

# BHUTAN



## DRR Policy Peer Review Report 2009

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### **DRR Policy Peer Review**

The ADRC launched the Pilot Project of the DRR Policy Peer Review in 2009 to facilitate mutual learning among member countries for the purpose of achieving the goals established by the Hyogo Framework for Action 2005-2015 (HFA). This activity is not intended to be a one-way process, but an interactive effort that facilitates the sharing of experiences and good practices in disaster risk reduction among members.

Certain themes are selected for each year's reviews in accordance with HFA priorities. The theme for the 2009 was "promoting disaster risk education and raising public awareness," which is related to HFA Priority 3: "Use knowledge, innovation and education to build a culture of safety and resilience at all levels."

Disaster risk education and public awareness play a crucial role in enhancing people's knowledge of disaster risks, affecting their attitudes, and motivating them to adopt a culture of disaster prevention and resilience. This in turn requires the following tasks:

- Develop a program to raise awareness of disaster risk reduction
- Include disaster risk reduction in the education and research systems
- Develop disaster risk reduction training for key sectors
- Enhance the compilation, dissemination, and use of disaster risk reduction information

The review process started with the submission of reports by target countries. The country reports were carefully examined by a team of reviewers consisting of representatives of other member countries, disaster management experts, and ADRC staff members. This examination was followed by visits to the target countries to conduct on-site surveys and interviews of government ministries and agencies, NGOs, international organizations, and academic institutions involved in disaster risk reduction activities. Through their surveys and interviews, the reviewer teams identified the strengths and weaknesses of the target countries and provided each country with a set of recommendations, which are to be shared with all ADRC member countries.

# Summary of Country Report of Bhutan

## 1. General Information on Disaster Management in Bhutan

### Overview of Natural Disasters

The geo-physical location of Bhutan makes it one of the most seismically active regions in the world. A strong earthquake on 21 September 2009, the most devastating in Bhutan's recent history, killed 12 people and damaged a large number of houses, public buildings, and cultural and religious monuments. Bhutan also faces potential threats from glacial lake outburst floods (GLOF). Climate change is causing glacial lakes to recede by 30 to 40 meters every year, and the risk of glacial lake outbursts increases as global warming progresses.

### Disaster Management System

#### 1) Legal System

The government endorsed the National Disaster Risk Management Framework in 2006. A Draft National Disaster Management Bill was formulated in 2008. The National Disaster Management Act has not been endorsed as of 2009, but it is expected to be approved by the parliament in the near future.

