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**International Centre for Integrated Mountain Development (ICIMOD)**

Contact for correspondence: Mandira Shrestha, ICIMOD, Khumaltar, Lalitpur  
P.O. Box 3226, Kathmandu, Nepal, e-mail: [mshrestha@icimod.org](mailto:mshrestha@icimod.org)

**University Duisburg-Essen (UDE)**

Contact for correspondence: Thomas Korte, University Duisburg-Essen, Faculty  
Biology and Geography, Dep. Applied Zoology/Hydrobiology, 45117 Essen,  
Germany, e-mail: [thomas.korte@uni-due.de](mailto:thomas.korte@uni-due.de)

**Bangladesh University of Engineering and Technology (BUET)**

**National Environment Commission Secretariat (NEC), Bhutan**

**Alternate Hydro Energy Centre (AHEC), India**

**Kathmandu University (KU), Nepal**

**Pakistan Council of research in Water Resources (PCRWR), Pakistan**

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*Contract number: INCO-CT-2005-003659*

*Co-ordinator: Prof. Dr. Otto Moog*

*BOKU – University of Natural Resources and Applied Life Sciences*

*Vienna, Austria*

*E-mail: otto.moog@boku.ac.at*



## Abbreviations and Acronyms

ASSESS–HKH	Assessment System to Evaluate the Ecological Status of Rivers in the Hindu Kush-Himalayan Region
AHEC	Alternate Hydro Energy Centre Indian Institute of Technology
BUET	Bangladesh University of Engineering and Technology
EIA	Environmental Impact Assessment
HKH	Hindu Kush – Himalaya
KUHS	Kathmandu University Higher Secondary School
ICIMOD	International Centre for Integrated Mountain Development
IIT	Indian Institute of Technology
INGO	International Non-Governmental Organization
KU	Kathmandu University
MHS	Multi habitat sampling
NEC	National Environment Commission
NECS	National Environment Commission Secretariat
NGO	Non-Governmental Organization
PCRWR	Pakistan Council of Research in Water Resources
RWQA	River Water Quality Assessment
WP	Work Package

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# 1 INTRODUCTION

## 1.1 Background

The project “Development of an Assessment System to Evaluate the Ecological Status of Rivers in the Hindu Kush-Himalayan Region (ASSESS-HKH)” aims to develop tools for ecological river assessment and river basin management for the Hindu Kush Himalayan (HKH) region. This is a joint study by Asian and European partners. The project activities are divided into eight work packages (WP). Main tasks of WP 8 are awareness creation and the dissemination of the project activities and its outcome to different target groups. The target groups can be divided into local inhabitants, water managers and policy authorities, students (future ecologists) and scientist in the HKH partner countries. The documentation of dissemination activities (D18) has been divided into three periods and the reports are prepared based on the activities carried out during the periods. Hence, there are three versions of D18 reports. This report presents the synthesis of the dissemination events carried out during the project period i.e. from April 2005 to March 2008 and the last documentation of D18 from October 2006 to March 2008. This report presents the methodology used during the dissemination events for different stakeholders, along with the analysis of the information events. The summary and conclusion of the dissemination events are provided at the end of the report.

## 1.2 Objectives

The principle objective of ASSESS-HKH is to develop tools for ecological river quality assessment and bio-monitoring. Within the process of developing these tools the different target groups were sensitized about a) the vulnerability of aquatic ecosystems and b) the effectiveness of ecological river quality assessment. Dissemination events have been found as most important method to create awareness and to inform the people about ASSESS-HKH research programme and its objectives and outcomes.

Specifically, dissemination has three-fold objectives:

- To make aware the local communities, government, students about the overall objectives and activities of the ASSESS-HKH project
- To transfer the knowledge of biological monitoring and its importance to different target groups
- To assess the opinions/suggestions of different stakeholders about the project

# 2 METHODOLOGY

The synthesis report has been prepared based on the dissemination reports from the partner countries of HKH, the questionnaires that were used to collect information, e-mail interactions, presentations from partners during the project meeting held in Bhutan

(August 2007) and Kathmandu (March 2008), and first and second version of D18 dissemination reports on the ASSESS-HKH website. There was no fixed number of information events defined for the dissemination in Work package 8. At least one local information event was scheduled for each major research area per country, i. e. one event per stream type and country. There were altogether three types of events: Local level information events, the participants were interested public, residents, local decision makers, journalist, school students; university level information events, with the participants of future generation of ecologists and water managers; and central level information events, where stakeholder from water authorities, policy makers and NGOs.

