

Lima Adaptation Knowledge Initiative

Workshop on Priority-setting for the Hindu Kush Himalayan Subregion

20–22 October 2016

Colombo, Sri Lanka

Workshop Report

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## 1 Introduction

Climate change adaptation knowledge gaps have been repeatedly identified as a barrier to widespread and successful adaptation actions. Recognizing this challenge, the United Nations Framework Convention on Climate Change (UNFCCC), under the Nairobi work programme (NWP), and United Nations Environment Programme (UNEP) initiated the Lima Adaptation Knowledge Initiative (LAKI) to address knowledge barriers that impede the implementation and scaling up of adaptation action, through a participatory process of knowledge gap identification, categorization and prioritization, accompanied by facilitated science–policy–practice dialogues to catalyze collaboration and the implementation of response actions to close these knowledge gaps. The LAKI was endorsed by the Conference of the Parties at its twentieth session and launched by the COP 20 President as a component of a set of actions to further address adaptation to climate change under the UNFCCC<sup>1</sup>. As part of the implementation of the LAKI, five priority-setting workshops have been held since 2014. The first three were: in Quito, Ecuador, for the Andean subregion; in Abu Dhabi, United Arab Emirates, for the Gulf Cooperation Council subregion; and in Johannesburg, South Africa, for the Southern African subregion. The two most recent workshops were held in parallel, in Colombo, Sri Lanka, from 20 to 22 October 2016, and addressed both the Indian Ocean island countries subregion and the Hindu Kush Himalaya (HKH) subregion.

The HKH subregion, extending to 3,500 km over all or part of eight countries from Afghanistan in the west to Myanmar in the east (figure 1), is one of the most hazard prone and diverse ecosystems among the global mountain biomes with extreme variations in vegetation; climate and ecosystems resulting from altitudinal and latitudinal gradients. It is the source of ten large Asian river systems – the Amu Darya, Brahmaputra (Yarlungtsanpo), Ganges, Indus, Irrawaddy, Mekong (Lancang), Salween (Nu), Tarim (Dayan), Yangtze ([Jinsha][Chang Jiang?]) and Yellow River (Huang He) – which provide water and ecosystem services, and are the basis for livelihoods to a population of around 210.53 million people in the region (tables 1(a) and 1(b)). The basins of these rivers provide water to 1.3 billion people, a fifth of the world’s population<sup>2</sup>. As a consequence of the weak geology, steep terrain, intense and highly variable precipitation and high seismicity, the region is vulnerable to floods, landslides, droughts and earthquakes. Environmental degradation, and the increasing magnitude and occurrence of disasters resulting from various drivers of change,

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<sup>1</sup> The joint action pledge of UNEP and UNFCCC is available at [https://www3.unfccc.int/pls/apex/f?p=333:31:3841983047222871::NO::P31\\_ID:521](https://www3.unfccc.int/pls/apex/f?p=333:31:3841983047222871::NO::P31_ID:521).

<sup>2</sup> See [www.icimod.org](http://www.icimod.org)

including climate change, have been identified as major threats to the lives and livelihoods of people and the functioning of HKH ecosystems and the flow of ecosystem services.

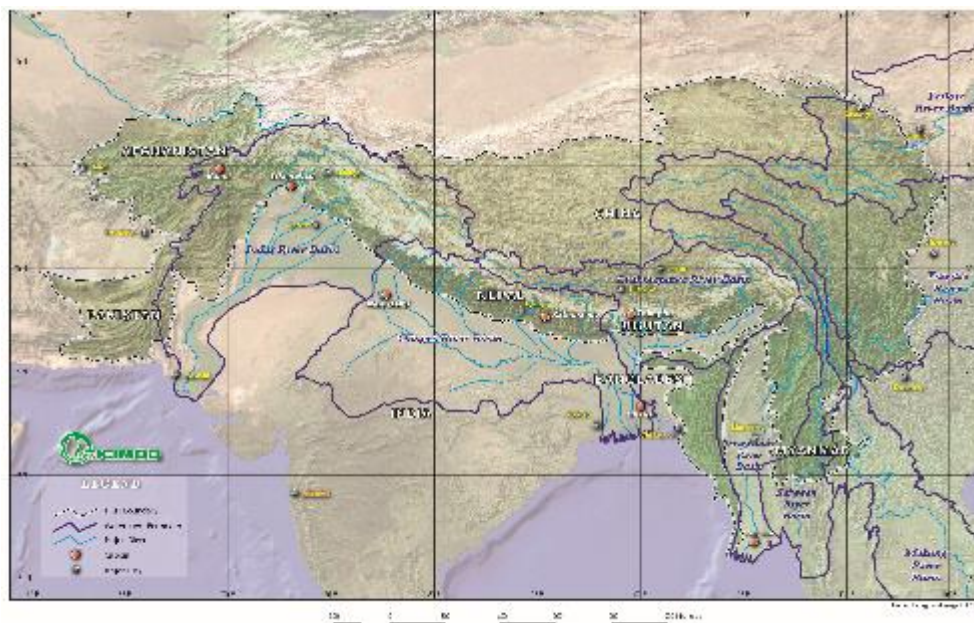


Figure 1: Map of Hindu Kush Himalaya regional area

Table 1a. Hindu Kush Himalaya regional area (total estimated area: 3,441,719 sq. km)

	Afghanistan	Bangladesh	Bhutan	China	India	Myanmar	Nepal	Pakistan
<b>Estimated HKH part (sq. km)*</b>	390 475	13 189	38 394	1 647 725	482 920	317 640	147 181	404 195
<b>Proportion of country (%)</b>	60	9	100	17	14	47	100	51

Table 1b. Population (total estimated population: 210.53 million)

	Afghanistan	Bangladesh	Bhutan	China	India	Myanmar	Nepal	Pakistan
<b>Estimated population (millions)</b>	28.48 <sup>(2)</sup>	1.33 <sup>(3)</sup>	0.71 <sup>(1)</sup>	29.48 <sup>(4)</sup>	72.36 <sup>(5)</sup>	11.01 <sup>(2)</sup>	27.8 <sup>(1)</sup>	39.36 <sup>(2)</sup>
<b>Density (per sq. km)</b>	73	100	15	17	150	34	189	97

## **2 Workshop participants**

As the regional collaborating agency, the International Centre for Integrated Mountain Development (ICIMOD), together with UNFCCC/NWP and UNEP, organized a LAKI priority-setting workshop for the HKH subregion from 20 to 22 October 2016 in Colombo, Sri Lanka. The workshop had participants from Bangladesh, Bhutan, China, India, Nepal, Myanmar and Pakistan (see annex II) drawn from government agencies, academia and civil society organizations (annex II)

### 3 Key results

The major knowledge gaps identified for the HKH subregion, including target audiences and expressions of interest, are given in table 2.