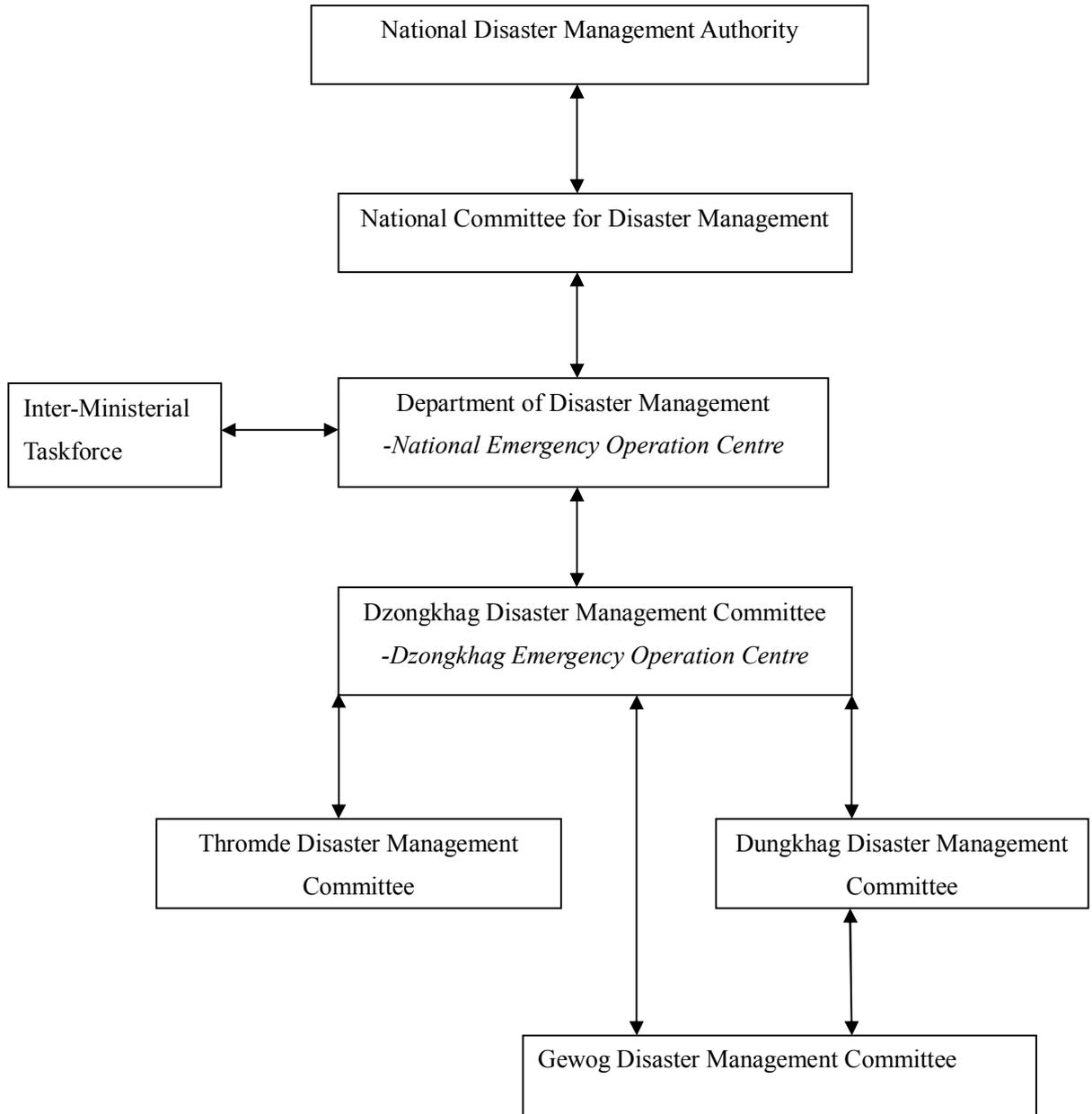
Although Bhutan has no laws, statutes, or any other legal framework dealing specifically with disaster management, Article 8 (6) of the Constitution of the Kingdom of Bhutan stipulates that it is the responsibility of every Bhutanese to provide help to victims of accidents and in times of natural calamity. The Environmental Acts and Policies, the Mines and Minerals Management Act, the Bhutan Water Policy, the Land Act, the Bhutan Building Rules, and the Royal Bhutan Police Act indirectly support disaster management.

#### 2) Organization

The Department of Disaster Management (DDM) in the Ministry of Home and Cultural Affairs is the lead coordinating agency for disaster management in Bhutan. It consists of three divisions: Preparedness and Mitigation, Response and Early Warning, and Relief and Reconstruction.

The National Committee for Disaster Management (NCDM) is the highest-ranking executive body for disaster management, and is chaired by the Secretary, Ministry of Home and Cultural Affairs. DDM functions as the secretariat of the Committee. Also, at the local level, there are 20 District Disaster Management Committees chaired by governors.

### Institutional Arrangements



### 3) Plan

The Department of Disaster Management under the Ministry of Home and Cultural Affairs (MoHCA) have prepared the National Disaster Management Planning guidelines to assist the districts and blocks of Bhutan to develop their disaster management plan. It is expected that the district will prepare their disaster management plan based on the National Disaster Management Planning guidelines. Apart from the National Disaster Management planning guidelines, a school disaster management planning

guidelines have also being developed to assist the school in developing their school disaster management plan.

## **2. Public Awareness and Education on Disaster Risk Reduction in Bhutan**

Component VI of the National Disaster Risk Management Framework is public awareness and education. It calls for efforts to build awareness among people about the hazards and vulnerabilities in their communities and for steps to be taken to mitigate such risks by adopting a multi-sectoral strategy and establishing partnerships with media and community organizations.

DDM is also responsible for creating public awareness and disaster education activities in Bhutan, and works closely with relevant agencies such as the Ministry of Education, Standard and Quality Control Authority, Department of Geology and Mines, Department of Public Health, Department of Energy and Department of Forest.

### **Current Efforts for Creating Public Awareness and Education on Disaster Risk Reduction in Bhutan**

Below are the current main efforts being undertaken by the DDM and other relevant agencies.

