



**UNITED NATIONS EDUCATIONAL, SCIENTIFIC AND CULTURAL ORGANISATION
International Hydrological Programme (UNESCO/IHP)**

**INTERNATIONAL CENTRE FOR INTEGRATED MOUNTAIN DEVELOPMENT
(ICIMOD)**

**Hindu Kush - Himalayan
Flow Regimes from International Experimental and Network Data
(HKH-FRIEND)**

**Minutes of the
HKH-FRIEND : Low Flow Group
April 24, 1999
ICIMOD, Kathmandu**

**HKH-FRIEND Secretariat
JULY 1999**

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Inception Workshop of the Low Flow Group April 24, 1999, ICIMOD, Kathmandu

A one-day Workshop of the Low Flow Group of the HKH-FRIEND was organised at ICIMOD on April 24, 1999. The following members were present at workshop viz., Dr. B. P. Parida, coordinator, India, Prof. M. F. Bari, Bangladesh, Dr. Arun Kumar, India, Mr. A. P. Pokhrel, Nepal, Mr. K. S. Yogacharya, Nepal, Dr. A. Gustard, UK and Prof. S. R. Chalise, ICIMOD. In addition to this following were also participated at the workshop as observers, viz., Prof. K. B. Thapa, Nepal, Mr. R. Rajbhandari, Nepal, Mr. S. Kansakar and Dr. B. Clausen, New Zealand.

1. The workshop was chaired by Mr. Kiran Shankar Yogacharya, Director General, Department of Hydrology and Meteorology, Nepal, and Chairman of the HKH-FRIEND. All the members of the Low Flow Group and invited observers to participate in the workshop are given in annex-I. The workshop agenda is attached as Annex-II.
2. The co-ordinator of the Low Flow Group, Dr. B. P. Parida, welcoming the members and observers, presented a brief report on the training programme on "Low Flow Measurements and Analysis" which was organised from April 19 to 23, and had concluded only on the previous day (summary of the report is given in annex-III). He pointed out that the training programme was the first of its kind to be organised in the Hindu Kush-Himalayan region. He also stressed that the Low Flow Group of the HKH-FRIEND could organise this training only because of the active support from the Institute of Hydrology, UK, the Low Flow Group of Northern European FRIEND, UNESCO/IHP, ICIMOD and IIT New Delhi.
3. The working session of the workshop started with the presentation of three case studies, one each from India, Nepal and Bangladesh. Prof. M. F. Bari from Bangladesh presented his case study on "Regional Low-Flow Frequency Relationships for North-West Bangladesh". Case study from Nepal was presented by Prof. K. B. Thapa entitled "Flow Duration Curves for some Rivers in Nepal". Dr. Arun Kumar from India presented his case study from Uttar Pradesh.
4. After the presentation of the case studies, a detailed discussion on future plans of action of the HKH-FRIEND Low Flow project group was followed. There was also a consensus amongst the workshop participants that future studies of the Group should have immediate practical applications, particularly for poverty alleviation in the region. Through long deliberation, the following three projects, which were considered to be possible to implement within a time frame of three years, were identified below.
 - ***Recession Curve Analysis for Rivers of Southern Nepal*** - to be submitted by Mr. Adarsha Pokhrel and Mr. Sunil Kansakar, of DHM, Nepal. Upon execution, this project will be able to assist in reliable irrigation planning- hence help in poverty alleviation in Southern Nepal.
[Action: A. Pokhrel, S. Kansakar]
 - ***Low flow analysis for ungauged catchment in Bangladesh using GIS***.- to be submitted by Prof. M. F. Bari, BUET, Bangladesh. Upon implementation this project will be useful for poverty alleviation through effective water resources management in the Bangladesh.
[Action: M. F. Bari]
 - ***Hydro-energy Development of Uttar Pradesh*** - to be submitted by Dr. Arun Kumar, Alternate Hydro Energy Centre, University of Roorkee. Upon implementation this project

will be able to provide a scenario, attracting investment in the development of the micro-hydel sector in the state of Uttar Pradesh, India.

[Action: A. Kumar]

Concerned members were then requested to submit their proposals within two weeks time for further necessary action on them.

5. Dr. Alan Gustard proposed that his Institute could help in a training on the software, Micro LOW FLOW, v 2.1 developed at the Institute of Hydrology, Wallingford, free of charge, for catchment wise data management in the above identified projects.

[Action: K.S. Yogacharya, S.R. Chalise, A. Gustard]

6. It was decided to hold annual meetings for the next three years to monitor and present the progress in respect of the identified projects. Seeing the success of this training programme, it was decided to organise such a training activity as an annual feature for the next three years, which will help in capacity building in the region. It was also decided to hold the training programmes closely with the meetings of the Low Flow Group so that the cost on travel of resource persons could be minimised.

