

Summary Report

# Koshi Disaster Risk Reduction Knowledge Hub Inception Workshop

11–12 December 2018

ICIMOD, Kathmandu, Nepal



ICIMOD



# About ICIMOD

The International Centre for Integrated Mountain Development (ICIMOD) is a regional knowledge development and learning centre serving the eight regional member countries of the Hindu Kush Himalaya (HKH) – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal, and Pakistan – based in Kathmandu, Nepal. Globalization and climate change have an increasing influence on the stability of fragile mountain ecosystems and the livelihoods of mountain people. ICIMOD aims to assist mountain people to understand these changes, adapt to them, and make the most of new opportunities, while addressing upstream and downstream issues. ICIMOD supports regional transboundary programmes through partnerships with regional partner institutions, facilitates the exchange of experiences, and serves as a regional knowledge hub. We strengthen networking among regional and global centres of excellence. Overall, we are working to develop economically and environmentally-sound mountain ecosystems to improve the living standards of mountain populations and to sustain vital ecosystem services for the billions of people living downstream – now and in the future.



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# Contents

<b>1. Background</b>	<b>1</b>
<b>2. Inception workshop for the Koshi DRR Knowledge Hub</b>	<b>3</b>
A) Setting the stage	3
Addressing the impacts of natural hazards on livelihoods in the Koshi basin	3
Glacial lakes and glacial lake outburst floods in the Koshi basin	4
Landslides in the Koshi basin	4
Transboundary floods between Nepal and India: Challenges and opportunities	4
Impact of sedimentation on the Koshi basin	5
B) Common vision, scope, and success indicators of the DRR Knowledge Hub	5
Scope of the hub	6
Success indicators	6
Structure of the hub	7
C) Strategies for sustainability	7



# 1. Background

Water-induced hazards are quite common in the Koshi basin and often have transboundary impacts; upstream hazards lead to disasters in downstream areas, affecting millions of people. Moreover, extreme weather events have cascading impacts and are expected to magnify in frequency and intensity because of climate change and environmental degradation. Unfortunately, women and marginalized communities are most vulnerable to such adverse events as they lack access to information and the capacity to prepare for disasters and deal with the aftermath.

Although there have been efforts to improve disaster risk reduction (DRR) in the Koshi basin, related policies and practices need to be strengthened using a multi-hazard approach. Upstream–downstream linkages in the basin can serve as a basis for managing shared disasters and provide opportunities for DRR and livelihood improvement. Effective cooperation can be achieved by sharing knowledge and fostering practices that address the transboundary scale of disasters, which stakeholders often struggle with.

The Koshi Basin Initiative (KBI) at the International Centre for Integrated Mountain Development (ICIMOD) works with partners to increase understanding of the impacts of disasters in the basin and to enhance preparedness for DRR. The networks created in this process and through ICIMOD partners can be leveraged to identify areas for collaboration and knowledge sharing between institutions and stakeholders across the basin.

In December 2017 and April and August 2018, the KBI organized three workshops that provided a platform for regional dialogue for policy and decision makers, scientists, and practitioners to deliberate on strengthening regional collaboration for DRR and ensuring resilient livelihoods in the Koshi basin. The panel, group, and open floor discussions all recognized the need to address DRR in the basin as a multifaceted, interdisciplinary, and transboundary challenge. The consensus was that regional collaboration should extend beyond information sharing and a platform should be created to facilitate collaboration. In addition to the workshops, from August to November 2018, the KBI approached 20 participants with a series of project scoping questions as it sought to understand the needs and perspectives of potential members and stakeholders on the challenges and opportunities for a knowledge hub.