### 3 ANALYSIS OF DISSEMINATION

#### 3.1 Dissemination events

##### 3.1.1 Number of information events

A total of 62 information events were held in the five countries (Table 1). Out of the total information events that were carried out, the highest frequency of events took place at local level, followed by central level and university level. On the whole, most information events were carried out in Nepal having a share of 29% to the overall share, followed by Bangladesh and India with similar number of total events. As shown in Table 1, Bangladesh made the highest number of local events followed by Bhutan and Nepal. At central level events, Nepal made the highest followed by India while university level information event was missing in Bhutan. Pakistan has held information events at all level but with the least number of events.

Table 1: Information events held in HKH countries (April 2005–March 2008)

Country	Local level	University level	Central level	Total	
				Number	%
Bangladesh	10	2	2	14	22.6
Bhutan	7	0	3	10	16.1
India	4	1	7	12	19.4
Nepal	5	1	12	18	29.0
Pakistan	5	2	1	8	12.9
<b>Total</b>	31	6	25	62	100
<b>%</b>	50.0	9.7	40.3	100	

Source: Country dissemination reports (2006, 2007 & 2008)

The participants were invited at these three levels of information events by correspondence through postal services, telephone, official notification, and e-mail.

### 3.1.2 The participants

Altogether 2,568 participants directly participated in the three types of events as shown in Table 2. The number of participants involved was highest at local level event, which was highest in Bhutan among other four countries. The other dissemination events such as newspaper, television were also very effective but their numbers could not be estimated (Table 2).

Table 2: Number of participants at information events

Country	Number of Participants				
	Local level	University level	Central level	Total	
				No.	%
Bangladesh	340	130	78	548	21.3
Bhutan	727	-	174	901	35.1
India	197	20	116	333	13.0
Nepal	283	40	130	453	17.6
Pakistan	265	46	22	333	13.0
<b>Total</b>	1812	236	520	2568	100

Source: Country dissemination reports (2006, 2007 & 2008)

Table 2 shows that the number of participants was largest at local level in all participating countries.

#### *Gender disaggregated data:*

In most cases, the list of participants is not disaggregated on gender basis. The data presented in Table 3 is based on available gender disaggregated data. The blank cell in the table shows the lack of all gender disaggregated data. However, table 3 shows that there were more male participants than females at local events. Relatively better representation was from female in Bhutan. While at the central level, female representation is seen comparatively less, relatively better is seen in Bhutan and Nepal.

Table 3: Proportional distribution of gender by dissemination events

Country	Local		University		Central level	
	Male	Female	Male	Female	Male	Female
Bangladesh	82.9	17.1	54.2	45.8	95.8	4.2
Bhutan	63.3	36.7	-	-	65.3	34.7
India	-	-	-	-	83.3	16.7
Nepal	78.8	21.2	60.0	40.0	75.3	24.7
Pakistan			40.4	59.6	59.1	40.9

Note: Data based on available gender disaggregated data from presentation in Bhutan and Kathmandu meetings

### 3.1.3 Materials used

Table 4 shows the dissemination materials used in the events. Most commonly used materials by all five countries included posters, fliers display, and questionnaires.

