

Regional Workshop on Disaster Preparedness Plans for Natural Hazards

Kathmandu, 7-9 August, 2006

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Day 1: Monday, 7 August 2006: Focus on Disaster Preparedness Plans at National Level

Session 1: Opening Remarks

Xu Jianchu, Programme Manager for 'Water, Hazards and Environmental Management', ICIMOD, welcomed the participants to the regional workshop.

Madhav Karki, Acting Director General, ICIMOD, emphasised that disaster preparedness (DP) is crucial for South Asian countries where resources for relief, recovery, and reconstruction are limited. Natural disasters cannot be predicted or fully prevented. Agencies and vulnerable communities need to share information and build capacities to improve collective mitigation, time taken to respond, and rehabilitation and reconstruction of communities affected.

Thir Bahadur GC, Under Secretary from the Disaster Management Section, Ministry of Home Affairs (MoHA), Nepal, emphasised that the Hindu Kush-Himalayan (HKH) region shares common natural hazards and problems. Disaster mitigation became part of the national political agenda under the 7th Plan (1985-90). Since then, MoHA has been entrusted with the formulation of national policies on disaster management (DM). Nepal is gradually focussing on disaster preparedness with specific reference to the Hyogo Framework.

Abdul Bari Khan, Additional Secretary for the Ministry of Food and Disaster Management, Bangladesh, highlighted the Standing Orders for Disaster (1997) as a comprehensive national guide for DM. He emphasised the need for regional cooperation in order to approach DM holistically.

N.S. Napolchyal, Principal Secretary, Department of Disaster Management, Government of Uttaranchal, India, mentioned that this workshop was timely considering the recent disasters that had occurred in the region. India is prone to multiple hazards. DP constitutes an important element of DM in the recent national policies and acts. Capacity building and knowledge sharing among stakeholders are key common concerns and requirements for effective DM in the region. A regional knowledge network on DP should facilitate knowledge sharing actively not only during the workshop but also beyond.

Ghulam Khan, Director, Research & Analysis, National Crises Management Cell, Ministry of the Interior, Pakistan, shared his experiences of the 2005 Kashmir earthquake with the workshop participants. The response mechanism would have been better if a national plan had been in place. The South East Asian regional countries are facing similar disasters. Mechanisms to improve regional cooperation are necessary to face the challenges posed by natural hazards.

Session 2: Natural Hazards in the Himalayan Region

Floods, landslides, and earthquakes are the most frequent natural hazards occurring in the Himalayan region. This session highlighted the nature and the impacts of those natural hazards through case studies and

organisational experiences at the international, national, and regional/local levels. The lack of data, lack of national and regional collaboration, and lack of community empowerment and participation have been common highlights in each case.

Masahiko Murata, Asian Disaster Reduction Centre (ADRC), in his presentation entitled, '**Premonitory Phenomena of Sediment-related Disasters**', reported how interviews with people affected in Japan and in the Philippines and scientific analysis of geological conditions helped to identify effective and detailed premonitory phenomena (e.g., change in the colour of streams, unusual sounds from mountain/hill slopes, and unusual smells from soil and land surfaces) for landslides, debris flows, and other mass movements. A monitoring system for such premonitory phenomena by governments with community cooperation will work effectively for early warning and evacuation. The development of successful early warning techniques requires community empowerment and involvement.

Ramesh Tuladhar, Department of Water Induced Disaster Prevention (DWIDP), Nepal, gave an overview of '**Landslide and Mitigation Measures for Risk Reduction**' in Nepal. Landslides are common in Nepal and kill more people than any other water-induced disaster. The key gaps in mitigation measures are lack of land development and land-use regulations; lack of coordination amongst stakeholders; lack of accessible disaster databases; imbalance in budget distribution; bias towards infrastructure projects; and underutilisation of study reports and maps. Accounting for the effects of global climatic change, improving coordination among stakeholders, and planning for rampant urbanisation, mass migration, and village road development are the key challenges to landslide mitigation in Nepal.