**Table 2. Priority knowledge gaps for the Hindu Kush Himalaya sub region**

No.	Theme	Gap description	Target audience	Expressions of interest
1	Agriculture	Access to adequate locally usable knowledge and information on weather and seasonal forecasting to assist farm production operations	Extension workers National hydro-met services Agriculture experts	BRACE, Focus Humanitarian Assistance (Pakistan)
2	Water	Weak dissemination of evidence and successful water management practices, adaptation technologies, and water allocation and management during periods of scarcity and abundance	Water resource planners, policymakers Communities project managers	Kothowain
3	Water	Lack of access to awareness-raising products and early warning systems for multiple hazards (drought, landslide, debris flow, flooding, glacier lake outburst flood in the Himalayas and downstream communities)	Early warning system designers Town and provincial planners/ watershed managers Communities	Focus Humanitarian Assistance (Pakistan), Government of Bhutan
4	Agriculture	Inadequate information and knowledge on adaptation options and technologies suitable to address context-specific climate extremes, impacts and risks for agriculture and the net effect of climate change at the local level	Farmers, extension agencies District agriculture officers, technology users, policymakers  Local NGOs Farmers, policymakers Local NGOs Farmers, agricultural experts	
5	Health	Limited access to weather and seasonal forecasting data for public health preparedness (heat waves, cold waves, thunderstorms, disease epidemics)	Health professions and public	BRACE, NHRC
6	Agriculture	Limited access to traditional knowledge and indigenous knowledge on agricultural adaptation	Village elders, farming families, researchers, policymakers Agricultural extension workers, village elders, farming families, civil society organizations	YASS

7	Water	Poor translations of climate data and models into understandable formats	National–subnational planning departments, project managers Community leaders and members	Focus Humanitarian Assistance (Pakistan), ICCCAD
8	Health	Lack of awareness/sensitization among public and media about climate change health impacts and adaptation/response measures.	Public	BRACE, NHRC
9	Agriculture	Limited understanding of traditional knowledge and indigenous knowledge on agricultural adaptation	Climate negotiators, policymakers	YASS, BRACE
10	Water	Knowledge on how climate change is impacting on water source/usage/availability/quality (including sanitation/water treatment/water inputs for energy/springs and natural wells, groundwater, spring water and glaciers)	Watershed planners, settlement planners/energy planners Community leaders and civil society project managers	
11	Forest and biodiversity	Knowledge gap on methodologies and tools to quantify the impact of climate change on ecosystem services	Researchers, academics	BRACE, ICIMOD, Chittagong University
12	Health	Lack of understanding/evidence of potential health co-benefits of climate change adaptation and mitigation measures in various sectors	Policymakers	NHRC
13	Forest and biodiversity	Lack of adequate knowledge on the effects of climate change on biodiversity	Researchers, academics Policymakers Community members	YASS, Chittagong University, Government of Nepal
14	Forest and biodiversity	Need for repackaging the baseline data on the effects of climate change for forests and biodiversity for different target groups	Researchers, academics, practitioners	YASS, Chittagong University
15	Forest and biodiversity	Insufficient information on local indigenous knowledge on forest management	Researchers, academics Practitioners  Community members	YASS, Chittagong University
16	Water	Insufficient climate change communication on impacts on water systems/availability to determine climate change impacts and inform decision-making in designing water resource plans and implementation	Communities, subnational government, non-technical stakeholders	BRACE

*Abbreviations:* BRACE = Building Resilience Against Climate Effects, ICCCAD = International Center for Climate Change and Development, ICIMOD = International Center for Integrated Mountain Development, NGOs = non-governmental organizations, NHRC = National Human Rights Commission, YASS = Yunnan Academy of Social Science

## 4 Methodology, process and results

### 4.1 Overall methodology

#### 4.1.1 Scoping paper

The starting point for the LAKI process was a scoping exercise to identify the adaptation knowledge gaps in the HKH subregion, covering Afghanistan, Bangladesh, Bhutan, China, India, Nepal, Myanmar and Pakistan, based on the desk research and literature review of available reports, including national communications reports, intended nationally determined contributions (INDCs), national adaptation plan of actions (NAPAs) communicated by the countries of the HKH subregion to the UNFCCC, national-level adaptation plans and strategies. Major knowledge gaps in the context of LAKI, identified in the scoping paper, were:

- Locally usable (down-scaled) climate data for decision-making;
- Access to/complexity of scientific data and information;
- Fragmented scientific research on transboundary issues;
- Knowledge and information on the effects of climate change;
- Information and knowledge on adaptation options, technologies and tools/approaches;
- Information on local indigenous knowledge;
- Information and clarity on inter-sectoral governance mechanisms.

In total, 64 adaptation knowledge gaps were identified in the scoping paper and these were categorized under 5 thematic areas, as follows:

1. Agriculture;
2. Water resources;
3. Health;
4. Forest and biodiversity;
5. Cross-cutting.

#### 4.1.2 Priority-setting workshop

The priority-setting workshop was conducted over three days that included plenary discussions, breakout group discussions and individual exercises (figure 4.1).

- On day 1: The workshop participants discussed the knowledge gaps identified in the scoping paper, and added or deleted and shared information on new knowledge gaps. The

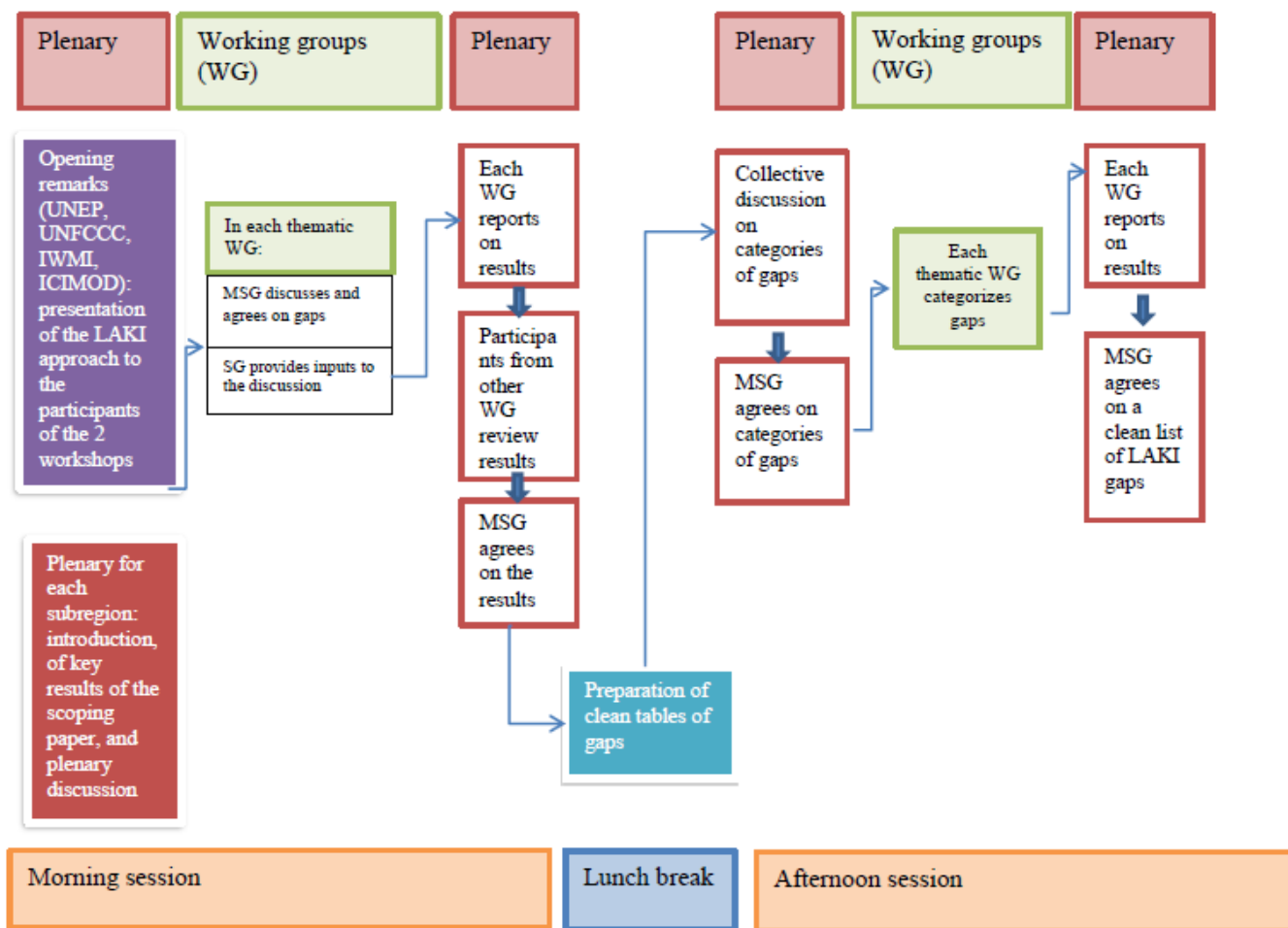


refined knowledge gaps were then categorized into: (A) no data; (B) insufficient data; (C) existing knowledge but it needs to be repackaged; and (D) existing knowledge but lack of access.