Table 4: Materials used for information events

Materials used	BA	BH	IN	NP	PA	Total
1. Poster	1	1	1	1	1	5
2. Fliers	1	1	1	1	1	5
3. Display	1	1	1	1	1	5
4. Questionnaires	1	1	1	1	1	5
5. Power point presentation	1	1	0	1	1	4
6. Discussions	1	1	0	1	1	4
<b>Total</b>	<b>6</b>	<b>6</b>	<b>4</b>	<b>6</b>	<b>6</b>	<b>29</b>

Note: 1 = used, 0 = not used; BA = Bangladesh, BH = Bhutan, IN = India, NP = Nepal, PA = Pakistan

### 3.2 Local Level Information Events

Local information events were carried out for the local people, clubs, local NGOs and social organizations, schools' students and teachers (Table 5). The events took place near the sampling areas, schools, conference halls, residence and in local offices.

Table 5: Locations of local dissemination events sites

Description	BA	BH	IN	NP	PK	Total
River	9	5	1	3	-	19
Training hall	1	2		1	1	4
School	-	1	1	1	2	5
Residence/office	-	-	3	-	1	4
<b>Total</b>	<b>10</b>	<b>8</b>	<b>5</b>	<b>5</b>	<b>4</b>	<b>32</b>

Source: Country reports (2006, 2007 & 2008)

Of the four major dissemination event sites, river was the most frequently used site, which was not unnatural since the method used in this study was basically for the river. Bangladesh had used all its dissemination events on site except one in training hall. Some events were carried out in training hall as well as in the river site.

#### 3.2.1 Distribution of local information events

Figure 1 shows the distribution pattern of local events among the HKH countries. Bangladesh had shared the largest proportion of local events, followed by Bhutan.

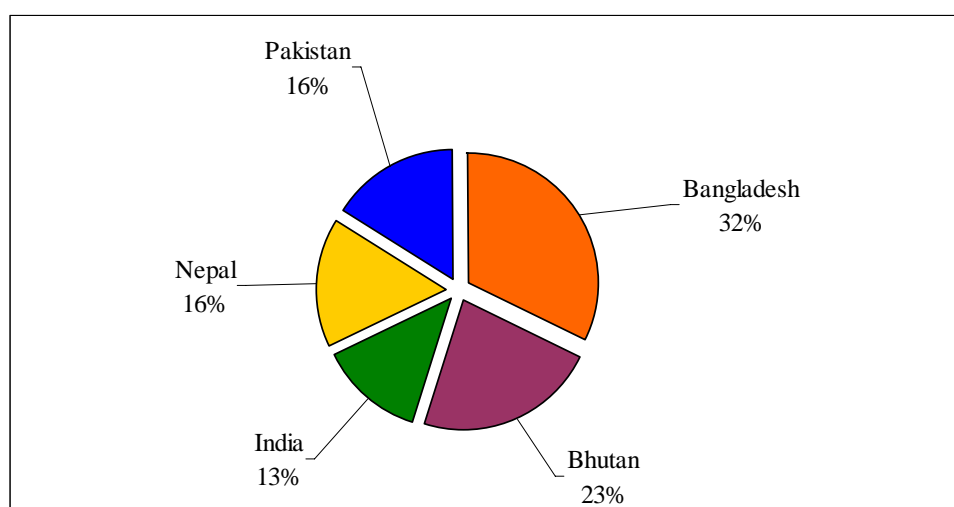


Figure 1: Distribution of local events by HKH countries (n = 31)

### 3.2.2 Types of participants

The activities disseminated included four major components such as awareness creation for sustainable water use and for the vulnerability of aquatic ecosystems, importance of bio-monitoring method, implication, and sustainability in River Water Quality Assessment (RWQA) of the ASSESS-HKH. Table 6 lists the types of participants that participated in local information events.

Table 6: Types of participants in local dissemination events by HKH countries

Country	Type of participants					
Bangladesh	Local people	-	-	-	-	-
Bhutan	Local people	Students	Researchers	Teachers	Policy maker	Industrialists
India	Local people	Students	-	Teachers	social workers	Journalists
Nepal	Local people	Students	Researcher	-	NGOs	Local leaders
Pakistan	Local people	Students	-	-	NGOs	

In Bhutan a wide variety of participants represented from different organizations. However, the type of participants varied markedly among the countries. Local people, students, researchers, and teachers were common participants for Bhutan and Nepal.