Amod M. Dixit, National Society for Earthquake Technology (NSET), reported on '**Earthquake Preparedness in Nepal**'. According to the UNDP, Nepal is ranked as the 11th worst country in terms of relative vulnerability to earthquakes and Kathmandu Valley is the most 'at risk' settlement in the world in terms of probable casualties resulting from earthquakes (GESI/UNCRD 2001). The collapse of buildings represents the main source of risk in Kathmandu city. The implementation of the National Building Code is difficult and the National Action Plan for Disaster Management (1996) has little ownership among stakeholders. NSET's efforts in earthquake risk management include a school earthquake safety programme, awareness raising (e.g., Earthquake Safety Day), education (e.g., training programmes for masons), and institutional development at the municipal level. Earthquake risk management in Nepal can be improved through fostering collaboration between key stakeholders, increasing outreach and communication, and creating efficient institutional arrangements within a decentralised process. A Pan Himalayan study on historical earthquake-resistant buildings is starting to analyse how traditional techniques for buildings can be combined with modern technologies.

Aziz Ahmed Jamali, Earthquake Reconstruction and Rehabilitation Authority (ERRA) of the Government of Pakistan shared the '**Experiences and Lessons Learned from the Pakistan Earthquake**' that hit Kashmir at the onset of the severe winter in 2005. This disaster posed several challenges to the Government and people of Pakistan. The absence of a national strategy and a national DM plan was acutely felt. Most people, communities, and organisations were unprepared, and this affected the time taken to respond. The establishment of a national disaster management authority is necessary to improve the coordination of rescue and relief at all levels. An inventory of disasters and organisations working in the field will help to make response effective in future. The tragedy demonstrated that the involvement of local communities and political representatives contributed to self-sustenance in the relief process. Communities should be trained in search and rescue work. The media played an important role in linking the people affected with the global community and international cooperation helped in the relief and rescue processes. In order to improve response capacities, awareness should be promoted within the international community through regular exchange of information, joint exercises, periodic seminars, and workshops.

Allah Bakhsh Kausar, Geological Survey of Pakistan (GSP), gave an overview of GSP's studies in '**Landslide Hazards in Earthquake Hit Areas of Pakistan**'. The major activities include identification of landslide areas; preparation of risk assessment and landslide hazard maps; and monitoring of landslides. Key recommendations include (1) regionally - to create a region-wide database of natural hazard events, (2) for the government - to fund geo-hazard professionals, (3) to improve collaboration between researchers, the private sector, and international organisations, (4) for international development banks - to develop better methods of reconstructing communities destroyed by disasters, and (5) for international and national development organisations - to increase, relatively, the amount of investment in disaster preparedness and mitigation in comparison to investment in disaster response.

Md. Wajiullah, Centre for Environmental and Geographic Information Services (CEGIS) reported on **‘Flood Mitigation in Bangladesh’**. The country is well known for being affected by annual floods. The government has installed over 600 flood-management systems and brought a total of 5.4 million hectares under flood protection through structural measures such as embankments and drainage. Flood forecasting and warning, change in cropping patterns, and flood-related rules and regulations are among the popular non-structural measures. Key recommendations on flood mitigation include strengthening the current flood-management system, emphasising research for preparedness, and improving regional cooperation.

Mandira Shrestha, ICIMOD provided a **‘Regional Perspective of Floods and Flash Floods in the HKH Region’**. Globally, although the number of disasters is increasing, the number of deaths is decreasing—but the number of people affected by disasters is increasing. Floods account for 50% of global water-related natural disasters and Asia itself accounts for a 35% share of global water-related natural disasters. The HKH region, with its transboundary rivers, is extremely vulnerable to flood disasters. A key challenge for improving flood mitigation in the region is to improve communication and the sharing of information across national boundaries to increase lead times for flood preparedness. The project on ‘Satellite Rainfall Estimates in the HKH Region’ is one of ICIMOD’s initiatives to overcome these challenges by facilitating exchange of real-time data to improve lead times and regional scientific and technical know-how.

