन्न चरणहरूमा गरिने कार्यहरू

३. पूर्वतयारी अवस्थामा गरिने प्रमुख कार्यहरू देहाय बमोजिम हुनेछन् :

- (क) प्राकृतिक विपद्को सम्भावित असरलाई न्यून गर्न जोखिमयुक्त स्थानहरूको पहिचान गर्ने एवं त्यस्ता स्थलको नक्साङ्कन गर्ने,
- (ख) जनचेतना अभिवृद्धि, जोखिम मूल्याङ्कन, पूर्वचेतावनी संयन्त्रको स्थापना गर्ने,
- (ग) विपद्को सामना गर्न स्थानीय क्षमता एवं दक्षताको अभिवृद्धि, सूचना प्रवाह एवं एकीकृत सञ्जालको विकास गर्ने,
- (घ) अस्पताल एवं स्वास्थ्यचौकीमा आपतकालीन उपचारका लागि पर्याप्त सुविधाको व्यवस्था तथा विकास गर्ने,
- (ङ) औपचारिक एवं अनौपचारिक शिक्षाका विभिन्न तहको पाठ्यक्रममा विपद्सम्बन्धी विषय समावेश गर्ने,
- (च) विपद् व्यवस्थापन योजना, विपद् समायोजित विकास योजना, भू-उपयोग योजना, अग्नि संहिता तथा भवन निर्माण संहिता आदि तर्जुमा गरी कार्यान्वयन गर्ने,

- (छ) विपद्को सामना गर्नका लागि योजना बनाउने र आवश्यकता अनुसार प्रतिरोधात्मक संयन्त्र एवं सामग्रीहरू सार्वजनिक निकायहरूमा तयारी अवस्थामा राख्ने व्यवस्था मिलाउने र सम्पर्क विन्दु तोक्ने,
- (ज) देशभित्र कार्यान्वयन गरिने सम्पूर्ण विकास एवं निर्माणका संरचनाहरूको विपद् प्रभाव मूल्याङ्कन अनिवार्य रूपमा गर्ने,
- (झ) विपद्को असर एकभन्दा बढी जिल्लाहरूमा पर्ने देखिएमा संयुक्त रूपमा योजना तयार गरी तद्अनुरूप कार्यान्वयनको व्यवस्था मिलाउने,
- (ञ) सार्वजनिक भवन तथा अन्य भौतिक संरचनाहरू निर्माण गर्दा स्थानीय निकायसँग समेत समन्वय गरी विपद् प्रतिरोधात्मक उपायको अवलम्बन गर्ने, निर्माण भैसकेका संरचनाहरूको सो अनुरूप सवलीकरण गर्ने,
- (ट) जोखिमयुक्त स्थलहरूमा बस्ती बिस्तार गर्न नियन्त्रण गर्ने, त्यस्ता बस्तीहरूको संरक्षणका साथै आवश्यकता अनुसार स्थानान्तरण गर्ने र स्थानान्तरण गर्दा गरिब, महिला, ज्येष्ठ नागरिक तथा पिछडिएका वर्गलाई प्राथमिकता दिने,
- (ठ) विपद् व्यवस्थापन सम्बन्धी आपतकालीन स्वास्थ्य सेवा, उद्धार तथा राहत कार्य, स्थानीय क्षमता अभिवृद्धि आदि जस्ता तालिम सन्चालन गर्ने र यस्ता तालिममा गरिब, महिला तथा पिछडिएका वर्गहरूलाई प्राथमिकता दिने,
- (ड) सामुदायिक तहमा आपतकालीन आश्रयगृह तथा अन्य आवश्यक सुविधाको व्यवस्था गर्ने,
- (ढ) आवश्यकता अनुसार ऐन, कानून, नियम, निर्देशिकाहरूको व्यवस्था गरी अद्यावधिक गर्ने तथा प्रशासनिक कार्यप्रणालीलाई आपतकालीन अवस्थामा प्रयोगका लागि दुरुस्त राख्ने,
- (ण) विपद् व्यवस्थापनका लागि आवश्यक पर्याप्त साधन, स्रोत र बजेटको व्यवस्था गर्ने,
- (त) उपयुक्त स्थानहरूमा भण्डारगृह निर्माण गरी पर्याप्त मात्रामा तोकिएको मापदण्ड अनुसार खाद्यान्न, औषधि एवं अन्य उद्धार तथा राहत सामग्री भण्डारण गर्ने,
- (थ) विपद्बाट जोगिने पूर्वाभ्यास कार्यक्रमको योजना बनाउने र कार्यान्वयन गर्ने,

- (द) विपद्सम्बन्धी कार्यमा सबै सरोकारवालाहरू बीच समन्वय एवं सहकार्य अभिवृद्धि गर्ने,
- (ध) जनधनको क्षतिलाई न्यून गर्ने उद्देश्यले विपद्का घटना घट्नु पूर्व गरिने अन्य सम्पूर्ण कार्यहरू गर्ने, आदि ।

४. उद्धार तथा राहत अवस्थामा गरिने प्रमुख कार्यहरू देहाय बमोजिम हुनेछन् :

- (क) प्राकृतिक एवं गैह्रप्राकृतिक विपद्को प्रारम्भिक जानकारी लिने/दिने,
- (ख) सुरक्षा निकाय, नेपाल रेडक्रस सोसाईटी, नेपाल स्काउट, स्वयंसेवक, प्राविधिज्ञ, नागरिक समाज, सरोकारवाला समुदाय आदि सम्मिलित खोजी तथा उद्धार टोलीको तत्काल गठन तथा परिचालन गर्ने,
- (ग) राहतस्वरूप खाना, बच्चाको आहार, खानेपानी, लत्ताकपडा, भाँडाकुँडा तथा आर्थिक सहयोग तत्काल उपलब्ध गराउने,
- (घ) अस्थायी आवास, स्वास्थ्यसेवा, खानेपानी, सरसफाई, शौचालय, सुरक्षा आदिको तत्काल व्यवस्थापन गर्ने,
- (ङ) टेलिफोन, फ्याक्स, इमेल, रेडियो स्टेसन, टेलिभिजन जस्ता सञ्चार सुविधालाई सुचारु गर्ने एवं राष्ट्रिय तथा अन्तर्राष्ट्रिय सूचना प्रवाहका समस्त माध्यमलाई व्यवस्थित र सन्चालन गर्ने,
- (च) स्थानीयस्तरमा नै औषधि उपचारको व्यवस्था र गम्भीर अवस्थाका घाइतेहरूलाई सुविधा सम्पन्न अस्पतालहरूमा तत्काल स्थानान्तरण गर्ने,
- (छ) कुनै जिल्लामा विपद् परेको अवस्थामा अन्य जिल्लाहरूले समेत आवश्यकता अनुसार उद्धार तथा राहत र अन्य सबै आवश्यक कार्यमा सहयोग गर्ने,
- (ज) उद्धार तथा राहत सामग्री तथा प्रभावित जनसमुदाय वा व्यक्तिहरूको ओसारपसारका लागि घटनास्थलसम्म पहुँच पुऱ्याउन अवरुद्ध सडक यातायात, विमानस्थल आदि सुचारु गर्ने तथा यातायातका साधनको व्यवस्था गर्ने ,
- (झ) उद्धार तथा राहत कार्यलाई व्यवस्थित गर्न तथा प्रभावित जनसमुदायलाई सहयोग पुऱ्याउन उपयुक्त स्थानहरूमा विपद् व्यवस्थापन अस्थायी कक्ष तत्काल स्थापना गर्ने,

- (ज) विपद्बाट असर परेकाहरूको मनोसामाजिक अवस्थिति एवं जीवनयापनलाई सहज तुल्याउन सहयोगी हुने कार्यहरू गर्ने,
- (ट) उद्धार एवं राहत कार्यलाई प्रभावकारी बनाउन सरोकारवाला सवैसँग सहकार्य गर्ने तथा आवश्यक साधन, स्रोत र पर्याप्त बजेट आदिको व्यवस्था गर्ने,
- (ठ) विपद् परेका क्षेत्रहरूमा उपलब्ध स्रोत, साधन एवं सीपको अधिकतम रूपमा उपयोग गर्ने तथा व्यवस्थापन कार्यमा स्थानीय व्यक्तिहरूलाई व्यापक रूपमा सहभागी बनाउने,
- (ड) विपद्को घटना घटना साथै त्यस्ता घटनाबाट तल्लो तटीय क्षेत्रमा पर्न जाने असरलाई कम गर्न त्यस्ता क्षेत्रबाट असर पर्न सक्ने जनसमुदायलाई उद्धार गर्ने, गराउने,
- (ढ) विपद्का अवस्थामा आवश्यक पर्ने खाद्यान्न एवं अन्य सरसामान जगोडाको रूपमा राख्ने प्रक्रियाका सम्बन्धमा सरोकारवालाहरूसँग समेत समन्वय कायम गर्ने,
- (ण) विपद् परेका स्थानका बासिन्दाहरूलाई नेपाल सरकारका तर्फबाट जीउधनको भरपर्दो सुरक्षा उपलब्ध गराउने,
- (त) विपद्का घटना घटनासाथ तत्कालै गरिने अन्य सम्पूर्ण कार्यहरू गर्ने ।

५. पुनर्स्थापना तथा पुनर्निर्माण अवस्थामा गरिने प्रमुख कार्यहरू देहाय बमोजिम हुनेछन् :

- (क) विपद्बाट भएको क्षतिको विस्तृत मूल्याङ्कन गर्ने,
- (ख) योजना तर्जुमा गरी क्षतिभएको कृषि, भूमि, भवन तथा अन्य भौतिक पूर्वाधारहरू जस्तै: खानेपानी, सिंचाई, पुल, सडक, विद्युत, सञ्चार आदिको मर्मतसंभार तथा नयां निर्माण गर्न सहयोग पुऱ्याउने,
- (ग) विपद् प्रभावित क्षेत्रमा आर्थिक क्रियाकलापहरूको पुनर्स्थापना, रोजगारीका अवसरको सृजना एवं जीवनयापनका लागि आयमूलक कार्यहरू सन्चालन गर्ने,
- (घ) पुनर्स्थापना एवं पुनर्निर्माण कार्य सन्चालन गर्ने र विपद् न्यूनीकरण प्रविधिको प्रयोग गर्ने,
- (ड) विभिन्न निकायहरूबाट गरिने पुनर्स्थापना एवं पुनर्निर्माणका कार्यहरूलाई समन्वय गर्ने संयन्त्रको विकास गरी तदनु रूप कार्यान्वयन गर्ने,

- (च) पुनर्स्थापना एवं पुनर्निर्माण कार्यमा गैह्रसरकारी संस्था, निजीक्षेत्र एवं जनसमुदायलाई उपयुक्तता अनुसार अधिकतम रूपमा संलग्न गराउने एवं सामुदायिक अवधारणालाई प्राथमिकता दिने,
- (छ) सहूलियतपूर्ण ऋण, अनुदान तथा अन्य सहयोग प्रदान गर्ने र यसरी सहयोग प्रदान गर्दा गरिब, महिला, ज्येष्ठ नागरिक तथा पिछडिएका वर्गलाई प्राथमिकता दिने,
- (ज) पर्याप्त बजेट तथा अन्य साधन स्रोतको व्यवस्था गर्ने,
- (झ) विपद्बाट असर परेका व्यक्तिहरूका लागि गरिने मनोसामाजिक परामर्श लगायतका अन्य सम्पूर्ण कार्यहरू गर्ने,
- (ञ) पुनर्स्थापना तथा पुनर्निर्माणसम्बन्धी अन्य सम्पूर्ण कार्यहरू गर्ने ।

परिच्छेद -३

नेपाल सरकारको काम, कर्तव्य र अधिकार

६. यस ऐन अन्तर्गत नेपाल सरकारको काम, कर्तव्य र अधिकार देहाय बमोजिम हुनेछ :

- (१) सबै विपद् व्यवस्थापन अधिकारीहरूलाई विपद् जोखिम न्यूनीकरण तथा प्रभावकारी व्यवस्थापनका लागि पूर्वतयारी, उद्धार तथा राहत, पुनर्स्थापना तथा पुनर्निर्माण अवस्था अन्तर्गत गरिने कार्यहरू गर्न लगाउनु नेपाल सरकारको मुख्य कर्तव्य हुनेछ ।
- (२) परिषद्मार्फत प्रमुख जिल्ला अधिकारीले विपद् सम्भाव्यक्षेत्र घोषणा गर्नका लागि पेश गरेको प्रतिवेदनउपर विचार गरी विपद्को सम्भाव्य जोखिम देखिएमा नेपाल सरकारले नेपाल राजपत्र तथा कुनै राष्ट्रिय दैनिक पत्रिकामा समयावधि तोकी सूचना प्रकाशित गरी विपद् सम्भाव्यक्षेत्रको घोषणा गर्न सक्नेछ ।
- (३) उपदफा (२) बमोजिमको घोषणा पहिलो पटक १५ दिनसम्म जारी रहने छ । परिषद् मार्फत सम्बन्धित प्रमुख जिल्ला अधिकारीले सिफारिस गरेमा आवश्यकता अनुसार घोषणाको अवधि बढाई उपदफा (२) मा उल्लिखित माध्यमबाट जानकारी गराउनु पर्नेछ ।

- (४) नेपाल सरकारले आवश्यक देखेमा विपद्बाट असर परेको क्षेत्रको सिमाना तोकी नेपाल राजपत्र तथा कुनै राष्ट्रिय दैनिक पत्रिकामा सूचना प्रकाशित गरी सोही सूचनामा तोकिएको अवधिको लागि सङ्कटग्रस्त क्षेत्रको घोषणा गर्न सक्नेछ ।
- तर, उपदफा (४) बमोजिमको अवधिभित्र विपद्बाट उत्पन्न स्थितिलाई काबुमा ल्याउन नसकिएमा नेपाल सरकारले त्यस्तो अवधि नेपाल राजपत्र तथा कुनै राष्ट्रिय दैनिक पत्रिकामा सूचना प्रकाशित गरी आवश्यकता अनुसार बढाउन सक्नेछ ।
- (५) सङ्कटग्रस्त क्षेत्र वा विपद् सम्भाव्यक्षेत्रमा आवश्यकता अनुसार सरकारी वा गैह्रसरकारी कार्यालय, शिक्षण संस्था तथा अन्य संघ संस्थाहरूलाई आवश्यक अवधिको लागि बन्द गर्न सक्नेछ ।
- (६) सङ्कटग्रस्त क्षेत्रमा विपद् व्यवस्थापन कार्यमा प्रतिकूल असर पर्न सक्ने कुनै पनि काम कारवाही गर्न नदिने ।
- (७) सङ्कटग्रस्त क्षेत्रभित्रका व्यक्ति तथा सम्पत्तिलाई सुरक्षित स्थानमा सार्ने तथा सार्न लगाउने ।
- (८) सरकारी, अर्धसरकारी तथा गैह्रसरकारी कार्यालय वा संघ संस्थाका कर्मचारीहरूलाई काजमा खटाउने ।
- (९) उद्धार तथा राहतका लागि वैदेशिक सहायता अन्तर्गत प्राप्त हुने सामग्रीहरू देशभित्र पैठारी गर्नका लागि सरल प्रक्रिया र त्यस्ता सामग्रीमा भन्सार छुटको व्यवस्था मिलाउने ।
- (१०) राहत सामग्री ओसारपसार गर्नका लागि आवश्यक स्थलसम्म ढुवानीको व्यवस्था मिलाउने एवं त्यस्ता राहत सामग्रीका लागि केन्द्रीय, क्षेत्रीय एवं आवश्यकता अनुसार भण्डारगृहको व्यवस्था गर्ने, गराउने ।
- (११) सचिवालयको सिफारिसका आधारमा विपद् प्रभावित व्यक्तिहरूलाई पुन्याइने न्यूनतम सहायतासम्बन्धी मापदण्ड बनाई जारी गर्ने । विपद्बाट प्रभावित व्यक्ति वा परिवारलाई यस अनुसारको सहायता प्राप्त गर्ने अधिकार हुनेछ ।
- (१२) विपद्बाट क्षति पुग्न सक्ने जनसमुदाय, व्यक्ति एवं सम्पत्तिहरूको बीमा गराउन प्रोत्साहन गर्ने,

- (१३) सङ्कटग्रस्त क्षेत्रमा मालपोत मिनाहा गर्न सक्ने ।
- (१४) विपद् व्यवस्थापन कार्यमा सहयोग गर्न आउने विदेशी नागरिक वा संस्थालाई आवश्यकतानुसार सरल प्रक्रिया अपनाई निशुल्क वा सशुल्क प्रवेशाज्ञा दिन सक्ने ।
- (१५) विपद् व्यवस्थापन कार्यलाई नेपाल सरकारका तर्फबाट सहयोग पुऱ्याउने एवं व्यवस्थापनसम्बन्धी अन्य सबै आवश्यक कार्यहरू गर्ने, गराउने ।

परिच्छेद - ४

परिषद् एवं यस अन्तर्गतका समितिहरूको गठन तथा काम, कर्तव्य र अधिकार

७. विपद् व्यवस्थापन परिषद्को गठन : (१) विपद् व्यवस्थापन कार्यलाई प्रभावकारी बनाउन विपद् व्यवस्थापन परिषद्को गठन देहाय बमोजिम हुनेछ :

क.	प्रधानमन्त्री	अध्यक्ष
ख.	गृहमन्त्री	उपाध्यक्ष
ग.	रक्षामन्त्री	सदस्य
घ.	स्थानीय विकासमन्त्री	सदस्य
ङ.	भौतिक योजना तथा निर्माणमन्त्री	सदस्य
च.	उपाध्यक्ष, राष्ट्रिय योजना आयोग	सदस्य
छ.	प्रधान सेनापति, नेपाली सेना	सदस्य
ज.	मुख्यसचिव	सदस्य
झ.	गृहसचिव	सदस्य
ञ.	अर्थसचिव	सदस्य
ट.	स्वास्थ्य तथा जनसङ्ख्यासचिव	सदस्य
ठ.	महिला, बालबालिका तथा समाज कल्याणसचिव	सदस्य
ड.	जलश्रोतसचिव	सदस्य
ढ.	वन तथा भू-संरक्षणसचिव	सदस्य
ण.	वातावरण, विज्ञान तथा प्रविधिसचिव	सदस्य
त.	सूचना तथा सञ्चारसचिव	सदस्य
थ.	उद्योग वाणिज्य तथा आपूर्तिसचिव	सदस्य

द.	महानिरीक्षक, नेपाल प्रहरी	सदस्य
ध.	महानिरीक्षक, सशस्त्र प्रहरी बल	सदस्य
न.	अध्यक्ष, नेपाल रेडक्रस सोसाईटी	सदस्य
प.	अध्यक्ष, जिल्ला विकास समिति महासंघ	सदस्य
फ.	अध्यक्ष, नगरपालिका महासंघ	सदस्य
व.	अध्यक्ष, गाउँ विकास समिति महासंघ	सदस्य
भ.	अध्यक्ष, नेपाल उद्योग वाणिज्य महासंघ	सदस्य
म.	सदस्य सचिव, समाज कल्याण परिषद्	सदस्य
य.	प्रमुख आयुक्त, नेपाल स्काउट	सदस्य
र.	विपद् व्यवस्थापनसम्बन्धी कार्य गर्ने गैह्रसरकारी संघ संस्थाहरू मध्येबाट नेपाल सरकारले मनोनयन गरेका तीन जना प्रतिनिधि	सदस्य
ल.	नेपाल सरकारबाट मनोनित विपद् व्यवस्थापनसम्बन्धी प्राविधिज्ञ दुई जना	सदस्य
व.	कार्यकारी निर्देशक	सदस्य सचिव

- (२) नेपाल सरकारबाट मनोनित उपदफा (१) को खण्ड (र) र (ल) बमोजिमका व्यक्तिहरूको पदावधि तीन वर्षको हुनेछ ।
- (३) परिषद्को बैठक कम्तिमा ६ महिनामा एक पटक बस्नेछ तर आवश्यक परेमा परिषद्को बैठक जुनसुकै बेलामा पनि बस्न सक्नेछ ।
- (४) परिषद्ले आवश्यकता अनुसार अन्य विज्ञहरूलाई समेत बैठकमा सहभागीको रूपमा आमन्त्रण गर्न सक्नेछ । यसरी आमन्त्रित विज्ञहरूलाई मतदानको अधिकार हुने छैन ।
- (५) परिषद्को बैठकको अध्यक्षता प्रधानमन्त्रीले गर्नेछन् । प्रधानमन्त्रीको अनुपस्थितिमा परिषद्को बैठकको अध्यक्षता उपाध्यक्षले गर्नेछन् ।
- (६) परिषद्मा बहुमतको निर्णय मान्य हुनेछ र गणपूरक सङ्ख्या पचास प्रतिशतको उपस्थितिलाई मानिनेछ । पहिलो पटक गणपूरक सङ्ख्या नपुगी बैठक बस्न नसकेमा दोस्रो बैठकको लागि एक तिहाई सदस्यको उपस्थितिलाई गणपूरक सङ्ख्या मानिनेछ

(७) परिषद्ले आवश्यक ठानेमा उपाध्यक्षको संयोजकत्वमा एक कार्यकारी समिति गठन गरी यस ऐन अन्तर्गत आफूलाई प्राप्त भएको अधिकार प्रत्यायोजन गरी कार्य सम्पादन गराउन सक्नेछ ।

८. परिषद् सङ्गठित संस्था हुने : (१) दफा ७ अन्तर्गत स्थापित परिषद् अविच्छिन्न उत्तराधिकारवाला स्वशासित र सङ्गठित संस्था हुनेछ ।

(२) परिषद्ले व्यक्ति सरह चल अचल सम्पत्ति प्राप्त गर्न, उपभोग गर्न र बेचबिखन गर्न सक्नेछ ।

(३) परिषद्ले व्यक्ति सरह आफ्नो नामबाट नालिस उजुर गर्न सक्नेछ र सो उपर पनि सोही नामबाट नालिस उजुर लाग्न सक्नेछ ।

(४) परिषद्को आफ्नो छुट्टै छाप हुनेछ ।

९. परिषद्को काम, कर्तव्य र अधिकार : परिषद्को काम कर्तव्य र अधिकार देहाय बमोजिम हुनेछ :

(क) विपद् व्यवस्थापनसम्बन्धी नीति, योजना तथा कार्यक्रमहरूको तर्जुमा, कार्यान्वयन, सुपरीवेक्षण र अनुगमनका साथै आवश्यक निर्देशन दिने,

(ख) स्थानीयस्तरका कार्यक्रमहरूलाई समेत समेटी जिल्लास्तरबाट पेश भै आएका योजनाहरूलाई आवश्यकता अनुसार परिमार्जन गरी स्वीकृति प्रदान गर्ने र सोको कार्यान्वयनका लागि आर्थिक तथा प्राविधिक सहयोग गर्ने,

(ग) सम्बन्धित प्रमुख जिल्ला अधिकारीबाट प्राप्त प्रतिवेदन अनुसार विपद् सम्भाव्यक्षेत्र घोषणा गर्न नेपाल सरकारलाई सिफारिस गर्ने,

(घ) विपद्बाट बृहद् रूपमा प्रभावित क्षेत्रलाई सङ्कटग्रस्त क्षेत्र घोषणा गर्न नेपाल सरकारलाई सिफारिस गर्ने,

(ङ) विपद्सम्बन्धी सम्पूर्ण विवरणहरू सङ्कलन गर्ने गराउने, नदी नियन्त्रण, बाढी, पहिरो, भूकम्प, भू-मण्डलीय उष्णीकरण, हावापानी परिवर्तन, भू-उपयोग आदि विभिन्न विषयहरूमा अनुसन्धान गर्ने गराउने र विपद्सम्बन्धी केन्द्रीय स्रोत संस्थाको रूपमा कार्य गर्ने,

- (च) कुनै पनि किसिमका विपद्बाट हुनसक्ने धनजनको क्षतिलाई न्यून गर्न पूर्वचेतावनी प्रणालीको व्यवस्था गर्ने, गराउने,
- (छ) विपद् व्यवस्थापनका विभिन्न चरणहरूमा कार्य गर्न आवश्यकता अनुसार केन्द्रीयस्तरको कार्यदल गठन गरी कार्य गर्ने, गराउने,
- (ज) विपद् जोखिम न्यूनीकरणसम्बन्धी कार्ययोजना निर्माण एवं कार्यान्वयनका साथै सबै सम्बन्धित निकाय बीच समन्वय र सहकार्यको अनुगमन एवं निरीक्षण गर्ने, गराउने,
- (झ) व्यावहारिक तथा सामयिक नीतिगत व्यवस्था गरी विपद् पीडितहरूलाई उद्धार तथा राहत प्रदान गर्ने,
- (ञ) विपद् व्यवस्थापनसम्बन्धी औपचारिक एवं अनौपचारिक शिक्षा, तालिम, प्रचार, प्रसार, प्रकाशन, सचेतना, विपद्को सामनासम्बन्धी पूर्वाभ्यास आदि जस्ता कार्यहरू गर्ने, गराउने,
- (ट) उद्धार तथा राहत कार्यका लागि विपद् उद्धार समूह गठन गर्ने र सामुदायिक स्वयंसेवक तयार गरी संलग्न गराउने,
- (ठ) विपद् व्यवस्थापन कार्यमा प्रभावकारिता ल्याउन अन्तर्राष्ट्रियस्तरका द्विपक्षीय, बहुपक्षीय, सरकारी एवं गैरसरकारी निकायहरूसँगको सम्पर्क, समन्वय र सहकार्यमा अभिवृद्धि गर्नका लागि आवश्यक कार्य गर्ने, गराउने,
- (ड) मुलुकभित्र वा बाहिरबाट विपद् व्यवस्थापनका लागि सरकारी, गैरसरकारी वा व्यक्तिगत तवरबाट प्राप्त नगद वा वस्तुगत सहयोगहरू सोभै प्राप्त गरी सोको परिचालन गर्ने, गराउने,
- (ढ) परिषद्को छुट्टै खाता खोली सन्चालन गर्ने,
- (ण) बृहद् प्रभाव पार्ने विपद्सम्बन्धी विवरणहरू सार्वजनिक जानकारीका लागि तत्काल उपलब्ध गराउनका साथै आफूले गरेका सम्पूर्ण काम कारवाही एवं लेखापरीक्षण सहितको आर्थिक विवरणहरू वार्षिक रूपमा सर्वसाधारणको जानकारीका लागि प्रकाशित गर्ने,

