1 introduction to the project

Background

The mountains of the Hindu Kush-Himalayas (HKH) extend over 3,500 km from east to west covering all or part of eight countries: Afghanistan, Pakistan, China, India, Nepal, Bhutan, Bangladesh, and Myanmar. These mountains are some of the largest storehouses of freshwater in the lower latitudes in the world, and together with the Tibetan Plateau the source of the mighty rivers of south and south-east Asia – the Indus, Ganges, Brahmaputra, Meghna, Mekong, Yangtze, and Yellow rivers (see map opposite). These rivers not only provide water for drinking and food production, they also contain the potential for generating the hydropower that could be used to accelerate the pace of economic development throughout the region. Equally, these same rivers, untamed and uncontrolled, yearly cause such extensive floods as to threaten the lives of millions of people downstream and cause untold damage to property.

Of all the countries in the Ganges-Brahmaputra-Meghna (GBM) region, Bangladesh suffers the greatest impact of the flooding: four-fifths of the country (containing approximately 52% of the population) lies in the flood prone area; during the 1988 and 1998 floods, 50-60% of the country was affected. In the GBM plains of India, floods have become an annual debilitating feature, with an estimated 68% of the total flood damage in the country occurring in the Ganges and Brahmaputra basins, mostly in Assam, West Bengal, Bihar, and Uttar Pradesh.

Collectively, the four largest floods between 1987 and 2000 were responsible for the loss of more than 6,000 lives, displaced more than 57 million people, and caused an estimated $7 billion in damage. The floods in 1998 alone were responsible for over 2,600 flood-related deaths; displaced 25 million people, and caused an estimated $3.4 billion of damage in India and Bangladesh. The impact of these floods can only increase as the population in the flood plains continues to grow and the value of the infrastructure increases.

Timely warning of impending floods is crucial not only to save lives and property, but also for the development, operation, and management of large water resource projects. In order to forecast floods with any degree of accuracy, however, it is necessary to have timely and reliable hydrometeorological information from the whole of a river basin. Since most of the rivers that rise in the HKH region flow through more than one country, information must be exchanged across national borders. The state of flood forecasting and warning systems in the different countries within the region is variable. There are a number of successful bilateral agreements among countries in the region for cooperation in the area of information exchange and flood warning; these need to

be developed and built upon under a regional framework to facilitate the sharing across an entire river basin of the real-time data which is crucial for timely flood warning and forecasting.

There is a need to improve flood forecasting and develop early warning systems in the HKH region and its downstream plains areas. Better systems for collecting good quality hydrometeorological data and for their quick transmission, based on thorough understanding and cooperation among the regional countries, are needed to facilitate effective management of the vast water resources and the mitigation of flood disasters.

The History of the Project

The pressing need for a regional programme on flood disaster mitigation has been clear for a number of years, and especially since the disastrous floods of 1998 when thousands of lives were lost and property worth millions damaged. The two major challenges are collection of the necessary high quality hydrometeorological data in all parts of the major river basins, including in remote areas with limited infrastructure, and facilitating a system for exchange of this data in real-time between the countries through which each river runs. In 2001, the International Centre for Integrated Mountain Development (ICIMOD) and the World Meteorological Organization (WMO) initiated a project with the support of ICIMOD's regional partner countries designed to address these issues and to promote regional cooperation in flood disaster mitigation. The goal of the project is to reduce the flood vulnerability of the HKH region and minimise the loss of lives and property. The project is focusing on the Ganges-Brahmaputra-Meghna and Indus river basins.

The initial meetings

In May 2001, ICIMOD and WMO organised a high-level consultative meeting on 'Developing a Framework for Regional Cooperation in Flood Forecasting and Information Exchange in the HKH Region' with the objective of developing a framework for a regional flood information system to support disaster prevention and flood disaster management. The meeting was supported by the U.S. Department of State Regional Environment Office for South Asia (USDS/REOSA), the U.S. Agency for International Development Office of Foreign Disaster Assistance (USAID/OFDA), and the Danish International Development Agency (DANIDA). Participants from Bhutan, Bangladesh, China, India, Nepal, and Pakistan recognised the potential for mutual technical assistance and the need for regional cooperation in flood forecasting and data and information dissemination, reached a consensus on the need to share high flow data, and adopted an action plan for future activities (see Annex 1 for Executive Summary). These countries expressed an interest in establishing a regional flood information system for the HKH based on the proven concept of the World Hydrological Cycle Observing System (WHYCOS), now called HKH-HYCOS. This first high-level meeting paved the way for regional collaboration to support flood disaster mitigation through information exchange.