- On day 2: The participants, through a quantitative process, prioritized the knowledge gaps using two rounds of Delphi analysis.
- On day 3: The multidisciplinary stakeholder group (MSG) and the support group (SG) identified potential response actions and players for closing the priority knowledge gap

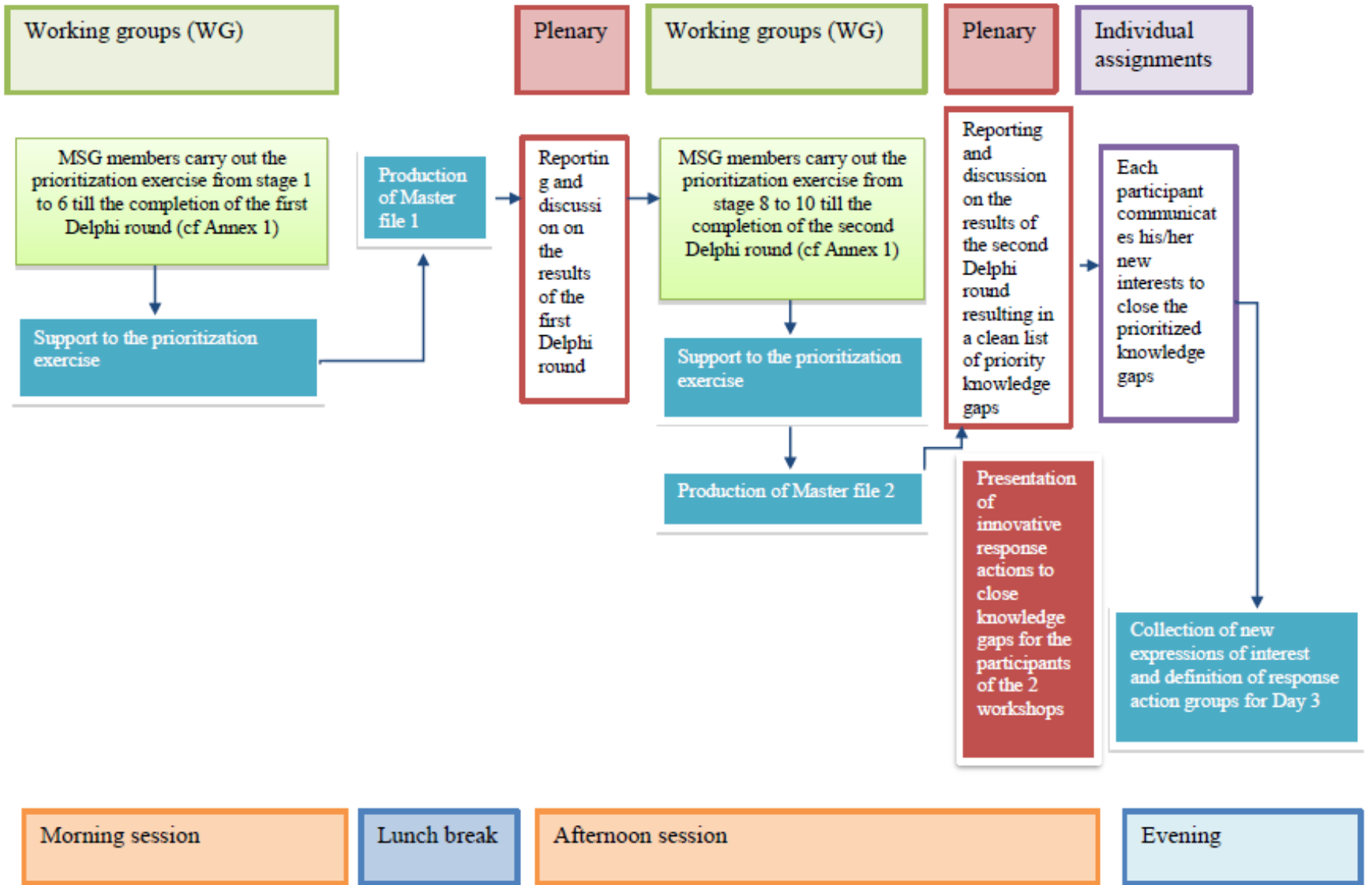
Figure 2. The three-day process of the priority-setting workshop

