Partners

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Afghanistan: Ministry of Agriculture, Animal Husbandry and Food; Ministry of Rural Reconstruction

Bangladesh: Bangladesh Water Development Board; Bangladesh Meteorological Department, Institute of Modeling

Bhutan: The Hydromet Division, Department of Energy; Department of Geology and Mines; Ministry of Trade and Industry

China: China Meteorological Administration; Department of Hydrology, Ministry of Water Resources; Institute of Mountain Hazards and Environment

India: Central Water Commission; India Meteorological Department; National Centre for Medium Range Weather Forecast; CSK Himachal Pradesh Agricultural University

Myanmar: Department of Meteorology and Hydrology

Nepal: Department of Hydrology and Meteorology; Department of Water Induced Disaster Prevention; Tribhuvan University

Pakistan: Pakistan Meteorological Department; Water and Power Development Authority; Water Resource Research Insitute; National Agricultural Research Centre; Pakistan Centre for Research on Water Resources; Aga Khan Rural Support Programme

Expected long-term outcomes

- Flash flood risk management capacity is strengthened and the negative impact of flash floods on people, infrastructure, and the natural environment is minimised
- A regional platform for flash flood management is established, facilitating sharing of information, knowledge, and techniques

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ICIMOD

USAID FROM THE AMERICAN PEOPLE

Flash Flood Management and Sustainable Development in the Himalayas

Flash Floods

Regional Cooperation for

- capacity building of partners
- sharing of information, knowledge, and techniques

Flash Floods in the Himalayas

The Himalayas are one of the youngest mountain ranges on earth and represent a high energy environment very much prone to natural disasters. High relief, steep slopes, complex geological structures with active tectonic processes and continued seismic activities, and a climate characterised by great seasonality in rainfall, all combine to make natural disasters, especially water-induced hazards, common phenomena.

Flash floods are among the more devastating types of hazard as they occur rapidly with little lead time for warning, and transport tremendous amounts of water and debris at high velocity. There are several different types of flash flood. The most common include intense rainfall floods, glacial lake outburst floods (GLOFs), landslide dam outburst floods, and flash floods caused by the rapid melting of snow and ice. Failure of dams and other hydraulic structures can also lead to flash floods.

A glacial lake breach (top) and debris deposited by a GLOF in Dig Tsho Lake, Khumbu, Nepal (bottom)

Flash floods affect thousands of people in the Himalayan region every year – their lives, homes, and livelihoods – along with expensive infrastructure, and the threat is likely to increase in the face of climate and environmental change. To understand the nature of the problem and identify appropriate flash flood management measures, ICIMOD and partners organised an 'International Workshop on Flash Floods and Sustainable Development in the Himalayas' in Lhasa, PR China in October 2005. The discussions and conclusions are summarised in the 'Lhasa Declaration for Flash Flood Management', which provides an important platform for policy-makers, technical professionals, and communities to increase action towards the improved management of flash floods. The workshop initiated a process aimed at reducing the region's vulnerability to flash floods within the context of sustainable development and reducing poverty. The ICIMOD flash flood project is one step iin this direction.

The ICIMOD Flash Flood Project

The aim of the 'Capacity Building for Flash Floods' Management and Sustainable Development in the Himalayas' project is to enhance the capacity of regional stakeholders to manage flash flood risks. The project's first phase (June 2006 to December 2007) has two objectives: 1) assess the baseline scenario on flash floods risk management in the Himalayan region, and 2) strengthen the capacity of key stakeholders to manage flash floods risk. The main activities are:

- to prepare a comprehensive report on flash floods in the Hindu Kush-Himalayas and map flash flood hot spots in the region;
- to identify priority needs, information gaps, and limitations related to flash flood management;
- to prepare a training manual on flash flood risk management for the Hindu Kush-Himalayan region; and
- to provide stakeholders with hands-on training on flash flood risk management tools and techniques.

Typical flash flood in a Himalayan mountain river

Flash flood damage to a school (*left*) and agricultural land (*right*) in Kande, Shyok sub-basin, Pakistan