In the discussions, **Md. Tarik-ul-Islam**, UNDP-Bangladesh highlighted the need to integrate financial institutions in DP, for instance, through micro-finance.

Session 3: National Disaster Preparedness Plans

The major objective of the workshop was to review the current status of national disaster preparedness plans in the four countries targeted and to explore gaps and shortcomings in the functioning and implementation of plans. Four authors, one from each of the countries, presented the status of disaster preparedness plans in Bangladesh, India, Nepal, and Pakistan.

Aloysius Rego, Asian Disaster Preparedness Centre (ADPC), gave a keynote presentation on **‘The importance of Plans for Disaster Preparedness’**. In doing so he highlighted how plans are necessary at different governing levels, from national via district to community level, and that there are well-established communication channels between the different levels in order to ensure efficient implementation of plans.

Masroor-ul Haq Siddiqi, Kranti Associates Limited, Bangladesh, presented the **‘Status Report on Disaster Preparedness Plans in Bangladesh’**. Bangladesh is the lowest riparian state of the Ganga-Brahmaputra-Meghna (GBM) basin and is affected by flooding annually which can inundate 20-60% of the country. In Bangladesh, during the last decade, the focus of DM activities has slowly changed from post-disaster relief to preparedness. The disastrous floods of 1986 and 1987 acted as an alarm clock and prompted the government to develop the Flood Action Plan (FAP) (1991-95). Later, the Ministry of Relief was renamed the Ministry of Disaster Management and Relief with the creation of the Disaster Management Bureau (DMB) as the main body of this Ministry. The DMB revised the Standing Order on Cyclones (1985) and developed it into the ‘Standing Orders on Disaster Management’ (SOD) in 1997. It is a comprehensive set of guidelines for departments and agencies to develop DM Action Plans. Under the SOD framework, Disaster Management Committees have been established at district, thana, and union levels. The Ministry of Food and Disaster Management (MoFDM) released a Comprehensive Disaster Management Plan (2005-2006) and a Corporate Action Plan which incorporate a multi-hazard approach — including climate change.

Chandrani Bandyopadhyay, National Institute of Disaster Management, India, presented the **‘Status Report on Disaster Preparedness Plans in India’**. India is a vast country with 15% of the world’s population, 85% of which is exposed to multiple natural hazards. In India, the International Decade for Natural Disaster Reduction (IDNDR) (1990-2000) contributed to a shift in India’s focus from ‘post-disaster response and relief’ to ‘pre-disaster prevention and mitigation’. Four major natural disasters between 1993 and 2004 (i.e., the 1993 Latur and 2001 Gujarat earthquakes, the 1999 Orissa super cyclone, and the 2004 South Asian tsunami) heightened the importance of DP as a means of reducing the social and financial costs of disaster relief. In light of the shifting paradigm, the government formulated several national initiatives such as the High Powered Committee on Disaster Management (1999) and the National Committee on Disaster Management (2001). The tenth development plan (2002-2007) recognises that DM is directly linked to development in general. The National Disaster Management Act (2005) established a National Disaster Management Authority (NDMA) responsible

for laying down the national policies, plans, and guidelines for DM. The NDMA is required to set up State Disaster Management Authorities, which in turn have to establish District Disaster Management Authorities (DDMA). The DDMA is responsible for preparing and managing the District Disaster Management Plans. A multi-hazard and multi-sectoral approach is being adopted in all DM activities with a bottom-up approach to establish a culture of prevention.