### 3.2.3 Age group of participants

Age group is one of the important indicators which provide input to future strategy. However, there was no information about the ages of the participants except for Bangladesh and Pakistan. The age groups ranged from 20 years to as old as over 65 years. In Pakistan the number of participants was largest from the youth age groups, 20 – 30 years of age, whilst the age group, 20 – 65 shared the largest in the participants in Bangladesh (Table 7).

Table 7: Age groups of the participants in Bangladesh and Pakistan.

Bangladesh		Pakistan			
%	Number	Age group		Number	%
25.0	85	10-20	20-30	195	79.0
40.0	136	20-65	30-40	49	13.6
35.0	119	> 65	> 40	21	7.4
100	340	Total		265	100

It is reported that there was elite group representing 15 percent in the local dissemination in Bangladesh.

### 3.3 University Level Information Events

The purpose of university level information events was to address the future generation ecologist and water managers. The participants included students, ecologists, researchers, university professors and water managers (Table 8). The targeted participants were the university students of biological and technical sciences of the participating countries. Six university level information events were carried out that include 2 each in Bangladesh and Pakistan and 1 in India and Nepal. The aim of ASSESS-HKH and various aspects of biomonitoring tools were discussed at this event. ASSESS-HKH information fliers, posters and MS PowerPoint presentations were used as dissemination tools in these events. The feedback was collected through questionnaires. The type of participants participated in the events in these three countries were as follows:

- Bangladesh - senior students of water and environmental sciences, teachers, and research assistants
- India - representatives of water supply and sewerage board, municipal administration department, Chennai metropolitan, water resources department, state pollution control board, and ministry of environment and forest
- Pakistan - students and teachers of the department of agriculture engineering, university of agriculture
- Nepal - students from environmental sciences and teachers

All the students and representatives were informed about the aims of ASSESS- HKH project, monitoring methodology to be developed, and demonstration of various aspects

of the project and possible outcomes of ASSESS – HKH project. The feedback was also collected through filling in the questions of the questionnaires.

Table 8: University level information events and their participants. **Source: Country reports (2006, 2007 & 2008)**

Country	No. of Events	No. of Participants
Bangladesh	2	130
Bhutan	-	-
India	1	20
Nepal	1	40
Pakistan	2	46
Total	6	236

### 3.4 Central Information Events

Central information events were carried out for water authorities, policy makers, NGOs and other interested parties from the general public. Additionally, ASSESS-HKH's methodology, objectives and outcomes were presented at the national and international workshops, seminars/conferences attended by the members of the project team. A total of 25 central information events were carried out (Table 9). The participants were invited by mail, telephone, official notification, and e-mail. During these events the participants were informed about the aims of ASSESS-HKH by using fliers, posters, MS PowerPoint presentations and samples of macroinvertebrates, Main focus at central information was to show effectiveness of ecological river quality assessment and bio-monitoring, e.g. compared to chemical monitoring of rivers.

The activities performed at the central information events included also demonstration of sampling of benthic macroinvertebrates and the application of the HKH screening. The percentile share of the participants at the central level compared to all information event is shown in Figure 2.