[Action: A. Pokhrel, Secretariat]

7. Matters related to establish linkages between the other groups of the workshop and similar other groups in other FRIEND projects were also discussed. While it was unanimously decided to have such linkages for effective co-ordination and scientific advancements, the matter was entrusted to the Secretariat to look into it at appropriate times.

[Action: Secretariat]

8. To expand the size of this group, Dr. Arun Kumar, Director of AHEC, University of Roorkee, India, who is working in the area of Low Flow, was invited to join as a member of this group to which he agreed. Dr. B. P. Parida, the present coordinator informed that he was going to be out of India for a considerable period of time. While he was willing to remain as a member of the Group, he proposed that a new coordinator should be immediately nominated for the effective coordination of the Low Flow Group Activities. At his request the group unanimously nominated Mr. Kiran Shankar Yogacharya, Director General, DHM to take up this responsibility with immediate effect.

9. On the issue of funds for future activities of the group, the Secretariat was entrusted to approach UNESCO/IHP; the Institute of Hydrology, UK; the German IHP/OHP Committee and other donors such as DFID, UK for necessary assistance to the Low Flow Activities in the region.

[Action: Secretariat]

10. It was decided that the next Meeting of the Low Flow Group will be held in March 2000 closely with the Meeting of the Steering Committee of HKH-FRIEND.

**List of Participants of the HKH-FRIEND Low Flow Group Workshop
April 24, 1999
ICIMOD, Kathmandu**

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AGENDA

Low Flow Group Workshop April 24, 1999

ICIMOD, Kathmandu, Nepal

SATURDAY 24 APRIL Chairman : Mr. Kiran Shankar Yogacharya

09:00 - 09:30	Registration
09:30 - 09:50	Introduction to HKH FRIEND Low Flow Group and Welcome B. P. Parida
	Opening Remarks K. S. Yogacharya
09:50 - 10:15	<i>Group Photograph</i>
10.15 - 11.10	Presentation of Low Flow Studies in HKH Region India , Nepal , Bangladesh (Arun Kumar, K.B. Thapa)
11.10 - 11.30	Tea Break
11.30 - 13.00	Presentation of Summary of Training Programme and Discussion on Possible Linkages with other Groups of HKH and Future Plan of Action (BPP, SRC, AG, Members from the Region)
13.00 - 14.00	Lunch Break
14.00 - 15.00	Discussion Continued (Members of Participating Countries/ Region)
15.00 - 15.20	Tea Break
15.20 - 16.00	Expansion of Group and Nomination of New Co-ordinator
16.00 - 17.00	Closing Remarks by Executive Secretary HKH-FRIEND and the Chairman, Vote of Thanks

Summary of Training Programme

- First of its kind in the entire region and could be possible with active support from the Institute of Hydrology, Low-Flow Group of Northern European FRIEND, UNESCO, ICIMOD and IIT Delhi.
- Participated by 15 participants from 5 countries. Particular emphasis was laid to take into account the gender criteria both in the trainers and in the trainees. 2 women trainers and 3 women trainees.
- Experts were drawn from different geographical locations, such that the quality of training sets up a standard for the future.
- Trainees were imparted with a hands on experience to measure low flows in the field
- They were even exposed to fundamentals as well as advanced methods of low flow analysis.
- It is expected that once the trainees go back, they should be able to initiate research projects and in a broader perspective establishment of scientific co-operation between the countries expected.

Discussion on Future Plan of Action

- One or two Pilot Projects be identified in the region which can be taken up for intensive studies. viz; all aspects of low flow analysis (Flow duration, flow frequency, regionalisation studies, spatial mapping of low flow indices, spatial mapping of power generation potential, drought studies in terms of deficit volume and duration)
- Projects where short term assistance by experts from either within or even outside the region be considered.
- Both the above category of projects may include short term visit by the lead executor to IOH for analysis. If possible, the study can be presented for award of an appropriate degree (?).
- Repetition of the training programme as an annual feature for the next 2/3 years for different groups at different venues (?).
- Conduction of training programme for paid participants from various consulting agencies.
- Other ways of meeting the expenses for the activity
- Funding - Donor Agencies

Possible Linkages with other Groups of HKH -FRIEND

- Studies related to low flows need interaction - particularly with the surface water quality studies - in order that the conditions in rivers or streams during the period of low flow are within WHO acceptable standards.
- It needs linkages with snow and glacier group particularly in the hill regions such as ours.
- It needs also linkages with data base management group - for the purpose of data storing, retrieval and spatial presentation.

Possible Expansion of the Low Flow Group

For more meaningful results and progress, it may be useful to consider expansion of the group - may be include persons from University, members of European FRIEND and other Members actively working in the area of Low Flow.