Bhubanesh Kumar Pradhan, Association for Research and Management Services, Nepal, presented the '**Status Report on Disaster Preparedness Plans in Nepal**'. Nepal is exposed to multiple and interrelated natural hazards (especially floods and landslides during monsoon). Three main fault lines running east to west make the country tectonically volatile. In 1988, a major earthquake in Nepal brought into the political agenda the necessity to focus on DP activities as an important component of DM. The National Disaster Relief Act, enacted in 1982, was the first Act on DM in Nepal. The declaration of the International Decade for Natural Disaster Reduction (IDNDR) in 1991 played a key role in shifting the focus of DM from post-disaster response and relief to pre-disaster prevention and mitigation. The National Action Plan prepared in 1996 details the necessary measures for each type of disaster. The tenth plan (2002-2007) included DM as a key component of development for the first time. The MoHA is the focal body responsible for enforcing DM activities and coordinating the several ministries and non-government organisations (NGOs). The DM section in MoHA is understaffed and under-resourced, and this makes implementation of plans a difficult task.

M. Asif Khan, National Centre of Excellence in Geology, University of Peshawar, presented the '**Status Report on Disaster Preparedness Plans in Pakistan**'. According to the UNDP Assessment Report 2005, DM in Pakistan primarily focuses on flood disasters with emphasis on rescue, relief, and rehabilitation. The Pakistan Army plays a key role in these activities. The Flood Control Plan was introduced during the fifth 5-year plan (1979-1983); DM was first considered in the ninth 5-year plan (1998-2003); and the Ten Year Perspective Development Plan (2001-2011) was launched in 2001. All these plans focused mainly on flood disasters with particular emphasis on structural measures. The 2005 Kashmir earthquake revealed Pakistan's lack of preparedness for other types of disaster. The national response was activated after three days only. This unprecedented event resulted in a switch of focus in the political agenda from flood mitigation to multiple hazard mitigation and preparedness.

Day 2: Tuesday, 8 August 2006: Focus on DP Plans at Local and Intermediate Level

Session 4: Vulnerable groups and local knowledge

DM has focused mainly on physical and technological solutions with an unsatisfactory understanding and integration of social and cultural realities. This session demonstrated that an understanding of and accounting for vulnerable groups and local knowledge are part of a necessary process for effective DM. The presentations emphasised the need to understand the contexts within which disasters are shaped and especially the role of policies and power relations (between social groups, between genders, between disciplines, between different types of knowledge etc) in DM.

Manjari Mehta, ICIMOD, highlighted the linkages between '**Disasters and Vulnerable Groups**'. Mehta explained how vulnerable groups, including girls and women, who are often excluded socially and economically insecure bear a disproportionate burden of disasters. Gender relations and ideologies, by shaping perceptions and behaviour influence people's ability to anticipate, prepare for, survive, cope with, and recover from disasters. Social and gender analyses need to be incorporated into DP for long-term sustainable development. Analyses should be based on context-specific models which build upon local strengths and address local constraints. Helping women to become economically self-sufficient is a major factor in increasing their ability to mitigate the impacts of disaster. Other principles of good practice should include sex-disaggregated disaster-related data and sharing of information about gender issues in disasters.

Julie Dekens, ICIMOD, gave a presentation on '**Local Knowledge for Disaster Preparedness**' highlighting the importance of taking into account local knowledge in the field of disaster preparedness. The presentation demonstrated, using various case studies in the Himalayan region, that accounting for local knowledge can

help implementing organisations improve formulation and implementation of their DP plans. Coping strategies related to natural disasters encompasses more than just local technical and structural strategies. For instance, over the years many communities have developed safety nets through complex livelihood diversification mechanisms (economic, spatial, ecological, and institutional diversification) to help them adjust to the impacts of disasters. Combining local knowledge and conventional knowledge faces many challenges; and especially from development processes and policies that restrict land and forest access and hence contribute to undermining local practices. Scientists, government officials, and NGOs need to work with communities to understand within which contexts local knowledge and practices can contribute to the improvement of disaster preparedness and formulation of adequate policies.