Day 1: Refining and categorizing knowledge gaps

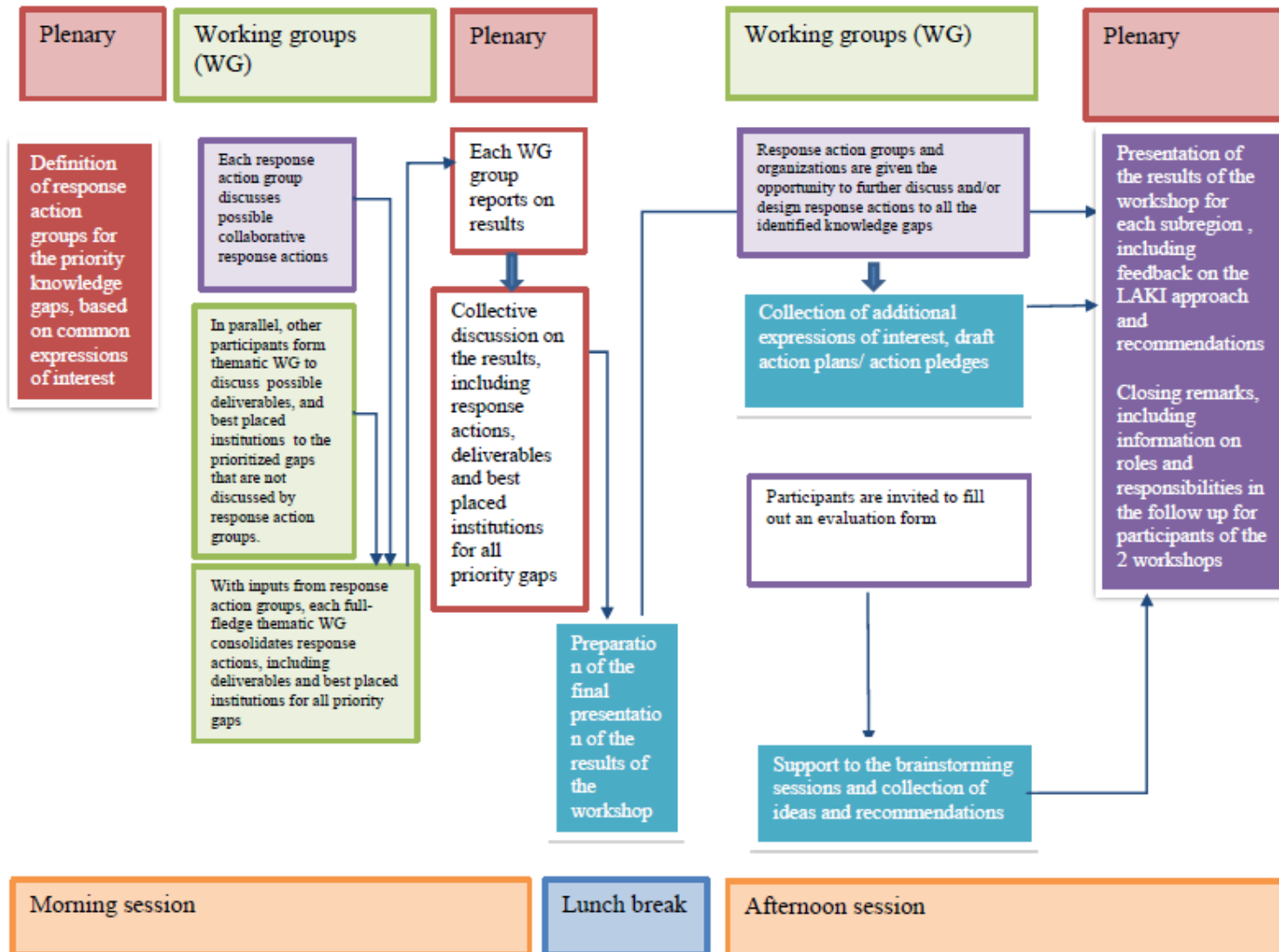


*Abbreviations:* ICIMOD = International Center for Integrated Climate Development, IWMI = Integrated Water Management Institute, LAKI = Lima Adaptation Knowledge Initiative, MSG = Multidisciplinary Stakeholder Group, SG = Support Group, UNEP = United Nations Environment Programme.

Day 2: Prioritizing knowledge gaps



Day 3: Designing response actions and discussing the follow up



In the course of the three-day workshop, the participants deliberated on prioritizing the 64 knowledge gaps identified through a scoping paper prepared by ICIMOD. A first round of discussions narrowed down the gaps to 46, and a prioritizing exercise using the multi-criteria ranking procedure (i.e. Delphi analysis) was used to further reduce the number of gaps. The Delphi process is based on a systematic evaluation of knowledge gaps followed by discussions and a repetition of the evaluation process, which is carried out on the basis of criteria defined by the MSG members. The process of repetition is intended to facilitate the achievement of a consensus and guarantee the stability of answers. The participants finally identified 16 priority knowledge gaps across four thematic areas – agriculture, water, forest and biodiversity, and health – and expressed interest in taking the process forward. The flow of processes in conducting the prioritization of adaptation knowledge gaps during the priority-setting workshop is presented in figure 3.

Figure 3. Prioritization exercise methodology



*Abbreviations:* MSG = Multidisciplinary Stakeholder Group

### .1.3 Follow-up

Following the workshop, participants who expressed an interest in undertaking response actions are to be invited to submit an action pledge under the NWP, implement the response actions and report on the progress as an update of their action pledge.

UNEP, the UNFCCC/NWP and ICIMOD will disseminate the results of the workshop and reach out to the best placed organizations to ensure that the most pressing adaptation knowledge needs of the sub region are widely known and effectively addressed.

## 4.2 Discussion and refinement of adaptation knowledge gaps

### 4.2.1 Integrating inputs from the multidisciplinary stakeholder group and the support group

Table 3 shows the total number of adaptation knowledge gaps before and after inputs from the MSG and the SG.

Table 3. Adaptation knowledge gaps per cluster

Cluster no	Knowledge gap thematic area	Total number of adaptation knowledge gaps prior to the workshop	Total number of adaptation knowledge gaps after discussion and refinement
1	Agriculture	8	13
2	Water	17	11
3	Health	10	7
4	Forest and biodiversity	9	14
5	Cross-cutting	20	1
	Total	64	46

#### 4.2.2 Defining categories of gaps at the sub regional level

The working groups considered whether the gaps identified in the scoping paper were relevant to the HKH region and could be pursued through the LAKI process. As a result, some of the gaps from the scoping paper that were deemed of lesser priority were removed, while additional gaps were identified and added to the list. Some of the knowledge gaps that were seen to be crucial, but were missing from the scope of LAKI were related to the following topics:

- Energy;
- Climate-induced disaster;
- Livestock and fisheries, as an important aspect to be included in the agriculture theme;
- Agriculture insurance system;
- Opportunities and availability of local resources for strengthening livelihood options;
- Thorough documentation of indigenous knowledge.

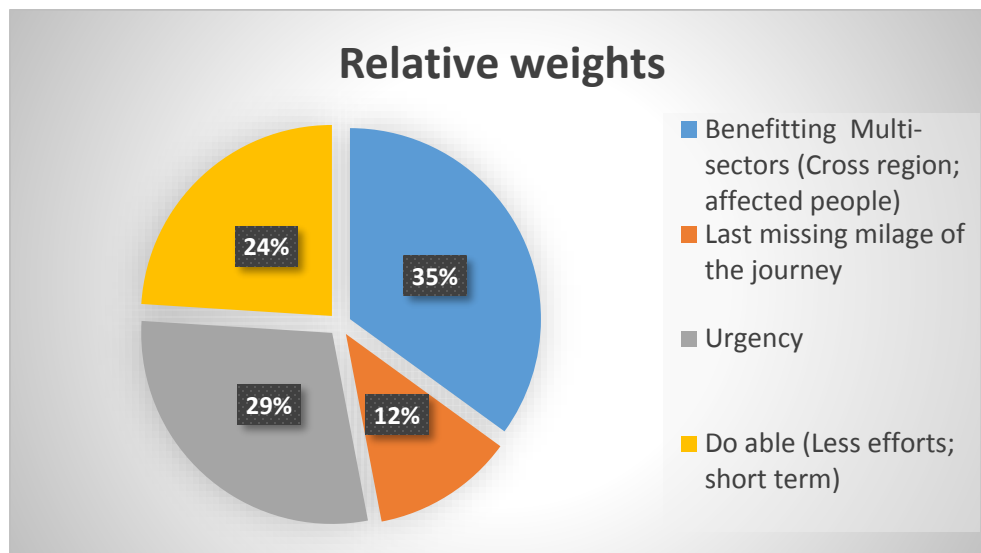
#### 4.2.3 Refining the gaps for specific target audiences

The Delphi analysis was used on day 2 in order to further refine and prioritize the knowledge gaps.

The workshop facilitator presented the objectives of each criteria for prioritization. The criteria were discussed intensively by MSG members and consequently a set of four criteria was compiled. The four criteria identified were: (a) benefiting multiple sectors, both across the HKH region and across different sectors; (b) “last missing mileage of the journey” in

other words, what can be obtained by utilizing readily available means; (c) urgency – the need to take action immediately; and (d) doable. Each MSG member ranked the criteria (from 1 to 4), with the highest value denoting the most important criteria for assessing the importance of a knowledge gap. The individual ranking results were used to generate the weighted (relative) percentage for each criterion as shown in figure 4.