- (त) विपद् व्यवस्थापन सम्बन्धमा आवश्यक कार्य गर्न समिति, कार्यकारी निर्देशक तथा जिल्ला र स्थानीय विपद् व्यवस्थापन समितिहरूलाई निर्देशन दिने,
- (थ) जिल्ला, नगर एवं स्थानीयस्तरका निकायहरूमार्फत सम्भावित विपद्को सामना गर्नका लागि सङ्कटकालीन पूर्वतयारी योजनाहरू तर्जुमाको सुनिश्चितता गर्ने,
- (द) परिषद्को हाताभित्रै सङ्कटकालीन व्यवस्थापनकेन्द्रको स्थापना गर्ने तथा अन्य निकायहरूलाई पनि सो अनुरूप स्थापना गर्न प्रोत्साहन गर्ने,
- (ध) विपद् व्यवस्थापनसम्बन्धी उदाहरणीय कार्य गर्ने उत्कृष्ट व्यक्ति वा संस्थाहरूलाई बर्षेनी प्रोत्साहनस्वरूप सम्मान तथा पुरस्कार दिने, दिलाउने,
- (न) आवश्यकता अनुसार विशेषज्ञ समितिहरूको गठन गरी कार्य गर्ने, गराउने,
- (प) नेपाल सरकारलाई आवश्यकता अनुसार सुझाव दिने,
- (फ) पूर्वतयारी, उद्धार तथा राहत एवं पुनर्स्थापना तथा पुनर्निर्माण अवस्थामा गरिने व्यवस्थापनसम्बन्धी नेपाल सरकारले तोकेका लगायत अन्य आवश्यक सबै कार्य गर्ने, गराउने,
- (ब) परिषद्ले नेपाल सरकारसँग सम्पर्क गर्दा प्रधानमन्त्री तथा मन्त्रिपरिषद्को कार्यालय मार्फत गर्ने ।

१०. परिषद्को सचिवालय र कार्यकारी निर्देशक : (१) परिषद्को सचिवालय काठमाडौं उपत्यकाभित्र रहनेछ र यसले आवश्यकता अनुसार नेपाल राज्यभर शाखा कार्यालय खोल्न सक्नेछ ।

- (२) नेपाल सरकारले एक कार्यकारी निर्देशकको नियुक्ति गर्नेछ ।
- (३) कार्यकारी निर्देशक नेपाल सरकारको कम्तिमा निजामती सेवामा प्रथम श्रेणी वा अन्यत्र सो सरहको पदमा काम गरिसकेको व्यक्ति हुनेछ र निजलाई नेपाल सरकारले चार बर्षका लागि नियुक्त गर्नेछ ।
- (४) कार्यकारी निर्देशकले पाउने तलब, भत्ता, अन्य सुविधा तथा सेवाका सर्तहरू तोकिए बमोजिम हुनेछन् ।
- (५) परिषद्ले चाहिने आवश्यक कर्मचारीहरू नेपाल सरकारले उपलब्ध गराउनेछ ।

- (६) परिषद्ले आवश्यकता अनुसार अन्य कर्मचारीहरू नियुक्त गर्न सक्नेछ ।
- (७) परिषद्का कर्मचारीको सेवा, शर्त तथा तलब, भत्ताहरू तोकिए बमोजिम हुनेछ ।

११. कार्यकारी निर्देशकको काम, कर्तव्य र अधिकार : (१) कार्यकारी निर्देशकको काम, कर्तव्य र अधिकार देहाय बमोजिम हुनेछ :

- (क) परिषद्को निर्णय एवं निर्देशनहरू कार्यान्वयन गर्ने, गराउने,
- (ख) परिषद्को दीर्घकालीन तथा अल्पकालीन योजना, वार्षिक कार्यक्रम तथा बजेट तयार गर्ने, गराउने,
- (ग) परिषद्बाट स्वीकृत योजना तथा कार्यक्रम कार्यान्वयन गर्ने, गराउने,
- (घ) विपद् व्यवस्थापन योजना तयार गर्ने, गराउने र यसको कार्यान्वयनको समन्वय तथा अनुगमन गर्ने, गराउने,
- (ङ) विपद् व्यवस्थापनको लागि क्षमता निर्माण गर्ने र सोका लागि समन्वय र अनुगमन गर्ने,
- (च) पुनर्स्थापना तथा पुनर्निर्माण कार्यक्रमको समन्वय तथा अनुगमन गर्ने,
- (छ) परिषद्को वार्षिक प्रतिवेदन बनाई परिषद्मा पेश गर्ने,
- (ज) आवश्यकता अनुसार आफ्नो अधिकार परिषद्का अन्य वरिष्ठ कर्मचारीलाई प्रत्यायोजन गर्ने,
- (झ) अध्यक्ष तथा संयोजकको आदेशानुसार परिषद् तथा समितिको बैठक बोलाउने,
- (ञ) परिषद्लाई आवश्यक पर्ने सूचना, तथ्याङ्क आदिको सङ्कलन र व्यवस्थापन गरी प्रचार प्रसार गर्न एक सूचना तथा प्रलेखालयको व्यवस्था गर्ने,
- (ट) परिषद्को प्रशासकीय प्रमुखको हैसियतले परिषद्को उद्देश्य प्राप्त गर्न अन्य आवश्यक कार्यहरू गर्ने ।

(२) उपदफा (१) मा लेखिएदेखि बाहेक कार्यकारी निर्देशकका अन्य काम कर्तव्य र अधिकारहरू तोकिए बमोजिम हुनेछन् ।

१२. समितिहरूको गठन : विपद् व्यवस्थापनसम्बन्धी कार्यहरूलाई प्रभावकारी रूपमा सन्चालन गर्न तथा पूर्वतयारी, उद्धार तथा राहत एवं पुनर्स्थापना तथा पुनर्निर्माणसम्बन्धी कार्यहरू गर्नका लागि छुट्टाछुट्टै तीनवटा समितिहरू गठन गरिनेछन् ।

१३. पूर्वतयारी व्यवस्थापन समिति : (१) पूर्वतयारी व्यवस्थापन समितिको गठन देहाय बमोजिम हुनेछ :

क. स्थानीय विकासमन्त्री	संयोजक
ख. राष्ट्रिय योजना आयोगका विपद् हेर्ने सदस्य	उपसंयोजक
ग. गृहसचिव	सदस्य
घ. भौतिक योजना तथा निर्माणसचिव	सदस्य
ङ. कृषि तथा सहकारीसचिव	सदस्य
च. अर्थसचिव	सदस्य
छ. सूचना तथा सञ्चारसचिव	सदस्य
ज. शिक्षा तथा खेलकुदसचिव	सदस्य
झ. स्थानीय विकाससचिव	सदस्य
ञ. वातावरण, विज्ञान तथा प्रविधिसचिव	सदस्य
ट. उपरथी, नेपाली सेना	सदस्य
ठ. अतिरिक्त महानिरीक्षक, नेपाल प्रहरी	सदस्य
ड. अतिरिक्त महानिरीक्षक, सशस्त्र प्रहरी बल	सदस्य
ढ. महानिर्देशक, भू तथा जलाधार संरक्षण विभाग	सदस्य
ण. महानिर्देशक, खानी तथा भूगर्भ विभाग	सदस्य
त. महानिर्देशक, जलवायु तथा मौसम विज्ञान विभाग	सदस्य
थ. महानिर्देशक, जल उत्पन्न प्रकोप नियन्त्रण विभाग	सदस्य
द. महानिर्देशक, वन विभाग	सदस्य
ध. महानिर्देशक, शहरी विकास तथा भवन निर्माण विभाग	सदस्य
न. महानिर्देशक, स्वास्थ्य सेवा विभाग	सदस्य
प. अध्यक्ष, नेपाल रेडक्रस सोसाईटी	सदस्य
फ. सदस्यसचिव, समाज कल्याण परिषद्	सदस्य
ब. अध्यक्ष, जिल्ला विकास समिति महासंघ	सदस्य
भ. अध्यक्ष, नगरपालिका महासंघ	सदस्य
म. अध्यक्ष, गाउँ विकास समिति महासंघ	सदस्य

- य. विपद् व्यवस्थापनसम्बन्धी कार्यमा संलग्न गैहसरकारी संघ संस्थाहरू
मध्येबाट नेपाल सरकारले मनोनयन गरेका तीन जना प्रतिनिधि सदस्य
- र. नेपाल सरकारबाट मनोनित विपद् व्यवस्थापन सम्बन्धी प्राविधिज्ञ
दुई जना सदस्य
- ल. कार्यकारी निर्देशक सदस्य सचिव

(२) समितिले आवश्यकताअनुसार बैठकमा अन्य विशेषज्ञ वा व्यक्तिलाई आमन्त्रण गर्न सक्नेछ । यसरी आमन्त्रित विज्ञहरूलाई मताधिकार हुनेछैन ।

१४. पूर्वतयारी व्यवस्थापन समितिको काम, कर्तव्य र अधिकार : पूर्वतयारी व्यवस्थापन समितिको काम, कर्तव्य र अधिकार देहाय बमोजिम हुनेछ :

- (क) प्राकृतिक विपद्को सम्भावित असरलाई न्यून गर्न जोखिमयुक्त स्थानहरूको पहिचान गर्ने एवं त्यस्ता स्थलको नक्साङ्कन गर्ने, गराउने,
- (ख) जनचेतना अभिवृद्धि, जोखिम मूल्याङ्कन, पूर्वचेतावनी संयन्त्रको स्थापना गर्ने, गराउने,
- (ग) विपद्को सामना गर्न स्थानीय क्षमता एवं दक्षताको अभिवृद्धि, सूचना प्रवाह एवं एकीकृत सन्जालको विकास गर्ने, गराउने,
- (घ) अस्पताल एवं स्वास्थ्यचौकीमा आपतकालीन उपचारका लागि पर्याप्त सुविधाको व्यवस्था तथा विकास गर्ने, गराउने,
- (ङ) औपचारिक एवं अनौपचारिक शिक्षाका विभिन्न तहको पाठ्यक्रममा विपद्सम्बन्धी विषय समावेश गर्ने, गराउने,
- (च) विपद् व्यवस्थापन योजना, विपद् समायोजित विकास योजना, भू-उपयोग योजना, अग्नि संहिता तथा भवननिर्माण संहिता आदि तर्जुमा गरी कार्यान्वयन गर्न संयोजन गर्ने, गराउने,
- (छ) विपद्को सामना गर्नका लागि आवश्यक योजना बनाउने र आवश्यकता अनुसार प्रतिरोधात्मक संयन्त्र एवं सामग्रीहरू सार्वजनिक निकायहरूमा तयारी अवस्थामा राख्ने व्यवस्था मिलाउने र सम्पर्क विन्दु तोक्न पहल गर्ने, गराउने,

- (ज) देशभिन्न कार्यान्वयन गरिने सम्पूर्ण विकास एवं निर्माणका संरचनाहरूको विपद् प्रभाव मूल्याङ्कन अनिवार्य रूपमा गर्न लगाउने,
- (झ) विपद्को असर एकभन्दा बढी जिल्लाहरूमा पर्ने देखिएमा संयुक्त रूपमा योजना तयार गरी तदनुरूप कार्यान्वयनको व्यवस्था मिलाउने,
- (ञ) सार्वजनिक भवन तथा अन्य भौतिक संरचनाहरू निर्माण गर्दा स्थानीय निकायसँग समेत समन्वय गरी विपद् प्रतिरोधात्मक उपायको अवलम्बन गर्ने, गराउने, निर्माण भैसकेका संरचनाहरूको सो अनुरूप सवलीकरण गर्न पहल गर्ने, गराउने,
- (ट) असुरक्षित स्थलहरूमा बस्ती विस्तार गर्न नियन्त्रण गर्ने, असुरक्षित बस्तीको संरक्षणका साथै आवश्यकता अनुसार स्थानान्तरण गर्ने, गराउने र स्थानान्तरण गर्दा गरिब, महिला, ज्येष्ठ नागरिक तथा पिछडिएका वर्गलाई प्राथमिकता दिने,
- (ठ) विपद् व्यवस्थापनसम्बन्धी आपतकालीन स्वास्थ्य सेवा, उद्धार तथा राहत कार्य स्थानीय क्षमता अभिवृद्धि आदि जस्ता तालिम सन्चालन गराउने र यस्ता तालिममा गरिब, महिला तथा पिछडिएका वर्गहरूलाई प्राथमिकता दिने व्यवस्था मिलाउने,
- (ड) सामुदायिक तहमा आपतकालीन आश्रयगृह तथा अन्य आवश्यक सुविधाको व्यवस्था गर्ने, गराउने,
- (ढ) आवश्यकता अनुसार ऐन, कानून, नियम, निर्देशिकाहरूको व्यवस्था गरी अद्यावधिक गर्न सिफारिस गर्ने तथा प्रशासनिक कार्यप्रणालीलाई आपतकालीन अवस्थामा प्रयोगका लागि दुरुस्त राख्ने, राख्न लगाउने,
- (ण) विपद् व्यवस्थापनका लागि आवश्यक पर्याप्त साधन, स्रोत र बजेटको व्यवस्था गर्ने, गराउने,
- (त) उपयुक्त स्थानहरूमा भण्डारगृह निर्माण गरी पर्याप्त मात्रामा तोकिएको मापदण्ड अनुसार खाद्यान्न, औषधि एवं अन्य उद्धार तथा राहत सामग्री भण्डारण गर्ने, गराउने,
- (थ) विपद्बाट जोगिने पूर्वाभ्यास कार्यक्रमको योजना बनाउने र कार्यान्वयन गर्ने,
- (द) विपद्सम्बन्धी कार्यमा सबै सरोकारवालाहरूबीच समन्वय एवं सहकार्य अभिवृद्धि गर्ने,

(घ) जनधनको क्षतिलाई न्यून गर्ने उद्देश्यले विपद्का घटना घट्नु पूर्व गरिने अन्य सम्पूर्ण कार्यहरू गर्ने आदि ।

१५. उद्धार तथा राहत व्यवस्थापन समिति : (१) उद्धार तथा राहत व्यवस्थापन समितिको गठन देहाय बमोजिम हुनेछ :

क. गृहमन्त्री	संयोजक
ख. स्वास्थ्य तथा जनसङ्ख्यामन्त्री	उपसंयोजक
ग. भौतिक योजना तथा निर्माणमन्त्री	सदस्य
घ. स्थानीय विकासमन्त्री	सदस्य
ङ. रक्षासचिव	सदस्य
च. गृहसचिव	सदस्य
छ. अर्थसचिव	सदस्य
ज. परराष्ट्रसचिव	सदस्य
झ. उद्योग, वाणिज्य तथा आपूर्तिसचिव	सदस्य
ञ. सूचना तथा सञ्चारसचिव	सदस्य
ट. रथी, नेपाली सेना	सदस्य
ठ. महानिर्देशक, खानी तथा भूगर्भ विभाग	सदस्य
ड. महानिर्देशक, जल उत्पन्न प्रकोप नियन्त्रण विभाग	सदस्य
ढ. महानिर्देशक, शहरी विकास तथा भवन निर्माण विभाग	सदस्य
ण. महानिर्देशक, कृषि विभाग	सदस्य
त. महानिर्देशक, पशु स्वास्थ्य सेवा विभाग	सदस्य
थ. महानिरीक्षक, नेपाल प्रहरी	सदस्य
द. महानिरीक्षक, सशस्त्र प्रहरी बल	सदस्य
ध. अध्यक्ष, नेपाल रेडक्रस सोसाईटी	सदस्य
न. अध्यक्ष, जिल्ला विकास समिति महासंघ	सदस्य
प. अध्यक्ष, नगरपालिका महासंघ	सदस्य
फ. अध्यक्ष, गाउँ विकास समिति महासंघ	सदस्य
ब. अध्यक्ष, नेपाल उद्योग वाणिज्य महासंघ	सदस्य

भ. प्रमुख आयुक्त, नेपाल स्काउट	सदस्य
म. विपद् व्यवस्थापनसम्बन्धी कार्यमा संलग्न गैह्रसरकारी संघ संस्थाहरूमध्येबाट नेपाल सरकारले मनोनयन गरेका दुई जना प्रतिनिधि	सदस्य
य. नेपाल सरकारबाट मनोनित विपद् व्यवस्थापनसम्बन्धी प्राविधिज्ञ दुई जना	सदस्य
र. कार्यकारी निर्देशक	सदस्य सचिव

(२) समितिले आवश्यकताअनुसार बैठकमा अन्य विशेषज्ञ वा व्यक्तिलाई आमन्त्रण गर्न सक्नेछ । यसरी आमन्त्रित विज्ञलाई मताधिकार हुनेछैन ।

१६. उद्धार तथा राहत व्यवस्थापन समितिको काम, कर्तव्य र अधिकार : उद्धार तथा राहत व्यवस्थापन समितिको काम, कर्तव्य र अधिकार देहाय बमोजिम हुनेछ :

- (क) प्राकृतिक एवं गैह्रप्राकृतिक विपद्को प्रारम्भिक जानकारी लिई आवश्यक सूचना प्रवाह गर्ने, गराउने,
- (ख) विपद्बाट प्रभावित व्यक्तिहरूका लागि सुरक्षा निकाय, नेपाल रेडक्रस सोसाईटी, नेपाल स्काउट, स्वयंसेवक, विपद् उद्धार समूह, प्राविधिज्ञ, नागरिक समाज, सरोकारवाला समुदाय आदि सम्मिलित खोजी तथा उद्धार टोली तत्काल परिचालन गर्ने, गराउने,
- (ग) आपतकालीन खोजी, उद्धार, सूचना प्रवाह लगायत विपद् व्यवस्थापनका सम्पूर्ण आवश्यक कार्यहरू व्यवस्थित गर्न एवं प्रभावित जनसमुदायलाई सहयोग पुर्याउन विपद् व्यवस्थापन अस्थायी कक्ष स्थापना गर्ने, गराउने,
- (घ) राहतस्वरूप खाना, बच्चाको आहार, खानेपानी, लत्ताकपडा, भाँडाकुँडा लगायत आर्थिक सहयोग तत्काल वितरण गर्ने, गराउने,
- (ङ) अस्थायी आवास, स्वास्थ्यसेवा, खानेपानी, सरसफाइ, शौचालय, सुरक्षा आदिको तत्काल व्यवस्था गर्ने, गराउने,
- (च) बालबालिका, महिला, बृद्ध तथा अन्य प्रकारले सक्षम व्यक्तिहरूको उद्धार तथा राहत कार्यका लागि विशेष व्यवस्था गर्ने, गराउने,

- (छ) रेडियो, टेलिभिजन, टेलिफोन, फ्याक्स, इमेल आदि जस्ता सञ्चार सुविधा सुचारू गर्ने, गराउने,
- (ज) राष्ट्रिय तथा अन्तर्राष्ट्रिय सूचना प्रवाहका समस्त माध्यमलाई व्यवस्थित गर्ने, गराउने,
- (झ) स्थानीयस्तरमा नै उपचार सुविधाको व्यवस्था गर्ने र गम्भीर अवस्थाका घाइतेहरूलाई सुविधासम्पन्न अस्पतालहरूमा तत्काल स्थानान्तरण गर्ने, गराउने,
- (ञ) घटनास्थलसम्म पहुँच पुऱ्याउन अवरूद्ध सडक यातायात, विमानस्थल आदिलाई सुचारू गर्न सहयोग पुऱ्याउने तथा उद्धार कार्य र राहत सामग्री एवं प्रभावित जनसमुदाय वा व्यक्तिहरूको ओसारपसारका लागि यातायातका साधनहरूको व्यवस्था गर्ने, गराउने,
- (ट) उद्धार तथा राहत कार्यमा प्रभावकारिता ल्याउन सबै संलग्न सरोकारवालासँग समन्वय गरी सहकार्य गर्ने, आवश्यक साधन, सरसामान, स्रोत र पर्याप्त बजेट आदिको व्यवस्था गर्ने, गराउने,
- (ठ) शैक्षिक संस्थाका भवन, सार्वजनिक भवन तथा जग्गालाई आपतकालीन अवस्थामा प्रयोग गर्न आवश्यक समन्वय गर्ने, गराउने,
- (ड) कुनै जिल्लामा विपद् परेको अवस्थामा अन्य जिल्लाहरूले समेत आवश्यकता अनुसार उद्धार तथा राहत एवं अन्य सबै आवश्यक कार्यमा सहयोग गर्ने,
- (ढ) विपद्बाट असर परेकाहरूको मनोसामाजिक अवस्थिति एवं जीवनयापनलाई सहज तुल्याउन सहयोगी हुने कार्यहरू गर्ने,
- (ण) विपद् परेका क्षेत्रहरूमा उपलब्ध स्रोत, साधन, सीपको अधिकतम रूपमा उपयोग गर्ने तथा व्यवस्थापनकार्यमा स्थानीय व्यक्तिहरूलाई व्यापक रूपमा सहभागी बनाउने,

- (त) विपद्को घटना घटनासाथै त्यस्ता घटनाबाट तल्लो तटीय क्षेत्रमा पर्नजाने असरलाई कम गर्न यस्ता क्षेत्रबाट असर पर्नसक्ने जनसमुदायलाई उद्धार गर्ने, गराउने,
- (थ) विपद्का अवस्थामा आवश्यक पर्ने खाद्यान्न एवं अन्य सरसामान जगोडाको रूपमा राख्ने प्रक्रियाका सम्बन्धमा सरोकारवालाहरूसँग समेत समन्वय कायम गर्ने,
- (द) विपद् परेका स्थानका बासिन्दाहरूलाई नेपाल सरकारका तर्फबाट जीउधनको भरपर्दो सुरक्षा उपलब्ध गराउने,
- (ध) उद्धार तथा राहत अवस्थामा आईपर्ने अन्य सम्पूर्ण कार्यहरू गर्ने, गराउने ।

१७. पुनर्स्थापना तथा पुनर्निर्माण व्यवस्थापन समिति : (१) पुनर्स्थापना तथा पुनर्निर्माण व्यवस्थापन समितिको गठन देहाय बमोजिम हुनेछ :

क. भौतिक योजना तथा निर्माणमन्त्री	संयोजक
ख. विपद् हेर्ने राष्ट्रिय योजना आयोगका सदस्य	उप संयोजक
ग. स्थानीय विकाससचिव	सदस्य
घ. अर्थसचिव	सदस्य
ङ. भौतिक योजना तथा निर्माणसचिव	सदस्य
च. महानिर्देशक, कृषि विभाग	सदस्य
छ. महानिर्देशक, जल उत्पन्न प्रकोप नियन्त्रण विभाग	सदस्य
ज. महानिर्देशक, शहरी विकास तथा भवन निर्माण विभाग	सदस्य
झ. महानिर्देशक, सिंचाई विभाग	सदस्य
ञ. महानिर्देशक, वन विभाग	सदस्य
ट. प्रतिनिधि, नेपाल राष्ट्र बैंक	सदस्य
ठ. अध्यक्ष, नेपाल रेडक्रस सोसाईटी	सदस्य
ड. विपद् व्यवस्थापनसम्बन्धी कार्य गर्ने गैह्रसरकारी संघ संस्थाहरू	
मध्येबाट नेपाल सरकारले मनोनयन गरेका दुई जना प्रतिनिधि	सदस्य
ढ. विपद् व्यवस्थापनसम्बन्धी प्राविधिज्ञ दुई जना	सदस्य

- (२) समितिले आवश्यकता अनुसार बैठकमा अन्य विशेषज्ञ वा व्यक्तिलाई आमन्त्रण गर्न सक्नेछ । यसरी आमन्त्रित विज्ञको मताधिकार हुनेछैन ।

१८. पुनर्स्थापना तथा पुनर्निर्माण व्यवस्थापन समितिको काम, कर्तव्य र अधिकार : पुनर्स्थापना तथा पुनर्निर्माण व्यवस्थापन समितिको काम, कर्तव्य र अधिकार देहाय बमोजिम हुनेछ :

- (क) विपद्बाट भएको क्षतिको विस्तृत मूल्याङ्कन गर्ने, गराउने,
- (ख) योजना तर्जुमा गरी क्षति भएको कृषि, भूमि, भवन तथा अन्य भौतिक पूर्वाधारहरू जस्तै: खानेपानी, सिंचाई, पुल, सडक, विद्युत, सञ्चार आदिको मर्मतसम्भार तथा नयाँ निर्माण गर्न सहयोग पुर्याउने,
- (ग) विपद् प्रभावितक्षेत्रमा आर्थिक क्रियाकलापहरूको पुनर्स्थापना, रोजगारीका अवसरको सृजना एवं जीवनयापनका लागि आयमूलक कार्यहरू सन्चालन गर्ने, गराउने,
- (घ) पुनर्स्थापना एवं पुनर्निर्माण कार्य सन्चालन गर्ने र विपद् न्यूनीकरण प्रविधिको प्रयोग गर्ने, गराउने,
- (ङ) विभिन्न निकायहरूबाट गरिने पुनर्स्थापना एवं पुनर्निर्माणका कार्यहरूलाई समन्वय गर्ने संयन्त्रको विकास गरी तदनुरूप कार्यान्वयन गर्ने, गराउने,
- (च) पुनर्स्थापना एवं पुनर्निर्माण कार्यमा गैह्रसरकारी संस्था, निजीक्षेत्र एवं जनसमुदायलाई उपयुक्तता अनुसार अधिकतम रूपमा संलग्न गराउने एवं सामुदायिक अवधारणालाई प्राथमिकता दिने, दिन लगाउने,
- (छ) सहूलियतपूर्ण ऋण, अनुदान तथा अन्य सहयोग प्रदान गर्ने, गर्न लगाउने र यसरी सहयोग प्रदान गर्दा गरिब, महिला, ज्येष्ठ नागरिक तथा पिछडिएको वर्गलाई प्राथमिकता दिने व्यवस्था मिलाउने,
- (ज) कृषिका लागि आवश्यक पर्ने मल, बिउ, विजन आदि सुलभ तथा सहूलियत दरमा उपलब्ध गराउने,
- (झ) पर्याप्त बजेट तथा अन्य साधन स्रोतको व्यवस्था गर्ने, गराउने,

- (ज) विपद्बाट असर परेका व्यक्तिहरूका लागि गरिने मनोसामाजिक परामर्श सहयोग गर्ने लगायतका अन्य सम्पूर्ण कार्यहरू गर्ने, गराउने,
- (ट) पुनर्स्थापना तथा पुनर्निर्माणसम्बन्धी अन्य सम्पूर्ण कार्यहरू गर्ने ।