Session 5: Community Based Disaster Preparedness Plans (CBDP)

This session highlighted the role, nature, and structure of three CBDP plans introduced by the CBDP programmes of Bangladesh Unnayan Parishad (BUP), Nepal Red Cross Society, and UNDP-India.

Ahsan Ahmad, Bangladesh Unnayan Parishad (BUP) reported on ‘**Disaster Preparedness Plans at Community Level in Bangladesh**’. The official approach to DP is based on the Standing Orders on Disaster (SOD) and on the Comprehensive Disaster Management Programme (CDMP). The SOD describes who is supposed to do what in the case of floods and cyclones, but its implementation on the ground is poor. CDMP introduces a shift in paradigm from relying on relief to focusing on community resilience-building with more emphasis on community preparedness. Flood management at the individual and household level includes responses directed towards avoiding risks, reducing losses and damage, and building gradual resilience. This can be partly achieved through preparatory activities such as disseminating flood warnings well in advance and safeguarding assets, perishable items, and livestock. At the community level, flood management includes empowering organisations and raising awareness; providing continuous education and capacity building; planning on a meso-scale; and facilitating organised services to reduce damage and losses.

Prajwal Acharya, Nepal Red Cross Society (NRCS) in his presentation on ‘**Disaster Preparedness Plans at Community Level in Nepal**’ presented the CBDP programme activities of NRCS introduced in 1997. A methodological curriculum has been developed to support communities in the elaboration of disaster plans. DP plans at community level cover mitigation measures, preparedness, and search, rescue and relief. The CBDP activities have five major steps (1) analysis of past disasters, (2) analysis of possible future disasters and their effects, (3) identification of possible pre/post disaster activities, (4) prioritisation of future activities, and (5) preparation of an action plan and budget. The integration of CBDP plans with other plans is perceived as the main problem. Having community and district or VDC-level plans in place is crucial for responding to disasters locally. Frequent drilling exercises are necessary to ensure the plans are appropriate.

Rahul Sengupta, UNDP-Nepal, presented ‘**Disaster Preparedness plans at Community Level in India**’, and the role of community-based disaster preparedness plans within the UNDP Disaster Risk Management (DRM) Programme in India (2002-2007). The Indian Ministry of Home Affairs is the executing agency for this programme and UNDP provides executive support. The DRM programme tasks include the establishment of multi-hazard preparedness and mitigation plans at all levels, including at community level. The CBDP aims mainly at generating sensitivity and awareness, elaborating preparedness and evacuation plans, and building capacity and improving skills of village DM teams. The CBDP process includes a comprehensive inventory of community assets; and this includes specification of the roles and responsibilities of village DM teams. A concluding example illustrated how a community in Tamil Nadu selected as a model village for training by the UNDP managed to save lives and properties through preparedness in the face of a tsunami.

In the discussions, the **participants** raised the issue of institutionalising and scaling up community activities with government activities and the need to embed plans with broader contexts. **Amod Dixit** warned against the risks associated with scaling up community plans. Indeed, now that everybody is adopting community-based approaches the risk might be forgetting the communities. The participants also highlighted the need to integrate DP in community day-to-day knowledge, practices, and life and to perceive CBDP as a non-linear approach.

Session 6: Knowledge Sharing and Training

Zbigniew Mikolajuk, ICIMOD, in his presentation on ‘**The Importance of Knowledge Sharing**’ raised the following questions in the context that DM also needs to be analysed through the lens of knowledge management: what

kind of knowledge is needed? what are the gaps? how do you make knowledge accessible? what does 'knowledge' (versus education) mean on different levels? Two examples were given to highlight how knowledge is useful only when it is delivered in meaningful ways to those who need it. The first example illustrated how farmers in Vietnam have access to satellite-based remote-sensing advisories about ground salinity. The information helps the farmers to plan for their crops. The second example was about some farmers in India who incurred economic losses because they did not know how to store onions properly. A knowledge search revealed that the University of Minnesota, USA, had carried out research in this particular field. By connecting the Indian farmers with the US researchers, the farmers saved their economy. It was concluded that, in order to share knowledge effectively, one needs to identify what knowledge is required and for whom, who can provide the knowledge and how to package the knowledge for different users.