#### **(1) Earthquake Risk Reduction and Recovery Project (ERRP), a SAARC regional project**

This project is being funded by the government of Japan and implemented through organizations such as the UNDP and ADRC. The Standard and Quality Control Authority (SQCA) is also involved. The program aims to strengthen institutional and community capacities to plan and implement earthquake risk reduction strategies that integrate disaster preparedness, mitigation, and post disaster recovery in five South Asian countries (Bhutan, Bangladesh, India, Nepal, and Pakistan). As part of the project, "pull-down tests" of seismically reinforced and unreinforced buildings were conducted to verify the effectiveness of retrofitting, as well as to raise awareness among the general public.

#### **(2) Under the Project titled Reducing Climate-Change-Induced Risks and Vulnerabilities from GLOF in Punakha-Wangdue and Chamkhar Valleys**

This project is funded by the LDCF/Global Environment Facility (GEF) through the UNDP, there are three implementing agencies for this project, the Department of Disaster Management implements capacity building and creating awareness on risks posed by GLOF in the three valleys. And the Department of Geology and Mines (DGM) is responsible for implementing mitigation works at the lake sites which poses threats to live and livelihoods to the people living downstream in Punakha and Wangdue valleys. The Department of Energy looks after the Early Warning component and is responsible for establishment of Early Warning System in the vulnerable areas.

### (3) Media Programs

An animated series (Ap Naka Part 1 and 2) on safe construction practices and earthquake safety precautions were produced and broadcasted on the national television channel. Newspaper inserts and supplements providing information on various hazards for risk reduction measures are also published frequently. This is a collaborative project between the DDM and SQCA. The DDM has also formulated, printed, and distributed an Emergency Safety and First Aid Handbook which contains do's and don'ts regarding different hazards to various ministries/agencies/dzongkhags/schools.

### (4) Safe School Campaign

Working in collaboration with the Ministry of Education, the Ministry of Health, and the Royal Bhutan Police, the DDM has carried out this campaign in four *dzongkhags* (districts) so far – Thimphu, Chukhha Pemagatshel, and Samdrup Jongkhar. As part of this campaign, school principals and teachers are sensitized to disaster risks and the school disaster management planning guidelines, and trained in basic first responder skills, such as emergency first aid, search and rescue, and fire safety measures. The campaign ends in each *dzongkhag* with an earthquake mock drill conducted by the pilot schools.

### (5) International Day for Disaster Reduction

Bhutan observed International Day for Disaster Reduction for the first time in October 2008. A nationwide art and essay competition for all schools was held, and schools in Thimphu participated in an "exhibition on disaster risk reduction" competition. In 2009, the day was observed by students around the country who participated in drawing competitions on disaster reduction. Students in Thimphu also staged short skits and composed songs on disaster preparedness.

### (6) Community-based Disaster Risk Management

Community-based disaster risk management (CBDRM) training workshops have been conducted by the DDM to develop the capacity of communities. The CBDRM planning curriculum has been developed and the disaster management teams from Punakha, Wangdue, Bumthang, Chukha and Thimphu *dzongkhags* (districts) have been trained in the process and are now prepared to train *gewog* (block) level teams and develop *gewog* disaster management plans.

### (7) Early Warning

The existing manual early warning system managed by the Department of Energy (Ministry of Economic Affairs) was made more comprehensive to include key persons in vulnerable communities and standard procedures have been further enunciated. Work is in progress towards development of a coherent, end-to-end EWS that has both broad spatial coverage (covering all vulnerable areas) and a broad multi-hazard focus to reduce risk from all natural hazard events. The promotion of community-based and people-centered approaches to disaster risk management will be an important part of this process. Various agencies in Bhutan are organized according to specialized

tasks for different hazards, with relatively little information sharing or partnerships with other agencies. It is these gaps that this component seeks to address by bringing together all concerned agencies. It will begin to establish a policy dialogue so that appropriate standards for end-to-end early warning systems are developed, implemented and institutionalized at the national level. This will have linkage with Communication and Transportation component that will address issues related to the lack of communication lines/ networks and especially their unavailability during times of emergency. The local and national level support activities will also be designed to integrate with regional and international early warning system development efforts.