१९. नेपाल सरकारबाट मनोनित दफा १३ (य) र (र), दफा १५ (म) र (य) तथा १७ (ड) र (ढ) बमोजिम तीनवटै व्यवस्थापन समितिका सदस्यहरूको पदावधि तीन वर्षको हुनेछ ।
२०. समितिहरूको बैठकमा संयोजकले अध्यक्षता गर्नेछ । संयोजकको अनुपस्थितिमा उपसंयोजकले अध्यक्षता गर्नेछ ।
२१. समितिहरूको बैठकमा पचास प्रतिशत सदस्यको उपस्थितिलाई गणपूरक सङ्ख्या मानिने छ र उपस्थित सदस्यहरूमध्ये बहुमतबाट निर्णयहरू पारित हुनेछन्, गणपूरक सङ्ख्याको अभावमा बैठक बस्न नसकेको अवस्थामा दोस्रो पटकको बैठकको लागि सो सङ्ख्याको एक तिहाई सदस्य उपस्थित भएमा गणपूरक सङ्ख्या पुगेको मानिनेछ ।
२२. समितिहरूले आवश्यक ठानेमा उपसंयोजकको संयोजकत्वमा एउटा कार्यकारी उपसमिति गठन गरी यस ऐन अन्तर्गत आफूलाई प्राप्त अधिकारहरू प्रत्यायोजन गरी कार्यसम्पादन गराउन सक्नेछन् ।

परिच्छेद - ५ परिषद्को कोष तथा लेखापरिक्षण

२३. परिषद्को कोष : (१) परिषद्को आफ्नै एउटा छुट्टै विपद् व्यवस्थापन कोष नामक कोष रहनेछ ।
- (२) उपदफा (१) बमोजिमको कोषमा देहाय बमोजिमका रकमहरू रहनेछन् र
- (क) नेपाल सरकारबाट विनियोजन गरिएको बजेट, अनुदान, प्रधानमन्त्री राहतकोषबाट प्राप्त रकम वा अन्य रकम,
 - (ख) विदेशी सरकार वा राष्ट्रिय वा अन्तर्राष्ट्रिय संघ संस्थाबाट प्राप्त सहयोग, अनुदान वा ऋण,
 - (ग) स्वदेशी वा विदेशी संघ संस्था वा व्यक्तिबाट प्राप्त दान, दातव्य वा उपहार,
 - (घ) अन्य कुनै स्रोतबाट प्राप्त रकम ।
- (३) परिषद्बाट गरिने सम्पूर्ण खर्च उपदफा (१) बमोजिमको कोषमा जम्मा भएको रकमबाट व्यहोरिनेछ ।

- (४) नेपाल सरकारले निर्दिष्ट गरेको बैंकमा खाता खोली परिषद्को रकम राखिनेछ र सो कोषको सन्चालन परिषद्ले तोके बमोजिम हुनेछ ।
- (५) परिषद्को नियमित प्रशासनिक खर्चको लागि छुट्टै बैंक खाता खोलिने छ । कुनै पनि स्रोतबाट प्राप्त दान, दातव्य, अनुदान वा ऋणको रकम नियमित प्रशासनिक कार्यमा खर्च गर्न पाइने छैन ।
- (६) नेपाल सरकारको पूर्वस्वीकृति प्राप्त गरी परिषद्ले बैंक, वित्तीय संस्था वा व्यक्तिबाट ऋण लिन सक्नेछ ।
- (७) परिषद्ले तोकिएको ढाँचामा आयव्यय सहितको बजेट विनियोजन गर्नेछ । सो बजेट निर्माण गर्दा नेपाल सरकारको निर्देशन पालना गर्नुपर्नेछ ।
- (८) आर्थिक वर्ष समाप्त हुँदा कुनै शीर्षकमा विनियोजित रकम खर्च हुन नसकेमा सो रकम अर्को आर्थिक वर्षमा स्वतः सार्नेछ ।
- (९) यस कोषका लागि प्राप्त खाद्यान्न, लत्ता, कपडा, औषधि, निर्माण सामग्री आदि जिन्सी आम्दानी रकमको हिसाब छुट्टै राखिने छ ।

२४. **लेखा र लेखापरीक्षण :** (१) परिषद्को आयव्ययको लेखा तोकिए बमोजिमको लेखाप्रणाली अनुसार राखिनेछ ।

- (२) परिषद्को लेखापरीक्षण महालेखापरिक्षक वा निजले तोकेको कुनै लेखापरीक्षकद्वारा हुनेछ ।
- (३) लेखापरीक्षकले परिषद्को वार्षिक कारोबारको स्थिति, वासलात, लाभ, हानी र अन्य हरहिसाबको सम्बन्धमा आफ्नो प्रतिवदेन तयार गरी नेपाल सरकार र परिषद्समक्ष पेश गर्नेछ ।

परिच्छेद - ६

जिल्ला तथा स्थानियस्तरमा गरिने विपद् व्यवस्थापन

२५. **जिल्ला विपद् व्यवस्थापन समितिको गठन :** (१) प्रत्येक जिल्लामा एक जिल्ला विपद् व्यवस्थापन समिति रहनेछ ।

(२) जिल्ला विपद् व्यवस्थापन समितिको गठन देहाय बमोजिम हुनेछ :

क. प्रमुख जिल्ला अधिकारी

अध्यक्ष

ख. जिल्ला विकास समितिको सभापति वा निजले जिल्ला विकास समितिको सदस्यहरू मध्येबाट मनोनयन गरेको व्यक्ति	सदस्य
ग. नेपाल सरकारका जिल्लास्तरीय कार्यालयका प्रमुखहरू	सदस्य
घ. जिल्लास्थित सुरक्षा निकायका प्रमुखहरू	सदस्य
ङ. जिल्लास्थित नेपाल रेडक्रस सोसाईटी कार्यालयका प्रमुख	सदस्य
च. राष्ट्रियस्तरका राजनीतिक दलका जिल्लास्तरीय प्रतिनिधिहरू	सदस्य
च. सभापति, जिल्ला उद्योग वाणिज्य संघ	सदस्य
छ. प्रमुख, नगरपालिका	सदस्य
ज. अध्यक्ष, गाउँ विकास समितिहरू मध्येबाट जिल्ला विकास समितिले मनोनयन गरेका तीन जना	सदस्य
झ. जिल्लास्तरीय राष्ट्रिय तथा अन्तर्राष्ट्रिय गैह्रसरकारी संघ संस्था, सामाजिक संघ संस्था तथा जिल्लाका प्रतिष्ठित समाजसेवी मध्येबाट प्रमुख जिल्ला अधिकारीले मनोनयन गरेका तीन जना	सदस्य
ञ. जिल्ला अवस्थित विपद् व्यवस्थापनसम्बन्धी प्राविधिज्ञ मध्येबाट प्रमुख जिल्ला अधिकारीले मनोनयन गरेका दुई जना	सदस्य
ट. स्थानीय विकास अधिकारी	सदस्य सचिव

(३) उपदफा (२) (झ) र (ञ) बमोजिमका सदस्यहरूको पदावधि तीन वर्षको हुनेछ ।

(४) जिल्ला विपद् व्यवस्थापन समितिको बैठक वर्षमा कमिमा तीन पटक बस्नुपर्नेछ ।

२६. जिल्ला विपद् व्यवस्थापन समितिको काम, कर्तव्य र अधिकार देहाय बमोजिम हुनेछ :

- (क) जिल्लास्तरीय गैह्रसरकारी संस्था, सामुदायिक संस्था, विपद्बाट प्रभावित वा सम्भाव्य प्रभावित समुदाय, जिल्लास्थित विज्ञहरू, सामाजिक कार्यकर्ता एवं व्यक्तिहरू समेतलाई संलग्न गरी जिल्लास्तरीय विपद् व्यवस्थापन योजना बनाउने र यस्ता योजनाहरू कार्यान्वयनमा उल्लिखित सवै पक्षहरूलाई संलग्न गराउने,
- (ख) जिल्ला विपद् व्यवस्थापन समितिले पूर्वतयारी, न्यूनीकरण, उद्धार तथा राहत, पुनर्स्थापना तथा पुनर्निर्माण अवस्थाअन्तर्गत गरिने सम्पूर्ण कार्यहरू जिल्लास्तरमा कार्यान्वयन गर्ने,

- (ग) जिल्लाको विपद्सम्बन्धी पूर्वचेतावनी प्रणाली तथा पूर्वतयारी व्यवस्थापनजस्ता विपद् जोखिम न्यूनीकरणका विभिन्न पक्षको अवस्थाबारे परिषद्लाई जानकारी दिने, विपद् व्यवस्थापनको स्थितिबारे वार्षिक प्रतिवेदन परिषदमा पठाउने,
- (घ) परिषद्सँग परामर्श लिई जिल्लाको भौतिक अवस्था, संस्थागत क्षमता तथा उपलब्ध स्रोत, साधन समेतलाई मध्यनजर गर्दै उपयुक्त पूर्वतयारी, न्यूनीकरण, उद्धार तथा राहत साथै पुनर्स्थापना तथा पुनर्निर्माण कार्यान्वयन रणनीति तयार गर्ने,
- (ङ) जिल्लास्तरीय आपतकालीन योजना निर्देशिका तयार गर्ने, समय समयमा समीक्षा तथा अद्यावधिक गर्ने,
- (च) विपद् जोखिम मूल्याङ्कन योजनाको सामयिक मूल्याङ्कन गरी परिषदमा पठाउने,
- (छ) समय समयमा विपद् व्यवस्थापन तालिम संचालन गर्ने, गराउने,
- (ज) विपद् व्यवस्थापनसम्बन्धी सबै अवस्थामा सञ्चार माध्यमलाई अधिकतम सहभागी गराई क्रियाशील राख्ने,
- (झ) परिषद्द्वारा प्रत्यायोजन गरिएका अधिकारको प्रयोग गर्ने,
- (ञ) कुनै व्यक्ति वा संस्थाको खाद्यान्न, लत्ता कपडा, औषधि, निर्माण सामग्री जस्ता चल सम्पत्ति वा घर, जग्गा जस्ता अचल सम्पत्ति उपयोग गर्न आवश्यक भएमा तत्कालका लागि नेपाल सरकारले लिन सक्ने तर सो उपभोग गरेबापत उपयुक्त भाडा तथा मूल्य बराबरको रकम त्यस्तो व्यक्ति वा संस्थालाई उपलब्ध गराउनु पर्नेछ ,
- (ट) स्थानीयस्तरको विपद् व्यवस्थापन योजना निर्माण गर्न आर्थिक तथा प्राविधिक सहयोग गर्ने,
- (ठ) यसरी तयार भएका विपद् सम्बन्धी योजनाहरू आवश्यकता अनुसार परिमार्जन गरी नेपाल सरकार, परिषद् तथा सम्बद्ध निकायहरूसँग आर्थिक स्रोत सहयोगको लागि अनुरोध गर्ने,
- (ड) यसरी स्वीकृत भएका योजनाहरूको कार्यान्वयनको सुपरीवेक्षण गर्ने,
- (ढ) नेपाल सरकार तथा परिषद्बाट समय समयमा प्राप्त अन्य निर्देशनहरूको पालना गर्ने, गराउने ।

२७. **उपसमितिको गठन :** (१) जिल्ला विपद् व्यवस्थापन समितिले दफा २५ (२) (ख) बमोजिमको सदस्यको संयोजकत्वमा पूर्वतयारी उपसमितिस प्रमुख जिल्ला अधिकारीको संयोजकत्वमा उद्धार तथा राहत उपसमितिस तथा दफा २५ (२) (ग) बमोजिमका सदस्यमध्ये निर्माणसम्बन्धी कार्यमा संलग्न कार्यालय प्रमुखको संयोजकत्वमा पुनर्स्थापना तथा पुनर्निर्माण उपसमितिहरू आवश्यकता अनुसार गठन गरी कार्य सम्पन्न गराउन सक्नेछ ।

(२) उपदफा (१) अन्तर्गत गठन हुने उपसमितिहरूमा जिल्लाका सरकारी तथा गैह्रसरकारी कार्यालय तथा संघ संस्था र व्यक्ति समेत सदस्यका रूपमा रहन सक्नेछन् ।

(३) उपदफा (१) अन्तर्गतका तीनवटै उपसमितिहरूमा स्थानीय विकास अधिकारीले सदस्य सचिवका रूपमा कार्य गर्नेछन् ।

२८. **जिल्ला विपद् व्यवस्थापन कोष :** (१) प्रत्येक जिल्लामा जिल्ला विपद् व्यवस्थापन समिति अन्तर्गत एक विपद् व्यवस्थापन कोष रहनेछ ।

(२) कोषको सन्चालन जिल्ला विपद् व्यवस्थापन समितिले निर्णय गरे बमोजिम हुनेछ ।

(३) कोषको पूर्ण विवरण प्रत्येक वर्ष महालेखापरीक्षकको कार्यालयमार्फत लेखापरीक्षण गरी परिषद्मा पठाउनु पर्नेछ ।

२९. **प्रमुख जिल्ला अधिकारीको काम, कर्तव्य र अधिकार :** प्रमुख जिल्ला अधिकारीको काम, कर्तव्य र अधिकार देहाय बमोजिम हुनेछ :

(क) जिल्लास्थित सरोकारवाला तथा स्थानीय अधिकारीहरूलाई विपद् जोखिम न्यूनीकरण योजना र सहायतासम्बन्धी मापदण्ड अनुसार राहत वितरण गर्न आदेश दिने,

(ख) विपद् प्रभावित समुदायलाई सहायता पुऱ्याउन, सुरक्षा दिन, राहत वितरण गर्न, विपद्का सम्भाव्य परिणामलाई न्यून गर्न प्रमुख जिल्ला अधिकारीले देहाय बमोजिम कार्यहरू गर्नुपर्नेछ :

(१) खोजी, उद्धार तथा राहत कार्यक्रम सन्चालन गर्ने एवं राहत वितरणमा विभेद नगर्ने,

(२) उपलब्ध स्रोतको प्रयोग तथा प्रवाह गर्ने,

- (३) विपद् प्रभावितक्षेत्रमा आवश्यकतानुसार यातायात तथा मानिसको आबत जाबतमा बन्देज लगाउने,
- (४) विपद्बाट थुप्रिएका अनावश्यक वस्तुहरू हटाउने, हटाउन लगाउने,
- (५) बेवारिसे शवको फोटो खिच्ने, सम्बन्धित व्यक्तिसम्म सूचना पुगोस् भन्ने अभिप्रायले आवश्यकतानुसार स्थानीय एवं राष्ट्रियस्तरका पत्रपत्रिका वा विद्युतीय सञ्चार माध्यमबाट प्रचार प्रसार गर्ने एवं दाहसंस्कार गर्ने व्यवस्था मिलाउने,
- (६) वैकल्पिक बसोबासको व्यवस्था गर्ने,
- (७) अत्यावश्यक खानेपानी, खाद्यान्न, लत्ताकपडा, तथा औषधि उपचार आदि व्यवस्था मिलाउने,
- (८) स्वयंसेवक, विशेषज्ञ तथा परामर्शदाताहरूलाई आफ्नो सुपरीवेक्षणमा कार्य गर्न लगाउने,
- (९) स्थानीयस्तरमा उपलब्ध सरकारी एवं निजी यातायातका साधन, यन्त्रहरू, सरसामान, खाद्य सामान आदि कानुन बमोजिम नियन्त्रणमा लिई प्रयोग गर्ने, गर्न लगाउने,
- (१०) अस्थायी पुल तथा अन्य आवश्यक संरचनाहरूको निर्माण गर्ने, गर्न लगाउने,
- (११) असुरक्षित भवनहरूमा बस्न रोक लगाउने, भत्काउने,
- (१२) बाह्य, अन्तर्राष्ट्रिय, राष्ट्रिय गैह्रसरकारी संस्थाहरूबाट गरिने उद्धार तथा राहत एवं सहयोग आदि क्रियाकलापको समन्वय गर्ने,
- (१३) सूचनाको प्रवाह गर्ने,
- (१४) प्रभावित व्यक्तिहरूको जीवनरक्षाको लागि असुरक्षित स्थानबाट हटाउने वा स्थानान्तरण गर्ने,
- (१५) घरधनी अनुपस्थित रहेको अवस्थामा आवश्यकता अनुसार ढोका खोली वा फुटाई सम्पत्तिको सुरक्षा गर्न प्रवेश गर्न सक्ने,
- (१६) उद्धार तथा राहत कार्यक्रमको प्रगति विवरण परिषद्मा पठाउने,
- (ग) नेपाल सरकार तथा परिषद्बाट प्राप्त अन्य निर्देशनहरूको पालना गर्ने ।

३०. नेपाल सरकारका जिल्ला तथा स्थानीयस्तरका कार्यालयहरूको काम, कर्तव्य र अधिकार :
जिल्ला तथा स्थानीयस्तरका कार्यालयहरूको काम, कर्तव्य र अधिकार देहाय बमोजिम हुनेछ :

- (क) आफ्नो कार्यालयमा सञ्चार केन्द्रको स्थापना गर्ने, आपतकालीन योजना बनाउने, विपद् न्यूनीकरणको लागि क्षमता विकास योजना बनाउने, तथ्य सङ्कलन गर्ने तथा तालिम प्रदान गर्ने कार्यहरूमा परिषद्, जिल्ला विपद् व्यवस्थापन समिति, प्रमुख जिल्ला अधिकारी तथा स्थानीय निकायलाई सहयोग गर्ने,
- (ख) परिषद् तथा प्रमुख जिल्ला अधिकारीको सुपरीवेक्षणमा सन्चालन हुने उद्धार तथा राहत कार्यहरूमा आवश्यक सहयोग गर्ने,
- (ग) स्थानीय विकास अधिकारी, जनसमुदाय तथा अन्य निकायका साथै सरोकारवालाहरूसँग मिलेर विपद् व्यवस्थापन योजनाको तयारी तथा कार्यान्वयनको लागि आर्थिक तथा प्राविधिक सहयोग गर्ने,
- (घ) विद्यमान योजनाको समीक्षा गरी समायानुकूल बनाउन सहयोग गर्ने,
- (ङ) परिषद् तथा प्रमुख जिल्ला अधिकारीलाई आवश्यक पर्ने अन्य सहयोग गर्ने ।

३१. स्थानीय विपद् व्यवस्थापन समितिको गठन : (१) प्रत्येक गाउँ विकास समिति तथा नगरपालिका क्षेत्रमा एक स्थानीय विपद् व्यवस्थापन समिति रहनेछ ।

(२) स्थानीय विपद् व्यवस्थापन समितिको गठन देहाय बमोजिम हुनेछ :

- क. सम्बन्धित नगरपालिकाका प्रमुख/गाउँ विकास समितिका अध्यक्ष अध्यक्ष
- ख. वडाअध्यक्ष मध्येबाट नगर/गाउँ परिषद्ले मनोनयन गरेका
तीन जना वडा अध्यक्षहरू सदस्य
- ग. विपद् परेका वडाको वडा अध्यक्ष सदस्य
- घ. वडासदस्यहरू मध्येबाट नगर/गाउँ परिषद्ले मनोनयन गरेका
दुईजना वडासदस्यहरू सदस्य
- ङ. राष्ट्रियस्तरका राजनीतिक दलका नगरपालिका र गाउँ विकास
समितिस्तरीय प्रतिनिधि सदस्य
- च. स्थानीय गैरसरकारी संस्था, सामुदायिक संस्था, सामाजिक संघ
संस्था वा प्रतिष्ठित समाजसेवीमध्ये नगर/गाउँ परिषद्ले मनोनित

गरेका तीन जना	सदस्य
छ. स्थानीयस्तरमा उपलब्ध विपद् व्यवस्थापनसम्बन्धी विज्ञमध्ये नगर/गाउँ परिषद्ले मनोनयन गरेका दुई जना	सदस्य
ज. नगरपालिकाका कार्यकारी प्रमुख/गाउँ विकास समितिका सचिव	सदस्य सचिव

- (३) उपदफा (२) (च) र (छ) बमोजिम मनोनयन गर्दा कम्तिमा एक जना महिला अनिवार्य हुनु पर्नेछ ।
- (४) उपदफा (२) (च) र (छ) बमोजिमका सदस्यहरूको पदावधि तीन वर्षको हुनेछ ।
- (५) उपदफा (२) (ख), (घ), (च) र (छ) बमोजिमका सदस्यहरू नगर/गाउँ परिषद्ले मनोनयन नगरेसम्मका लागि नगरपालिकाका प्रमुख/गाउँ विकास समितिका अध्यक्षले मनोनयन गरेका व्यक्ति सदस्य रहने छन् ।
- (६) प्रत्येक नगरपालिका/गाउँ विकास समितिमा आवश्यकता अनुसार स्थानीय विपद् व्यवस्थापन समितिले वडा सदस्यको संयोजकत्वमा वडास्तरीय विपद् व्यवस्थापन उप समिति गठन गरी काम, कर्तव्य र अधिकार तोकिदिन सक्नेछ ।

३२. स्थानीय विपद् व्यवस्थापन समिति तथा स्थानीय निकायको काम, कर्तव्य र अधिकार : स्थानीय विपद् व्यवस्थापन समिति तथा स्थानीय निकायको काम कर्तव्य र अधिकार देहाय बमोजिम हुनेछ :

- (क) परिषद्, जिल्ला विपद् व्यवस्थापन समिति तथा प्रमुख जिल्ला अधिकारीलाई विपद् व्यवस्थापनका सम्बन्धमा आवश्यक सहयोग पुर्याउने,
- (ख) स्थानीय निकायहरूमा कार्यरत सबै कर्मचारीहरूलाई विपद् सम्बन्धी प्रशिक्षण दिने, दिलाउने,
- (ग) निश्चित समयको अन्तरालमा विपद्सम्बन्धी प्रशिक्षण, तालिम आदिलाई अद्यावधिक गर्ने,
- (घ) विपद् व्यवस्थापनका लागि नगरपालिकारगाउँ परिषद्बाट पारित गराई बजेट विनियोजन गर्ने,

- (ड) विपद्सम्बद्ध सबै आर्थिक स्रोतहरू तत्काल प्रयोग गर्न सकिने गरी तयारी अवस्थामा राख्ने,
- (च) सरकारी तथा स्थानीय निकायहरूले बनाई लागू गरेको निर्देशिका अनुसार भौतिक संरचना निर्माण गर्ने, गराउने,
- (छ) प्रभावितक्षेत्रमा उद्धार तथा राहतको व्यवस्था गर्ने,
- (ज) परिषद्को निर्देशन अनुसार पुनर्स्थापना तथा पुनर्निर्माणका कार्यहरू गर्ने, गराउने एवं आवश्यकता अनुसार सहयोग पुऱ्याउने,
- (झ) स्थानीय गैह्रसरकारी संघ संस्था, जनसमुदाय, सामाजिक कार्यकर्ता, व्यक्ति तथा विपद्वाट प्रभावित वा सम्भाव्य प्रभावित समुदायहरूसमेतको संलग्नतामा देहायका अवधारणाहरू समेतलाई समेटी स्थानीय विपद् व्यवस्थापन योजना तर्जुमा गरी कार्यान्वयन गर्ने :
- (१) स्थानीय क्षेत्रमा विपद् जोखिम न्यूनीकरणका अवधारणा तथा सिद्धान्तहरू समेतलाई समेट्ने,
 - (२) विपद् जोखिम न्यूनीकरणमा स्थानीय पदाधिकारीको भूमिका तथा उत्तरदायित्व प्रतिविम्बित गर्ने,
 - (३) स्थानीय पदाधिकारीको भूमिका तथा उत्तरदायित्व पूरा गर्न आवश्यक क्षमता अभिवृद्धि गर्ने कार्यक्रम राख्ने,
 - (४) विपद् जोखिम न्यूनीकरणका रणनीतिहरू स्पष्ट हुने गरी बनाउने,
 - (५) पुनर्स्थापना तथा पुनर्निर्माणको अवस्थामा लाग्ने खर्च सहितको सङ्कटकालीन रणनीति प्रष्ट हुने गरी बनाउने,
- (ञ) सम्बद्ध सबै सरोकारवाला तथा जिल्लास्तरीय सरकारी तथा गैह्रसरकारी संघ संस्थाहरूसित समन्वय गरी विपद् जोखिम न्यूनीकरण योजना तर्जुमा गर्ने तथा तर्जुमा भएका योजनाहरू कार्यान्वयन गर्ने, गराउने,
- (ट) विपद् जोखिम न्यूनीकरण योजनाको नियमित समीक्षा गरी अद्यावधिक राख्ने,
- (ठ) आफूले निर्माण गरेको स्थानीय विपद् जोखिम न्यूनीकरण योजनाको प्रतिलिपि परिषद् र जिल्ला विपद् व्यवस्थापन समितिलाई पठाउने,

- (ड) जिल्ला विकास समितिले तोकिए बमोजिम जिल्लास्तरीय योजनासँग विपद् व्यवस्थापन योजना समायोजन गर्ने,
- (ढ) सङ्कटकालीन तयारीको लागि सहजकर्ताको भूमिका निर्वाह गर्ने,
- (ण) स्थानीयस्तरमा आपतकालीन योजना तथा कार्यविधि बनाई लागू गर्ने, गराउने,
- (त) स्थानीयस्तरीय सङ्कट नक्सा बनाउने, बनाउन लगाउने,
- (थ) उल्लिखित कार्ययोजनाहरू सम्पन्न गर्न नेपाल सरकार, परिषद्, जिल्ला विकास समिति एवं सम्बद्ध सरोकारवालाहरूसँग आर्थिक तथा प्राविधिक सहयोग प्राप्त गर्ने ।

३३. स्थानीय विपद् व्यवस्थापन कोष : (१) प्रत्येक स्थानीय विपद् व्यवस्थापन समितिको एक छुट्टै विपद् व्यवस्थापन कोष रहनेछ र कोषको सन्चालन स्थानीय विपद् व्यवस्थापन समितिले तोके बमोजिम हुनेछ ।

- (२) कोषको पूर्ण विवरण प्रत्येक वर्ष गाउँ विकास समितिको कोषको लेखापरीक्षणको प्रक्रिया अनुसार लेखापरीक्षण गरी जिल्ला विपद् व्यवस्थापन समितिमाफत परिषद्मा पठाउनु पर्नेछ ।