Figure 4. Criteria for the prioritization of knowledge gaps



### 4.3 Prioritization of gaps

#### 4.3.1 Defining and ranking the scoring criteria

The MSG members individually ranked each of the knowledge gaps against the four agreed criteria. The participants used scoring matrix and ranked each gap, from a value of 1–5. The higher the value, the more important the knowledge gap is in relation to the chosen criterion.

#### 4.3.2 Scoring the knowledge gaps against the criteria

The first round of Delphi analysis used all the 46 knowledge gaps. For further refinement of the priorities, a second round of Delphi analysis was carried out using the top 36 knowledge gaps. Table 4 shows the ranked knowledge gaps, the total (weighted) priority scores and the ranking for the top 36 adaptation knowledge gaps. Out of the 36 gaps, the top 16 were chosen as the priority knowledge gaps that will require further action (table 2).

Table 4. Ranked knowledge gaps

<b>No.</b>	<b>Theme</b>	<b>Gap description</b>
1	Forest and biodiversity	Insufficient information on local indigenous knowledge on forest management
2	Forest and biodiversity	Need for repackaging the baseline data on the effects of climate change for forests and biodiversity for different target groups
3	Forest and biodiversity	Lack of tools for collecting information on indigenous knowledge
4	Forest and biodiversity	Knowledge gap on methodologies and tools to quantify the impact of climate change on ecosystem services
5	Forest and biodiversity	Lack of adequate knowledge on the effects of climate change on biodiversity
6	Forest and biodiversity	Limited methodological understanding on co-benefits generated by the REDD+ mechanism
7	Forest and biodiversity	Lack of adaptation techniques on forest production systems for end users
8	Water	Lack of access to awareness-raising products and early warning systems for multiple hazards (drought, landslide, debris flow, flooding, glacier lake outburst flood in the Himalayas and downstream communities)
9	Agriculture	Access to adequate locally usable knowledge and information on weather and seasonal forecasting to assist farm production operations
10	Water	Poor translations of climate data and models into understandable formats
11	Water	Knowledge on how climate change is impacting on water source/usage/availability/quality (including sanitation/water treatment/water inputs for energy/springs and natural wells groundwater, spring water and glaciers)
12	Agriculture	Limited access to traditional knowledge and indigenous knowledge on agricultural adaptation
13	Agriculture	Limited understanding of traditional knowledge and indigenous knowledge on agricultural adaptation
14	Forest and biodiversity	Understanding of knowledge in climate resilient forest resource management
15	Water	Insufficient climate change communication on impacts on water systems/availability to determine climate change impacts and inform decision-making in designing water resource plans and implementation
16	Water	Weak dissemination of evidence and successful water management practices, adaptation technologies, and water allocation and management during periods of scarcity and abundance
17	Water	Insufficient use of knowledge on river flow/hydrology and need for a comprehensive study on water resources including snow cover, the historic trends, and data on climate impacts on hydrology (in some regions)



18	Water	Limited documentation of local and indigenous knowledge, collection and validation with scientific data
19	Water	Localization of approaches for water resource monitoring, assessment and approaches for the evaluation of impacts of water projects
20	Water	Limited access to scientific data and information on transboundary impacts of climate change
21	Water	Lack of methodologies and resources to conduct economic data, econometric modelling and detailed cost/benefit analysis of adaptation and mitigation policies/programmes and climate change impacts on water sector
22	Agriculture	Inadequate information and knowledge on adaptation options and technologies suitable to address context-specific climate extremes, impacts and risks for agriculture and the net effect of climate change at the local level
23	Forest and biodiversity	Understanding of knowledge on impacts of climate change on the phenological characteristics (seed germination, flowering, fruiting and growth) of non-timber forest products
24	Agriculture	Lack of evidence of how climate change affects the livestock sector
25	Agriculture	Lack of knowledge on how climate change affects the livestock sector
26	Agriculture	Lack of adequate knowledge on how to create linkages with the market
27	Health	Limited access to weather and seasonal forecasting data for public health preparedness (heat waves, cold waves, thunder storms, disease epidemics)
28	Agriculture	Lack of awareness among consumers on crops' vulnerability to climate change
29	Health	Lack of understanding/evidence of potential health co-benefits of climate change adaptation and mitigation measures in various sectors
30	Health	Lack of awareness/sensitization among public and media about climate change health impacts and adaptation/response measures
31	Health	Lack of access to long-term health data for assessing the impacts of climate change
32	Health	Inadequate scientific information about climate change and climate-sensitive diseases and risks in the health and medical education curriculum
33	Agriculture	Limited understanding of the net effect of climatic and non-climatic changes in the regional simulations
34	Health	No integration of climate change aspects in the health sectors' policies and plans

35	Agriculture	Limited understanding on how climate change is impacting and will impact the growth cycle of major crops, pulses and fruits, mostly the critical plant growth and production cycle, farming behavior and change in cropping pattern
36	Health	Inadequate awareness/understanding of climate change and climate-sensitive diseases and risks in the health and medical education curriculum

## 4.4 Identification of possible response actions

### 4.4.1 Presentation of innovative approaches to closing knowledge gaps

#### **Adaptation learning highway**

The adaptation learning highway is a strategic process that fosters information and knowledge exchange between communities, scientist, and policymakers to inform the decision-making process and make it more inclusive. By basing planned adaptation on autonomous community adaptation it is hoped that planned adaptation will be more effective, targeted and responsive to community needs. To do so, the adaptation learning highways initiative engages communities in a number of fora at different stages, namely: community-to-community knowledge exchange fora (C2C KEF); community–scientists interface fora (CSIF); forum for interaction and exchange with policymakers (FIP); and state/regional consultation workshop on adaptive strategies.

#### **The EPIC-N model**

When strategically paired with local governments, nearby colleges and universities have proven to be a powerful force in making cities more sustainable and in addressing the threats posed by climate change. There are currently about 30 universities in the United States of America that are implementing what has come to be known as the EPIC-N (Educational Partnerships for Innovation in Communities Network) model for connecting students and faculty to real-world projects that address the pressing needs of local municipalities and communities as they contend with the challenges of becoming more sustainable and resilient, and adapting to climate change.

At its core, the EPIC-N model is based on a fundamental commitment to community service. The partnership that forms the basis of the model is designed to address the broad spectrum of sustainability-related needs of local governments and communities by strategically matching city needs with university capacity to provide research, creative designs and solutions in ways that benefit all parties, with lasting benefits and implications for all involved. Most importantly, students gain experience working on real issues confronting local governments and at the same time, represent the next generation of talent available to local governments.

By way of example, San Diego State University worked with the local government in National City, California, on street improvements to slow traffic, enhancements to pedestrian safety, improving storm-water run-off, and beautifying the area with drought-tolerant landscaping.

The rapid growth and successful implementation of the model thus far in the United States over a period of several years suggests that the model is fully customizable to local circumstances in other

countries. The sponsors of this training are promoting the adoption of this model internationally, with an initial emphasis on expansion into communities within Asia, Latin America (including Mexico, Central America and the Caribbean), and Africa.

#### 4.4.2 List of expressions of interest and possible response actions for the priority gaps

On day 3, the MSG provided a preliminary identification of potential response actions to address the 16 priority knowledge gaps identified. The facilitator provided each participant with an electronic template to work on individually. Most of the members submitted the response measures electronically. In addition, all participants discussed the possible response actions to the priority knowledge gaps. Response actions were designed through a collaborative process involving several organizations. Each response action included possible deliverable(s), target audience(s), as well as tentative partner organizations.