Pradeep Mool, ICIMOD, gave a presentation on **'Training for Multi-hazard Risk Assessment'** and reiterated that the region was extremely vulnerable to multiple risks. ICIMOD, within the 'Living with Risk' project, is planning two training courses on multi-risk hazard assessment. Using GIS/RS as a primary tool, the training will enable middle-level professionals to develop risk maps and make assessments and analyses of different types of hazard. National-level and regional-level training courses are planned in November 2006 in Pakistan and in early 2007 in Nepal respectively for a total of 50 participants.

Session 7: Gap Analysis of Disaster Preparedness Plans

Based on the presentations of the DP plans at national and community levels, country-wise groups were formed to discuss and identify gaps and shortcomings in the existence and implementation of DP plans. The main outcomes of the discussions are compiled and presented in two tables.

Table 1 summarises the strengths and weaknesses of DP as identified by each country-wise group. **Table 2** summarises the position of each country in relation to the four major issues identified during the workshop, namely, (1) the linkages between national DP plans and local DP plans, (2) the access to resources for the implementation of DP plans, (3) the integration of DP in national development activities, and (4) the existence of regional transboundary cooperation. This exercise revealed that the linkages between national and community plans are weak in all countries with the exception of Bangladesh. In each country, access to resources (human, financial, technological, legal, and institutional) exists, but is often incomplete. Bangladesh and India are working

Table 1: Strengths and weaknesses of DP plans at the national level

	Bangladesh	India	Nepal	Pakistan
1. Strengths	<ul style="list-style-type: none"> Wealth of experience Proven system based on experience Strong leadership 	<ul style="list-style-type: none"> Extremely responsive local administration (district level) Strong social fabric and community initiatives Adequate financial resources for relief and rehabilitation operations 	<ul style="list-style-type: none"> Consensus among all the stakeholders NGOs and CBOs are working together National Building Code for Earthquakes Rescue and relief are the strengths 	<ul style="list-style-type: none"> Great spirit of volunteerism at individual and organisational level outside government institutions Active and effective role of the army (before/after disasters) in responding to national disasters. Its resources, material and organisation have been the first to be used in any disaster response Lessons learned from recent experience of the 2005 earthquake
2. Weaknesses	<ul style="list-style-type: none"> Lack of resources Need for technological improvement Lack of real-time data from upper basins 	<ul style="list-style-type: none"> Lack of dedicated institutional capacity at the local level Lack of mitigation culture across the departments/the agencies. Need to bring the mitigation culture along with the response culture Lack of uniform proliferation of DRM concepts (UNDP) across the districts Lack of coordination and communication between agencies/ departments during peace time Over reactive and somewhat irresponsible media 	<ul style="list-style-type: none"> Lack of coordination among the agencies Poor implementation of existing plan Policies are not practical 	<ul style="list-style-type: none"> Absence of bottom up planning: no ownership for the communities Absence of a Disaster Management Strategy and Agency at the national level (but a new plan is going to be passed soon) Lack of capacity (esp. in the civil sector) in terms of expertise, equipment, stockpiles, and training with the civil response agencies