परिच्छेद - ७

सुरक्षा निकाय, संघ संस्था, कलकारखाना तथा निति क्षेत्रहरूको कर्तव्य

३४. नेपाली सेना, नेपाल प्रहरी, सशस्त्र प्रहरी बल तथा वारूणयन्त्रसेवाको काम, कर्तव्य : (१) नेपाली सेना, नेपाल प्रहरी, सशस्त्र प्रहरी बल तथा वारूणयन्त्रसेवाले प्रमुख जिल्ला अधिकारीको सुपरीवेक्षणमा पूर्वचेतावनी दिने, खोजी तथा उद्धार कार्य गर्ने तथा राहत वितरण कार्य तदारूकताका साथ सम्पन्न गर्न सहयोग गर्नु पर्नेछ ।
- (२) कुनै स्थानमा विपद् परेमा नेपाली सेना, नेपाल प्रहरी, सशस्त्र प्रहरी बल तथा वारूणयन्त्रसेवाका प्रमुखले प्रमुख जिल्ला अधिकारीलाई तत्कालै खबर गर्नुपर्नेछ र प्रमुख जिल्ला अधिकारीले सङ्कटकालीन उद्धार तथा राहत उपलब्ध गराउन दिएको निर्देशनको पालना गर्नु पर्नेछ ।

३५. विपद् उद्धार समूहको गठन : परिषदले विपद् व्यवस्थापनसम्बन्धी कार्य सम्पन्न गर्नका लागि एक विपद् उद्धार समूह गठन गर्न सक्नेछ । यस्तो समूहको काम कर्तव्य र अधिकार तोकिए बमोजिम हुनेछ ।

३६. राष्ट्रिय तथा अन्तर्राष्ट्रिय गैरसरकारी संस्था, स्थानीय संघ संस्था, जनसमुदाय, निजीक्षेत्र तथा व्यक्तिहरूको काम, कर्तव्य : राष्ट्रिय तथा अन्तर्राष्ट्रिय गैरसरकारी संस्था, स्थानीय संघ संस्था, जनसमुदाय, निजीक्षेत्र तथा व्यक्तिहरूको काम, कर्तव्य देहाय बमोजिम हुनेछ :

(क) विपद् व्यवस्थापनको कार्यमा परिषद्, जिल्ला विपद् व्यवस्थापन समिति, प्रमुख जिल्ला अधिकारी, स्थानीय विपद् व्यवस्थापन समिति तथा स्थानीय निकायलाई आवश्यक सहयोग गर्ने,

(ख) विपद् व्यवस्थापनसम्बन्धी जनचेतना अभिवृद्धि गर्ने,

(ग) क्षमता विकास, आपतकालीन तालिम तथा विपद् व्यवस्थापनसम्बन्धी प्रशिक्षण कार्यक्रममा सहयोग गर्ने, भाग लिने,

(घ) उद्धार तथा राहत वितरण कार्यमा आवश्यक सहयोग गर्ने,

(ङ) विस्तृत तथ्य र तथ्याङ्क सङ्कलन, हानी नोक्सानीको मूल्याङ्कन र पुनर्स्थापना तथा पुनर्निर्माण कार्यमा परिषद् तथा प्रमुख जिल्ला अधिकारीलाई सहयोग गर्ने,

(च) परिषद्, जिल्ला विपद् व्यवस्थापन समिति, प्रमुख जिल्ला अधिकारी, स्थानीय विपद् व्यवस्थापन समितिलाई आवश्यक पर्ने अन्य सहयोग गर्ने ।

३७. उद्योग तथा कलकारखानाको काम, कर्तव्य : (१) यस ऐनअन्तर्गत उद्योग तथा कलकारखानाको काम, कर्तव्य देहाय बमोजिम हुनेछ :

(क) परिषद्, जिल्ला विपद् व्यवस्थापन समिति, प्रमुख जिल्ला अधिकारी एवं स्थानीय विपद् व्यवस्थापन समितिलाई विपद् व्यवस्थापन कार्यमा आवश्यक सहयोग गर्ने,

(ख) आफ्ना कर्मचारी तथा कामदारहरूलाई विपद् व्यवस्थापनसम्बन्धी तालिम दिने, दिलाउने,

(ग) विपद् व्यवस्थापन कार्यमा उपयोगी हुने स्थानीयस्तरमा उपलब्ध स्रोत एवं साधनहरूलाई तयारी हालतमा राख्ने,

- (घ) नेपाल सरकार, परिषद् तथा प्रमुख जिल्ला अधिकारीको आदेश अनुसार आफ्ना भवनहरू तथा अन्य संरचनाहरू आपतकालीन उपयोगको लागि आवश्यक परेमा उपलब्ध गराउने,
- (ङ) प्रमुख जिल्ला अधिकारीको सुपरीवेक्षणमा उद्धार तथा राहत वितरण कार्यमा सहयोग पुऱ्याउने,
- (च) विस्तृत तथ्य र तथ्याङ्क सङ्कलन, हानी नोक्सानीको मूल्याङ्कन र पुनर्स्थापना तथा पुनर्निर्माण कार्यमा परिषद् तथा प्रमुख जिल्ला अधिकारीलाई सहयोग गर्ने,
- (छ) विपद् जोखिमयुक्त उद्योग आदिको स्थापनाका बखतमा नै विपद् नियन्त्रण र व्यवस्थापनका लागि सबै किसिमको संयन्त्रको व्यवस्था र जडान एवं सन्चालन तयारी अवस्थामा राख्ने,
- (ज) परिषद् तथा प्रमुख जिल्ला अधिकारीलाई आवश्यक पर्ने अन्य सहयोग उपलब्ध गराउने ।
- (२) परिषद्, सरकारी तथा स्थानीय निकायहरूको विपद् व्यवस्थापन योजनालाई समेत दृष्टिगत गर्दै उद्योग तथा कलकारखानाहरूले विपद् व्यवस्थापन योजना बनाई लागू गर्नु पर्नेछ ।

परिच्छेद - ८
विपद्सम्भाव्य क्षेत्र

३८. **विपद्सम्भाव्य क्षेत्रको घोषणा :** (१) एक भन्दा बढी जिल्लामा विपद्को सम्भाव्य जोखिम देखिएमा सम्बन्धित जिल्लाका प्रमुख जिल्ला अधिकारीहरूबाट निर्णय भई विपद् सम्भाव्यक्षेत्र घोषणा गर्नका लागि नेपाल सरकार र परिषद्लाई संयुक्त रूपमा प्रतिवेदन पठाउनु पर्नेछ ।
- (२) आफ्नो जिल्लाभित्र विपद्को सम्भाव्य जोखिम देखिएमा सोही जिल्लाका प्रमुख जिल्ला अधिकारीले विपद् सम्भाव्यक्षेत्र घोषणा गर्नको लागि नेपाल सरकार र परिषद्लाई प्रतिवेदन पठाउनु पर्नेछ ।
- (३) प्रमुख जिल्ला अधिकारीको प्रतिवेदन र परिषद्को सिफारिस बमोजिम नेपाल सरकारले विपद् सम्भाव्यक्षेत्र घोषणा गरेको अवस्थामा परिषद्ले देहाय बमोजिमको कार्य गर्नुपर्नेछ : (
- क) विपद् रोक्ने उपायहरू अपनाउन समन्वय गर्ने,
- ख) तत्काल उद्धार तथा राहतका कार्यहरू गर्न, गराउन पूर्वतयारी गर्ने,
- ग) विपद् व्यवस्थापनमा यस ऐन अन्तर्गत परिषद्ले गर्नु पर्ने भनी तोकिएका अन्य कार्यहरू गर्ने ।

परिच्छेद - ९
कसुर तथा दण्डसजाय

३९. **कसुर तथा दण्डसजाय :** (१) देहायको कार्य गरेमा यस ऐन अन्तर्गतको कसुर मानिनेछ:
- (क) यस ऐन अन्तर्गतको कर्तव्य पालना गर्न नेपाल सरकार वा प्रमुख जिल्ला अधिकारीलाई बाधा पुऱ्याएमा वा मनासिव आधार विना नेपाल सरकार वा प्रमुख जिल्ला अधिकारीको निर्देशन पालना नगरेमा,
- (ख) यस ऐन अन्तर्गतको कर्तव्य पालना गर्न परिषद्, समिति, जिल्ला विपद् व्यवस्थापन समिति, स्थानिय विपद् व्यवस्थापन समिति तथा सो अन्तर्गतका उपसमितिहरूलाई बाधा पुऱ्याएमा,
- (ग) कुनै वैज्ञानिक आधारविना विपद् घट्न सक्ने लगायत अन्य अफवाह फैलाई समुदायको शान्ति सुरक्षामा खलल् पुऱ्याएमा,

- (घ) नेपाल सरकार, परिषद् तथा प्रमुख जिल्ला अधिकारी समक्ष भुट्टा दाबी गरेमा,
 (ङ) कसैले यस ऐन अन्तर्गत तोकिएको कर्तव्य पालना नगरेमा,
 (च) यस ऐन अन्तर्गतका अन्य गर्नुपर्ने कार्य नगरेमा वा गर्नु नहुने कार्य गरेमा ।
- (२) उपदफा (१) अनुसारको कसुर कसैले गरेमा निजलाई कसुरको मात्रा अनुसार ६ महिनासम्म कैद वा १५,०००/- रूपैयाँसम्म जरिवाना वा दुवै सजाय हुन सक्नेछ ।
- (३) यस ऐन विपरीतको कार्य कुनै पनि सरकारी निकाय, सैठित संघ संस्था वा कम्पनीले गरेमा सो निकाय, संस्था वा कम्पनीको तर्फबाट कार्य गर्ने व्यक्ति नै व्यक्तिगत रूपमा उपदफा (२) बमोजिमको सजायको भागी हुनेछ ।
- तर सो व्यक्तिले उल्लिखित ऐन विपरीतको कार्यबाट हानी नोक्सानी हुनेछ भन्ने मनसाय नराखी र अज्ञानताबश गरेको प्रमाणित गरेमा उल्लेख गरे बमोजिमको सजायको भागी हुनेछैन ।
- (४) उपदफा (३) बमोजिमको कार्य सरकारी निकाय वा संघ संस्थाका प्रमुख वा कम्पनीको व्यवस्थापक, सन्चालक वा कम्पनी सचिवको सहमतिमा भएको प्रमाणित भएमा त्यस्तो निकाय वा संघ संस्थाका प्रमुख वा कम्पनीको व्यवस्थापक, सन्चालक वा कम्पनी सचिव पनि उपदफा (२) बमोजिम सजायका भागिदार हुनेछन् ।

परिच्छेद - १० विविध

४०. **मिनाहा दिने** : विपद् व्यवस्थापन कार्यको लागि सरकारी कार्यालय वा संस्थाहरूबाट खर्च भएका सामग्री, साधन, स्रोत एवं नगद रकम नेपाल सरकारले मिनाहा दिन सक्नेछ ।
४१. **वार्षिक प्रतिवेदन** : (१) परिषद्ले विगतवर्षको प्रगति विवरण तथा आगामी वर्षमा सन्चालन गरिने कार्यक्रम समेत उल्लेख गरी विस्तृत प्रगति विवरण तोकिएको ढाँचा सहितको वार्षिक प्रतिवेदन नेपाल सरकारमा पेश गर्नुपर्नेछ ।
- (२) नेपाल सरकारले उपदफा (१) बमोजिमको विवरण राष्ट्रिय सञ्चार माध्यमबाट सार्वजनिक रूपमा प्रकाशन गर्नुपर्नेछ ।

- (३) जिल्ला विपद् व्यवस्थापन समितिले उपदफा (१) को वार्षिक प्रतिवेदन परिषद्मा पेश गर्नुपर्ने छ । यस्तो प्रतिवेदन नपठाएमा प्रमुख जिल्ला अधिकारी स्वयं जिम्मेवार हुनेछ ।
४२. **जुनसुकै स्थानमा प्रवेश गर्न सक्ने** : कार्यकारी निर्देशक, प्रमुख जिल्ला अधिकारी वा परिषद्बाट खटाइएका कुनै पनि कर्मचारीले यस ऐनको कार्यान्वयनको संदर्भमा विपद् सम्भाव्यक्षेत्र वा सङ्कटग्रस्त क्षेत्रभित्रका जुनसुकै स्थान, भवन आदिमा आवश्यकता अनुसार प्रवेश गर्न सक्नेछ ।
४३. **अधिकार प्रत्यायोजन** : (१) नेपाल सरकारले यस ऐन अन्तर्गत प्राप्त अधिकार आवश्यकता अनुसार लिखितरूपमा परिषद्लाई प्रत्यायोजन गर्न सक्नेछ ।
- (२) परिषद्ले यस ऐन कार्यान्वयनको सिलसिलामा यस ऐन अन्तर्गत प्राप्त अधिकारमध्ये केही आवश्यकता अनुसार लिखित रूपमा उपसमिति, कार्यकारी निर्देशक, जिल्ला विपद् व्यवस्थापन समिति वा प्रमुख जिल्ला अधिकारीलाई प्रत्यायोजन गर्न सक्नेछ ।
- (३) प्रमुख जिल्ला अधिकारीले यस ऐन अन्तर्गत प्राप्त अधिकार आवश्यकता अनुसार लिखित रूपमा स्थानीय विकास अधिकारी वा कुनै बरिष्ठ कर्मचारीलाई प्रत्यायोजन गर्न सक्नेछ ।
४४. **उपसमिति गठन** : परिषद् एवं समितिहरूले यस ऐनअन्तर्गतको कर्तव्य पूरा गर्ने सिलसिलामा आफ्ना सदस्यहरूमध्येबाट विभिन्न उपसमितिहरू गठन गर्न सक्नेछन् । उपसमितिहरूले आफ्नो बैठकमा आवश्यकता अनुसार अन्य व्यक्तिहरूलाई समेत आमन्त्रण गर्न सक्नेछन् । यसप्रकार गठित उपसमितिहरूको काम, कर्तव्य र अधिकार तोकिए बमोजिम हुनेछ ।
४५. **सहयोग रकममा कर नलाग्ने** : विपद् व्यवस्थापनका लागि संस्था एवं व्यक्तिबाट प्रदान गरिएका सहयोगका रकम एवं सामग्रीको मूल्यमा कर छुट दिइने छ ।
४६. **मुद्दा हेर्ने अधिकारी** : यस ऐन अन्तर्गतको कसुर कसैले गरेमा पीडित व्यक्तिले सम्बन्धित जिल्ला अदालतमा उजुरी दिन सक्नेछ र जिल्ला अदालतले दुनियाबादी फौजदारी मुद्दा सरह मुद्दा हेर्नेछ ।
४७. **नियम तथा विनियम बनाउने अधिकार** : (१) यो ऐन कार्यान्वयन गर्न नेपाल सरकारले आवश्यक नियम बनाउन सक्नेछ ।
- (२) यो ऐन र यस ऐनअन्तर्गत बनेको नियमको अधिनमा रही परिषद्ले आफ्नो कार्य सन्चालन गर्न आवश्यक विनियम बनाउन सक्नेछ ।

४८. खारेजी र बचाउ : (१) दैवी प्रकोप (उद्धार) ऐन, २०३९ खारेज गरिएको छ ।

(२) दैवी प्रकोप (उद्धार) ऐन, २०३९ अन्तर्गत गरिएका काम कारवाहीहरू यसै ऐनअन्तर्गत भए
गरेको मानिने छ ।

Annex 9

Chitwan District Disaster Management Action Plan

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Nepal is highly prone to several disasters in general and water-induced disasters in particular. Each year approximately one thousand people are killed, about one hundred people get lost and thousands of families are exposed to several disasters. In addition, property worth of million is destroyed, and public property is damaged. The extent of pain, suffering, tragedy and psychological trauma has been heart breaking.

Despite the fact that Chitwan is one of the hard hit districts in terms of disasters, it is surprising that until very late no serious attention was made to lessen the impact of disaster and carry out activities for mitigation and preparedness. I believe that the present *Chitwan District Disaster Management Action Plan* has definitely broken this silence.

As noted in the Action Plan, although there are more deaths related to flood in Sarlahi, the loss of property, land and infrastructure has been highest in Chitwan. The debris flow contributed by landslides in upstream of Chitwan core area has been the cause of unprecedented devastation in this district. In this context, the present Action Plan not only draws our attention towards effective management of disasters in Chitwan District, but also inspires us for a concerted effort of several stakeholders in different fronts. The District Development Committee of Chitwan, being the representative local political body in the district, is

willing to contribute towards bringing synergy towards effective disaster management now so that the pain and risks of communities exposed to disaster could be lessen.

While DDC Chitwan has been at the centre of preparing the present Action Plan and publishing it for wider consultation and reference, as a matter of fact it has been a joint effort of several institutions and individuals. We are thankful to the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA) and United Nations Development Programme (UNDP) for their generous support for the Action Plan preparation process, and the Participatory Disaster Management Programme (PDMP) for supporting its publication. Without their support and encouragement, this Action Plan, first of its kind in Nepal, would not have been possible. Finally, on our part, we express our firm commitment to incorporate its strategies and recommendations into our mainstream development process.

Krishna Prasad Devkota
Local Development Officer
District Development Committee (DDC)
Chitwan

1 July 2004

Abbreviations and Acronyms

CDO	Chief District Officer
DDC	District Development Council
DHWG	Disaster Health Working Group
DNDRC	District Natural Disaster Relief Committee
ERIP	East Rapti Irrigation Project
FGD	Focused Group Discussion
GLOF	Glacial Lake Outburst Flood
HMG/N	His Majesty's Government of Nepal
JWIDF	Japan Women In Development Fund
LDO	Local Development Officer
NGO	Non-Government Organisation
NLSS	Nepal Living Standard Survey
NRs.	Nepali Rupees
PDMP	Participatory Disaster Management Programme
PRA	Participatory Rural Appraisal
SGCO	Self-Governing Community Organisation
TDRM	Total Disaster Risk Management
TOR	Terms of Reference
UN	United Nations
UN-DMS	United Nations Disaster Management Secretariat
UNDP	United Nations Development Program
VDC	Village Development Committee

Executive Summary

Nepal is prone to various kinds of disasters. Its geographical setting and physical environment make it vulnerable to floods, landslides, earthquake, windstorm, fire and so on. In Nepal, some of the disasters are localized and seasonal such as floods and landslides, whereas others are occasional and widespread e.g. earthquake and drought. Nepal has the highest percentage of disaster-caused deaths in the whole of South Asia among the affected or injured ones

Within Nepal also, there are some districts and parts of it which are more vulnerable. Among these districts, Chitwan is one of them. This district has both hill and the flat inner tarai part. In the former, there is the widespread problem of landslides whereas in the latter part, there is an ever increasing threat of floods. Fire and windstorm threats are also no less prevalent. During the 1993 flood which significantly affected five tarai and hill districts, Chitwan was one of the worst affected districts. Although there were more deaths related to flood in Sarlahi, the loss of property, land and infrastructure was the highest in Chitwan. Chitwan's vulnerability to flood disaster is contributed by the landslides in parts of the hills of Chitwan and Makwanpur, the debris from which are brought to the district by the tributaries of Narayani river in the western border and Rapti river in the east. In the last two rainy seasons, the number of deaths in Chitwan by landslides and flood alone reached nearly 1,000. This is primarily because of the accumulated rise in the level of bed which increases the vulnerability from even smaller floods. The dam constructed under ADB East Rapti project some one decade ago to prevent the flood entry into agricultural fields has now almost equaled the river bed height in

many places. The east-west highway bridge surface at Lothar is now only about one and a half meter above the river bed. The bridge is in imminent danger because even the small logs brought by the flood can clog the water entry beneath the bridge and demolish it. Therefore, it is never too early to plan and implement the disaster management initiatives to save important lives and properties of the Chitwan dwellers including one of the most fertile lands that are capable of ensuring the food security of the country.

The TDRM Concept

The concept of TDRM is new to Nepal as it is true in the case of many other developing countries. It is a concept that propagates more on the preventive measures on the notion that preventive actions are at least six times cheaper than prohibitively costly rescue, relief and rehabilitation measures to be taken after the disaster has actually occurred. Early Warning System (EWS) is an important component of TDRM which involves forecasting of probable disaster and information to potential victims well ahead of actual disaster incidence so that they will take appropriate measures to protect their respective lives and properties. However, some disasters like earthquakes, lightning are extremely difficult or impossible or at best costly to forecast and warn. In fact, no amount of precaution and investment will fully free the risk of any disaster. Hence, TDRM has also the components of efficient rescue, relief and rehabilitation. One of the components is to expedite the rescue, relief and rehabilitation process through the improvements in communication by way of appropriate institutional mechanism. If the rescue and relief

team is able to reach the disaster site faster due to improved communication, many more lives and properties can be saved.

The other equally important feature of TDRM is to admit the relationship between disaster and development. The development can both enhance and minimize the probability of various disasters, and in the same vein, disasters can both destroy and augment the development. TDRM, therefore, propagates that each development component must internalize the disaster probability and take appropriate safety measures.

The title of the Act itself reveals the partial nature of response mechanism as it overlooks the wider set of man-induced disasters. Before the promulgation of this Act, coping with disasters was done on a case-by-case basis using *ad hoc* committees. The Act was amended twice after 1982 but with no headway towards TDRM. After the heavy flood of 1993, the need for disaster management has been realized more seriously. However, only one of three components of disaster management cycle, namely preparedness, relief/rescue, rehabilitation/reconstruction has received due attention.

A project close to TDRM concept was introduced by UNDP which helped to implement the "Upgrading Disaster Management Capacity in Nepal" project on a pilot basis to tackle with the problem of water induced natural disasters. This project was implemented in 1996 for a period of 1.5 years in Kavre and Chitwan districts. The follow-on Participatory Disaster Management Programme (PDMP) began from January 2001 for a period of one year. The program covered two VDCs each in four highly disaster-prone districts namely Tanahu, Syangja, Chitwan and Bardiya with the assistance of UNDP/Japan Women in Development Fund (JWIDF). During 2003 the second phase of PDMP has been expanded to two more districts namely Sindhuli and Makawanpur.

Objectives of the study

The objective of the study is to prepare an action plan for total disaster risk management for Chitwan district. The specific objectives and activities (scope) of the preparation of the action plan are as follows:

1. To enhance disaster management capacities of local institutions and communities.
2. To mitigate disaster losses through strengthening quick response and sustainable rehabilitation mechanisms.
3. To ensure sustainability of development infra-structures through rendering them disaster resistance.

Methodology

The present study proceeded after the preparation of hazard and vulnerability assessment of the Chitwan district and the review of the documents and references related to the study objectives. This was followed by the visit to the project district Chitwan. In the district, the Study Team met with the DDC officials (DDC Chairman, Local Development Officer), District Administration officials (Chief District Officer) and the officials from the disaster management related institutions (such as local Red Cross). The meeting with the above officials, besides collecting secondary data on the subject, was to solicit their respective opinions and suggestions about the project. This was followed by the visits to the communities in the identified vulnerable sites. The fieldwork was carried-out during the months of November-December, 2003.

Among the tools used for information gathering were the PRA exercises with the vulnerable communities (particularly the historical timeline and the seasonal calendar). Other methods included focus group discussions (FGDs), informal group discussions, individual inquiries and other consultations.

Limitations of the Study

The most significant limitation in the study was the time factor. TDRM being a new concept for Nepal, the time required to complete

the whole process of exploration and consultation was in no way matched with the total time allotted for the entire exercise. Other limitations were caused by the on-going conflict situation and lack of baseline information on vulnerability to different hazard risks.

Ranking of Hazards in Chitwan District

During hazard and vulnerability assessment, sixteen hazards were ranked based on their severity and magnitude. The human casualties and property losses were taken as the severity indicators, whereas frequency of occurrence and number of VDCs affected were taken as the indicators of magnitude. Similarly, 80 percent of the total weight was given to severity indicators whereas 20 percent weight was given to the magnitude indicators. Among the sixteen hazards, flood has been the most severe trigger event followed by wild animals, thunder bolts, river bank cuttings and landslides.

Vulnerability Assessment

VDCs prone to various hazards have been identified in previous studies based on the population exposed to the hazards, vulnerable properties and infrastructures susceptible to disasters. Vulnerable VDCs by various parameters are given in the table 3. The data reveal that *Lothar* VDC ranks the highest in terms of the percentage of the total population exposed to disasters whereas *Bachheuli* and *Jutpani* were the most vulnerable VDCs in terms of agriculture land and infrastructures.

Risk Assessment

Between 1954 and 2003, a total of 231 persons were killed by nine disasters in Chitwan district alone. In an estimate, a property worth more than Rs 10.62 billion was lost annually as a result of the disasters in the district. Flood, landslides and fire have been the three most frequent hazards happening 31, 25 and 19 times during the last 49 years. Potential impacts of the five main hazards based

on the past events and their corresponding vulnerable VDCs are given below.

Recurrence Period

Historical records give first indication of disaster return periods and extent. This is applicable to all types of disasters such as landslides, fire, earthquake, windstorms, etc. However, the predication of occurrence of earthquake is quite a difficult task. Based on the historical trend, an earthquake with considerable damages occurred in the interval of every 70 year. The last major earthquake occurred in January of 1933 and, based on this recurrence cycle, it is forecasted that a major earthquake of unprecedented magnitude is due soon in the country, particularly in the western region.

This information should be taken cautiously because they represent the simple averages of events that occurred in 49 years. What is required is the moving average that shows the trend through time. It is believed that some of the more damaging disasters like landslides and floods are recurring more frequently now. Due to lack of time series information, this could not be estimated.

District Capability Analysis

Service Delivery and Financial Institutions

There are altogether 1415 government and non-governmental organizations working in the field of health, agriculture, education, poverty alleviation, saving and credit schemes, security, rescue and relief works and disaster management in Chitwan district. However, these service delivery and financial institutions are not properly distributed. Around 40% of such institutions are located in two Municipalities, whereas these municipalities bear only 7.5 percent of the total exposed population to different hazards.

Communication and Media

Chitwan is relatively a resourceful district in terms of communication and transportation facilities. It has relatively wide networks of road linking almost all VDCs to main market

centers and the district headquarters. Besides, Chitwan is meeting point of many national highways like Prithivi Highway, Mahendra Highway etc. There is also Airline Service from Kathmandu to Bharatpur Airport in Chitwan district. Telecommunication facilities have reached to 30 VDCs, Marts line in 12 VDCs and VHF line in 18 VDCs. Postal service has reached to 30 VDCs / Municipalities except in 6 VDCs. Nine express delivery service organizations and pager and cellular phone facilities have been present in the district. In addition, two FM radios namely *Kalika* and *Synergy*, have been in operational and become effective in disseminating local, national and international news and events in no time. Six daily, 3 weekly and 1 fort nightly news papers are published in the district. FM radios provided significant help in disseminating news and appeals for the public support for rescue and relief operations in the devastating disasters last year.