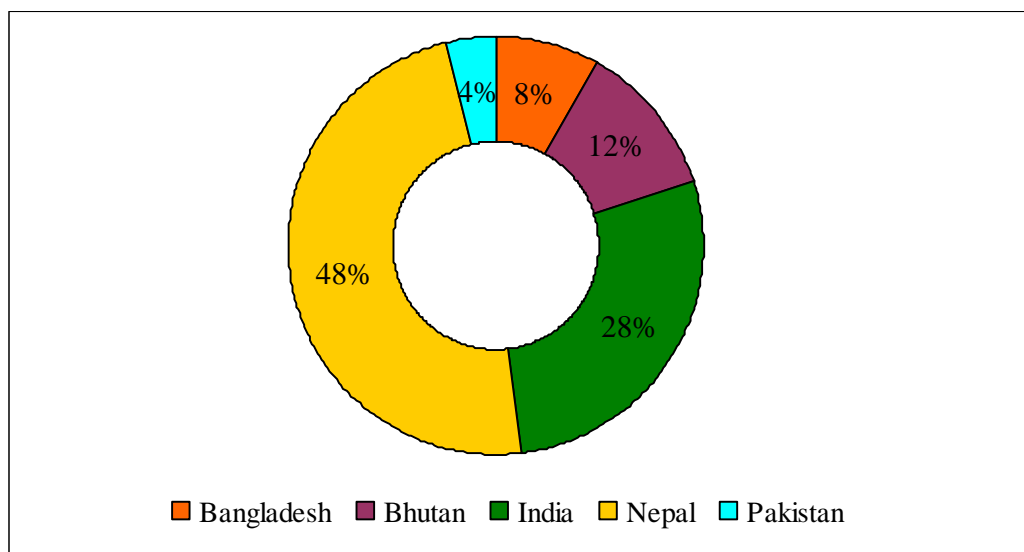


Figure 2: Distribution of central level events in the HKH countries (n =25)

Table 9 shows a wide variety of participants at the central information events. In terms of number of events, there was largest in Nepal, whereas, the types of participants were the largest in India. These both indicate a wider dissemination at the central level. Bhutan had used only one place for central information event.

Table 9: Central Information Events. Source: Country reports (2007)

Country	Events	Places/sites	Type of participants
Bangladesh	2	Hydrology Directorate Water Development Board	Water sector representatives Teachers Research assistant Policy Makers
Bhutan	3	Phuntsholing district office	Administrators Support staff technical persons District Environment Committee Districts members
India	7		Public work Irrigation Social workers Technicians Surveyors Draftsmen Society Community Based Organization Polytechniques teachers
Nepal	12	Conference hall River site	Conference participants NGOs

		Institutes	Local residents Government officials
Pakistan	1	Committee room Field sites	Water supply staff Pakistani agencies

### 3.5 Other Dissemination Events

Besides the information events described above, other dissemination events were also carried out through publications in newspaper, briefing through television, and conversations with various personnel of different organizations regarding the objectives, activities, and possible outcomes of ASSESS–HKH. Distribution of such dissemination events are listed in Table 10. The method of dissemination was successful to disseminate among the wider audiences in both rural and urban areas through TV, local newspapers and media interviews. Many people of the respective countries were made aware and benefited from use and importance of water ecology, bio-monitoring methods, water quality map, and sustainable river management strategy.

Table 10: Other dissemination events

Country	Events	Events description	Beneficiaries
Bangladesh	-	-	-
Bhutan	1	Newspaper article	Bhutani people
India	2	Talk programme Workshops Field sampling	CPCB staff & technicians Indian people
Nepal	2	Newspaper article News clips Bimonthly e-Newsletters ICIMOD Newsletters	Nepalese people Website, Regional audience, International audience
Pakistan	1	TV media	Pakistani people

Source: Country reports (2006 & 2007 )

The project dissemination method was given high priority in the HKH countries, which is justified by taking interview of the project manager and published the interview in editorials, news clips on the dissemination activities in the newspapers.

In Nepal, ICIMOD made additional two types of dissemination on Rapid Field Bio-assessment method (Field Screening Protocol) at the implementation level for the middle Marsyangdi Hydroelectric project and an EU supported “KAPRIMO” project. The objective of this dissemination was to influence the Government to enforce the methodology to be made mandatory for Environmental Impact Assessment (EIA) for water quality monitoring and to add value by synergizing with ongoing EU supported similar initiatives. Detail reports of these events have been prepared separately and available upon request.

An International Conference titled “Rivers of the Hindu Kush Himalayas – Ecology and Environmental Assessment” was organized from 3-6<sup>th</sup> March in Kathmandu, Nepal. The conference presented the project’s results to scientists, water managers and students and enabled exchange of knowledge about biological methods used in the Asian countries. Thus, this conference provided a forum to discuss aspects of Himalayan river ecology, the taxonomic status of the HKH river fauna, water quality monitoring and the protection of aquatic biodiversity in the Hindu Kush-Himalayan region with local and international representatives of theoretic and applied river ecology.

