

- Knowledge about flash floods and their management, including their nature, origin, impact, and mitigation, should be improved and increased resources made available for research of this kind.

Communication and cooperation

- Communication and coordination among relevant institutions, both laterally and vertically, from community to national levels should be fostered. In doing so, national stakeholders should be encouraged to establish formal and informal platforms to facilitate cross-sectoral dialogues to improve flash-flood management.
- Regional and transboundary cooperation to increase the exchange of data, information, and knowledge crucial for flash-flood forecasting and warning services and for the implementation of improved flash-flood management should be promoted. International collaboration in areas of research, exchange, and regional learning is also recommended.

Forecasting, warning, and hazard control

- Countries in the region should implement reliable and accurate flash-flood forecasting and warning systems. Improvement of cooperation between and within the forecasting and warning agencies and the end-users should be given priority.
- Models for improved flash-flood forecasting, mitigation, and planning should be adapted and applied. Special procedures should be developed for flows with extremely high sediment loads.
- More attention should be given to hazard control, for example, integrated strategies for watershed management, hazard mapping, and dam safety inspection.

Outreach process

Participants agreed that the workshop could serve as a starting point to initiate a process having the principal objective of reducing flash-flood vulnerability in the region within the context of sustainable development and poverty reduction.

While a specific outreach strategy needs to be developed in the near future, key elements of this regional approach could include the following objectives.

- To improve national capabilities including the regional exchange of data, information technologies, and know-how
- To promote and implement national and transboundary projects to reduce flash-flood disasters
- To facilitate partnerships between key national agencies and non-government organisations region-wide and to reach out to the general public to create and increase awareness of flash-flood challenges and options for their mitigation

For further information contact

**Water, Hazards and Environmental Management (WHEM)
International Centre for Integrated Mountain Development (ICIMOD)**
G.P.O. Box 3226, Kathmandu, Nepal; Tel: +977 1 5525313
Fax: +977 1 5524509; email: whem@icimod.org; www.icimod.org



THE LHASA DECLARATION

The Lhasa Declaration was prepared by participants at the international workshop on Flash Flood Management and Sustainable Development in the Himalayan Region held in Lhasa, Tibet Autonomous Region, the People's Republic of China, in October 2005. The joint statement is intended to serve as a platform for increased action towards improved management of flash floods.



Preamble

Flash floods are severe flood events triggered by extreme cloudbursts, glacial lake outbursts, or the failure of man-made dams or dams caused by landslides, debris, ice, or snow. Flash floods can have an impact hundreds of kilometres downstream; yet the warning time available is counted in minutes or, at the most, hours.

Thousands of people, their lives, livelihoods, and homes, along with expensive infrastructure investments are at great risk from flash floods in the Himalayan region every year. The threat to downstream communities is likely to increase in the face of climate and environmental change. There is an urgent need for new and improved mechanisms for forecasting and real time warning, nationally as well as across country borders. Preparedness and mitigation needs to be strengthened with all government and private stakeholders, with emphasis on community preparedness and response.

Active contribution to the workshop was received by participants from the ICIMOD member countries (Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan), experts from the World Meteorological Organization (WMO), the Asian Disaster Reduction Centre (ADRC), the Asian Disaster Preparedness Centre (ADPC), additional national and international organisations, Switzerland, and the United States.

The workshop was organised by the International Centre for Integrated Mountain Development (ICIMOD), the China Meteorological Administration (CMA), and the WMO. It was supported financially by the Government of Norway and the USAID Office of US Foreign Disaster Assistance (OFDA).

Conclusions from the workshop

General

- Flash floods pose a serious threat to people's lives and livelihoods in the greater Himalayan region, as well as to the people living downstream in the flood plains. Valuable infrastructure, such as hydropower plants, roads, bridges, and communication systems, is also at risk. Therefore, management of flash floods has to be improved – the problem cannot be overlooked.
- Flash floods are of a different physical nature to riverine, or seasonal, floods and therefore need different attention in terms of forecasting and management. Landslides and debris flows also pose serious hazards that may be triggered by flash floods.
- Vulnerable groups, including the urban and rural poor, women, children, and the elderly, should be given special attention with regard to flash floods and their management.
- Scientific projections indicate that the magnitude and frequency of flash floods in the greater Himalayan region may increase in the future as a result of change in climate and its variability.
- It is expected that without effective counter-measures, the adverse socioeconomic impact of flash floods in the greater Himalayan region will increase in future.

Institutions and policies

- National disaster management strategies that integrate many types of disasters are needed.

- Communities have a major role to play in the management of flash floods. The concept of 'community-based disaster risk management' should be promoted in parallel with the concept of 'community-based natural resource management' since the management of resources and risks goes hand in hand.
- The private sector and civil society are important partners in all phases of the disaster-management cycle: prevention/mitigation, preparedness, response, and recovery.

Creation of awareness and knowledge

- There is inadequate awareness and knowledge generally about the nature of flash floods and their threat to communities and infrastructure.
- Improved understanding of the nature of flash floods and their causes, development, and impact is needed.

Communication and cooperation

- The nature of flash floods calls for a strong 'catchment approach' to management, including a functional upstream-downstream dialogue in a transboundary context.
- Dialogue between different sectors and different governance levels regarding the management of flash floods and other disasters needs improving. An 'integrated flash-flood management' approach should be adopted.

Forecasting, warning, and hazard control

- The existing meteorological and hydrological networks for data collection and transmission in the region are inadequate for forecasting and early warning.
- Improved forecasting, warning, and communication systems are needed for flash floods in all countries within the greater Himalayan region. Since many flash floods are transboundary in nature, mechanisms need to function in a transboundary context.

Recommendations from the workshop

Institutions and policies

- Countries should develop adequate disaster-management policies and plans, including for flash floods, at both local and national level.
- The capacities of institutional entities responsible for disaster management, in general, and flash-flood management, in particular, should be strengthened. The roles and responsibilities of all institutions involved must be clearly defined and appropriate institutional arrangements should be in place at all administrative levels.
- Communities should be empowered to play a central role in flash-flood management – including preparedness, adaptation, and mitigation.

Creation of awareness and knowledge

- A standard methodology for documenting flash-flood events, their causes, and impacts should be established.
- Awareness should be raised among politicians, policy-makers, communities, and the public at large about the threats posed to communities by flash floods. Vulnerable groups need particular attention. Awareness-raising programmes should be launched through, for example, the mass media, social institutions, and community-based organisations as well as through formal and informal education systems. Specially-designed awareness campaigns should be prepared for non- and semi-literate people.