## Challenges in the Koshi basin and opportunities for the knowledge hub

### Challenges in the Koshi basin:

- Limited knowledge, information sharing, and data generation
- Lack of informed policy and decision making; scientific and local knowledge, and upstream/downstream linkages are not always considered, which is a hurdle for improved DRR in the basin
- Trust among various stakeholders in the basin is a major challenge that the participants foresee for the knowledge hub

### Opportunities for the knowledge hub:

- Implementation of solution-oriented joint research and collaborative projects that promote exchange of knowledge and inform policy making in the basin, including developing common methodologies and frameworks for joint data generation, monitoring, and research
- Sharing of examples of good practices and encouraging adoption in relevant areas
- Synthesis of existing knowledge, including community-based knowledge
- Growth as a multi-stakeholder platform that links science, policy, and practice, including the private sector and local knowledge

On the basis of the participants' feedback, the Koshi DRR Knowledge Hub has been initiated as a regional platform for multiple stakeholders who will work towards addressing the challenges posed by the basin's multi-hazard environment.



## 2. Inception Workshop for the Koshi Disaster Risk Reduction Knowledge Hub

A two-day inception workshop on the Koshi DRR Knowledge Hub – organized by ICIMOD, the Bihar State Disaster Management Authority (BSDMA), India, and Institute of Disasters Management and Reconstruction (IDMR), Sichuan University, China – was held in Kathmandu, Nepal, from 11 to 12 December 2018. The workshop’s main objective was to share knowledge and the current understanding of transboundary water-related disasters in the basin; develop a common vision, success indicators, and possible governance structure; and devise short- and long-term strategies for the Koshi DRR Knowledge Hub.

More than 60 participants from China, India, Nepal, Japan, and the United Kingdom participated in the workshop. Several participatory group sessions were conducted to discuss agendas, form collaborative structures, plan the hub’s working areas, and strategize the Koshi DRR Knowledge Hub’s sustainable functioning. The participants recognized that although various challenges exist, solutions can be obtained through commitment to the common goal of improved DRR in the Koshi basin.

### A) Setting the stage

To inform the discussions of the workshop, a series of presentations were made on disasters in the Koshi basin, particularly on existing knowledge, gaps, and areas where transboundary collaboration needs to be strengthened for DRR.

#### Addressing the impacts of natural hazards on livelihoods in the Koshi basin<sup>1</sup>

- Disasters in the Koshi basin have large socioeconomic and cascading impacts that are often transboundary in nature. They are nonlinear and interlinked, with one disaster in upstream regions cascading to other disasters in the downstream reaches. However, there is a dearth of analysis on this cascading effect.
- There is a need for initiating basin-level multi-hazard risk assessments with gendered vulnerability and identifying disaster hotspots to develop appropriate mitigation and adaptation for improved livelihoods of vulnerable groups.
- Reducing the impact of disasters on vulnerable groups requires understanding of socioeconomic dynamics such as high seasonal migration of the youth during flood season and household dynamics such as increase in female-headed households.
- At the basin scale, water resources development in areas such as irrigation, hydropower, and inland navigation should consider upstream–downstream linkages and DRR.



<sup>1</sup> Contributors: Nilhari Neupane, Chanda Goodrich, and Amina Maharjan, ICIMOD

## Glacial lakes and glacial lake outburst floods in the Koshi basin<sup>2</sup>

- The number of glacial lakes in the Koshi basin has decreased by 2% and their area has increased by 18% from 1990 to 2015. The basin has experienced 23 glacial lake outburst flood (GLOF) events (9 in Nepal and 14 in China) with transboundary impacts till date
- A total of 42 potentially dangerous lakes have been identified in the Koshi basin – 24 in China and 18 in Nepal – putting lives and infrastructure at risk
- GLOFs are difficult to predict as they are triggered by several factors (landslides, ice and snow avalanches, rock-falls, slope failure, dam failure, earthquake, etc.)
- Risks can be reduced by regularly monitoring identified potentially dangerous glacial lakes and updating the inventory
- Transboundary collaboration is needed for joint assessment on reducing GLOF risk, monitoring potentially dangerous glacial lakes, updating the glacial lake inventory, adopting early warning systems (EWSs), devising mitigation measures, and planning proper land use



## Landslides in the Koshi basin<sup>3</sup>

- Landslides have an equal or greater impact than floods but do not receive adequate attention.
- The landslide–sedimentation–flood nexus needs to be considered holistically.
- A consistent framework and methodology needs to be developed for landslide risk assessments.
- Transboundary collaboration is needed to develop a common landslides inventory, identify critical/priority watersheds and hotspots through technical and scientific exchanges, and promote good practices in land risk management.