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**ADRC Counterpart**

Department of Disaster Management, Ministry of Home and Cultural Affairs

(<http://www.mohca.gov.bt/>)

## **Overview of the Mission to Bhutan**

### **Members**

1) Counterparts in Bhutan (Department of Disaster Management, Ministry of Home and Cultural Affairs)

- Mr. Namgay Wangchuk, Director
- Ms. Tenzin Choden, Assistant Program Officer
- Mr. Tshering Wangchuk, Assistant Program Officer

2) Reviewer Team to Bhutan

- Dr. Koichi Shiwaku, Research Fellow, Earthquake Disaster Mitigation Research Center (EDM), National Research Institute for Earth Science and Disaster Prevention (NIED)
- Mr. Arshad Nawaz Chheena, Deputy Director (Mitigation & Preparedness), National Disaster Management Authority, Prime Minister's Secretariat, Pakistan
- Ms. Maki Yoshida, Researcher, Asian Disaster Reduction Center (ADRC)

### **Mission Date**

25-26 November 2009

### **Organizations & Officials Visited**

1) DDM

See above.

2) Department of School Education, Ministry of Education

- Mr Chenchu, Offtg. Director
- Mr. Kaka Tshering, Liaison Officer
- Two school teachers

3) Department of Geology and Mines, Ministry of Economic Affairs

- Mr. Yeshey Dorji, Offtg. Director General

4) Standard and Quality Control Authority, Ministry of Works and Human Settlement

- Mr. Phuntsho Wangdi, Director

5) UNDP Bhutan Office

- Mr. Karma Rapten, Head, Environment and Disaster Management Unit, UNDP Bhutan
- Mr. Karma Chogyal, LSA/Program Associate, Environment & Disaster Management Unit, UNDP Bhutan

## **Observation and Analysis**

### **Department of Disaster Management (DDM), Ministry of Home and Cultural Affairs**

Established in 2005, Disaster Management initiatives in Bhutan had started off with its responsibilities carried out by a small division established under the Ministry of Home and Cultural Affairs. The division was upgraded to a Department in the latter half of 2008 owing to the importance given to disaster risk management in Bhutan. In order to prepare for and respond to disasters in the country, the Department of Disaster Management has three main divisions:

1. Preparedness and Mitigation,
2. Response and Early Warning, and
3. Relief and Reconstruction

The Preparedness and Mitigation Division ensures coordination with all sectors with regard to risk reduction, mitigation and preparedness and creates general awareness and education on disaster risks and risk reduction through its Awareness and Education Unit. The division is mainly responsible for facilitating the preparation and implementation of Sector/ Dzongkhag/ Thromde/ Dungkha and Gewog Disaster Management Plans, Community Based Disaster Risk Management Planning at community level, in collaboration with respective Dzongkhag administrations and also building capacities of disaster management committees and teams to support risk reduction and preparedness activities. One of the most important responsibilities of the division is to create awareness on disaster risk reduction at all levels, including the Safe School initiative and such other related campaigns. The division has also developed various IEC and curriculum materials for capacity building and awareness at various levels. The division is also responsible in building partnerships with both national and international agencies and organizations for knowledge sharing and obtaining support and resources for the division's activities and initiatives.

The Response and Early Warning Division ensures the institutions of an effective disaster response and early warning system in the country. It is responsible for the preparation of contingency plans, SOPs and the establishment and operationalization of the Emergency Operation Centres at various levels. The division is also responsible for liaising with other relevant sectors and agencies to institute an Emergency Communication network, setting up and strengthening early warning systems for various natural hazards and disaster risks involving the communities.

And the Relief and Reconstruction Division coordinates all relief and reconstruction related efforts in collaboration with relevant sectors and agencies. The division is also responsible for facilitating pre-agreements and arrangements with international and other development organizations on relief and related assistance.

Although the Department of Disaster Management is a new setup, it has been actively

promoting disaster risk reduction in Bhutan as a lead coordinating agency. With limited staff strength and the vast responsibilities, staffs in the Department have been working relentlessly to ensure timely response and relief efforts at all levels.

The Department has also been actively engaged in building institutional set ups and building capacities at all levels. One of the most important activities undertaken by the Department at the community level is to train the Dzongkhag officials in Community Based Disaster Risk Management Planning process. As the communities are the first responder and they know their hazards, vulnerabilities and capacities and they have the advantage of time and location to make the essential difference in their communities.

The Department is also vigorously working towards educating and creating awareness on dos and don't on different hazards at all levels through print and audio visual programs in coordination with all relevant stakeholders.