Some MSG members, as well as SG members, also shared expressions of interest in closing some of the priority knowledge gaps. Such expressions of interest are preliminary ideas that would need to be further discussed within the organization and in consultation with tentative partner organizations. The list of expressions of interest, including the name of the organization that expressed interest, the possible deliverable(s) and tentative partner organization(s) are provided in table 5. below.

Table 5. Details of expressions of interest

<i>Rank</i>	<i>Theme</i>	<i>Category</i>	<i>Gap description</i>	<i>Expression of interest</i>	<i>Possible deliverables</i>	<i>Tentative partners</i>
1	Agriculture	Lack of access	Access to adequate locally usable knowledge and information on weather and seasonal forecasting to assist farm production operations	BRACE	Pre-monsoon workshops for decision-makers, planners and civil society; training sessions for subnational decision-makers; climate profiles for townships; research on the use and application of climate change information and services  Timeline: 2017 Country: Myanmar, but could be replicated	
				Focus Humanitarian Assistance (Pakistan)	Texts, alerts, announcement  Timeline: 2018 Country: Pakistan	PMD, AKRSP
2	Water	Need to repackage	Weak dissemination of evidence and successful water management practices, adaptation technologies, and water allocation and management during periods of scarcity and abundance	Kothowain	Documentation repackaging, and information dissemination among multiple stakeholders and communities, including through a newsletter in the local language, and information service centers at the community level  Timeline: 2017–2018 Country: Bangladesh	

3	Water	Lack of access	Lack of access to awareness-raising products and early warning systems for multiple hazards (drought, landslide, debris flow, flooding, glacier lake outburst flood in the Himalayas and downstream communities)	Focus Humanitarian Assistance (Pakistan)	As part of the existing DRR programme by Focus Humanitarian Assistance, good practices in the form of case studies and reports could be shared  Timeline: December 2018 Country: Multi-country	AKAH, UNDP, ICIMOD
				Government of Bhutan	Producing live weather forecasts and disseminate information on climate change impacts to rural communities through radio, TV, mobile applications and awareness-raising campaigns/meetings  Timeline: 2018 Country: Bhutan	IFAD, World Bank, UNDP, JICA
5	Health	Lack of access	Limited access to weather and seasonal forecasting data for public health preparedness (heat waves, cold waves, thunder storms, disease epidemics)	BRACE	Pre-monsoon workshops for decision-makers, planners and civil society; training sessions for subnational decision-makers; climate profiles for townships; research on the use and application of climate change information and services  Timeline: 2017 Country: Myanmar, but could be replicated	

			NHRC	Guidelines/protocol for the generation of weather and seasonal forecasting data useful for public health preparedness; generation of weather and seasonal forecasting data useful to public health preparedness; dissemination of weather and seasonal forecasting data to general public and health professionals; and health sector participation in monsoon forum	NHRC, Government of Nepal, ICIMOD, Goethe University, Germany; WHO	
				Timeline: 2017–2020 Country: Multi-country		
6	Agriculture	Lack of access	Limited access to traditional knowledge and indigenous knowledge on agricultural adaptation	YASS/China	Documentation of traditional and indigenous knowledge on agricultural adaptation	Minzu University of China South-West Forest University of China
					Timeline: 2017–2018 Country: China (eastern Himalayas, northwest Yunnan)	
7	Water	Need to repackage	Poor translations of climate data and models into understandable formats	Focus Humanitarian Assistance (Pakistan)	Hazard and risk mapping in consultation with provincial government and local administration	AKAH
				ICCCAD	Production of different tools for policymakers, sectoral planners, private sector, public media and relevant events	BBC Media Action, GOBESHO NA, ARCAB, ICIMOD
					Timeline: 2017 Country: Pakistan	
					Timeline: 2017 Country: Multi-country	

8	Health	Lack of access	Lack of awareness/sensitization among public and media about climate change health impacts and adaptation/response measures	BRACE	As part of public service announcements being developed by BBC Media Action, health messages could be packaged and developed into TV and radio messages; and training on communication	BBC Media, [NHRC]
				NHRC	Development of IEC/BCC brochures, pamphlets, videos; press meetings; sharing information on climate change and health in national summits of health and population scientists as well as online	NHRC, Government of Nepal, WHO
9	Agriculture	Lack of access	Limited understanding of traditional knowledge and indigenous knowledge on agricultural adaptation	YASS/China	Classifying, quantifying and repackaging the traditional and indigenous knowledge on agricultural adaptation	Minzu University of China, South-West Forest University of China
				BRACE	To be determined	BBC Media, DFID

11	Forest and biodiversity	Lack of methodology and tools	Knowledge gap on methodologies and tools to quantify the impact of climate change on ecosystem services	BRACE	Information sheets on sector-specific indigenous knowledge; dissemination through community radio, print and online media; and packaging information for the young learners	BBC Media, DFID, Chittagong University, CIFOR
					Timeline: n/a Country: Multi-country	
				ICIMOD	A simulation model-based report addressing forest-based ecosystem services at the subnational level; policy briefs for policymakers; and [a] information summary notes for the local community	ICIMOD/ IUCN/ USAID
				Chittagong University	Scientific papers on forest management and climate change of Hindukush region in general and particularly for Bangladesh, Bhutan, India and Nepal; on the basis of the papers, repackaging and generating data to fill the knowledge gaps	BFRI, Government of Bangladesh, USDA, APAFRI, APFNet, Aranak Foundation, BCAS, BARC, FAO
					Timeline: 2017–2018 Country: Multi-country, at national level	
					Timeline: 2017 Countries: Bangladesh, Bhutan, India and Nepal	



12	Health	Need to repackage	Lack of understanding/evidences of potential health co-benefits of climate change adaptation and mitigation measures in various sectors	NHRC	<p>Research study, repackaging and processing of existing information and development of policy briefs</p> <p>Timeline: n/a Country: Nepal, but can be scaled up to other countries in the HKH region</p>	NHRC in collaboration with GIZ; WHO and Goethe University[, Germany?]
13	Forest and biodiversity	Need to repackage	Lack of adequate knowledge on the effects of climate change on biodiversity	YASS/China	<p>Documentation of local perspectives and traditional knowledge on the effects of climate change on biodiversity at the community level</p> <p>Timeline: 2017–2019 Country: China (eastern Himalayas, northwest Yunnan)</p>	Minzu University of China, South-West Forest University of China
				Chittagong University	<p>Collecting materials on forest management and climate change for the Hindukush region in general and particularly Bangladesh, Bhutan, India and Nepal; scientific papers; and training manuals incorporating the basics of the contributions of climate change to forest and biodiversity management; and repackaging information to close knowledge gaps</p> <p>Timeline: 2017–2018 Countries: Bangladesh, Bhutan, India and Nepal</p>	BFRI, Government of Bangladesh, USDA, APAFRI, APFNet, Aranak Foundation, BCAS, BRAC, World Bank, FAO

14	Forest and biodiversity	Need to repackage	Need for repackaging the baseline data on the effects of climate change for forests and biodiversity for different target groups	Government of Nepal	Stocktaking at national level; information summary note for local and global community  Timeline: 2017–2018 Country: Nepal	ICIMOD/ IUCN/ USAID/ WWF
				YASS/China	Repackaging the baseline traditional knowledge data from communities on the effects of climate change on forests and biodiversity for policy makers and scientists  Timeline: 2017–2019 Country: China (eastern Himalayas, northwest Yunnan)	Minzu University of China, South-West Forest University of China
				Chittagong University	Collecting materials on forest management and climate change for the Hindukush region in general and particularly of Bangladesh, Bhutan, India and Nepal; scientific papers; training manuals incorporating the basics of the contributions of climate change to forest and biodiversity management; and repackaging information to close knowledge gap.  Timeline: 2017–2018 Countries: Bangladesh, Bhutan, India and Nepal	BFRI, Government of Bangladesh, USDA, APAFRI, APFNet, Aranak Foundation, BCAS, BRAC, World Bank, FAO