## 4 INFORMATION EVENTS FROM OCTOBER 2006 TO MARCH 2008

### 4.1 Dissemination events

#### 4.1.1 Number of information events

This is the third version of dissemination report which took place from October 2006 to March 2008 (Table 11). A total of 17 information events were held during this period in the partner counties. During this period the highest frequency of central level events took place, followed by local and university which were in the line of the project. On the whole, highest number events occurred in Nepal with about 59% to the overall share, followed by Bangladesh, India and Pakistan with similar number of the events.

Table 11: Number of dissemination events (Oct 2006 to March 2008)

Country	Local level	University level	Central level	Total	
				Number	%
Bangladesh	0	1	1	2	11.8
Bhutan	0	0	1	1	5.9
India	0	0	2	2	11.8
Nepal	3	1	6	10	58.8
Pakistan	1	0	1	2	11.8
<b>Total</b>	4	2	11	17	100
%	23.5	11.8	64.7	100	

During the period 694 participants were directly involved in the events. Maximum participants from policy level were presented at the central level dissemination which shared about 42% of the total participants (Table 12).

Table 12: Participants in different dissemination events (Oct 2006 to March 2008)

Country	Number of Participants				Total No.	
	Local level	University level	Central level	Total		
Bangladesh	0	55	52	107	15.4	
Bhutan	0	0	62	62	8.9	
India	0	0	35	35	5.0	
Nepal	198	50	110	358	51.6	
Pakistan	102	0	30	132	19.0	
<b>Total</b>	300	105	289	694	100.0	
%	43.2	15.1	41.6	100.0		

Most of the local events were carried out during the August 2005 to September 2006, which were documented in the second version of the dissemination report ([www.assess-hkh.ac](http://www.assess-hkh.ac)). Nepal and Pakistan continued to hold local events; number of direct participants was 300 (table 13). The female participants were higher in Pakistan while males were higher in Nepal.

Table 13: Local Level dissemination (Oct 2006 to March 2008)

Country	Date	Name of place	No. of participants		
			Male	Female	Total
Nepal/KU	28/12/2006	Gaur, Rautahat	128	24	152
	Dec. 2007	Khimti, Nepal	13	8	21
	3/2/2008,	KUHS, Kathmandu	15	10	25
Pakistan	31-03 2008	State School, Rawalpindi	47	55	102
Total			203	97	300

During this period Bangladesh and Nepal carried out one each dissemination event at the university level where female participants showed encouraging number. The participants were senior students, teachers and researchers (Table 14).

Table 14: University level dissemination level (Oct 2006 to March 2008)

Country/ Institute	Date	Name of place	No. of participants			
			Male	Female	Total	%
Bangladesh	Dec. 2007	BUET	35	20	55	52.4
Nepal/KU	Feb. 2008	KU	30	20	50	47.6
Total			65	40	105	100
%			61.9	38.1	100	

The important part during this period of the project was to focus on the central level events. Table 15 shows that all the partner countries have carried out the events and there are variations in the number of events. As it is the central level event, focus of the events was for the decision makers who could influence them and others working in the water sector, advocacy groups from NGOs and INGO, etc (Table 15).

Dissemination has also been taken at the international level through the conference which was held in Kathmandu in March 2008 (Table 15).

Table 15: Central level Dissemination Events (Oct 2006 to March 2008)

Country	Date	Place	No. of participants			Participants
			Male	Female	Total	
Bangladesh	July 2007	BUET	52	0	52	Decision Makers
Bhutan	Oct 2006	Trashigang	30	32	62	Members of DEC
India	Sep 2007	Roorkee	15	2	17	Teachers and environmentalist
	Feb 2008	Roorkee	14	4	18	Engineers & Environmental conversationalist
Nepal/KU	Nov 2007	Bagmati basin, Kathmandu	20	5	25	NGOs and Local residents, GOs, donors, students, academics
	Mar 2008	Kathmandu, Nepal	40	20	60	International scientists, students, NGO, INGO, University authority
Nepal/ ICIMOD	Oct 2007	Kathmandu	1	4	5	NEA staff
	Nov 2007	Marsyangdi	4	1	5	NEA and environment monitoring staff
	Nov 2007	ECCA, Office	5	2	7	KAPRIMO Project team members
	Nov 26-29 2007	Bagmati Basin, Kathmandu	6	2	8	KAPRIMO Project team and field staffs and volunteers
Pakistan	July 2007	PCRWR Committee and field visit	30	0	30	Staff of water supply agencies
Total			217	72	289	
%			75.1	24.9	100	