Preparedness Apparatus and Human Resource

An inventory of various apparatus and human resource of the district was done. The study reveals that Chitwan district is self sufficient in terms of various equipment/preparedness apparatus and human resource. Health service, engineers, transportation means, dodgers and ambulance are adequate whereas fire brigade, skilled divers and trained rescue operators are in deficit.

Evaluation of Resources

Evaluation of the existing resources present in the district has been done taking its capability, availability and durability indicators into account. The study reveals that several services and resources essential to cope with the various disasters are available in the district, however majority of them are available at the district level.

Action Plan and Implementation Strategy

The Action Plan

The "Action Plan" of Chitwan district has been presented in a tabular form specifying disaster type, stage, actions proposed, location of action, and responsible agency/person/s.

Implementation Strategy

Some basic strategies to implement the proposed action plan in connection with the TDRM in Chitwan have been discussed below:

Initiation

The initiation will be with the meeting of DNDRC with the following agenda:

- Establishment of a permanent secretariat at District Administration Office (to be shifted to DDC later) with computer and communication equipment;
- Resource mobilization for social mobilization initiatives in the vulnerable VDCs;
- Instructions to VDCs for organizing permanent settlement level committees for disaster management;
- Designing participatory planning framework for disaster management plans and activities at the local levels (in VDP planning framework); and
- Identification of major disaster preventive projects for central level support.

Communication Mechanism

The communication strategy will include the extension of communication facilities in the vulnerable VDCs, development of early warning system incorporating the local knowledge, FM radio station mobilization for adverse weather reporting, posting disaster

safety information at public places and establishment of communication towers.

Coordination

The coordination function of DNDRC has already been specified by the 1982 Act. Further coordination is needed between the neighboring districts (Makwanpur, Dhading, Nawalparasi) for sharing information and equipment.

Monitoring and Evaluation

Formats have been developed for monitoring the activities proposed in the action plan. DNDRC members should be given specific responsibilities to monitor and evaluate these activities and based on these, improvements in plan must be made.

Resource Mobilization

The proposed action plan and identified activities can be presented to different donors by the DNDRC as a shopping list to these donors. The supported accepted by these donors should be monitored for avoiding duplications.

The proposed changes in policies allowing the extraction of sand and boulders from the problem rivers and the logs brought by floods, should be strictly lobbied which will be a significant source of revenue to finance preventive as well as rehabilitation activities against disaster.

Apart from the above sources of revenue, the DDC and VDC can set aside at least 5 percent of the total revenue every year for disaster mitigation purpose.

Recommendations

Besides the recommended "Action Plan", other recommendations are as follows:

Incremental Institutional Mechanism

These include additional institutional measures such as the enhanced role of DNDRC, establishment of settlement level disaster management committee and permanent and fully equipped disaster

management secretariat at the district level to conform to the needs and standards of TDRM.

Policy Change

It is recommended to annul the existing policy provision to enable the local governments to extract at least the annually added debris to be extracted for disaster safety and revenue purposes and also to annul the provision of banning the extraction of logs brought by the floods.

Social Mobilization in the Vulnerable VDCs

Two packages of social mobilization general and disaster related, is recommended to be developed and applied in the vulnerable VDCs. The general package will constitute awareness about the importance of education, health, sanitation, desirable and undesirable social customs, etc and coping capacity for different disasters. In fact, where NGOs have worked in the communities or Village Development Programme (VDP) is implemented, the general package is already applied. So, this package needs to be applied only in those VDCs where people are not already mobilized. The second, disaster package, however, has not been developed and implemented in any VDC. This package will constitute awareness about preventive measures to be taken before disasters and safety measures to be taken during the disaster.

For social mobilization, an experienced external social mobilizer will work in the 5 VDCs to mobilize as well as to train two local or internal social mobilizers (animators) per VDC, one male and one female, who will be permanently located within the respective VDC. The external mobilizer will work in the area for an initial period of 6 months.

Gender Issues in Disaster

Although the incidence of disaster and being its victim is equally painful for everybody, the women are found to bear larger amount of pain and sufferings during and after any disaster.

Therefore the needs of women must be seriously considered in designing any disaster mitigation project. Since they know what they need, it is necessary to fully participate them in such a design.

Indigenous Knowledge

The use and upgrading of local people's knowledge on disaster forecasting, coping and mitigation through disaster research should also be an integral part of the TDRM.

Formulation and Implementation of Disaster Preventive Projects

There are several medium to large scale projects required to avoid or mitigate the effect of disaster in Chitwan district. Some of these are listed as follows:

- Construction of a reasonably flood-proof road connecting district HQ with Thori via Patihani and Jagatpur. Such a road will save 3-4 VDCs in the west Chitwan which are severely affected by flood and river bank cuttings.
- Slope stabilization measures in the catchments of Rapti River.
- River training works on the location of sharp Narayani bend at Mangalpur.
- Control of slash-and-burn farming and forest encroachment in the hilly areas of Chitwan (Chepang Development Project).

Besides these; the following additional recommendations should be considered:

- Extend telephone lines in the vulnerable VDCs for quick communication purpose.

- Provide cycle-based ambulances (developed by ITDG) at the rate of one ambulance per 100 population in the vulnerable VDCs where cycles can ply.
- Provide one communication tower (developed by ITDG) at the rate of one tower per vulnerable VDC.
- Provide AM/FM radio sets (one set per community hall) in the vulnerable VDCs.
- Post telephone numbers of DMC, Fire station, Police and pamphlets and posters depicting safety information against different disasters in as many public locations as possible.
- Mandate the use of building codes (developed by MPPW) for the new construction of public buildings such as schools, hospitals, etc. and retrofit the existing public buildings to make them reasonably disaster resistant.
- Equip major public buildings with systems of fire alarm and control

Exogenous Activities/Projects Affecting Chitwan

Chitwan's vulnerability to disasters, particularly water induced ones, are aggravated by projects and activities that are exogenous or beyond control of the local authorities. Some of these are caused by the Gandak barrage and dams constructed by the Government of India across the border. For this, local authorities will have to lobby with the national government.

1.1 Background

Hazard is an event caused by natural or man-made actions and when such hazard touches upon the lives and properties of the people, it becomes a disaster. In practice it is assessed in terms of risk probabilities.

Disaster is a sudden event that has very unfortunate consequences for those affected by it. Disaster is as old as the human history itself. Disasters involve large-scale loss of life and property. Some of the worst forms of disasters in the world have killed millions of people and destroyed properties and habitats worth billions of rupees (see: Box 1, Figures 1 and 2).

1.2 Nepal's Vulnerability to Disaster

Nepal is a disaster-prone country mainly due to, among others, its young geology and sloppy terrain. Disasters in Nepal are further exacerbated by widespread poverty. The assessment made by the Ministry of Home Affairs shows that, between 1983 and 1998, more than 18,000 people have lost their lives, falling prey to several forms of disaster. Nepal has the highest percentage of deaths (0.34%) among the affected or injured persons in South Asia (Table 1). While an average of one among 9175 exposed persons died in South Asia, one among 295 exposed persons died in Nepal - six times more than the South Asian average. The losses of productive properties such as animals, agricultural land and crops, etc. are overwhelming. Major types of disasters in Nepal include flood, earthquake, drought, landslide, disease epidemic, Glacial Lake Outburst Flood (GLOF), fire and ecological hazard. Other minor ones are avalanche, storm, hailstorm, stampede, transit and industrial accidents (see Box 1). Among the major disasters, flood, landslide and disease epidemic are the most recurrent ones claiming several lives annually. As seis-

mic faults pass through the country, it renders Nepal vulnerable to earthquake disaster also. In fact, it is reported

that the country's preparedness must be highest for a major earthquake due in the region.

Table 1: Average Number of People Killed or Affected Annually by the Disasters in South Asia (1993-2002)

Country	People killed (No.)	People affected (No.)	Killed/Affected (%)
Bangladesh	9132	73368083	0.24
Bhutan	222	1600	13.9
India	77125	802063399	0.01
Nepal	3894	1147785	0.34
Pakistan	6037	8989631	0.07
Sri Lanka	590	4675163	0.01
South Asia	97000	890245661	0.01

Source: World Disasters Report, 2003.

1.3 Disaster Vulnerability of Chitwan

Within Nepal also, there are some districts and parts of it which are more vulnerable. Among these districts, Chitwan is one of them. This district has both Hill and the flat Terai parts. In the former, there is the widespread problem of landslides whereas in the latter, there is an ever-increasing threat of floods. Fire and windstorm threats are also equally dominant. During the 1993 flood which significantly affected five Terai and Hill districts, Chitwan was one of the worst affected districts. Although there were more deaths related to flood in Sarlahi, the loss of property, land and infrastructure was the highest in Chitwan. The losses that occurred at that time have not yet been fully replenished. Chitwan's vulnerability to flood disaster is contributed by the landslides in parts of the Hills of Chitwan and Makwanpur, the debris from which are brought to the district by the tributaries of Narayani river in the western border and Rapti river in the east. In the last two rainy seasons, the number of deaths in Chitwan because of landslides and flood alone reached nearly 1,000. Local people believed that the year of heavy flood is followed by a year of

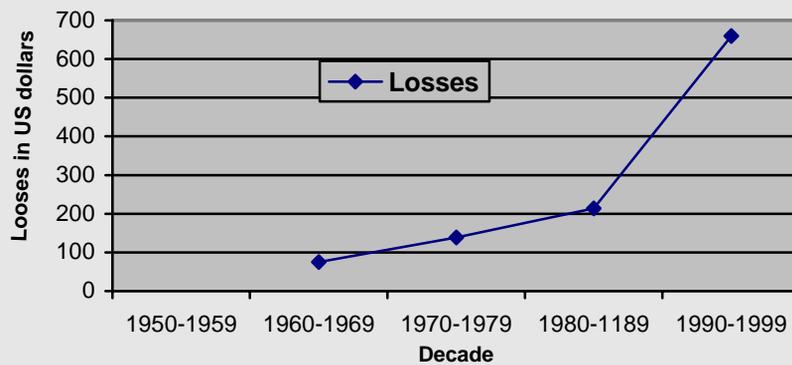
drought. But this was proved wrong in the last two years. This is primarily because of the accumulated rise in the level of river-bed which increases the vulnerability from even smaller floods. The dam constructed under Asian Development Bank East Rapti Project (ERP) some one decade ago to prevent the flood entry into agricultural fields has now almost equaled the river bed height in many places. The east-west highway bridge surface at Lothar is now only

about one and a half meter above the river-bed. The bridge is in imminent danger because even the small logs brought by the flood can clog the water entry beneath the bridge and demolish it. Therefore, it is never too early to plan and implement the disaster management initiatives to save important lives and properties of the Chitwan dwellers including one of the most fertile lands that are capable of ensuring the food security of the country.

Box 1: The cost of disasters in the world

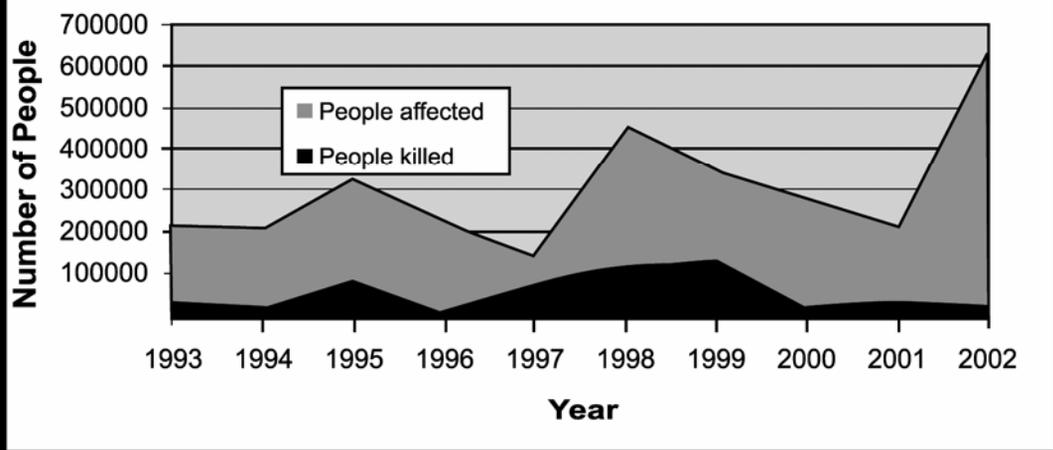
The recorded economic cost of disasters has been increasing over decades (Figure 1). Munich Re (2002, as quoted in UNDP 2004) estimates that global economic losses for the most recent ten years (1992-2002) were 7.3 times greater than the 1960s. The world disasters report 2002 assesses the annual average estimated damage due to natural losses were reported from high human development countries. According to Munich Re, real annual economic losses in 2002 averaged US \$ 75.5 billion in the 1960s, US\$ 138.4 billion in the 1970s, US \$ 213.9 billion in the 1980s and US \$ 659.9 billion in the 1990s. Disasters not only have made a huge number of casualties but also have yielded thousands times more people affected (Figure 2).

Figure 1. Economic losses due to natural disasters



Data source: Munich re, 2002 as quoted in UNDP, 2004.

Figure 2. The number of people killed and affected by natural disaster



Data Source: World Disasters Report, 2003,

1.4 The concept of Total Disaster Risk Management (TDRM)

The concept of TDRM is new to Nepal as is true in the case of many other developing countries. It is a concept that propagates more on the preventive measures on the notion that preventive actions are at least six times cheaper than prohibitively costly rescue, relief and rehabilitation measures to be taken after the disaster has actually occurred. The TDRM concept is a purposive viewpoint that addresses holistically and comprehensively the various concerns and gaps in the disaster management cycle. In this regard, it necessarily focuses on the underlying causes of disasters, the conditions of disaster risks and the vulnerability of the community. It emphasizes multilevel, multidimensional and multidisciplinary cooperation and collaboration (Guzman 2003). Early Warning System (EWS) is an important component of TDRM which involves forecasting of probable disaster and information to potential victims well ahead of actual disaster incidence so that they will take appropriate measures to protect their respective lives and properties. However, some disasters like earthquakes, lightning are extremely difficult or impossible or at best costly to forecast and warn. In fact, no amount of precaution and investment will fully free the risk of any disaster. Hence, TDRM has also the components of efficient rescue, relief and rehabilitation. One of the components is to expedite the rescue, relief and rehabilitation process through the improvements in communication by way of appropriate institutional mechanism. If the rescue and relief team is able to reach the disaster site faster due to improved communication, many more lives and properties can be saved.

The other equally important feature of TDRM is to admit the relationship between disaster and development. The development can both enhance and minimize the probability of various disasters, and in the same vein, disasters can both destroy and augment the development. TDRM, therefore, propagates that each devel-

opment component must internalize the disaster probability and take necessary measures.

1.5 Existing Disaster Response Mechanism

The government of Nepal had established Department of Narcotics Control and Disaster Management within the Ministry of Home Affairs in order to provide immediate relief to the disaster victims but this Department has been annulled very recently to revert back to the existing old institutional arrangement. *The Natural Calamity Relief Act* was enacted for the first time in 1982. The title of the Act itself reveals the partial nature of response mechanism as it overlooks the wider set of human-induced disasters. Before the promulgation of this Act, coping with disasters was done on a case-by-case basis using *ad hoc* committees. The Act was amended twice after 1982 but with no headway towards TDRM. After the heavy flood of 1993, the need for disaster management has been realized more seriously. However, only one of three components of disaster management cycle, namely preparedness, relief/rescue, rehabilitation/re-construction has received due attention.

In the case of major disasters, the government declares the affected areas as disaster victim and funds and relief efforts are mobilized both internally and from the international donors. After the 1993 flood, United Nations Development Programme (UNDP) established a full time UN Disaster Management Secretariat (UN-DMS) to support the government's disaster response efforts. At the initiative of this secretariat, three sectoral working groups were formed in the areas of food and agriculture, health and the logistics. These working groups met regularly and discussed the respective sectoral policies regarding disaster response and proposed to prepare a practical Disaster Relief Implementation Manual and Disaster Response Plan in each of the three sectors. The Manuals and the Plans in case of food and agriculture, and logistics are in the process of being finalized whereas the Health Sectoral Working Group (now known as DHWG) has already finalized the Plan.

A project close to TDRM concept was introduced by UNDP which helped to implement the

Upgrading Management Capacity in Nepal project on a pilot basis to tackle with the problem of water induced natural disaster. This project was implemented in 1996 for a period of one and a half years in Kavre and Chitwan districts. The follow-on Participatory Disaster Management Programme (PDMP) is the second phase which began from January 2001 for a period of one year. The programme covered two VDCs each of four highly disaster-prone districts namely Tanahu, Syangja, Chitwan and Bardiya with the assistance of UNDP/Japan Women in Development Fund (JWIDF). According to the programme's strategy, the DDC of the respective districts have categorized/selected the worst affected VDCs as the "severely disaster prone" and upon the selection of target VDC by the District Programme Management Committee, the entire target VDCs/Municipalities selected one/two wards/sites for programme implementation. After the selection of sites, the respective community members formed the Self-Governing Community Organizations (SGCOs) as a representative to implement disaster mitigation activities with the support of the programme and local communities. Activities under the local capacity-building component are supervised through the District Programme Management Committee which is headed by the DDC chairman with Chief District Officer, Local Development Officer and Community Disaster Management officer (UNDP staff as member secretary) as members of the committee. At the central level, the programme has been executed through the Ministry of Home Affairs as a liaison Ministry. The programme is coordinated and facilitated by the executing agency through the National Programme Director.

1.6 Poverty and Disaster Nexus

Poverty is pervasive in Nepal. Nepal Living Standard Survey (NLSS) of 1995/96 some 42 per cent of Nepalese people lived below poverty line in 1995/96. Of these, some 25 percent are counted as 'poor' and the remaining 17 percent as 'ultra poor'. Although Chitwan district is considered to be relatively higher ranked in terms of overall aggregate development indicators, there are locations and households which are situated in extreme pockets of spatial poverty and these areas and households are the

most vulnerable. Chepangs and their habitat are the example cases.

Poverty is both a cause and consequence of any disaster. Causatively, the nexus between poverty and environment (particularly forests) has been a cause of concern. The over extraction of natural resources beyond the regenerative capacity of these resources in order to support the livelihood of the poor households has been a cause of many landslides. In terms of consequence, many well-to-do families have also turned poor in a flash because the resources that rendered them rich are quickly and mercilessly destroyed by disasters such as flood, landslide, earthquake, etc. The observation suggests that the poorer settlements are more vulnerable to the disasters. Hence, the realistic mitigation over disaster has to focus on the basic problems of poverty.

1.7 Objectives of the Study

The study objective is guided by the Terms of Reference (TOR) provided to the Study Team. The TOR is presented in Annex-1. According to the TOR, the major objective of the study will be to prepare an action plan for total disaster risk management for Chitwan district. The specific objectives and activities (scope) of the study will be as follows:

1. To enhance disaster management capacities of local institutions and communities;
2. To mitigate disaster losses through strengthening quick response and sustainable rehabilitation mechanisms; and
3. To ensure sustainability of development infrastructures through rendering them disaster resistant.

Disaster Reduction and Millennium Development Goals

The millennium development goals (MDGs) 1, 3, 4, 6, 7 and 8 are directly related to disaster risk reduction. Integrating disaster risk reduction and development planning help to meet the MDGs. The disaster related MDGs are:

- | | |
|--------|--|
| MDG 1. | Eradicating extreme poverty and hunger |
| MDG 3. | Promote gender equality and empower women |
| MDG 4. | Reducing child mortality |
| MDG 6. | Combating HIV/AIDS, malaria and other diseases. |
| MDG 7. | Ensuring environmental sustainability |
| MDG 8. | Developing a global partnership for development. |

Source: UNDP, 2004, pp 82-85.

1.8 Methodology

The study proceeded with the review of the documents and references related to the study objectives. This was followed by the visit to the project district Chitwan. In the district, the Study Team met with the DDC officials (DDC Chairman, Local Development Officer), District Administration officials (Chief District Officer) and the officials from the disaster management related institutions (such as local Red Cross). The meeting with the above officials, besides collecting secondary data on the subject, was to solicit their respective opinions and suggestions about the project. This was followed by the visits to the communities in the identified vulnerable sites. The fieldwork was carried-out during the months of November-December, 2003.

Among the tools used for information gathering were the PRA exercises with the vulnerable communities (particularly the historical timeline and the seasonal calendar). Other methods included focus group discussions (FGDs), informal group discussions, individual inquiries and other consultations.

1.9 Limitations of the Study

The most significant limitation in the study was the time factor. TDRM being a new concept for Nepal, the time required to complete the whole

process of exploration and consultation was in no way matched with the total time allotted for the entire exercise.

Secondly, the on-going conflict situation in the country barred the study team from reaching the important local destinations for soliciting the opinions of a much larger set of stakeholders.

The third limiting factor was the baseline information on vulnerability to different hazard risks. The preceding recent UNDP study on the vulnerability assessment covered only two disasters - flood and landslides - and provided more complete information only on these two forms of disasters which is obviously incomplete for TDRM plan development purpose. This study also appeared to be facing severe time limitation.

Even in the midst of these limitations, the study team has tried its level best to come up with a pragmatic TDRM for Chitwan district.

Review of Related Materials

2

2.1 General

TDRM has been taken as the state-of-the-art management philosophy for disaster management. The disaster preventive measures taken in several South Asian countries have been found to have saved at least six times resources compared to the costly post-disaster relief and rehabilitation. However, no country in the region has fully adopted this approach. Because of the frequent disaster, Bangladesh has made some headway in this direction and it has mobilized international projects for shelter and preventive measures. Some South Indian states have also been marching in this direction.

As stated earlier, only Participatory Disaster Management Programme (PDMP) supported by UNDP and implemented in two Village Development Committees (VDCs) each of four districts has come closer to the TDRM concept. PDMP demonstrated:

- That disaster affected communities can be mobilized effectively to carry out disaster mitigation and other social/economic development works;
- That the communities, however poor and distressed they are, are willing and able to contribute in cash and/or kind for their own protection and development;
- That necessary infrastructure can be built at a very low cost with the participation of the communities, particularly those infrastructure which the community ranks as high priority one; and
- That the lost confidence of the people on matters of disaster mitigation can be restored.

2.2 Indigenous Knowledge

Indigenous or local knowledge in disaster prediction and mitigation comes from the hidden research and observation about the correlation between events, which is passed through generations, although not all of these knowledge and beliefs have scientific base.

The people in Bahakot, Syangja believe that if a big snake runs downhill, there will soon be torrential rain.

- Local people can sense the big flood about 2-3 hours earlier from two observations: the heavy rain in the watershed and a strange smell coming from the upstream.
- Local people use bamboo nets, crop-residue, maize cobs, wood and log in critical stream banks to minimize the effect of flood.

The virtue of the local knowledge is that it is inexpensive and readily available. It is an irony that the government has not made any serious effort to build on such local knowledge and beliefs.

2.3 Coping against the Disaster

Even without any external support, the communities have their own coping strategies and mechanisms to overcome the menace of the disaster. Some of these are enlisted below:

Before the nationalization of the forests in 1957, the communities were preserving the forests for, among others, controlling the natural disasters such as flood and landslides. The nationalization gave way to the forest denudation process thus increasing the vulnerability of the community to such natural disasters. Now, when forests are given back to the communities

for management, they are not only conserving the forests but also planting diverse species of trees.

Another coping mechanism reported by the victims of disaster is learning to live with the effects of disaster. For example, the victims of landslide in Bahakot, Syangja do not sleep in a rainy night to be alert for any further disaster.

Migration to safer destination is another coping strategy adopted by the affected households. People from the Hills are migrating to Terai not only to save themselves from the risks of landslides but also to supplement income.

In some areas like Bhandara, Kathar and Bahakot, the communities have constructed sheds at safe and elevated places to gather at the time of disaster.

In the Terai sites, Self-Governing Community Organization (SGCO) members said that they put the food-grains and other valuable items in the upper floor of the house so that it is not lost during the flood. In the Hills, people build their houses at higher elevation.

The practice of fencing with trees in-and-around their homesteads is also a common coping phenomenon. The temporary method of river training by deepening the river and placing the crop-residue, bamboo, maize cobs, wood and log are also common indigenous practices to avert the danger from flood.

Even with these coping practices, communities' coping strategies are also often constrained by the huge and horrible nature of floods and landslides. But, however, Nepalese society has longstanding traditions of group activity based on ties of kinship, ethnicity, or place of residence. For many generations, shared labor has been used to clear farm ground, construction of check dams, river training, building of irrigation canals and to carry out several community activities.

2.4 Disaster management in the Acts, Laws and Codes

In order to protect the life and property, an act called the "Natural calamity Relief Act" was promulgated in 1982. The Act has bestowed the authority to the government to declare "Natural Calamity Area" for the areas affected or likely to be affected by natural calamity. One of the major provisions in the Act is the constitution of the "Natural Calamity Relief Committee" at the central, regional and local levels. Presently,

the Central Disaster Relief Committee (CDRC) and the District Natural Disaster Relief Committees (DNDRCs) are functioning while the other two, regional and local level committees, can be constituted in times of disaster (Ministry of Home, 1994). The act has also provisioned two sub-committees i.e. Relief and Treatment sub-committee and Supplies, Shelter and Rehabilitation Sub-Committee at central level. The functions and duties of the committees at all levels have been specified. The major functions and duties of the DNDRCs include the formulation of district level plans on natural calamity relief works, monitoring of the natural calamity relief works being conducted by the local level committees and supply of information to the regional level committees. The act also allows to set up "natural calamity aid funds" at all levels.