## Transboundary floods between Nepal and India: Challenges and opportunities<sup>4</sup>

Floods in the Koshi basin are recurrent and often have transboundary impacts, reducing people's capacity to utilize the region's rich natural resources.

- Flood risk management should integrate modern scientific and traditional knowledge and also consider the bottom–up approach, taking in civil society and community perspectives

<sup>2</sup> Contributor: Finu Shrestha, ICIMOD

<sup>3</sup> Contributors: Prem Paudel, Department of Forest and Soil Conservation, Government of Nepal; Jianqiang Zhang, Institute of Mountain Hazards and Environment, China; Deo Raj Gurung, Aga Khan Agency for Habitat, Tajikistan; and Kripa Shrestha, ICIMOD

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- Transboundary collaboration is needed for initiating improved river basin management and developing a flood EWS that addresses flash floods, flood moderation, and water resource management
- There are immense opportunities to showcase effective multi-scale transboundary collaboration in the Koshi basin.

### Impact of sedimentation on the Koshi basin<sup>5</sup>

- Sedimentation in the Koshi basin is a major problem connected to other issues such as land use, river dynamics, floods, embankment instability, and infrastructure development. This underlines the strong linkages between upstream activities and processes and downstream environmental changes.
- Knowledge gaps exist regarding the relationship between sediment connectivity and landslide zones and its effects on the sediment transported into rivers, integration of sediment management in designing hydropower facilities, quantification of the impacts of existing interventions, and possible impacts of future interventions.
- Transboundary collaboration is needed to develop and implement solutions to the complex sedimentation processes and impacts.



## B) Common vision, scope, and success indicators of the DRR Knowledge Hub

Intensive facilitated group discussions regarding the Koshi DRR Knowledge Hub's common vision, scope of action, and success indicators took place during the inception workshop. These discussions were supported by a presentation on the hub's partnership approach and principles and an interactive polling session using Mentimeter (<https://www.mentimeter.com>). The outcomes of the discussions have been synthesized as a draft of the common vision, scope, and success indicators, which will be finalized during the next meeting of the hub.



**Common vision:** Contribute to a resilient Koshi basin through better understanding and evidence-based decision making on transboundary water-related DRR.

<sup>5</sup> Contributors: Rajiv Sinha, Kanchan Mishra, and Shobhit Singh, IIT Kanpur; Santosh Nepal, Kabir Uddin, ICIMOD; Basanta Adhikari, Sichuan University; Liu Linshan, IGNSRR, China; and Biraj Singh Thapa, Kathmandu University

## Scope of the hub

- Promote transboundary collaboration, understanding, and decision making across the Koshi basin through scientific knowledge and experience sharing related to water-induced disasters
- Strengthen the science–policy–practice interface by developing and showcasing solution-oriented research and practices
- Synthesize and provide recommendations for policy advocacy that takes into consideration upstream and downstream inter-linkages
- Facilitate dialogue and trust building among different stakeholders such as policy/decision makers, implementers, media outlets, and private-sector organizations

## Success indicators

- Use of knowledge by policy makers
- Initiation of a number of joint projects among hub members
- Production of evidence-based solutions and recommendations by the hub
- Exchange of knowledge and information
- Joint activities such as workshops and conferences and knowledge products such as journal articles

The participants also deliberated on the hub’s short-, medium-, and long-term goals, structural organization, working areas, and the strategies for sustainability.