15	Forest and biodiversity	Need to repackage	Insufficient information on local indigenous knowledge on forest management	YASS/China	Documentation of traditional knowledge on forest management, and repackaging of traditional knowledge for policymakers and scientists  Timeline: 2016–2019 Country: China (eastern Himalayas, northwest Yunnan)	Minzu University of China; South-West Forest University of China
				Chittagong University	Collecting materials on forest management and climate change for the Hindukush region in general and particularly of Bangladesh, Bhutan, India and Nepal; scientific papers; and training manuals incorporating the basics of the contributions of climate change to forest and biodiversity management; and repackaging information to close knowledge gaps  Timeline: 2017–2018 Countries: Bangladesh, Bhutan, India and Nepal	BFRI, Government of Bangladesh, USAID, APAFRI, APFNet, Aranak Foundation, BCAS, BRAC, World Bank, FAO
16	Water	Need to repackage	Insufficient climate change communication on impacts on water systems/availability to determine climate change impacts and inform decision-making in designing water resource plans and implementation	BRACE	To be determined	BBC Media, DFID

*Abbreviations:* AKAH = Aga Khan Agency for Habitat , AKRSP = Aga Khan Rural Support Programme, APFNet = Asia Pacific Network for Sustainable Forest Management and Rehabilitation, BARC = Bangladesh Rural Advancement Committee, ARCAB = Action Research on Community Adaptation in Bangladesh, BCAS = Bangladesh Center of Advanced Studies, BFRI = Bangladesh Fisheries Research Institute, BRACE = Building Resilience Against Climate Effects, CIFOR = Center for International Forestry Research, DFID = Department of International Development, FAO = Food and Agriculture Organization, GIZ = Deutsche Gesellschaft für Internationale Zusammenarbeit, ICCCAD = International Center for Climate Change Development, ICIMOD = International Center for Integrated Mountain Development, IFAD = International Fund for Agriculture Development, IUCN = International Union for Conservation of Nature, JICA = Japan International Co-operation Agency, NHRC = Nepal Health Research Council, PMD = Pakistan Metrological Department , UNDP = United Nations Development Programme, USAID = The United States Agency for International Development , WHO = World Health Organization, WWF = World Wildlife Fund, YASS= Yunnan Academy of Social Science

## **5 Identification of next steps in terms of follow-up**

### **5.1 Role of the participants**

Following the workshop, participants who have expressed interest to undertake response actions will be invited to submit an action pledge under the NWP, implement the response actions and report on the progress as an update of their action pledge.

### **5.2 Role of the sub regional coordinating entity**

With the identification and prioritization of the knowledge gaps for the Hindu Kush Himalayas completed, ICIMOD, as the regional collaborating agency, will identify relevant knowledge inputs that have already been generated by the institution's various ongoing programmes and can contribute immediately to bridging the knowledge gaps that have been prioritized. As a second step, the ongoing programmes would be invited to identify those knowledge gaps where results from ongoing and future activities can contribute towards addressing the knowledge needs for the prioritized gaps. In addition, an ongoing initiative of ICIMOD, the Hindu Kush Himalayan Monitoring and Assessment Programme (HIMAP) is compiling a state-of-the-art status report on adaptation in the HKH subregion, involving over 200 scientists and researchers from the region as well as those beyond, but specifically working on issues of the Himalayas. This comprehensive report, expected to be released by mid-2017, will also contribute substantially in bridging some of the knowledge gaps. Finally, together with ICIMOD's partners across the region, efforts would be made to generate, package and disseminate knowledge relevant to the identified and prioritized knowledge gaps.

As a follow-up to the workshop, the following activities have been implemented:

1. The LAKI-HKH meeting brief was shared on different websites, such as those of ICIMOD and the Asia-Pacific Adaptation Network.
2. The LAKI priority activities were shared with ICIMOD directorate, programme managers and initiative coordinators to be reflected upon and integrated into the upcoming activities as far as possible.

### **5.3 Roles of the United Nations Environment Programme and UNFCCC/Nairobi work programme**

In partnership with ICIMOD, UNEP and the UNFCCC/NWP will disseminate the results of the workshop and reach out to the best placed organizations to ensure that the most pressing adaptation knowledge needs of the subregion are widely known and effectively addressed.

As a first step, the results of the priority-setting workshop were presented to the United Nations Climate Change Conference in Marrakech by UNEP during the reporting of the progress on the LAKI process. The UNFCCC secretariat also presented the results of the workshop in various thematic events and side-events, including the global climate action event on water, and a side-event organized by the Convention on Biological Diversity and the Friends of Ecosystem-based Adaptation.

The conclusions of the Subsidiary Body for Scientific and Technological Advice on the Nairobi work programme adopted in Marrakech welcomed the LAKI, including the most recent workshops held in Hindu Kush Himalaya and Indian Ocean Island countries in collaboration with the ICIMOD and IWMI.

## **6 Concluding remarks**

Dr. Barney Dickson of UNEP thanked the members for the interactive and engaging discussions. He reassured the MSG that there are plans to return to the sub region and revisit these gaps to see if any progress has been made with regards to filling them. The facilitators for both participating sub regions were thanked for facilitating and keeping the participants engaged at all times.

Dr. Choudhury from ICIMOD stated that, with the ongoing ICIMOD projects and knowledge ready to be disseminated, the process of bridging several of the identified knowledge gaps could be addressed. He further emphasized that ongoing and planned initiatives being rolled out by ICIMOD and its partners could further contribute to bridging these gaps, suggesting a strengthening of the partnership with the UNFCCC/NWP within the LAKI process. Dr. Choudhury stressed that the strengthening of the partnership between ICIMOD and the UNFCCC/NWP as part of the LAKI process will serve as an innovation for pilot projects across the region and is perhaps the first example of focused attention by UNFCCC on addressing adaptation issues specific to the HKH subregion. ICIMOD will be looking forward for new partnerships and take this process forward in the coming years.

The UNFCCC/NWP and UNEP will also look into the results of the evaluation survey taken by workshop participants in order to further refine the LAKI approach and make the next priority-setting workshops even more efficient and impactful.