Table 2: Status of each country in relation to key aspects of DP plans

Key issues	Bangladesh	India	Nepal	Pakistan
1. Linkages between national DP plans and local DP plans	<ul style="list-style-type: none"> • Yes: gaps, obstacles and needs are being identified and efforts are underway 	<ul style="list-style-type: none"> • No: lack of funding and institutional support at community level. How to implement DP plans is left to the community. 	<ul style="list-style-type: none"> • No: rescue oriented politics/ regulations • Obstacles: no institutionalised linkage, no standing order, no implementation mechanism 	<ul style="list-style-type: none"> • No: top-down approach of existing and proposed DP national plans • No communities ownership of the strategies and plans lack of community trust and reluctance in getting involved
2. Access to resources for the implementation of DP plans	<ul style="list-style-type: none"> • Yes: human, legal and technical resources • No: financial resources, state-of-the-art technologies need for capacity building of sub-national institutions by blending local knowledge and modern technology 	<ul style="list-style-type: none"> • Yes: financial, human, and legal resources provided by national policy • No: technical support lacks coordination among various agencies and lacks accountability 	<ul style="list-style-type: none"> • Additional resources, particularly human, are highly desirable 	<ul style="list-style-type: none"> • Resource constraints (financial, training, etc) • Lack of coordination between district governments: most of the plans run on an ad hoc basis
3. Integration of DP in national development activities	<ul style="list-style-type: none"> • Yes: Poverty Reduction Strategies reflect the integration of a multi-disciplinary approach 	<ul style="list-style-type: none"> • Yes: but multi-disciplinary integration needs to be strengthened 	<ul style="list-style-type: none"> • No: Funds for rescue directed to CDO (Chief Disaster Office) whereas funds for development are directed to DDCs (District Development Committees) • Local plans are not reflected at national level • No decentralization • Responsibilities but no resources 	<ul style="list-style-type: none"> • Integration needs to be fostered at national, provincial, and district levels
4. Regional trans-boundary dimension	<ul style="list-style-type: none"> • No: Need for regional cooperation and free flow of hydro-meteorological information from upstream countries 	<ul style="list-style-type: none"> • Multilateral/institutional mechanisms need to be developed among countries • Lack of communication protocols and standing agreements between nations of the region (current confusion due to lack of clearly laid out policies) • Lack of capacities sharing (technical, managerial, etc) at regional level • Easy movement of experts across borders 	<ul style="list-style-type: none"> • No explicit mentioning of trans-boundary coordination in the existing national plan • Nepal and Bangladesh have a joint committee • Cooperation is required for knowledge/experience/ technology sharing, flood warning, and post disaster response. 	<ul style="list-style-type: none"> • Regional collaboration on earthquake management initiated • Indus Treaty provides a mechanism for a transboundary dialogue on floods

towards the integration of DP into national planning. Such a multidisciplinary approach is still missing in Nepal and Pakistan. Regional transboundary cooperation needs to be improved in each country.

A discussion following each country-wise group presentation emphasised the need to strengthen collaboration at both bilateral and multilateral levels. Opportunities for regional cooperation through sharing experience and expertise should be identified and explored. For instance, the Standing Orders on Disaster (SOD) from Bangladesh could become a reference point to help other countries bring their plans into practice. Also, the creation of mitigation funds at different levels, as practised in India, could be replicated in other countries. Learning within the country as well as between countries needs to be nurtured and such efforts should be especially promoted during peace time. **Mats Eriksson** concluded the session by highlighting the strengths of each country.

Day 3: Wednesday, 9 August 2006: Excursion Day

Session 8: Closing Session – Conclusions

The conclusions of the workshop are based on the outcomes from the working groups' findings and observations and remarks brought up in the workshop. The conclusions were discussed during the closing session and agreed upon as an outcome of the workshop. Following are the conclusions:

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 actors 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.

Excursions

ICIMOD arranged two field trips following the concluding session. Participants took one of two trips according to their choice.

Trip 1: Earthquake vulnerability walk through Patan. NSET guided one group of participants on an earthquake vulnerability walk through Patan, situated in the heart of Kathmandu Valley. The trip enabled participants to discuss the potential vulnerabilities of a populated community if a major earthquake were to strike.

Trip 2: Bungamati landslide model site. DWIDP led another group of participants to Bungamati, 3 km southwest of Kathmandu. Through a combination of technologies, DWIDP successfully stabilised the Bungamati site which is highly prone to landslides.