



# Hydrology of the Hindu Kush-Himalayas

## Report of the Regional Workshop

Editors  
S.R. Chalise  
N.R. Khanal

*Organised by*  
**UNESCO and ICIMOD in collaboration with the  
DHM/HMG/N and the German IHP/OHP Committee**



March 23-24, 1996  
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# Foreword

The Hindu Kush-Himalayas are the largest storehouse of fresh water in the lower latitudes. They are also the sources of myriads of large and small rivers and streams, including such mighty rivers as the Indus, the Ganges, and the Brahmaputra which have been the cradles of ancient civilisations.

These large water resources are the lifeline for survival to hundreds of millions of people, both in the mountains and in the plains they nurture. They are also the cause of anguish and loss of life and property when the monsoon unleashes its annual course of destruction.

Whether due to normal variability of climate or due to climate change, it is also seen that, in the upper watersheds of the Hindu Kush-Himalayas, the incidences of extreme climatic events and their destructive hydrological consequences are on the increase.

A proper understanding of the hydrology of the Hindu Kush-Himalayan rivers and streams is, therefore, important whether for harnessing the rich potential of water for power, irrigation, and human consumption or for planning ahead for the mitigation of water-induced disasters.

The International Centre for Integrated Mountain Development has been working closely with the countries of the Hindu Kush-Himalayas, UNESCO, and WMO over several years to develop a regional network for hydrological research.

As a result of these collaborative efforts, a Regional Working Group (RWG) on Mountain Hydrology was constituted in December 1989 with representation from all the countries of the HKH, UNESCO, and ICIMOD.

It is extremely gratifying to all of us who have been engaged in this joint initiative that the RWG, during its last meeting in March 1996, decided to launch a regional programme of hydrological research within the framework of the FRIEND (Flow Regimes from International Experimental and Network Data) Project of the International Hydrological Programme of UNESCO, viz., the HKH-FRIEND. This publication summarises the report of this important workshop, which can be considered to be a major effort to further the cause of hydrological research in the HKH. We very much hope that the information contained in this report will be useful to all those interested in the sustainable use of water resources in the HKH. ICIMOD, from its core programme resources, will be able to start some of the action recommended on a modest scale. Considerable amounts of additional funding, however, are needed to make the programme fully operational and to make a substantial impact on the use of water resources in the Hindu Kush-Himalayas.

On behalf of ICIMOD and also on behalf of the organisers, I would like to take this opportunity to express our gratitude and thanks to our member countries from the HKH, WMO, and the German IHP/OHP Committee for their support and collaboration in launching the HKH-FRIEND and also for the publication of this report. Special thanks are due to DHM Nepal for their continuing support to and collaboration in this initiative.

On behalf of the editors, I would also like to thank all the participants of the Workshop who provided their valuable comments on the draft of this report. Thanks are due to Greta Rana, Senior Editor, Anita Pandey, Assistant Editor, and other members of the Publication Division of ICIMOD for copy editing and to Reeta Rana, Secretary MNR Division, for typing under tremendous pressure to produce a published document within a limited time-frame.

Egbert Pelinck  
Director General

September 1996

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Working Group on Mountain Hydrology .....	4
Discussions .....	5
Session Two: Responses by Representatives of the HKH Countries and Collaborating Institutions .....	6
Discussions .....	7
Session Three: Discussion and Finalisation of Recommendations for the Hindu Kush- Himalayan FRIEND Project .....	9
Concluding Session: Endorsement of Recommendations for Launching the Hindu Kush- Himalayan FRIEND .....	10
<b>Annexes</b>	
1: List of Participants .....	13
2: Programme .....	17
3: Proposal for Launching a FRIEND Project for the Hindu Kush-Himalayan Region .....	19
4: Implementation, Achievements and Further Plans for the Northern European FRIEND Project .....	27
5: Some Prospects of the Proposed FRIEND HKH .....	37
References .....	45
Acronyms .....	46

# Contents

The Regional Workshop on Hydrology of the Hindu Kush-Himalayan (HKH) Region, jointly organised by UNESCO and ICMOD, in collaboration with the Department of Hydrology and Meteorology (DHM) of the Ministry of Water Resources of His Majesty's Government of Nepal (HMG/N) and the German International Hydrological Programme (G-IHP), is pleased to announce the launch of the FRIEND (Regional Experimental and Network Data (FRIEND)-type project in the HKH region, as well as a transboundary flow regime from international experimental and network data (FRIEND)-type project in the HKH region.

Regional Workshop on Hydrology of the Hindu Kush-Himalayan Region .....	1
Inaugural Session.....	1
Session One: Background of the Regional Working Group on Mountain Hydrology .....	4
Discussions .....	5
Session Two: Responses by Representatives of the HKH Countries and Collaborating Institutions .....	6
Discussions .....	7
Session Three: Discussion and Finalisation of Recommendations for the Hindu Kush-Himalayan FRIEND Project .....	9
Concluding Session: Endorsement of Recommendations for Launching the Hindu Kush-Himalayan FRIEND .....	10

## Annexes

1: List of Participants.....	13
2: Programme .....	17
3: Proposal for Launching a FRIEND Project for the Hindu Kush-Himalayan Region .....	19
4: Implementation, Achievements and Further Plans for the Northern European FRIEND Project.....	27
5: Some Prospects of the Proposed FRIEND HKH .....	37
References .....	45
Acronyms.....	46