DEC = District environmental committee; NEA = Nepal Electricity Authority

Table 16: Achievements in total events and participants (Apr 2005 –Mar 08)

Dissemination	Number of events	Participants in events
---------------	------------------	------------------------

level	Total (Apr 2005 – Mar 08)	Oct 2006 - Mar 2008	% of events (Oct 06 - Mar 08)	Apr 2005 – Mar 2008	Oct 2006 - Mar 2008	% of Events (Oct 2006 - Mar 2008)
<b>Local</b>	31	4	12.9	1783	300	16.8
<b>University</b>	6	2	33.3	196	105	53.6
<b>Central</b>	25	11	44.0	520	289	55.6
<b>Total</b>	62	17	27.4	2499	694	27.8

As shown in Table 16, the number of events was highest at central level among other two events, shared 44 percent of the total. The number of participants was also highest during the same event among other two events.

## 5 OUTCOMES OF THE DISSEMINATION EVENTS

### 5.1 Evaluation and Outcome of Information Events

ASSESS-HKH information events have been mainly evaluated by the use of questionnaires that had to be filled in by the audiences. Altogether 116 questions were asked and a list of frequently asked questions (FAQ) of each country is in the report of the respective countries. The responses for the questions were obtained and these have been grouped into 13 categories for analysis purpose as shown in Table 17. All level dissemination events were very interactive and informal. All the participants were very free to ask questions about the project and activities. Table 17 shows that the participants were very much interested to know about the scope of bio-monitoring which accounted for about 43 percent, followed by community participations and application of the methodology in the large river.

Table 17: Grouping of the frequently asked questions (n = 116)

Descriptions	BA	BH	IN	NP	PA	Total	%
1. Scope of bio-monitoring	4	5	8	14	19	50	43.1
2. Level of community participation	1	0	12	4	5	23	19.8
3. Application in large rivers	0	0	7	1	0	8	6.9
4. Demonstration of aquatic animal	0	0	0	0	8	8	6.9
5. Variation in use of instruments	0	0	4	0	0	4	3.4
6. Impact of stressors	0	0	1	3	0	4	3.4
7. Benefits to policymaker	1	0	0	3	0	4	3.4
8. Reliability and validity of method	0	0	2	2	0	3	2.6
9. Dissemination methods	0	0	2	0	2	3	2.6
10. Use of GIS/RS in bio-monitoring	0	0	3	0	0	3	2.6
11. Dominant of aquatic insects	0	2	0	2	0	3	2.6
12. Community benefits	0	1	0	0	0	1	0.9
13. Funding process	0	0	0	0	1	1	0.9
<b>Total</b>	<b>7</b>	<b>8</b>	<b>38</b>	<b>27</b>	<b>35</b>	<b>116</b>	<b>100</b>

Source: Country reports (2006, 2007 & 2008)

Thus, most questions were related to sampling methodology and use of macroinvertebrates as bio-indicators. Majority of the participants had not heard about the ecological river assessment before the information event. In all countries, audiences showed great interest to know more about river quality assessment based on aquatic macroinvertebrates.