The Ministry of Home Affairs has formulated a "National Action Plan for the Disaster Management" for the disaster mitigation in the country in close cooperation with various governmental as well as non-governmental agencies (DNCDM, 2001). The action plan is divided into four broad categories viz. disaster preparedness, disaster reconstruction and rehabilitation, disaster response and disaster mitigation. The overall disaster management strategies of the country have been set up as follows (Ministry of Home, 1996):

1. Carry out rescue and relief works in disaster affected areas,
2. Protect and reduce the loss of life and property,
3. Mitigate the sufferings of the people,
4. Implement effective land use zoning,
5. Prepare hazard maps of the disaster prone areas,
6. Rehabilitate the disaster victims,
7. Control and mitigate natural disasters,
8. Raise funds, resources and relief materials and distribute them to disaster affected areas and households,
9. Raise disaster awareness among the people,
10. Coordinate among different agencies involved in disaster management,

11. Mobilize the non-governmental sectors in rescue and relief works,
12. Mobilize internal and external resources for rehabilitation and reconstruction,
13. Provide training at the grassroots level for the management of disaster,
14. Build capacity on disaster management,
15. Form teams and send them in disaster area to assist in relief works,
16. Assess the damages, collect and analyze data and disseminate information.

3

Risk and Vulnerability Assessment

Due to its complex topography with distinct altitude variation, complex terrain and distinct physiography, Chitwan district is fragile and extremely vulnerable to hazards. These are triggered by extreme weather events associated with heavy rainfall, deforestation and disruption of natural ecosystems which cause landslides, floods, debris flows and widespread damage every year. A total of 16 different types of hazards which caused loss of lives and properties between 1954 and 2003 have been reported in Chitwan district. An assessment of risk and vulnerability has been done based on the report prepared by a team of consultants for UNDP (UNDP, 2003). The report, however, has focused only on the two major water-induced disasters - flood and the landslides.

3.1 Ranking of hazards in Chitwan district

All sixteen hazards were ranked based on their severity and magnitude. The human casualties and property losses were taken as the severity indicators, whereas frequency of occurrence and number of VDCs affected were taken as the indicators of magnitude. Similarly, 80 percent of the total weightage was given to severity indicators whereas 20 percent weight was given to the magnitude indicators. Among the sixteen hazards, flood has been the most severe trigger event followed by wild animals, thunder bolts, river bank cuttings and landslides (Table 2). Similarly, hazard probability was calculated based on the hazard mapping of two major hazards – landslides and floods (Table 3).

Table 2. Ranking of Hazards

SN	Hazards	Severity		Magnitude		Total score
		Casualties (% of the total fatalities)	Property loss per year (Out of total loss)	Frequency of occurrence (in the last 49 years)	No. of VDCs affected by the disaster	
Weight		50%	30%	10%	10%	
1	Landslides	0.026	0.0016	0.039	0.029	0.0956
2	Debris flow	0	0.0001	0.006	0.0053	0.0114
3	Floods	0.33	0.2751	0.063	0.084	0.7521
4	River bed rise	0	0	0.022	0.0034	0.0254
5	River bank cutting	0	0.0138	0.029	0.058	0.1008
6	River shifting	0	0.0059	0.012	0.029	0.0469
7	Water logging	0.002	0.0001	0.002	0.0053	0.0094
8	Windstorm	0.0045	0.0001	0.027	0.021	0.0526
9	hailstorm	0.0065	0.0001	0.035	0.039	0.0806
10	Thunderbolt	0.037	0.00003	0.035	0.042	0.11403
11	Drought	0	0.0009	0.027	0.021	0.0489
12	Cold wave	0	0	0.004	0.0027	0.0067
13	Earthquake	0	0.0001	0.004	0.0053	0.0094
14	Fire	0.002	0.0011	0.051	0.037	0.0911
15	Pest and diseases	0.0325	0.0002	0.016	0.012	0.0607
16	Wild animals	0.06	0.00024	0.037	0.047	0.14424

Table 3. Hazard Probability

Name of VDCs	Status of Hazard probability (from land-sides)					Status of Hazard probability (from floods)				
	VHH	HH	MD	LH	VLH	VHH	HH	MH	LH	VLH
Panchakanya				•					•	
Lothar	•									•
Korak	•									•
Bhandara				•					•	
Gitanagar					•					•
Patihani					•				•	
Shivanagar					•					•
Mangalpur					•			•		
Phulbari					•					•
Parbatipur					•					•
Dibyanagar					•	•				•
Gunjanagar					•	•				
Saradanagar					•			•		
Meghauri					•	•				
Kabilas					•				•	
Dahakhani	•					•				
Chandibhanjyang	•					•				
Darechowk	•					•			•	
Jagatpur					•			•		
Gardi			•					•		
Ayodhyapuri				•					•	
Sukranagar					•				•	
Bagauda			•					•		
Madi Kalyanpur		•						•		
Bharatpur				•					•	
Khairahani					•				•	
Bachhauri					•		•			
Kathar					•			•		
Birendranagar			•						•	
Kumroj					•		•			
Chainpur		•						•		
Pithuwa	•							•		
Ratnanagar					•			•		
Shaktikhor	•								•	
Siddi	•									•
Jutpani			•							•
Kaule					•					•
Padampur					•		•			
Total										

VHH=Very high hazards; HH= High hazards; MH= Medium hazards; LH= Low hazards; VLH= Very low hazards

3.2 Vulnerability Assessment

VDCs prone to various hazards have been identified based on the population exposed to the hazards, vulnerable properties and infrastructures susceptible to disasters. Vulnerable VDCs by various parameters are given in the

Table 4. The data reveal that *Lothar* VDC ranks the highest in terms of the percentage of the total population exposed to disasters whereas *Bachheuli* and *Jutpani* were the most vulnerable VDCs in terms of agriculture land and infrastructures.

Table 4. Vulnerability Assessment (mainly from water-induced hazards)

VDCs / Municipalities	Population exposed (%)	Vulnerable agriculture land area	Vulnerable crop yield (Metric tonne)	Vulnerable forest area	Homestead trees	Vulnerable private houses	Status ¹
Panchkanya (Piple)	3025	734	2202	803	0	605	VHDP
Lothar	2394	70	213	1005	215	440	VHDP
Korak	2400	509	791	30	0	400	VHDP
Bhandara	3813	97	357	2	2490	690	VHDP
Gitanagar	0	68	285	0	0	0	VLDP
Patihani	1796	34	150	0	2500	150	VHDP
Shivanagar	0	38	117	0	0	0	VLDP
Mangalpur	4268	68	207	7	0	12	VHDP
Phulbari	699	96	268	0	0	0	HDP
Parbatipur	0	0	0	0	0	0	VLDP
Dibyanagar	1037	87	278	0	0	236	VHDP
Gunjanagar	3206	109	337	271	0	686	VHDP
Saradanagar	0	48	148	0	0	0	VLDP
Meghauri	7367	271	867	10	0	283	VHDP
Kabilas	251	10	39	2	0	20	LDP
Dahakhani	964	88	263	20	0	0	MDP
Chandibhanjyang	1161	205	129	100	0	198	HDP
Darechowk	1214	60	46	12	0	121	HDP
Jagatpur	1041	0	0	330	0	199	HDP
Gardi	810	30	315	0	0	113	MDP
Ayodhyapuri	2957	83	291	1755	0	99	HDP
Sukranagar	21	0	0	0	0	4	LDP
Bagauda	1121	78	500	0	0	191	HDP
Kalyanpur	2038	50	53	1100	0	47	HDP
Bharatpur	2529	140	200	300	0	200	HDP
Khairahani	6120	400	1250	0	0	350	VHDP
Bachheuli	3377	1569	3850	313	0	767	VHDP
Kathar	3162	510	1300	0	0	600	VHDP
Birendranagar	4602	800	1750	1250	0	800	VHDP
Kumroj	3216	420	1100	250	0	215	VHDP
Chainpur	2100	175	75	0	0	1350	HDP
Pithuwa	2053	405	225	0	0	630	HDP
Ratnanagar	3773	700	1800	135	0	900	VHDP
Shaktikhor	4394	333	590	0	0	724	VHDP
Siddi	2019	351	365	167	0	321	HDP
Jutpani	2578	149	288	0	0	458	HDP
Kaule	0	0	0	0	0	205	VLDP
Padampur	2538	150	310	0	0	190	HDP
Total	84044	9037	20958	7861	5205	12204	-

¹(The score is primarily based on the exposed population. The scores have been given as: <50 populations as VLDP, >50-200 as LDP, 200-1000 as MDP, 1000-3000 HDP, >3000 VHDP).

3.3 Risk Assessment

Between 1954 and 2003, a total of 231 persons were killed by nine disasters in Chitwan district alone. In an estimate, a property worth more than Rs 10.62 billion was lost annually as a result of the disasters in the district. Flood, land-

slides and fire have been the three most frequent hazards happening 31, 25 and 19 times during the last 49 years. Potential impacts of the five main hazards based on the past events and their corresponding vulnerable VDCs are given below (Table 5).

Table 5. Risk Assessment

Type of hazard	Interval of occurrence in a large scale (Year)	Potential impact	Vulnerable area (VDCs)
Flood	2	<p>Physical damage: infrastructures- public buildings, bridges and canals. Casualties and public health: Loss of human life, animals, possible outbreak of malaria, diarrhea and viral infections. Water supplies: Contamination of wells and ground water. Crops and food supplies: harvests and food stock may be lost due to inundation. Animals, farm tools and seeds might be lost.</p> <p>Based on the information of the last 49 years, floods in Chitwan district have occurred 31 times and killed 153 people and damaged the public properties equivalent to Rs 4773318000 The average per event loss of life from this disaster is 5 people and worth equivalent to Rs 153978000 as properties.</p>	32 out of 38 VDCs/Municipalities have been affected by flooding. However, very high and high vulnerable category VDCs include Megghauli, Dibyanagar, Gitanagar, Gunjanagar, Bachheuli, Chainpur, Gardi, Khairahani, Pithuwa, and Birendranagar.
Landslide / Debris flow	3	<p>Physical damage: Road, bridges, lines of communication, indirectly may reduce crop/forest productivity, trigger flooding, reduce property values. Casualties and public health: Loss of human life, animals, Crops and food supplies: harvests and food stock may be lost due to mudflows.</p> <p>Based on the information of the last 49 years, landslides in Chitwan district have occurred 19 times and killed 12 persons altogether, and damaged the public properties equivalent to Rs 1.45 million per event.</p>	VDCs of very high and high hazard class include: Chandibhanjyang, Darechowk, Kabilas, Korak, Lothar, Piple, Saktikhor, Siddi, Kaule, Pithuwa, Chainpur and Madi Kalyanpur.
Earthquake	25	<p>Physical damage: infrastructures- public buildings, bridges and canals. Fires, landslides, flooding may occur. Casualties and public health: Loss of human life, animals, fracture injuries will be the widespread problem. Water supplies: Damage of water system, Contamination of wells and ground water.</p> <p>Loss of human life and public properties. It occurs at a long interval but in a devastating manner. The earthquake of 1995 damaged the properties equivalent to Rs 190000, and of 2001 was Rs. 1 million.</p>	Darechowk, Birendranagar, Dahakhani, Kaule, Kabilas, Lothar, Siddi, Shaktikhor and Korak
Fire	2	<p>Physical damage: infrastructures- public buildings, industries, houses, forest. Casualties and public health: Loss of human life, animals Crops and food supplies: clothes and food stock may be lost due to burning. Per event loss from fire is Rs. 725000.</p>	Chandibhanjyang, Siddi, Padampur, Kabilas, Darechowk.
Windstorm	4	<p>Physical damage: infrastructures- public buildings and houses. Casualties and public health: Loss of human life, injuries Crops and food supplies: can damage crops in the field. Casualties during the last 49 years are 13, and per event loss of properties is equivalent to Rs. 157000.</p>	Chandibhanjyang, Dahakhani, Darechowk, Kabilas, Kaule, Padampur, Shaktikhor, Siddi.

3.4 Average Recurrence Period

Historical records give first indication of disaster return periods and extent (UNDP/ UNDR0, 1991). This is applicable to all types of disasters such as landslides, fire, earthquake, windstorms, etc. However, the predication of occurrence of earthquake is quite a difficult task. Based on the historical trend, an earth-quake with considerable damages occurred in the in-

terval of every 70 year. The last major earthquake occurred in January of 1933 and, based on this recurrence cycle, is forecasted that a major earthquake of unprecedented magnitude is due soon in the country, particularly in the western region.

Based on the current UNDP study (49 years of recall), the average time of recurrence of various disasters are as follows:

Table 6: Average Recurrence Time of Various Disasters

Disaster Type	No. of events in last 49 years	Average Recurrence time (years)
Flood	31	2
Landslide	19	3
Earthquake	2	25
Fire	25	2
Windstorm	13	4
Debris flow	3	16
Riverbed rise	11	4
River bank cutting	14	4
Water logging	1	49
Hailstorm	17	3
Drought	13	4
Cold wave	2	25
Pest and diseases	8	6
Wild animals	18	3
River shifting	6	8
Thunderbolt	17	3

The information presented in the above table should be taken cautiously because they represent the simple averages of events that occurred in 49 years. What is required is the moving average that shows the trend through time. It is

believed that some of the more damaging disasters like landslides and floods are recurring more frequently now. Due to lack of time series information, this could not be estimated

District Capability Analysis

4

4.1 Service Delivery and Financial Institutions

There are altogether 1,415 government and non-governmental organizations working in the field of health, agriculture, education, poverty alleviation, saving and credit schemes, security, rescue and relief works and disaster manage-

ment in Chitwan district. However, these service delivery and financial institutions are not properly distributed. Around 40% of such institutions are located in two Municipalities, whereas these municipalities bear only 7.5 per cent of the total exposed population to different hazards (Table 7).

Table 7. Service Delivering and Financial Institutions Working in the District

VDCs/Municipalities	Population exposed to hazards	No. of service delivery institutions					No. of financial institutions	Other institutions		Total institutions
		Police	Health centre/Hospitals/Clinic	Agri. Centre	Veterinary	School/colleges		NGOs/CBOs (FUGs, COs, Cooperatives, Ama groups etc)	INGOs and donor-supported	
Piple	3025	0	3	1	1	13	0	2	0	20
Lothar	2394	0	2	0	0	10	0	21	0	23
Korak	2400	0	1	0	0	9	0	4	2	16
Bhandara	3813	1	2	1	1	10	1	3	2	21
Gitanagar	0	1	1	0	0	5	2	5	0	14
Patihani	1796	0	2	1	2	9	2	1	0	17
Shivanagar	0	0	1	0	0	3	1	4	0	9
Mangalpur	4268	0	1	0	1	8	9	2	0	21
Phulbari	699	0	1	1	0	3	1	6	2	14
Parbatipur	0	0	1	1	0	9	32	9	1	53
Dibyanagar	1037	0	2	0	0	10	6	11	0	29
Gunjanagar	3206	0	1	0	2	7	0	29	1	40
Saradanagar	0	0	1	0	0	6	2	8	0	17
Meghauli	7367	1	1	0	1	11	2	3	0	19
Kabilas	251	0	1	1	0	11	14	26	1	54
Dahakhani	964	0	1	0	0	7	0	10	0	18
Chandibhanjyang	1161	0	2	0	2	2	1	3	0	10
Darechowk	1214	1	1	1	1	13	1	0	1	19
Jagatpur	1041	0	1	0	0	9	0	2	2	14
Gardi	810	0	1	0	0	11	2	5	1	20
Ayodhyapuri	2957	0	1	0	0	10	0	0	0	11
Sukranagar	21	0	1	0	0	7	8	0	1	17
Bagauda	1121	0	1	1	0	10	3	2	0	17
Kalyanpur	2038	0	1	0	0	8	2	3	0	14
Bharatpur	2529	4	53	4	7	155	47	140	0	410
Khairahani	6120	1	1	1	0	16	3	2	1	25
Bachhauli	3377	1	6	1	1	8	4	6	2	29
Kathar	3162	0	1	0	0	7	3	16	0	27
Birendranagar	4602	0	1	0	0	13	51	6	0	71

Kumroj	3216	0	4	0	0	7	1	9	0	21
Chainpur	2100	0	4	1	0	11	6	13	0	34
Pithuwa	2053	0	4	0	0	11	2	10	0	27
Ratnanagar	3773	1	21	2	15	48	10	58	0	155
Shaktikhor	4394	0	1	1	1	11	1	13	1	29
Siddi	2019	0	1	0	0	11	0	4	0	16
Jutpani	2578	0	1	1	1	9	4	9	0	25
Kaule	0	0	1	0	0	2	0	1	0	4
Padampur	2538	0	1	0	0	8	2	16	0	25
Total	84044	11	131	19	36	518	223	459	18	141
		8	52	15	13	53	39	84	13	

4.2 Communication and Media

Chitwan is relatively a resourceful district in terms of communication and transportation facilities. Telecommunication facilities have reached to 30 VDCs, Marts line in 12 VDCs and VHF line in 18 VDCs. Postal service has reached to 30 VDCs / Municipalities except in 6 VDCs. Nine express delivery service organizations and pager and cellular phone facilities have been present in the district. In addition, two FM radios namely *Kalika* and *Synergy*, have been in operational and become effective in disseminating local, national and international news and events in no time. Six daily, 3 weekly and 1 fort nightly news papers are published in the district. FM radios provided sig-

nificant help in disseminating news and appeals for the public support for rescue and relief operations in the devastating disasters last year.

4.3 Preparedness Apparatus and Human Resource

An inventory of various apparatus and human resource of the district was done. The study reveals that Chitwan district is self sufficient in terms of various equipment/preparedness apparatus and human resource. Health service, engineers, transportation means, dodgers and ambulance are adequate whereas fire brigade, skilled divers and trained rescue operators are in deficit (Table 8).

Table 8. Status of Preparedness Apparatus and Human Resources

S.No.	Particulars	Status		Source/suppliers	Remarks
		Adequate	Deficit		
1.	Fire brigade-2		•	Bharatpur and Ratnanagar municipalities	Needs one more in Ratnanagar Municipality and <i>Madi</i> area.
2.	Dodger-6	•		Municipalities, Road Division	
3.	Excavator-12	•		Bharatpur municipality and Private contractors	
4.	Ambulance-18	•			
5.	Doctors/Nurses/Health Assistants	•		Government/private hospitals/Social Organizations	
6.	Engineers/Overseers	•		Line agencies/Private firms/Individuals	
7.	Volunteers	•		Schools, Red cross, NGOs, CBOs, Individuals	
8.	Boats		•	Police, Army, Royal Chitwan National Park, Municipalities / DDC	Needs to deploy some more boats
9.	Skilled divers		•	-	
10.	Security of belongings left at the disaster sites	•		Police/Volunteers	
11.	Transportation means (Truck, bus, jeep, Rickshaw)	•		Line agencies, Private sector	Problems in some VDCs including <i>Madi</i> area.
12.	Food, cloth, utensils	•		Red cross, DDC / Municipalities, DAO, NGOs / Private individuals / Donors	
13.	Trained rescue and relief operators		•	Police, NGOs, volunteers	People have self-trained through trial and error method, No systematic training received except in conceptual package.
14.	Water tankers		•	Drinking water corporation	Needs to add some more

4.4 Evaluation of Resources

Evaluation of the existing resources present in the district has been done taking its capability, availability and durability indicators into account. The study reveals that several services and resources essential to cope with the various disasters are available in the district, however majority of them are available at district level (Table 9).

Resource and service facilities available in the district have been shown in the maps

(see maps). They include accessibility of primary schools, types and location of health services, garden, bus park, airports and lakes, types and density of communication services, accessibility of health services, banking services, land use and land cover types, sources of water supply, distance to water supply, natural drainage condition of landscape, river network, road network, and accessibility of major road.

Table 9. Evaluation of Various Resources Available in the District

Services and resources	Capability			Availability			Durability		
	VDC level	Ilaka level	District Level	easily available	Reportely available	Not available	Short duration	Medium duration	Long duration
Fire brigade		•	•		•		•		
Health services	•	•	•	•					•
Civil supply and food	•	•	•		•			•	
Engineering services			•		•			•	
Private hospitals			•	•					•
CBOs	•	•	•	•					•
NGOs	•	•	•	•					•
College/school student volunteers	•	•	•	•			•		
Road network	•	•	•	•					•
Water ways		•	•		•		•		
Ambulance	•	•	•		•				•
Police		•	•		•			•	
Telecommunication	•	•	•	•					•
Water supply	•	•	•	•				•	
Power supply	•	•	•	•					•

5

Action Plan and Implementation Strategy

The "Action Plan" of Chitwan district has been presented in a tabular form specifying disaster type, stage (pre-disaster, during disaster and post-disaster), actions proposed, location of action, responsible agency/person/s, expected

output and verifiable indicators. This log-frame design of the "Action Plan" is believed to help in the monitoring and evaluation of the planned activities for disaster management.

Disasters / Stages/ Broad activities	Action points	Where? Whom?	Responsible/ executing agencies	Cooperating agencies	Time of completion (Yrs)	Tentative estimated budget	Expected outputs	Verifiable indicators
TDRM in general (Applicable to all types of disasters)								
Policy / Legislation	Prepare district disaster management guidelines/programmes		DDC/DAO	Line agencies	5		District guidelines/ Programmes on disaster management prepared and implemented by DDC/DNDRRC.	District Disaster guidelines and programmes are prepared, endorsed and disseminated to all district level stakeholders.
	Prepare guidelines / manual for resettlement / rehabilitation and reconstruction (low cost disaster resistant housing, low cost sanitation measures etc)	Whole district	DAO/DDC	NGOs	2		A manual/ guidelines on disaster-resistant resettlement and reconstruction prepared.	All rehabilitation and reconstruction works are done following the guidelines and programmes.
	Prepare/execute guidelines on the mobilization of NGOs, private sectors and communities for the disaster reduction.	Whole district	DDC/DAO	NGOCC/NGO federation (district branch)	2		NGO mobilization guidelines in the disaster management field prepared, endorsed and implemented.	
	Promote / encourage international donors/INGOs/NGOs to mobilize their resources in the prioritized disaster management areas of the district through formulation of appropriate resource mobilization policies..	Whole district	DDC / Municipalities / DAO	PDMP / LGP/PDDP	2		External resources increasingly tapped in the disaster management sector in the district.	At least 20% additional funding mobilized in the district every year from external sources.
Organizational development	Strengthen/equip disaster management unit.	DAO	DAO / DDC	NGOs, self-help organizations	2		DMU at the district equipped/strengthened with a computer, a photocopier, a fax machine, a LCD, and trained staff on GIS and disaster management.	DMU is able to conduct hazard mapping, risk/vulnerability assessment and facilitate to prepare annual disaster management plans.
	Allocate the disaster wise responsibilities among DNDRRC members	DNDRRC	DAO	Line agencies / NGOs	2		Disaster wise responsibilities delegated to DNDRRC members and members assumed their new roles and responsibilities	Disaster wise meetings on the chairmanship of DNDRRC member are held and prepare disaster mitigation strategies and review the progress in each quarter.
	Collect/compile/disseminate hazard maps	High risk VDCs/ municipalities	DNDRRC/DDC	Municipalities, VDCs, NGOs, Line	2		Hazards maps collected, compiled and disseminated	Hazard maps are used in planning and sensitization / training purposes.

		palties; Media		agencies			nated to all concerned at a periodic interval.	
	Upgrade/revise hazard maps at a regular interval.	Whole district	DNDRC, DDC, DTO	NGOs	2		Hazard maps upgraded/ revised at every two year interval.	
	Establish a district level DMIS for disaster information collection and dissemination.	DAO	DAO/DDC	NGOs	5		DMIS established in the district.	DMU receives disaster related information regularly from VDCs, COs, NGOs, Local authorities and media/individuals, analyze and disseminate them to all concerned.
	Conduct risk/vulnerability assessment of selected buildings (hospitals, school etc) and infrastructure (power station, bridges etc).	High risk areas	DNDRC, DTO	NGOs	2		Risk/vulnerability assessment of selected buildings and infrastructures conducted.	Risk/vulnerability reports are prepared and disseminated to all concerned.
	Prepare communication network at VDCs / municipality / district level.	Dist- trict/Municipal or VIC level	DAO/Telecommu- nication Of- fice/NJA	Local authori- ties	2		Communication networks for disaster related works/ information established.	The proposed communication/information flow system runs smoothly*.
Plan formulation / implementation	Introduce TDRM concept into development planning	Whole district	DDC/DNDRC	Line agencies, NGOs	2		Disaster management activities incorporated into annual district development plan	Prepare annual disaster management action plan and incorporate it into district development plan
	Incorporate the results of risk/vulnerability assessment into the development activities.	Whole district	Local authorities	NGOs	5		The results of risk and vulnerability assessments incorporated into the planning processes.	
	Allocate disaster management budget in the annual plan of all disaster management actors in the districts/VDCs.	Whole district	Local authorities/Line agencies	NPC/MLD, NGOs	2		Development budget for disaster management increased in the district.	At least 10% budget is allocated for disaster management by local authorities in their annual plans.
	Review/update disaster management plan annually	District level	DDC/DNDRC	Municipalities, VDCs, NGOs, Line agencies	2		Disaster management plan reviewed and updated annually.	Revised Disaster Management Plan is published and circulated to all concerned stakeholders in the district.
	Allocate open spaces in urban/rural planning for post disaster temporary settlement sites.	Nearby sites of high risk areas	DAO / Local authorities / TDF	NGOs, Red cross, Private sector	5		Open spaces for temporary settlement sites for disaster victims allocated.	All rescue workers and concerned authorities including people of vulnerable places know about the rescue sites.
	Adopt/publicize/execute plan.	High risk areas	Local authorities / DNDRC	NJA district branch, Line agencies	2		Disaster management plan endorsed by district council, publicized and implemented.	District development plan incorporating disaster plan is published and disseminated to all stakeholders
Human resource development	Provide training to VDCs/district level stakeholders/actors on the risk/vulnerability assessment and response measures.	District, Municipal, VDCs	DNDRC, Local authorities	Red cross, NGOs	2		Training programmes to various actors organized.	At least 1 personnel in each VDC, municipality, DDC and line agencies received training on risk/vulnerability, and response/mitigation/rehabilitation measures.
	Provide training to personnel/volunteers on warehouse management and supply of relief materials.	District head- quarters / municipalities	DNDRC/DDC / Municipalities/ Red cross society	NGOs, CCI	2		Trainings on warehouse management and supply of relief materials provided to personnel and volunteers.	Volunteers from each VDC, NGOs, community and schools receive training on the disaster management.