### Short-term goals

- Identify key issues for the hub
- Facilitate knowledge sharing
- Develop the hub’s governance structure and working group
- Prioritize working area and form teams
- Prioritize low-hanging fruits such as student exchange

### Medium-term goals

- Consolidate issues and recommendations
- Strengthen engagement with policy
- Develop plans for joint projects such as vulnerability assessments/risk mapping

### Long-term goals

- Successful promotion of evidence-based decision making for DRR in the Koshi basin
- Establishment as a trustworthy network

## Possible working areas of the hub

### Working areas

- Policy advocacy and strategy
- GLOFs
- Floods
- Sedimentation
- Landslides
- Drought
- Community-based disaster risk management
- Environment protection
- Information and knowledge management and communication

### Cross-cutting themes in the working areas

- Knowledge sharing
- Livelihoods and gender
- Indigenous knowledge
- Capacity building
- Private sector engagement
- Policy advocacy

### How should institutions work?

- Short-, medium-, and long-term plans
- Discussion portal and virtual meetings
- Event announcements
- Student exchange programmes
- Compilation of available publications, reports, data, etc.
- Joint research proposals
- Social media campaigns

### Which institutions will be working on the identified areas?

- Government agencies
- Non-government and development partners
- Private sector organizations
- Media outlets

## Structure of the hub

- Thematic groups with common interests and joint projects
- Secretariat at ICIMOD
- Various departments related to DRR in each of the three countries will interact with the country chapters and focal points
- Members from governments, academia, civil society, media outlets, and private-sector organizations
- A platform with a central server at ICIMOD that can be used to reduce duplication of activities and sharing of solution-oriented ideas and reports

## C) Strategies for sustainability

- Identify and synergize with regional, country-level, and organizational mandates and plans
- Support the hub through financial contributions from hub members
- Initiate adequate and relevant engagement at various levels through workshops, conferences, follow-ups, and discussions
- Ensure relevant engagement interest of the members by sharing success stories and increasing regional visibility

**Panel discussions:** During the inception workshop, three different panel discussions were conducted.

### Perspectives on transboundary collaboration in DRR<sup>6</sup>

- Transboundary collaboration is required because the nature of disasters in the Koshi basin is transboundary and its resources are shared by several countries
- Scientific knowledge exchange is a good entry point for building trust, as observed in the Upper Indus Basin Network and Brahmaputra Dialogue organized by ICIMOD. To strengthen institutional mechanisms for transboundary collaboration, science-policy dialogues with joint research and joint activities have been conducted by the partners
- Academic institutions can strongly reinforce the research base required for DRR and transboundary collaboration
- The hub provides a platform to identify the knowledge gaps in and solutions to DRR in the basin, thereby setting a practical example of how transboundary cooperation can promote effective water management
- The hub could be instrumental in the exchange of scientific and technical knowledge to strengthen multi-hazard risk assessments that recognize gendered vulnerability
- The hub could help identify disaster hotspots and develop appropriate mitigation and adaptation measures for improved livelihoods of vulnerable groups and safeguard private sector investment



<sup>6</sup> Panelists: Gretchen Kalonji, Sichuan University, IDMR, China; Arun B Shrestha, ICIMOD; Sangeeta Singh, CDS, Institute of Engineering (IOE), Nepal; Vishaka, Gulati, IIT Guwahati, India; Ram Gopal Kharbuja, Ministry of Energy, Water Resources and Irrigation, Nepal

### Role of young professionals in transboundary collaboration<sup>7</sup>

- Young professionals are optimistic about transboundary collaboration and should emphasize collaboration in their research for knowledge and skill exchanges
- Data gaps and methodological differences in research are often a challenge for young professionals conducting their own research
- Collaborative research across academic institutes in the basin countries could easily be achieved and would benefit from identified priority areas
- The value of collaboration can be realized in early professional development, which could be instrumental in showcasing transboundary collaboration in the region



### Role of the media<sup>8</sup>

- The media plays an important role in building trust between countries and helps upstream and downstream communities understand transboundary issues better
- Science-based journalism is particularly important as journalistic research in the field helps collect and disseminate correct information
- Media engagement as a component of the Koshi DRR Knowledge hub is critical



<sup>7</sup> Panelists: Liu Rongkun, China; Kripa Shrestha, Nepal; Kanchan Mishra, India; Rajan Subedi, Nepal

<sup>8</sup> Panelists: Hao Feng, China Dialogue, China; Navin Singh Khadka, BBC, Nepal; Kulbhushan Kumar Gopal, News 18, India



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