### **Department of School Education, Ministry of Education**

The Department of School Education, in cooperation with the DDM and the UNDP, has been conducting a school project with support from UNICEF. As part of this project, simulation drills focused on earthquakes have been conducted. Teachers are trained to conduct the drills, and have reported that the training is effective in helping them conduct the drills properly.

Drills are important for teaching people what to do when an earthquake occurs. The drills assume that the school buildings will not completely collapse. If school buildings do collapse, the desks that the students hide under are supposed to be strong enough to protect them from falling debris. Currently, drills are being conducted without any tests having been conducted on the strength of school buildings or desks. Since school buildings are more important to saving the lives of school children, the ministry needs to test their strength. If they are not strong enough to protect the people inside, the drills should be adjusted accordingly.

To increase opportunities for students to learn about disasters, disaster education should be integrated into the current school curriculum. Generally, the school curriculum consists of the regular curricular education and extracurricular activities. Disaster education can be covered during the regular curriculum, as part of the study of such subjects as social studies, science, and English. The advantage of integrating disaster education into the regular curriculum is that students begin to think of disaster preparedness as an ordinary part of their lives, rather than something unusual. The disadvantage is the difficulty of providing active learning exercises for students. In general, the regular curricular education is based on lectures and discussions (in this case, questions and answers) between teachers and students. This is a passive model that poses difficulties in terms of raising awareness of disaster management, even though it enhances overall knowledge of disasters. Therefore, extracurricular activities should also be utilized for disaster education, especially to provide more active learning exercises.

To promote school disaster education, teacher guidelines are important. The guidelines should indicate what is to be taught during regular subject classes and what kinds of programs should

be included in both curricular and extra-curricular activities.

#### **Department of Geology and Mines (DGM), Ministry of Economic Affairs**

A couple of glacial lake outburst flood (GLOF) projects have been conducted by the Department of Geology and Mines in close cooperation with the DDM, the Department of Energy, and the UNDP with funding from organizations including LDCE/GEF, JICA-JST, and SAARC.

Hazard maps were developed for flood disaster reduction with support from international organizations, and these are being distributed to communities by local governments. Based on the hazard maps, the DGM identified safer places for evacuation during floods and informed the community of these locations. Evacuation locations should be physically accessible and familiar to community members. It is important that the DGM identifies safer evacuation locations, but its decisions must reflect the local situation. Regardless of the evacuation sites identified, people tend to evacuate to the locations that are most accessible and familiar to them. Hazard maps can identify safer locations but cannot read the local situation. The DGM should hold discussions with communities to identify the safest evacuation sites. Community involvement is a critical component of effective evacuation measures.

#### **Standard and Quality Control Authority (SQCA), Ministry of Works and Human Settlement**

Focused primarily on earthquakes, this agency is working to promote building standards with the help of SAARC and NSET-Nepal. Programs to raise the awareness of planners and decision makers have been implemented, but these have been mainly focused on more urban areas. The agency has identified a lack of information in rural areas as one of its target problems. Masons in rural areas lack access to information on safe construction techniques, and are not well aware of the importance of earthquake-resistant buildings. TV broadcasts have been used to raise awareness of earthquake safety.

#### **UNDP Bhutan Office**

The UNDP Bhutan Office has been involved in the above-mentioned projects regarding GLOF disaster management and school education, designing project plans and providing funds and advice to the governments involved.

Projects related to schools have been conducted as mentioned above, but these tend to lack community involvement because it is difficult to involve the entire community in such projects. It is impossible to involve everyone, but schools are core community institutions. It is important to have a strategy for involving communities in school projects.

#### **Others**

According to the DDM, other actors such as the Ministry of Agriculture and Ministry of Health have been involved in public awareness and disaster education activities in Bhutan. However, the mission was unable to learn about their efforts during its visit due to time constraints.

## **Strengths and Weaknesses**

Based on the above observations and analysis, the mission identified the following strengths and weaknesses.