	Provide training to community leaders at VDCs and Ilaka level on disaster management.	Community leaders (CO/FUG /Users committee representatives) of high risk areas	DAO/DDC / Municipalities	Red cross society/NGOs	2		Training on disaster management provided to community leaders at VDC and Ilaka level.	
	Conduct awareness raising campaigns on the likely damages and precautionary measures of disasters.	Community leaders (CO/FUG /Users committee representatives) of high risk areas	DAO/DDC / Municipalities/ Red cross society/NGOs	NJA district branch	2		Several awareness campaigns organized about the likely damages and precautionary measures of disasters.	Various activities including organize essay competition, display hoarding boards, and observe the disaster management day are done.
	Provide training to personnel on need assessment.	District or municipal or VDC level	DNDRC, DDC, Municipalities	Red cross, NGOs, Private sector	2		Orientations on need assessment to personnel provided.	DDCD/DAO/Red Cross, NGOs, volunteers are received trainings on need assessment, rescue and damage assessment.
	Provide training to rescue personnel	District head-quarters	DAO/DPO / DDC/ Municipalities	NGOs	2		Training on rescue operation provided to selected volunteers and rescue personnel.	
	Orient the damage assessment team members	District level	DNDRC/DDC	NGOs, Line agencies	2		Damage assessment team members oriented on the formats.	
	Sensitize local people/community leaders/others concerned through disseminating the risk assessment results.	High risk VDCs/ Municipalities	Local authorities / DNDRC	NGOs	2		Local residents and community leaders sensitized on the extent and severity of the damages based on the risk/vulnerability maps.	COs, FUGs and other CBOs are sensitized on the results of the risk/vulnerability assessment.
	Prepare/distribute awareness raising materials (such as pamphlets, TV documentary films, radio programmes etc).	High risk areas	DAO/Municipalities/Red cross/NGOs	NJA district branch	2		Awareness raising materials prepared and distributed to the residents of high risk areas.	
	Organize disaster management conferences / seminars in the district to share experiences among district and national level actors.	District head-quarters	DNDRC, Local authorities	NGOs	2		Conferences/seminars on disaster management organized at district level	At least one conference/seminar/workshop is organized each year.
	Conduct rehearsal and drill exercises on a periodic basis about relief works.	District and some high risk VDCs	DAO/DPO	Volunteers, NGOs	2		Rehearsal and drill exercises on relief works done.	Rehearsal and drill exercises are done periodically and specially before the rainy season.
Preparedness, relief and rescue operations	Establish/manage emergency supply warehouses at accessible location	Municipalities and Madi area	DDC/DAO / Municipalities	VDCs, Municipalities	2		Emergency warehouses established and managed.	Warehouses are managed efficiently to keep the available stocks without any damage and with proper inventory.
	Provide regular supply of relief materials in warehouses.	Municipality and Madi areas	DAO/DDC/ municipalities / Red cross society	NGOs, , volunteers	2		Warehouses received relief materials regularly.	DNDRC/DDC/Red cross make coordination with other institutions to receive relief materials regularly.
	Form a permanent search and rescue team at district level.	District	DAO/DDC / Municipalities	NGOs, Red cross, civic society, Human right groups	2		A permanent search and rescue operation team formed at district level.	

	Identify emergency evacuation sites at local level.	High risk VDCs/municipalities	DAO/DDC/VDC/Municipality	Line agencies / NGOs	5		Emergency evacuation sites for various disasters identified to evacuate the people in need.	All rescue workers and concerned authorities including people of vulnerable places know about the rescue sites.
	Form a permanent need assessment team at district level.	District level	DNDRC, DDC, Municipalities	Line agencies / NGOs	2		A permanent team for need assessment formed under the coordination of a DNDRC member.	
	Develop a standard need assessment format and distribute it to all VDCs and Municipalities.	All VDCs / Municipalities	DAO/DDC / Municipalities / Red cross/DTO	Line agencies / NGOs	2		A standard need assessment format developed.	Communities of high risk areas know about to fill out the formats.
	Manage/procure equipment / transportation vehicles for rescue and relief operation.	District or municipalities level	DAO/DDC / Municipalities	Red cross, NGOs, Private sector	5		Transportation vehicles for rescue and relief operations procured.	A fire brigade is procured by the Ratna Nagar municipality
	Form a medical assistance team	District level	DAO/DDC/DHO	NGOs	2		A medical assistance team headed by a senior doctor formed	
	Strengthen the emergency ward in each government hospital.	District level	DAO/DDC/DHO	NGOs	5		Capacity of emergency ward increased.	
	Prepare a standard damage assessment format by disasters		DNDRC/DDC	Line agencies / NGOs	2		A standard damage assessment format developed and distributed to all local authorities.	Community people and respective VDC officials know about the fill-out of the damage assessment formats.
	Form a permanent team for damage assessment in the district.	District level	DNDRC/DDC	Municipalities, NGOs, Line agencies	2		A permanent team for damage assessment formed under the coordination of a DNDRC member.	
	Form a permanent committee for rehabilitation and reconstruction planning in the district consisting of experts of all disasters.	District level	DAO/DDC / municipalities	Line agencies / NGOs	2		A permanent committee for rehabilitation and reconstruction planning/works formed incorporating experts of all disasters.	
Studies / documentation	Conduct feasibility study of local income generating activities.	High risk areas	DDC	Line agencies / NGOs	2		Feasibility studies on local income generation activities for the disaster victims conducted.	Feasibility study reports are published and disseminated to all concerned.
	Document indigenous technology, knowledge, practices and values of local communities relating to disaster management.	Whole district	DNDRC/ Line agencies / Local authorities	NGOs / Red cross	2		Indigenous technology, knowledge practices and values of local communities on disaster management documented.	Study reports are published and disseminated to all concerned.
	Conduct regular capability assessment of GOs/NGOs and private sector, and prepare inventory of public/private resources.	Whole district	DDC/DAO	NGOCC/NGO federation (district branch)	2		Capability assessment of organizations working in the field of disaster management in the district and inventory of resources done.	Capability analysis reports are published in each alternate year and disseminated to all concerned.
	Conduct periodic assessment of risk and vulnerability of disasters.	Whole district	DDC/DAO/DTO/ Municipalities	NGOs/Experts	2		Assessment of risk and vulnerability done at regular interval.	Risk/vulnerability reports are prepared and disseminated to all concerned.
	Incorporate EIA for disaster reduction into annual district development planning and private initiatives.	Whole district	Local authorities	Private sectors	2		EIA incorporated into development planning in disaster management.	

Flood							
Pre-flood measures	Establish/strengthen flood forecasting and warning system.	15 high flood risk VDCs.	DAO/DDC / Concerned VDCs/Dept of hydrology.	Meteorological centre / NGOs	2		Flood forecasting and warning systems established. Flood monitoring towers/Rain gauge are established mobilizing resources from district and external sources, and are protected by local communities.
	Train selected villagers of affected villages in manning boats, constructing rafts, methods of making unclear water potable, first aid and prevention of epidemics, diving and saving lives, and flood relief works.	15 high flood risk VDCs.	DNDRC / Local authorities	NGOs, Red cross, civic society	2		Selected villagers trained on various subjects including manning boats, constructing rafts, making unclear water potable, diving and saving lives and other relief works. At least 20 persons are trained in disaster related trainings in each VDC.
	Publicize/distribute the phone numbers of relief team/DMU.	All VDCs / Municipalities	DNDRC	Local authorities	2		Phone numbers of relief team and institutions publicized in the high disaster risk VDCs/municipalities.
	Inspect, strengthen and repair all approach roads and culverts to villages to ensure that the roads will remain open during floods.	15 affected VDCs.	DDC/VDCs/Municipalities		5		All approach roads inspected and repaired in time. A status/completion report is submitted to DNDRC.
	Provide wireless sets to villagers likely to be cut off during monsoon (if possible!).	VDCs of highly sensitive areas	DNDRC	Local authorities	5		Wireless sets to VDCs/villagers of very high risk areas provided.
	Inspect transmission lines, electric poles etc to ensure safety of people in the flood affected areas.	Flood risk VDCs.	DEA	Local authorities	2		All basic infrastructures such as transmission lines and electric poles inspected before rainy season. A completion report is submitted to DNDRC.
	Carry out annual cleaning, desilting, deepening of natural water reservoirs and drainage channels.	River damaged areas of high flood risk VDCs.	DIO, DDC/VDCs	Local authorities	2		Desilting and cleaning of natural water reservoirs and drainage channels carried out annually. The bed level is maintained at the same height as before.
	Inspect/strengthen, where necessary, all flood protection embankments.	15 VDCs	DNDRC/DIO	Local authorities	5		All flood protection embankments inspected/strengthened. A status report is prepared and submitted to DNDRC.
During flood measures							
	On receiving the flood warning, evacuate people in roadside (if flood have not yet hit the area). Once the floods have hit, boats/rafts at village, evacuation centers should be pressed into action. Also, ensure that in each team there are some divers who can save life.	Flood affected areas	DAO, Army, DPO /Local authorities	NGOs, Red cross, civic society	During disaster		During disaster, people evacuated in safer sites. All vulnerable and injured people are evacuated in the safer locations as planned earlier.
	Ensure that arrangements are made for security of belongings left behind by people in evacuated areas. Involve local residents in patrolling such areas at night.	Flood affected areas	DAO/DPO	volunteers/Red cross	During disaster		security of belongings left by people in evacuated areas maintained. Security men and volunteers are mobilized to maintain proper security situation and to look after the belongings left by affected people at the sites.
	Ensure that members of a family are evacuated together to the same safe site.	Flood affected areas	DNDRC/Local authorities	Red cross, NGOs, Private sector	During disaster		Members of a family evacuated in the same place.

	Report/identify all deaths promptly and handover or dispose as per custom.	Flood affected areas	DNDRC / Local authorities / DPO	Red cross, civic society, local volunteers	During disaster		All deaths identified and reported promptly and handed over/disposed as per custom.	Damage assessment forms are filled out promptly.
	Ensure availability of cooked and dry food and safe drinking water to all evacuees at the evacuation centre.	Flood affected areas	DNDRC / Local authorities	Red cross, NGOs, Private sector	During disaster		Cooked/dry food and drinking water made available to all evacuees.	
	Do adequate publicity of methods of making drinking water for human consumption using bleaching powder etc.	Flood affected areas	DHO, drinking water office,	NJA district branch	2		Methods of making drinking water potable publicized.	Treated drinking water is available in the evacuation sites.
	Mobilize NGOs, local teachers, students and other volunteers for distribution of rescue services including drinking water, food, clothes and utensils.	Flood affected areas	disaster hit areas	DAO, Local authorities, District Education Office, DHO, Red cross	During disaster		NGOs, volunteers, local teachers and students mobilized for rescue and relief operation.	There is no shortage of rescue operators in the sites.
	Ensure availability of additional beds at district and ilaka/VDC level hospitals to meet any eventuality.	District or ilaka hospitals	DHO/DNDRC	Local authorities	During disaster		Additional beds arranged in hospitals during disaster in the district.	There is an increase in the number of beds in the hospitals.
	Ensure adequate availability of medicines at various levels.	Hospitals	DHO/DNDRC	Local authorities, NGOs	During disaster		Adequate availability of medicines arranged during/before the disaster.	DDC/DNDRC/Red cross are ensured about the adequacy of medicines in the district.
	Keep few teams of doctors and paramedical staff ready at district and affected areas.	District head-quarters / Madi area	DAO/DHO	NGOs, Red cross	During disaster		Few teams of doctors and paramedical staff kept ready during disaster.	
	Prevent outbreak of epidemics by making availability of safe drinking water, removing dead bodies of human and animals.	Affected areas	DNDRC, Local authorities	Red cross, NGOs, volunteers	During disaster		Outbreak of epidemics prevented by making safe drinking water and removing dead bodies.	Safe drinking water is available in the sites and dead bodies are removed at the soonest.
	Drain the flooded areas with priority of strategic installations like power houses, substations, hospitals, water disposal systems and residential areas.	Affected areas	DNDRC/Local authorities, DTO	NGOs, local residents	During disaster		Flooded areas drained with priority of strategic locations.	Strategic locations are closely monitored.
	Manage a team of veterinary doctors to prevent cattle epidemics.	Affected areas	DDRC/DLO	Local authorities, NGOs	During and right after the disaster		A team of veterinary doctors made ready to prevent cattle epidemics.	
	Prepare a basic report of the damages to the given buildings and infrastructures.	Affected areas	DNDRC/Local authorities, DTO	NGOs, Civil society	During and right after the disaster		A damage report is prepared and submitted to DNDRC/DDC.	DNDRC and DDC discuss damage report and make strategies to repair/rehabilitate the sites.
Post-flood measures								
	Inspect the flood affected localities by medical teams to prevent outbreak of post-flood epidemics even after the flood waters have subsided and people have returned their villages.	Flood affected areas	DHO/DNDRC	Local authorities, NGOs	During and right after the disaster		The flood affected areas inspected by the medical teams to prevent outbreak of post-flood epidemics.	An inspection report is prepared and submitted to DNDRC/DDC

	Conduct a comprehensive survey to provide fair distribution of relief/compensation packages to be offered by government/other institutions.	Flood affected areas	DAO, Local authorities, Red cross	Civil society / Human right activists	Right after the disaster		A comprehensive survey to provide compensation packages conducted.	The survey report is discussed at DNDRC/DDC and a compensation plan is prepared.
	Ensure that the new houses constructed in the villages use construction practices that make them more resistant to standing flood waters.	Flood affected and nearby areas	Local authorities	NGOs, Civil society	2		Flood-resistant houses in the villages increasingly constructed.	At least 20% of the new houses built are flood-resistant.
	Start repair of road, canals, electrical transmission lines as soon as possible.	Flood affected and nearby areas	DEA, Transport and road division, District irrigation office.	Local authorities, NGOs	2		Road, canal, electrical transmission lines repaired.	A work completion report is prepared and submitted to DNDRC/DDC.
	Provide adequate, timely and speedy credit to farmers to purchase agriculture inputs and cattle.	Flood affected and nearby areas	Commercial banks, LDFB	Local authorities, NGOs	2		Adequate credit capital mobilized in the flood affected villages.	Credit demand and disbursement status is prepared and submitted to DDC/DNDRC.
	Supply/maintain food, fodder, and safe drinking water in the pockets where affected people may require. Carry out rehabilitation of degraded riversides through agroforestry activities (See: Kaffle 2000 for appropriate Agro-forestry models).	Flood affected and nearby areas	DMRC/Local authorities	Red cross, private sector, NGOs	2		Food, fodder and safe drinking water provided to the affected villages.	A status report is prepared and submitted to DDC/DNDRC.
	Conduct income generating activities in the affected areas	Flood affected areas	DADO/District Veterinary Office	DDC/VDCs	2		Income generating activities conducted.	
	Provide seeds of agricultural crops/vegetables for affected farmers	Affected areas	DADO	DDC/NGOs	2		Seeds of various agriculture crops provided to affected farmers.	
Follow up	Document the experiences in handling floods.	Disaster prone areas	DMRC	NGOs	2		Flood handling experiences well documented.	The document is published and disseminated to all vulnerable VDCs / Municipalities and the concerned actors.
	Identify the points from where the water had entered, and document them so that future actions can be taken before the onset of monsoons.	Disaster prone areas	DNDRC/ Local authorities	NGOs	2		Water-entered points identified and documented for future reference.	Document is made available to all district level actors.
	In consulting with the elderly people of the affected areas, identify the natural drainage points of such villages/localities and ensure that such natural drainage lines are strengthened and maintained and earmarked.	Disaster prone areas	DNDRC/ Local authorities	NGOs	2		Natural drainage points of the locality identified and documented.	Document is made available to all district level actors.

Landslides								
Pre-landslide activities	Prevent shallow erosion slides constructing check dams, asphalt mulch, natural fiber grids/jutes or synthetic grids.	Landslide spots of 16 VDCs	DTO,	District irrigation office	2		Check dams, asphalt mulch, natural fiber and grids constructed to prevent the soil erosion.	
	Identify landslide prone areas (Hazard mapping)	whole district	DWIDP, DSCWM	DTO	2		Landslide prone areas identified.	Hazard mapping is done and results are disseminated to all concerned.
	Prepare rainfall intensity map of the whole district.	District	Meteorological centre/DNDRC	Expert / consultant	2		Rainfall intensity maps of all VDCs/Municipalities prepared analyzed.	Make the results of the analysis of the rainfall intensity map available to all district/central level actors and sensitize local people based on this.
	Make proper drainage system (catchwater drains, roadside drains, trench)	Catchments area of landslide-risk VDCs.	DTO, District soil conservation office	District transportation office	2		Proper drainage system made.	Status reports published and disseminated to all concerned.
	Construct retaining walls (Masonry walls, concrete retaining wall, gabion walls)	High risk areas	DTO, District soil conservation office	District irrigation office	5		Retaining walls in all necessary spots constructed.	Progress reports are published and submitted to DDC/DNDRC.
	Relocate/change the location of the facility to avoid landslide prone areas.	High risk areas	DAO/Local authorities	Line agencies	5		Location of the facilities relocated to avoid landslide prone areas.	New service location maps prepared and distributed to all concerned.
	Regrade and bench the slope.	High risk areas	District soil conservation office, DTO	NGOs, Local authorities, Line agencies	5		Slope of the possible landslide areas regraded and benched.	
	Construct revetments, spurs, dykes to protect slopes against river and stream erosion.	High risk areas	District soil conservation office, DTO	NGOs, Local authorities, Line agencies	5		Revetments, spurs, dykes, groins constructed to protect slopes against river and stream erosion.	Status reports prepared and disseminated to all concerned.
	Plant barren and sloppy areas in Hills with suitable plant species.	16 high risk VDCs.	DFO, FUGs	NGOs/ Local authorities	5		Afforestation done in the barren and sloppy areas.	All barren lands in the vulnerable areas are covered with tree plantation in 10 years.
	Conduct awareness raising campaigns on safe locations, community buildings and so.	high and very high vulnerable areas.	DDC, DFO, RCNP	NGOs/CBOs/ Civic society	2		Awareness campaigns conducted in the vulnerable VDCs.	World disaster day and soil conservation days are observed every year.
	Relocate public and private facilities	Vulnerable areas	DNDRC/Local authorities	Line agencies	5		Public and private facilities relocated to safer sites.	
	Mobilise communities for awareness raising and during and post landslide disaster management.	Vulnerable areas	DDC/DAO	NGOs/CBOs/ Line agencies	2		Awareness campaigns conducted in the vulnerable VDCs.	
	Discourage paddy farming in the Hill slopes.	Vulnerable areas	VDCs, DDCs	DADO, CBOs, NGOs	5		Awareness campaigns conducted in the vulnerable VDCs.	
	Coordinate among concerned agencies in the districts and outside districts for pre, during and post landslide management.	Inter/intra district	DDC	NGO/CBOs	5		A coordination mechanism established in the district.	
	Conduct preparedness training/drill exercises for coping landslide	In the district	DPO, DAO, VDCs	NGOs	5		Drill exercises conducted regularly before the	Atleast one preparedness training organised each year before monsoon.

	disaster.						monsoon.	
	Display boards in the public areas prone to landslides to avoid accidents.	High risk VDCs.	DFO, District soil conservation office, FUGs	NGOs/ Local authorities	2		Hoarding boards displayed for the awareness raising and avoid accidents.	
During and right after the landslides	Ensure that members of a family are evacuated together to the same safe site.	Landslide affected areas	DNDRC/Local authorities	Red cross, NGOs, Private sector	During disaster		Members of a family evacuated in the same place.	
	Mobilize NGOs, local teachers, students and other volunteers for distribution of rescue services including drinking water, food, clothes and utensils.	Landslide affected areas	disaster hit areas	DAO, Local authorities, Red cross	During disaster		NGOs, volunteers, local teachers and students mobilized for rescue and relief operation.	There is no shortage of rescue operators in the district.
	Report/Identify all deaths promptly and handover or dispose as per custom.	Landslide affected areas	DNDRC / Local authorities / DPO	Red cross, civic society, local volunteers	During disaster		All deaths identified and reported promptly and handed over/disposed as per custom.	Damage assessment forms are filled out promptly.
	Ensure availability of cooked and dry food and safe drinking water to all evacuees at the evacuation centre.	Landslide affected areas	DNDRC / Local authorities	Red cross, NGOs, Private sector	During disaster		Cooked/dry food and drinking water made available to all evacuees.	
	Ensure adequate availability of medicines at various levels.	Hospitals	DHO/DNDRC	Local authorities, NGOs	During disaster		Adequate availability of medicines arranged during/before the disaster.	DDC/DNDRC/Red cross are ensured about the adequacy of medicines in the district.
	Keep few teams of doctors and paramedical staff ready at district and affected areas.	District headquarters / Madi area	DAO/DHO	NGOs, Red cross	During disaster		Few teams of doctors and paramedical staff kept ready during disaster.	
	Prevent outbreak of epidemics by making availability of safe drinking water, removing dead bodies of human and animals.	Affected areas	DNDRC, Local authorities	Red cross, NGOs, volunteers	During disaster		Outbreak of epidemics prevented by making safe drinking water and removing dead bodies.	Outbreak of epidemics is completely under control.
	Manage a team of veterinary doctors to prevent cattle epidemics.	Affected areas	DDRC/DLO	Local authorities, NGOs	During and right after the disaster		A team of veterinary doctors made ready to present cattle epidemics.	
	Prepare a basic report of the damages to the given buildings and infrastructures.	Affected areas	DNDRC/Local authorities, DTO	NGOs, Civil society	During and right after the disaster			
Post Landslide								
Post landslides	Inspect the landslides affected localities by medical teams to prevent outbreak of post-landslide epidemics.	Landslide affected areas	DHO/DNDRC	Local authorities, NGOs	During and right after the disaster		The flood affected areas inspected by the medical teams to prevent outbreak of post-flood epidemics.	An inspection report is prepared and submitted to DNDRC/DDC.
	Conduct a comprehensive survey to provide fair distribution of relief/compensation packages to be offered by government/other institutions.	Landslide affected areas	DAO, Local authorities, Red cross	Civil society / Human right activists	Right after the disaster		A comprehensive survey to provide compensation packages conducted.	Based on the survey report, a compensation plan is prepared.
	Start repair of road, canals, electrical transmission lines as soon as possible.	Flood affected and nearby areas	DEA, Transport and road division, District irrigation office.	Local authorities, NGOs	2		Road, canal, electrical transmission lines repaired.	Damaged roads, canals, electrical transmission lines are smoothly running.

	Provide adequate, timely and speedy credit to farmers to purchase agriculture inputs and cattle.	Landslide affected and nearby areas	Commercial banks, LDFB	Local authorities, NGOs	2		Adequate credit capital mobilized in the landslide affected villages.	The demand and disbursement forms are filled out and submitted to DNDRC/DDC.
	Supply/maintain food, fodder, and safe drinking water in the pockets where affected people may require.	Landslide affected and nearby areas	DMRC/Local authorities	Red cross, private sector, NGOs	2		Food, fodder and safe drinking water provided to the affected villages.	There is no shortage of food, fodder and safe drinking water in the affected areas.
Earthquake								
Pre-disaster activities								
	Conduct awareness programmes on safety precautions during earthquake.	Municipalities and highly populated areas and public buildings/important infra-structures	DNDRC/Local authorities	NGOs	2		Awareness programmes on safety precautions conducted.	TV, radio programmes and pamphlets/brochures on the safety precautions are produced and disseminated.
	Carry out seismic risk assessment zoning	Whole district	DNDRC	NGOs	2		Seismic risk assessment zoning carried out.	Risk assessment results are published and distributed to the communities of high risk areas.
	Implement seismic codes of design and construction of various structures effectively.		DNDRC/DDC / Municipality / DTO		5		Seismic codes of design and construction of various structures implemented effectively.	At least 80% houses / buildings are constructed following the seismic codes.
	Provide trainings on earthquake engineering principles and use of codes to engineers working in the district.	high risk areas	DNDRC/DTO	NGOs	2		Trainings on earthquake engineering principles and use of codes to engineers provided.	All engineers at the district technical office are trained on the earthquake engineering principles.
	Develop methods for seismic strengthening of existing structures, particularly in the structures considered critical for the community.	Whole district	DNDRC/DTO	NGOs	5		Methods for seismic strengthening of existing structures developed.	The methods of strengthening existing structures are published and disseminated to all concerned.
	Develop simple methods (retrofitting) for upgrading the seismic resistance of traditional non-engineered construction and their dissemination to the common builders and owners by mass communication media, demonstrations and extension works.	Whole district	DNDRC/DTO	NJA, NGOs	5		Simple methods for upgrading the seismic resistance of traditional non-engineered construction developed and disseminated to builders and owners.	The methods are published and disseminated to all concerned.
	Do insurance for the buildings and structures to reduce the economic impacts on individuals.	Whole district	Line agencies	Insurance companies	2		Insurance of the buildings and structures to reduce the economic impacts on individuals done.	Important public buildings and structures are insured.
	Install seismological observatory for monitoring seismic activities with a density of instruments capable of recording and locating all earthquakes bigger than 5.5 Richter scale magnitude.	Earthquake risk areas	Meteorological centre/DNDRC	Local authorities	5		Seismological observatory for monitoring seismic activities installed in Bharatpur.	Seismological observatory is in use.