The participants expected that the methodology should be disseminated to the local level for controlling the river quality from its degradation. Therefore they expected that the methodology, which is to be developed by the project, should be simple so that the community can use it easily. Followings are some responses:

- Participants emphasized that they have their interests on regular monitoring of river quality and regular conduction of awareness
- Participants suggested extending the assessment methodology in the larger rivers
- Teachers and students especially in Bhutan, Nepal and Pakistan suggested that the bio-assessment of rivers based on aquatic macro-invertebrate be included in the curriculum; they expressed their willingness to propose the same to the concerned education department.
- It was proposed to make few additions in the posters and fliers to make clear about the comparative advantage of physico-chemical analysis and use of benthic macroinvertebrates for river quality assessment
- NGOs asked how the community can prepare ground or basis for creating more publicity about ASSESS–HKH project and strict implementation of laws and provisions regulating river water quality

## 5.2 The expectation of the Project country wise

Table 12 lists the expectations expressed by each participating country of HKH. There were altogether 76 expectations listed and they were grouped in 8 categories based on their similarities in expressions. In terms of frequency, the most expected issues were that the method was new but cheap for water quality assessment and bio-assessment was found as an effective tool for RWQA. The expectation came from all the countries that they need training and by using this method the river degradation can be prevented and wider dissemination was required to attract new generation for the prevention of the river water quality as shown in Table 18.

Table 18: Expectations of the participants

Description	Countries					Total	
	BA	BH	IN	NP	PA	No.	%
1. New & cheap method for water quality assessment	5	3	2	2	3	15	19.7
2. Use in water supply, irrigation, fishing and industries	2	0	2	2	0	6	7.9
3. Wider dissemination	3	2	0	2	2	9	11.8
4. Replication of assessment at national level	3	0	0	2	0	5	6.6
5. Prevent river degradation	2	2	2	2	2	10	13.2
6. Bio-assessment effective tool for RWQA	5	3	3	3	3	17	22.4
7. Training need on Rapid Bio-assessment	3	2	2	2	2	11	14.5
8. Useful methodology for student research	0	0	0	0	3	3	3.9
Total	23	12	11	15	15	76	100

Source: Country reports (2006, 2007 & 2008)

## 6 CONCLUSION AND RECOMMENDATIONS

### 6.1 Conclusions

Altogether, 62 information events were carried out in Bangladesh, Bhutan, India, Nepal and Pakistan during the project period. About 2,568 people participated directly, of which nearly 1,812 participated in local information events. Another 236 people participated in the university events and nearly 520 in the central information events. During the period of Oct 2006 – March 2008, a total of 17 information events were held in the partner countries. During this period the highest frequency of central level events took place, followed by local and university which were in the line of the project and 694 participants were directly involved in the events. Maximum participants from policy level were presented at the central level dissemination which shared about 42% of the total participants. During the whole project period a total number of central level events held were 25 and 11 (44%) during the last dissemination period (Oct 2006-Mar 2008).

The participants were informed about the project, imparted awareness and finally sensitized on the vulnerability of aquatic ecosystems and aspects of sustainable water use with emphasis on ecological understanding, biological monitoring and drinking water quality. Through the interaction and feedback provided by the participants during the information events, it can be said that most of them realized the importance of good water quality of the river, which is essential for the availability of safe drinking water. Thus, information and dissemination events carried have been very effective to introduce ASSESS-HKH and bio-assessment of rivers based on aquatic macroinvertebrates.

### 6.2 Recommendations

Based on the information obtained from the events, the followings are suggestions:

- Dissemination requires being continued among the stakeholders until the adequate acceptance level is reached, as well as public awareness about the vulnerability of aquatic ecosystems and sustainable use of water be made
- As the benthic macro-invertebrate are indicators of the pollution as well as they show spatial and temporal variations local level action research is also required
- Effective river water quality tool is lacking in this region, the ASSESS-HKH project can bridge this gap
- Specific recommendations for the future that may increase effectiveness of ASSESS-HKH and understanding of ecological river assessment
- Development of a mechanism in collaboration with the government/local administration to carry out the awareness programme on a regular basis
- Advantages of river quality assessment based on bio-indicators over physico-chemical methods should be taken into account in the dissemination material
- For the sustainability and large scale dissemination, the methods should be incorporated at the school and university level curriculum
- Finally dissemination is an integral part of the ASSESS-HKH project and has been found to be effective to share knowledge and information at various levels and a good medium to raise awareness. Hence, such kind of work package that reaches out to wider stakeholders should be encouraged in future projects.

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