## Annex I: Programme Agenda

### LAKI – The Priority-Setting Workshop for Hindu Kush Himalayan subregion and Indian Ocean Islands

20–22 October, 2016

Venue: Taj Samudra, Colombo, Sri Lanka

#### Agenda

#### Thursday 20 October – Day 1: Refining and categorizing knowledge gaps

##### *Opening and setting the scene for both subregions*

9:00 – 9:30 am	Opening remarks: Dr. Barney Dickson, UN Environment Ms. Rojina Manandhar, UNFCCC/NWP Dr. Dhruvad Choudhury, ICIMOD Dr. Upali Amarasinghe, IWMI
9:30 – 10:00 am	Introduction of the workshop participants
10:00 – 11:00 am	Presentation of the results of the scoping paper and discussion on the knowledge gaps ( <i>plenary session</i> )
<i>Coffee break</i> 11:00 – 11:30 am	
11:30 am – 12:45 pm	Discussion of the knowledge gaps by the MSG with inputs from the support group (SG) members ( <i>thematic working groups</i> )
12:45 – 1:30 pm	Reporting of the thematic working groups' results followed by a collective discussion to produce the exhaustive list of identified gaps ( <i>plenary session</i> )
<i>Lunch break</i> 1:30 – 2:30 pm	
2:30 – 3:00 pm	Discussion and agreement on the categories of knowledge gaps ( <i>plenary session</i> )
3:00 – 4:30 pm	Categorization of the identified knowledge gaps by MSG with inputs from the SG members ( <i>thematic working groups</i> )
<i>Coffee break</i> 4:30 – 5:00 pm	

5:00 – 6:30 pm Reporting on the results of the thematic working groups, followed by a discussion to produce the clean list of LAKI knowledge gaps (*plenary session*)  
Presentation of the expectations for Day 2

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By 9:30 pm Communication (via email) of expressions of interests in closing one or several of the identified knowledge gaps (*individual exercise*)

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### Friday 21 October – Day 2: Prioritizing knowledge gaps

9:00 – 9:30 am Introduction to Day 2 activities  
Presentation of the outcomes of the expressions of interest to facilitate informal exchanges, between participants interested in collaborating to close knowledge gaps (*plenary session*)

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9:30 – 11:00 am Identification of criteria for prioritization of the knowledge gaps (*plenary session*)  
Assignment of weights to the different criteria (*individual exercise by MSG members*)  
Presentation of the weighted criteria (*plenary session*)

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*Coffee break*  
11:00 – 11:30 am

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11:30 am – 12:30 pm First Delphi round for scoring of gaps against criteria (*individual exercise by MSG members*)

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*Lunch break*  
12:30 – 1:30pm

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1:30 – 3:00 pm Presentation and discussion of the scoring results (*plenary session*)

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3:00 – 4:00pm Second Delphi round for scoring of the priority knowledge gaps (*individual exercise by MSG members*)

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*Coffee break*  
4:00 – 4:30 pm

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4:30 – 5:30 pm Presentation of and discussion on the prioritized list of knowledge gaps (*plenary session*)

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5:30 – 6:30 pm Presentation of innovative long-term approaches to close adaptation knowledge gaps (*common plenary for both subregions*)  
Presentation of the expectations for Day 3

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By 9:30 pm Communication (via email) of expression of interests in closing one or several of the priority knowledge gaps, and/or other identified knowledge gaps

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### **Saturday 22 October – Day 3: Designing response actions**

9:00 – 9:30 am Introduction to Day 3 activities  
Presentation of the expressions of interest and definition of “response action” working groups for the priority knowledge gaps (*plenary session*)

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9:30 – 11:00 am *In parallel:*

- Design of collaborative response actions to close one or several priority knowledge gaps (*response action working groups*)
- Discussion of possible deliverables and best placed organizations to close the priority knowledge gaps that are not being discussed by the response action groups (*thematic working groups*)

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*Coffee break*  
11:00 – 11:30 am

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11:30 am– 12:30 pm Discussion of the response actions, including consolidation of response actions based on outcomes of the response action working group, possible deliverables and best placed organizations to close the priority knowledge gaps (*thematic working groups*)

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12:30 – 1:30pm Reporting on the outcomes of discussions and general discussion on the results (*plenary session*)

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*Lunch break*  
1:30 – 2:30 pm

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2:30 – 4:00 pm

*In parallel:*

- Design of collaborative response actions to close priority knowledge gaps and other identified knowledge gaps (*response action groups*)
- Brainstorming session to provide feedback on the workshop and discuss possible innovative approaches to close adaptation knowledge gaps (*plenary for both subregions*)

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*Coffee break*

4:00 – 4:30 pm

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***Closing session for both subregions***

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4:30 – 5:30 pm

Presentation of the key results of both subregions and of the next steps  
Closing remarks

## Annex II: List of participants

<b>SN</b>	<b>Participants</b>	<b>Organization</b>	<b>Country</b>
1	Dr. Mohammed Al-Amin	University of Chittagong	Bangladesh
2	Mr. Kelzang Tenzin	Ministry of Agriculture	Bhutan
3	Prof. Yin Lun	YASS	China
4	Mr. Gabriel Tripura	KOTHOWAIN	India
5	Mr. Shailendra Nath Pandey	Development Alternatives	India
6	Mr. Sanjay Vashist	CANSA	India
7	Mr. Jeremy Stone	Plan International Myanmar	Myanmar
8	Mr. Lian Khan Suum	Spectrum (Sustainable Development Network)	Myanmar
9	Mr. Min Myat Aung	Ministry of Natural Resources and Environmental Conservation	Myanmar
10	Mr. Resham Dangi	MoFSC	Nepal
11	Dr. Meghnath Dhimal	NHRC	Nepal
12	Ms. Nusrat Nasab	Focus Humanitarian Assistance[,] Pakistan	Pakistan
<b>SN</b>	<b>Participants</b>	<b>Organization</b>	<b>Country</b>
1	Mr. Gawher Nayeem Wahra	BRAC	Bangladesh
2	Ms. Rushati Das	CANSA	India
3	Dr. Saleemul Huq	IIED	Regional

### Annex III: Results of the workshop survey

The participants were asked to fill out the evaluation survey after the completion of the workshop (figures 5 and 6). The majority of the multidisciplinary stakeholder group (MSG) found the workshop really useful, especially for prioritizing the knowledge gaps.

Figure 5 Overall rating of the workshop

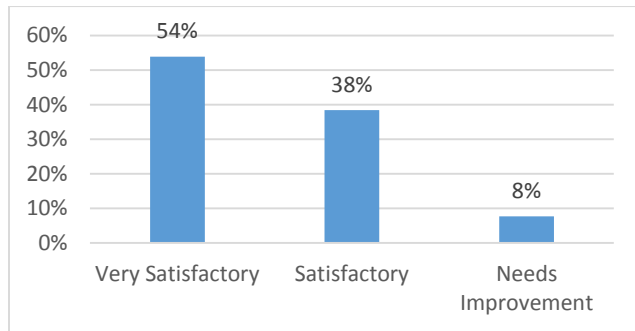
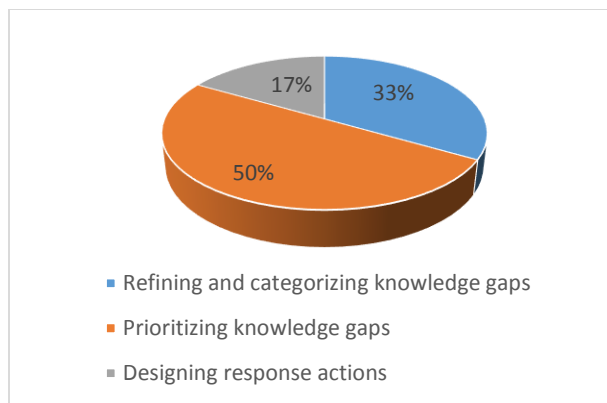


Figure 6 Response on most interesting part of the workshop (multiple response)



Some of the specific comments on the process are listed below:

- The Delphi methodology was relevant to prioritize gaps;
- Good learning from the group exercise, discussion and presentation by the experts;
- Important to identify who will be responsible for the actual work at the national, local and community levels;
- Good start but needs regular follow-up and networking;
- The scoping paper helped a lot.

Ways that the process can be improved:

- Provide early information for country consultation and consultation within the organization to enable participants to make proper contribution and representation;
- Needs inclusive participation from countries and sectors;
- More cross-cutting gaps to be addressed;
- Gather other inputs from partners who are not able to attend the workshop.