### **1. Strengths**

- Strong leadership of the DDM in coordinating all disaster-related activities and programs in Bhutan.
- Promotion of the philosophy of Gross National Happiness, which contributes to promoting disaster risk reduction.
- Richness of human resources in Bhutan
- Existence of National Disaster Risk Management Framework and National Disaster Management Bill
- Provision of finances: establishment of a relief fund, mitigation and preparedness fund, and emergency response fund.
- Coverage of all phases of the disaster management cycle (with DDM divisions managing Preparedness and Mitigation, Response and Early Warning, and Relief and Reconstruction).
- Full commitment of the country to prepare a National Disaster Management Plan by initiating workshops for the development of local Disaster Management Plans.
- Promotion of Community-Based Disaster Risk Management (CBDRM)
- Participation of communities in preparing local plans for specific or relevant hazards.
- Establishment of an awareness campaign for schools through the development of a School Disaster Management Plan.
- Masonry training for selected areas.
- Relationships with international organizations.

### **2. Weaknesses**

- Weak link between regular teaching system and disaster education.
- Need for greater enforcement of laws to ensure community safety against disasters.
- Strength of school buildings has not been checked.
- Few staff in disaster-related departments (DDM is fully aware of this issue).
- Multiple hazard situations have not been well considered.
- Information gap between rural and urban areas.
- Lack of domestic/oversea NGO's participation in disaster risk reduction activities

## **Findings and Recommendations of Reviewers**

Bhutan faces harsh reality of increasing risks of natural disasters such as GLOF and earthquakes. However, relevant agencies have been accelerated their efforts to prevent and mitigate the impact of such disasters, promoting public awareness and school disaster education activities. Their efforts will bear fruits rapidly in light of strong leadership of the government, accumulated human resources, diligent Bhutanese, and the size of the country.

School safety and community safety are interrelated issues. Integrated plans for community safety that include schools are expected to be developed. The government has a responsibility to promote and achieve community and school safety through the active participation and cooperation of both community and schools.

The following are the findings and recommendations of the mission based on the strengths and weaknesses identified, although some of the points are fully recognized by the government.

### **1. School Safety and Education**

- Though some efforts have been made to conduct awareness campaigns in the schools, more work can be done to include disaster risk reduction in the regular teaching system, such as incorporating it as a subject in the curriculum of schools/colleges. Then, students are able to equally gain the knowledge on natural disasters and disaster preparedness in a regular basis.
- Extra-curricular activities should be also utilized for school disaster education. These activities can provide more active and exercise-based learning experiences to school children, which helped them learn how to cope with natural disasters in a natural way.
- Teacher guidelines for disaster risk education should be developed. The guidelines will help teachers promote disaster education in schools.
- Hazard maps can be utilized for school disaster education so that students will learn the hazards that exist in the areas where they live and where their schools are. Hazard maps help students and teachers consider how they can reduce risks.
- The strength of school buildings should be examined for emergency planning and to determine their level of disaster resistance. And then schools can conduct better and appropriate planning for disaster preparedness.

### **2. Community**

- Hazard maps are expected to be used to create evacuation plans and to identify evacuation sites at the community level.
- Hazard maps indicating evacuation sites are expected to be developed for/with community members.

### **3. Link Between School and Community**

- Community should be involved in school projects since schools are core community institutions.
- Hazard maps will be developed in the near future and they are expected to be developed with the community, and also widely shared with the community, school teachers, and students.

### **4. Government**

- Relevant authorities require more commitment to the dissemination of legal frameworks and national policies that can lead to raising awareness of people and protect the community from natural disasters.
- More capacity development of national/local government officials who are in charge of disaster management in Bhutan. The DDM can focus more on coordinating work, not conducting programs by themselves.

## **Acknowledgements**

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### **Asian Disaster Reduction Center**

The Asian Disaster Reduction Center (ADRC) was established in Kobe, Hyogo prefecture, Japan in 1998, with a mandate to facilitate multinational cooperation for disaster risk reduction in the Asian region. In cooperation with its 28 member countries (as of 31 March 2010), the ADRC implements activities aimed at promoting further prosperity and safe, peaceful, and comfortable communities in Asia through such means as information sharing, human resource development, and capacity building programs.

#### Member countries

Armenia, Azerbaijan, Bangladesh, Bhutan, Cambodia, China, India, Indonesia, Japan, Kazakhstan, Republic of Korea, Kyrgyz, Lao PDR, Malaysia, Mongolia, Myanmar, Nepal, Pakistan, Papua New Guinea, Philippines, Russian Federation, Singapore, Sri Lanka, Tajikistan, Thailand, Uzbekistan, Viet Nam, Yemen

#### Advisor countries

Australia, France, New Zealand, USA

#### Observer

Asian Disaster Preparedness Center (ADPC)