During the following year, a Consultative Panel was formed with technical and government representatives from the participating countries following the recommendations of the first consultative meeting, and a website (www.southasianfloods.org) was developed as a platform for sharing near real time data and information – both with funds provided by USDS/REOSA and USAID/OFDA. The task of the Consultative Panel is to advise and support representatives of the participating

countries and ICIMOD and WMO. The Panel met in Kathmandu in May 2002 under the motto 'Making Information Travel Faster than Flood Waters' (see Annex 2 for Executive Summary). It reviewed a draft concept document for the project that now forms the reference document for the project development, especially with regard to the framework and implementation strategy. It was agreed that the project design should build on existing bilateral agreements put in a regional context, and on technical cooperation in flood forecasting and the sharing of real-time data and flood-related information. The participants drafted the short, medium, and long-term action plans needed to serve as a road map and carry the process forward. The Panel further recognised the need to determine the technical and financial feasibility of the project, including studies in pilot basins and status and needs assessments in individual countries. They recommended that a draft project document be prepared based on the concept note, and that it be presented at a second high level consultative meeting and then endorsed at appropriate governmental level in the individual countries. The Panel also recommended that Afghanistan and Myanmar be invited to join the regional initiative.

The draft project document

A draft project document was prepared by ICIMOD and WMO on the basis of the concept paper and the information obtained in response to a questionnaire sent to participating countries that looked at the way in which the collaborating institutions deal at present with the impacts of flood-related disasters; their aspirations for a regional flood information system; their needs for technical resources and capacity building to implement the project; their perception of the potential benefits of regional cooperation on flood forecasting; and their preparedness to share data and information with the region. This project document* was circulated to the member countries prior to the Second High Level Consultative Meeting, which is the subject of this report.

The Second High Level Consultative Meeting

The Second High Level Consultative Meeting was held in Kathmandu in March 2003. More than sixty participants, including representatives of the eight countries of the HKH region – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan, international experts, and representatives of the organising and sponsoring agencies gathered to discuss the draft project document. The meeting was jointly organised by ICIMOD and WMO, co-hosted by the Department of Hydrology and Meteorology (DHM) of His Majesty's Government of Nepal (HMGN), and sponsored by USDS/REOSA, USAID/OFDA, and WMO. The Programme is given in Annex 3 and the list of participants in Annex 4.

The actual consultative meeting was preceded by a technical conference at which regional and international experts presented twelve papers on floods and flood-related issues. The papers discussed state-of-the-art methods for flood forecasting, transmission systems, integrated hydrological information, network design, flood management, and information dissemination. The technical conference provided a venue for participants to share experiences and learn more about how each country approaches data collection and dissemination, and provided the necessary background for the later discussions. The draft project document was then discussed and revised at the consultative meeting.

* WMO and ICIMOD (2003) The Hindu Kush-Himalayan Hydrological Cycle Observing System (HKH – HYCOS). Establishment of a Regional Flood Information System in the Hindu Kush-Himalaya. Unpublished draft prepared by WMO, Geneva, Switzerland, and ICIMOD, Kathmandu, Nepal

Details of the discussions and outcomes of this two-part meeting are presented in the following chapters. The technical papers and discussions that followed are summarised in Chapter 2, the sessions and outcomes of the consultative meeting in Chapter 3, and the conclusions and key outcomes in Chapter 4. Background information from the previous meetings and related activities is presented in the Annexes. The full text version of the technical papers will be published as a supplement to this volume.

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The human face of flooding: an inundated house and flood victims housed in temporary shelters