	Provide trainings to government staff on response measures to an EQ, house owners on making their houses EQ-resistant and masons on EQ-resistant construction techniques.	Selected VDCs and municipalities	DNDRC	NGOs, Red cross	2		Training programmes organized for government staff, house owners, and masons.	At least 3 persons received earthquake related trainings in each VDC.	
	Provide training to volunteers and personnel on basic first aid measures.	All VDCs/municipalities	DNDRC/Local authorities	NGOs/Red cross	2		Training on basic first aid measures organized for volunteers and personnel.		
	Arrange/list out the involvement of voluntary organizations for relief works in the district.	District	DDC / Municipality	NGOCC/NGO Federation (district branch)	2		A list of voluntary organizations working in relief works prepared.	The profile is published and distributed to all concerned.	
	Educate people/actors in basic response measures-what to do when an earthquake occurs.	Whole district	DNDRC/Local authorities	NGOs / Red cross	2		Local people and actors oriented on basic response measures.		
	Promote awareness of EQ-risks.	Whole district	Local authorities / DNDRC	NGOs/Line agencies	2		Awareness campaigns on the earthquake risks/vulnerability organized.	Awareness materials are published and displayed in public places.	
During earthquake									
	Make people aware on the do's and don'ts during earthquake time	Whole district	DNDRC/NGOs	Local authorities	2		People made aware on the do's and don'ts during earthquake.		
	Make arrangements for evacuation of people.	Disaster hit areas	DNDRC/DPO / Local authorities	NGOs/Private sector	During disaster		Affected people evacuated in the safer sites.		
	Make recovery of dead bodies and animal carcasses and their disposal arrangements.	Disaster hit areas	DAO/DPO/Local authorities	DHO/ Veterinary office	During disaster		Dead bodies and animal carcasses removed at the soonest.		
	Arrange medical team to check up the injured on the site.	Disaster hit areas	DHO/DNDRC	NGOs	During disaster		A medical team made ready for checking up of the injured ones.		
	Make arrangement to supply food and water.	Disaster hit areas	DNDRC/Local authorities/Red cross	NGOs/Private sector	During disaster		Food and water supply made available to the affected people.	There is no shortage of food and water in the rescue sites.	
	Manage temporary shelters such as tents, metal sheets etc.	Disaster hit areas	DDRC/Redcross / Local authorities	NGOs/ Private sectors	During disaster		Temporary shelters such as tents, metal sheets etc arranged.		
Post earthquake	Restore telecommunication lines and information flow.	Disaster hit areas	Telecommunication office	Local authorities	During and right after disaster		Telecommunication lines and information restored.	Telecommunication lines and communication system are smoothly running.	
	Restore transport communication.	Disaster hit areas / access roads	DTO/Local authorities	Local residents	During and right after disaster		Transport communication system restored.		
	Conduct quick assessment of damage and demarcate the damaged areas according to the grading.	Disaster hit areas	DNDRC/Local authorities	Red cross/NGOs	During and right after disaster		Damage assessment and demarcation of the damaged areas done.	Damage assessment report prepared and demarcation done.	
	Do condoning off severely damaged structures liable to collapse during earthquake.	High risk areas	DNDRC/Local authorities	DPO	During and right after disaster		Severely damaged structures liable to collapse during earthquake condoned off.		
	Shore certain precariously standing buildings to avoid collapse and damage to other adjoining buildings.	High risk areas	DNDRC/Local authorities	Line agencies	During and right after disaster		Certain precariously standing buildings saved from collapse.		

	Commence the search and rescue operations, activation of public shelters etc.	Disaster hit areas	DNDRC/DPO / Local authorities	NGOs/Red cross/Private sector	During disaster		Rescue operation is smoothly running.	
	Gather information about the extent of damage caused by earthquake.	Disaster affected areas	DNDRC/Local authorities	Red cross/NGOs/ Private sector	During and right after disaster		Damage assessment done promptly.	
	Arrange periodic press release.	District	DNDRC/Local authorities	NJA	During disaster		Periodic press release arranged.	
	Maintain enough security situations in cooperation with police/army to minimize possibility of looting, ground control.	Disaster hit areas	DAO/DPO	Local authorities / Local residents / Volunteers	During disaster		Enough security situation maintained in cooperation with police and army.	Police/army and volunteers properly mobilized to maintain security situation in the affected areas.
	Open the temporary relief centers and supply food and other basic requirements.	Disaster hit areas	DNDRC/Local authorities	Red cross / LAs/ private sectors	During disaster		Temporary relief centers opened and food and other basic requirements supplied.	There is no shortage of food and water in the rescue sites.
	Restrict people to enter into affected areas without pass issued by the authority.	Disaster hit areas	DAO/DPO	Volunteers	During disaster		Pass system to enter into the affected areas arranged.	
	Restore communication network (establish phone ...).	Disaster hit areas	Telecommunication office	DAO/Local authorities	During and right after disaster		Communication system maintained as soon as possible.	There is smooth running of communication system in the affected areas.
	Start quick relief operations (up to one week to one month).	Affected areas	DNDRC/Local authorities	Red cross/NGOs/ Private sector	Right after the disaster		Quick relief operations started.	Activities are commenced as per the damage assessment and rehabilitation plan.
	Establish the hygienic and sanitary conditions in the relief centers.	Relief camps	DHO/DW Office/Local authorities	NGOs/Private sector	Right after the disaster		Safe drinking water and toilets arranged in the relief centers.	There is no shortage of drinking water in the shelter areas.
	Distribute the basic/minimal compensation (through proforma) using local peoples' representatives.	Disaster affected areas	DAO / Local authorities	NGOs / Private sector	Right after the disaster		Basic compensation packages distributed.	
	Establish a district level relief and rehabilitation cell with government and NGO representatives.	District headquarters	DAO/Local authorities	CCI/Private sector, NGOs	Right after the disaster		A district level relief and rehabilitation cell established.	
	Announce the relief/rehabilitation policy package.	For the victims	DAO/Local authorities	Red cross/NGOs/ Private sector	Right after the disaster		Relief and rehabilitation policy package announced.	Relief and rehabilitation package is made known to all concerned people and agencies.
	Make people aware of the simple and economical earthquake resistance constructions.	All VDCs / Municipalities	Local authorities / DNDRC	NGOs/ Red cross/ Line agencies	2		People made aware on the simple and economical earthquake resistance constructions.	Cost effective earthquake resistance constructions are disseminated to all concerned.
	Carry out safety analysis of dams and other appurtenant structures.	Whole district	DNDRC/Local authorities	NGOs/Line agencies	2		Safety analysis of dams and other important structures carried out.	Study reports are published and disseminated to all concerned.
	Carry out safety studies of existing bridges and incorporate appropriate retrofitting features to achieve desired earthquake resistance.	High risk areas	DNDRC/Local authorities	NGOs/Line agencies	2		Appropriate retrofitting features incorporated into the existing bridges/infrastructures..	Some of the important buildings are repaired/made earthquake resistant.
	Conduct seismic rating analysis of existing critical buildings such as hospitals, schools and other community and public buildings.	High risk areas	DNDRC/Local authorities	NGOs / Line agencies	5		Seismic rating analysis of existing critical buildings done.	Seismic rating analysis reports are disseminated to all concerned.

Fire								
Pre-fire plans								
	Make people aware on the proper use of electricity and not to throw inflammable materials carelessly such as cigarette butts.	Municipalities, Densely populated areas and settlements near to forest areas.	DNDRC/Local authorities	DEO, NGOs/CBOs, civil society	3		People made aware on the fire hazards.	Awareness materials have been prepared and disseminated to fire prone areas.
	Apply fire prevention codes in industries/factories and building construction.	High risk areas	Local authorities/DAO	NGOs/CBOs/Civic society	2		Fire prevention codes in industries/factories and building construction applied.	Fire prevention codes are strictly followed while constructing buildings and factories.
	Inspect water supply and sensitive substances in the high risk areas.	High risk areas	DNDRC	DWS office / Municipalities / VDCs	2		Water supply and sensitive substances in the high risk areas inspected.	Inspection report is submitted to DNDRC/DDC.
	Prepare fire safety plan by large industries and multi-storied buildings.	Whole district particularly municipalities and industrial estate	Industries and house owners, DNDRC	Consultants / Experts	2		Fire safety plan of large buildings and industries prepared and implemented.	Fire safety plan is prepared and followed in all new/important buildings
	Upgrade level of consciousness through trainings and extension materials among workers, personnel, rural people and school children.	High risk areas	DNDRC/Local authorities	NGOs, Line agencies	2		Orientations to workers, personnel, rural people and school children given to make them aware on the fire management.	Community people, students and personnel are trained on fire management.
	Establish/strengthen fire station with proper adequate appliance equipment and human resource	Municipalities and Madi area	Municipalities / VDCs	DNDRC/NGOs	5		Fire station established/strengthened.	Fire station regularly monitors the sensitive sites.
	Coordinate with other essential services such as water supply, electricity, army, police etc.	Affected areas / Relief camps	DAO/Local authorities	Line agencies	2		Coordination with other essential service providers such as water supply, electricity, police developed.	All service providers are ready to provide emergency services.
	Establish proper communication network.	municipality, madi area	DAO/DPO / Telecommunication authorities	Local authorities	2		Proper communication network established.	Communication network is made operational.
	Maintain the equipment (fire brigade) in readiness.		Municipalities	DAO	2		Fire brigade kept in readiness.	
	Keep the hazards of fire off.	Fire prone areas	DNDRC	FUGs, COs, Local people	2		Hazards of fire kept off during the fire season.	
	During forest fire season, keep fire fighting team ready to extinguish forest fire.	Fire prone forest areas	DFO	FUGs	2		Fire fighting team kept ready during the fire season.	
	Train FUGs on the methods/techniques to extinguish forest fire.	All FUGs	DFO	KMTNC/NGOs	2		FUGs trained on the methods/techniques to extinguish fire.	At least FUG committee members of all FUGs receive basic training on fire management.
	Maintain fire lines as per the forest management plan.	Fire prone forest areas	DFO	FUGs	2		Fire lines prepared as per the forest management plan.	Fire lines are kept clean and ready as per forest management.
	Prepare a separate forest fire plan for the National Park.	Royal Chitwan National Park	RCNP office	KMTNC/DFO	2		A separate forest fire plan for NP prepared.	Forest fire plan for NP prepared, published and implemented.

	Educate/train employees/volunteers in loss prevention and proper action in emergencies.	High vulnerable areas	DNDRC/Local authorities	NGOs/Donors /Red cross	2		Employees and volunteers trained on loss prevention and proper action in emergencies.	Training on rescue operation provided to volunteers/students/teachers and personnel.
	Publish/implement fire order.	All VDCs and Municipalities	DDC/DNDRC	NGOs/LAs	2		Fire order published and implemented.	
	Prepare fire response contingency plan for each vulnerable area and issue standing instructions of "Do's" and "Don'ts".	Vulnerable areas	DNDRC/DDC	VDCs / Municipalities / NGOs / Volunteers	5		Fire response contingency plan prepared.	All rescue workers and community people know about the plan.
	Arrange mass awareness programme with print and electronic media, training in schools and colleges, poster campaigns, exhibition, demonstration and exercises.	All VDCs and Municipalities	DNDRC/DFO/NJ A district branch	NGOs	5		Mass awareness programme arranged.	
	Arrange special burn wards in hospitals with facilities.	District hospital	DHO	Local authorities	5		Special burn wards in district hospitals arranged.	Additional beds are added during emergency.
	Identify refuge room/camp for evacuated people and their relief arrangement.	Near but safe sites	DAO/Local authorities	DFO/District revenue Office	2		Refuge rooms/camps identified for evacuated people.	Potential refuse camps are identified before the disaster occurs.
	Mobilize NGO resources to provide trainings to community leaders, teachers, personnel on preventive measures of fires.	High risk areas	DNDRC/Local authorities	NGOCC/NGO Federation (district branch)	2		NGOs/private sector resources mobilized to provide trainings and other disaster management activities.	
	Inspect the sensitive villages/places to ensure that the village premises are clean to avoid fire spreading.	High hazardous areas	DDMC/Local authorities	NGOs / Red cross	2		Regular inspection done.	Inspection reports are submitted to DNDRC/DDC during fire season.
During fire	Once fire occurs, assemble people and try to put off the fire at the earliest possible.	Fire affected areas	DNDRC/ Municipality / Local residents	Volunteers / CBOs	During disaster			Fire extinguishing works are running smoothly.
	If there are forest areas nearby try to clean the fire lines so that fire would not spread from village to the forest areas and vice versa.	Fire prone areas	FUGs	DFO	2		Fire lines cleansed before fire season.	
	Unloose the cattle if any, if they are tied near the fire occurred areas.	Fire affected areas	Local residents	Volunteers	During disaster		Cattle are untied during disaster.	
	Prevent fire spreading by dismantling structures in adjacent areas and also simultaneously pouring water or sand or even beating the fire with fresh twigs.	Fire affected areas	Municipalities / VDCs/ Local volunteers	FUGs, CBOs,	During disaster		Fire spreading prevented by various means.	No fire is spread from the location of its emergence.
	Evacuate immediately if anyone is trapped in fire.	Affected areas	DNDRC/DPO	Volunteers / NGOs	During disaster		Anyone trapped evacuated promptly.	
	Take special steps to remove children and the old.	Affected areas	DNDRC/Local authorities	Volunteers	During disaster		Children and old removed from the affected areas.	

	Give first aid to all the injured and rush them to the nearest hospital.	Affected areas	Medical team	VDCs / Municipalities / NGOs / Volunteers	During disaster		First aid to all injured given and rushed them to the nearest hospitals.	
Post fire	Investigate the cause of fire, if there is any criminal involvement/malevolence, it has to be investigated as per the law.	Affected areas	DAO/DPO	Local authorities	Right after the disaster		Investigation about the cause of fire done.	Investigation report discussed at the DNDRC/DDC and make necessary precautionary measures public.
	Prepare a detailed report about the occurrence and the damage impact and make available who need it.	All disaster affected areas	DNDRC	Red cross / Local authorities	Right after the disaster		Damage impact report prepared and made available as per requirements.	
	Rehabilitate fire victims.	Affected areas	DNDRC/local authorities	NGOs / Red cross	2		Fire victims rehabilitated.	Fire victims are provided with all support they needed for rehabilitation.
	Provide compensation and relief to those eligible and affected according to the loss and vulnerability.	All affected areas	DAO/DDC	Municipalities / VDCs	Right after the disaster		Compensation and relief packages provided.	
	Encourage people for insurance against fire.	Fire prone VDCs	Concerned VDCs / Municipalities	Insurance companies	2		Insurance against crops, animals and houses done.	

5.2 Implementation Strategy

Some basic strategies to implement the proposed action plan in connection with the TDRM in Chitwan have been discussed below:

5.2.1 Initiation

The initiation will be with the meeting of DNDRC with the following agenda:

- Establishment of a permanent secretariat at District Administration Office (to be shifted to DDC later) with computer and communication equipment;
- Resource mobilisation for social mobilisation initiatives in the vulnerable VDCs;
- Instructions to VDCs for organizing permanent settlement level committees for disaster management;
- Designing participatory planning framework for disaster management plans and activities at the local levels (in VDP planning framework); and
- Identification of major disaster preventive projects for central level support.

5.2.2 Communication Mechanism

The communication strategy will include the extension of communication facilities in the vulnerable VDCs, development of early warning system incorporating the local knowledge, FM radio station mobilization for adverse weather reporting, posting disaster safety in-

formation at public places and establishment of communication towers.

5.2.3 Coordination

The coordination function of DNDRC has already been specified by the 1982 Act. Further coordination is needed between the neighbouring districts (Makwanpur, Dhading, Nawalparasi) for sharing information and equipment.

5.2.4 Monitoring and Evaluation

Formats have been developed for monitoring the activities proposed in the action plan. DNDRC members should be given specific responsibilities to monitor and evaluate these activities and based on these formats; improvements in plan must be made.

5.2.5 Resource Mobilization

The proposed action plan and identified activities can be presented to different donors by the DNDRC as a shopping list to these donors. The supported accepted by these donors should be monitored for avoiding duplications.

The proposed changes in policies allowing the extraction of sand and boulders from the problem rivers and the logs brought by floods, should be strictly lobbied which will be a significant source of revenue to finance preventive as well as rehabilitation activities against disaster. Apart from the above sources of revenue, the DDC and VDC can set aside at least 5 percent of the total revenue every year for disaster mitigation purpose.

Linkages among Disasters and their Management

6

Disasters can also be classified on the basis of independence and association. For example, thunder strikes are likely to occur only during the rain. Landslides are associated with floods as the former compounds the effect of the latter and both are likely to occur mostly during the monsoon season (June to August). Windstorms can spread the fire hazards faster. Earth quakes are more or less independent events and can occur at any time. In the case of associated hazards, preparations must be made for both likely events.

In the case of Chitwan, the floods are caused by the landslides and rains in the river catchment areas falling outside the district (e.g. Dhading and Makwanpur). It is therefore necessary to coordinate with these districts in the unified mitigation of some hazards like floods.

Some of the equipment and facilities for disaster response are common to all disasters. For example, vehicles for mobility are used in all types of disasters. Similarly, tents are used for shelter in all types of disasters. Such common equipment and facilities must be used and operated under a unified command.

The whole plans of actions presented in this report are the recommendations emanating out of the consultation process followed in the study. Nevertheless, there are some important prerequisites and actions that need to be spelled out and attended to, to ensure effective implementation of TDRM package of Chitwan district. These are enlisted as follows:

7.1 Incremental Institutional Mechanism

As is evident from the foregoing discussions, the country never had a perspective of total disaster risk management. Therefore, it is both a challenge and an opportunity for the country to develop a comprehensive disaster management plan and associated institutional mechanism. The current institutional mechanism is partial and geared towards rescue, relief and rehabilitation only during and after a disaster. Therefore, the current mechanism does not conform to the needs and standards of TDRM. Since disaster possibilities must be internalized in the development activities, it must be led by the Ministry of Local Development (MoLD) at the national level and by DDC at the district level. An immediate shift to this new arrangement may be difficult but the need to do so in the near future must be emphasized. For the present purpose, two new institutional mechanisms are proposed for Chitwan district.

DNDRC's Incremental Role: Besides the current role and responsibilities of the DNDRC as per the Act, following additional roles and responsibilities will have to be performed in order to be compatible with the TDRM concept:

- Regular quarterly meetings (even in the absence of disaster) to discuss and prepare, among others, for various preventive measures to be followed to avoid or mitigate disasters.
- Special meetings before the identified season of monsoon (June to August) for pre-

paratory and alertness purposes against floods and landslides and dry season (March-May) for preparations and alertness against windstorms and fire.

- Coordination with centre and neighbouring districts for - a) collaborative program formulation and implementation, b) sharing of equipment.
- Mobilization of resources for disaster preventive projects.
- Coordination of social mobilization initiatives in the vulnerable VDCs.

Settlement level disaster management committee: The settlements falling in the disaster vulnerable VDCs will form a committee whose function will be to:

- Coordinate pre-disaster social mobilization activities in the settlement;
- Form and mobilize local youth groups for communication, rescue and relief
- Take charge of disaster management related equipment available in the settlement
- Inform VDC and DMS as soon as possible in the case of disaster
- Coordinate rescue, relief and rehabilitation activities
- Estimate the level of support needed from outside the settlement in the case of a disaster
- Identify safe location/s near-by for additional shelter needs during disaster

Disaster Management Secretariat (DMS) at the district level: A permanent disaster management secretariat must be established within the District Administration Office (to be shifted to DDC later) which will be fully equipped (including computer with e-mail facility and communication mobile) to receive and disseminate information related to disasters. This secretariat must be manned 24 hours particularly during the monsoon season when flood and

landslide possibilities are higher and during March-April season when fire and windstorm possibilities are higher.

7.2 Policy Change

The disaster problem in Chitwan is compounded by a single policy provision of not allowing the extraction of the incremental debris deposits that contribute to raise the river-bed level. This policy has its roots embedded in the Acts for Conservation areas (such as the Chitwan National Park) which for no scientific and logical reason, has forbidden the extraction of accumulated debris, in the form of sand and aggregates. These are the potential avenues of revenues for the local bodies at the DDC and VDC levels to finance the disaster management component parts. Thus we are tempted to make this important recommendation of annulling this policy provision enabling the local governments to extract at least the annually added debris to be extracted for disaster safety and revenue purposes. If one looks at the precedence, the district of Rupandehi is earning almost Rs.60 million by selling the sand and aggregates from a relatively smaller river Tinau compared to almost that level of annual local body program passed by the DDC and VDC councils in Chitwan.

The sand and aggregates could also be used to manufacture construction material such as hollow or solid concrete blocks to be used for house or fence construction. These blocks have much stronger resistance to disaster compared to the existing materials used such as bricks. The construction of house with concrete blocks will also be cheaper and faster as it does not require additional cement. The patch extraction of soil in manufacturing of bricks practiced currently is helping to augment the disaster possibility by encouraging the shift of river course.

The study team, therefore, strongly argues in favor of lifting this unfounded existing policy provision of not allowing the extraction of the sand and aggregates from the problematic rivers. The sooner it is reversed, the better it will be for Chitwan to move forward with the TDRM package.

Another financing avenue, in the short run at the least, is to allow the district to harness the opportunity of extracting the logs from the up-

stream rivers that are brought by the flooding rivers. This is again barred by the National Park legal provisions. This legal provision is resulting into these valued products being landed into neighboring India. The study team strongly feels that these logs must be legally allowed to be extracted at the local level. This provision alone can finance, in the case of Chitwan, the major rehabilitation initiatives.

7.3 Social Mobilization

Social mobilization is the process of sensitizing, creating awareness and conscientizing the people on various aspects of development. Two packages of social mobilization - general and disaster related, is recommended to be developed and applied in the vulnerable VDCs. The general package will constitute awareness about the importance of education, health, sanitation, desirable and undesirable social customs, etc. In fact, where NGOs have worked in the communities or Village Development Programme (VDP) is implemented, the general package is already applied. So, this package needs to be applied only in those VDCs where people are not already mobilized. The second, disaster package, however, has not been developed and implemented in any VDC. This package will constitute awareness about preventive measures to be taken before disasters and safety measures to be taken during the disaster.

For social mobilization, an experienced external social mobilizer will work in the 5 VDCs to mobilize as well as to train two local or internal social mobilizers (animators) per VDC, one male and one female, who will be permanently located within the respective VDC. The external mobilizer will work in the area for an initial period of 6 months.

7.4 Gender Issues in Disaster

Although the incidence of disaster and being its victim is equally painful for everybody, the women are found to bear larger amount of pain and sufferings during and after any disaster. These facts indicate that the needs of women must be seriously considered in designing any disaster mitigation project. Some of the important recommendations to this respect are as follows:

- Women must be equally participated in the design and implementation of the disaster management activities;
- Safety shelters must be designed to take care of the extra privacy needs of the women; and
- Both women and men have to be sensitised on the gender roles.

7.5 Indigenous Knowledge

The use and upgrading of local people's knowledge on disaster forecasting, coping and mitigation through disaster research should also be an integral part of the TDRM. Therefore, there must be a continuous mechanism to document, upgrade and disseminate such local knowledge for use towards cost effective disaster management.

7.6 Formulation and Implementation of Disaster Preventive Projects

There are several medium to large scale projects required to avoid or mitigate the effect of disaster in Chitwan district. Some of these are listed as follows:

- Construction of a reasonably flood-proof road connecting district HQ with Thori via Patihani and Jagatpur. Such a road will save 3-4 VDCs in the west Chitwan which are severely affected by flood and river bank cuttings.
- Slope stabilization measures in the catchment of Rapti river.
- River stabilization project on the location of sharp Narayani bend at Mangalpur.
- Control of slash-and-burn farming and forest encroachment in the hilly areas of Chitwan (Chepang Development Project).

7.7 Other Recommendations

Besides these policy recommendations; the following additional recommendations should be considered:

- Extend telephone lines in the vulnerable VDCs for quick communication purpose.
- Provide cycle-based ambulances (developed by ITDG) at the rate of one ambulance per 100 populations in the vulnerable VDCs where cycles can ply.
- Provide one communication tower (developed by ITDG) at the rate of one tower per vulnerable VDC.
- Provide AM/FM radio sets (one set per community hall) in the vulnerable VDCs.
- Post telephone numbers of DMC, Fire station, Police and pamphlets and posters depicting safety information against different disasters in as many public locations as possible.
- Mandate the use of building codes (developed by MPPW) for the new construction of public buildings such as schools, hospitals, etc. and retrofit the existing public buildings to make them reasonably disaster resistant.
- Equip major public buildings with systems of fire alarm and control

7.8 Exogenous Activities Affecting Chitwan

Chitwan's vulnerability to disasters, particularly water induced ones, are aggravated by projects and activities that are exogenous or beyond control of the local authorities. Some of these are caused by the Gandak barrage and dams constructed by the Government of India across the border. For this, local authorities will have to lobby with the national government to take up these issues at the bilateral and international levels.

Annex 10

List of People Visited

1. Dr. Madan Lal Shrestha, Director General, Department of Hydrology and Meteorology, Babar Mahal, Kathmandu, Nepal
2. Dr. Keshav Prasad Sharma, Chief, Flood Forecasting Division, Department of Hydrology and Meteorology, Babar Mahal, Kathmandu, Nepal
3. Dr. Umesh Nath Parajuli, Executive Director, Water and Energy Commission Secretariat, Singha Durbar, Kathmandu, Nepal
4. Mr. Naveen Mangal Joshi, Executive Director, Water and Energy Commission Secretariat, Singha Durbar, Kathmandu, Nepal
5. Mr. Shiva Kumar Sharma, Deputy Director General, Department of Water Induced Disaster Prevention, Pulchowk, Lalitpur, Nepal
6. Mr. Lekh Nath Pokharel, Under Secretary, Ministry of Home Affairs, Singha Durbar, Kathmandu, Nepal
7. Mr. Shiba Bahadur Pradhananga, President, National Society for Earthquake Technology - Kathmandu, Nepal
8. Mr. Amod Mani Dikshit, Executive Director, National Society of Earthquake Technology - Nepal, Kathmandu, Nepal
9. Mr. Deependra Purush Dhakal, Chairman, National Centre for Disaster Management, Pulchowk, Lalitpur, Nepal
10. Mr. Rahul Sengupta, Programme Officer, UNDP, Pulchowk, Lalitpur, Nepal
11. Mr. Hare Ram Shrestha, Engineer, Department of Soil Conservation and Watershed Management, Babar Mahal, Kathmandu, Nepal
12. Mr. Pradeep Mathema, Director, Jalshrot Vikash Sanstha (JVS), Nepal, Anamnagar, Kathmandu, Nepal
13. Er. Lava Raj Bhattarai, Chairman, Nepal Engineering College and Chairman, Disaster Management Achievements and Challenge (DiMAC – 2005)
14. Dr. Deepak Bhattarai, Principal, Nepal Engineering College, Changu Narayan, Bhaktapur, Nepal
15. Mr. Pratap Kumar Pathak, Joint Secretary, Ministry of Home Affairs, Singha Durbar, Kathmandu, Nepal
16. Mr. Purna Kadaria , Director General, Department of Urban Development and Building Construction, Babar Mahal, Kathmandu, Nepal
17. Mr. Achyutananda Bhandari, President, Nepal Landslide Society, P.O. Box 5944,
18. Dr. Vishnu Dangol, General Secretary, Nepal Landslide Society, P.O. Box 5944, Kathmandu, Nepal
19. Mr. Rajnish Raj Ojha, Nepal Red Cross Society, Kathmandu, Nepal
20. Mr. Deepak Paudel, President, Natural Disaster Management Forum (NDMF-Nepal), Maitidevi, Kathmandu, Nepal
21. Mr. Surya Bahadur Thapa, President, Friends Service Council, Nepal, Kathmandu Office, Imadol -7, Lalitpur, Nepal, Rupandehi Office, Makrahar-8, Mrigauli, Rupandehi



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