ICIMOD

PROCEEDINGS OF THE

Annual dialogue on the Koshi Disaster Risk Reduction Knowledge Hub

15–18 December 2020 | Microsoft Teams

Background

The transboundary Koshi River basin – shared by China, India, and Nepal – experiences multiple water-related hazards that affect millions of people each year. There are 42 potentially dangerous glacial lakes (PDGLs) in the basin, out of which 24 are in China and 18 in Nepal. Annual floods and landslides affect millions of the basin's inhabitants in India and Nepal. Climate change is likely to exacerbate the duration as well as intensity of these hazards, the impacts of which are felt disproportionately by the inhabitants. The hardest hit are the most vulnerable groups such as women, children, and poor and marginalized communities. Therefore, data disaggregated by gender and social group are essential for building resilience and reducing disaster risk in the Koshi basin.

The Koshi Disaster Risk Reduction Knowledge Hub (KDKH) was established in December 2018 as a collaborative platform to enhance disaster risk reduction in the basin. The KDKH strives to strengthen regional collaboration and improve the research–policy–practice interface. Following KDKH country consultations in India and Nepal and a side meeting in China in 2019, members have been meeting virtually to discuss collaborative activities.

The KDKH Annual Dialogue brought members from the basin countries and beyond to discuss recent research findings and good practices that could inform policies and plans for reducing disaster risks at a transboundary scale. The dialogue brought together institutions and stakeholders to capitalize on mutually beneficial opportunities to build a resilient Koshi basin. The main objectives of the annual dialogue were as follows:

- Share the outcomes of the KDKH country consultations and transboundary working group (TWG) meetings
- Share recent research and good practices on water-related disaster risk reduction that are gender responsive and socially inclusive
- Discuss and recommend areas for transboundary collaboration
- Discuss a way forward for the KDKH and share the KDKH strategy and guidelines

The KDKH annual dialogue kicked off on 15 December 2020 virtually through MS Teams and was distributed over 10 sessions. Each of the TWGs identified both the opportunities and challenges for transboundary collaboration in the basin in their respective sessions. They discussed ways to strengthen the KDKH and formalized the KDKH strategy and guidelines.

Key highlights

Over 100 participants from 50 organizations, including key government agencies, reiterated their support for the formalization of the KDKH.

Key highlights from each session are summarized below:

Multi-hazard lens: The Koshi basin is prone to a number of hazards, which do not occur in isolation. For example, events such as glacial lake outburst floods (GLOFs) are known to trigger landslides. It is therefore important to move away from a single-hazard lens and apply a multi-hazard lens for risk assessment in the basin.

Community involvement: Stakeholders in the basin increasingly recognize the local community's role in building disaster resilience. Local authorities are developing action plans to tackle disaster risks and climate change impacts. This presents an opportunity to synergize local plans across the basin and replicate successful efforts for disaster risk reduction (DRR).

Reaching vulnerable communities: Disaster impacts are felt disproportionately across the basin. This is already evident in a number of working areas in the basin. Concerted efforts must be made to improve resilience of the most vulnerable communities, and gender equity and social inclusion must be a priority. Knowledge should be disseminated to reach the most vulnerable groups.

Focus on GLOFs: GLOFs are an extremely complex phenomena that are hard to predict and may be caused by different factors. Therefore, it is necessary to understand and identify the drivers of GLOFs and strengthen transboundary collaboration to safeguard people on either side of the border for GLOF risk mitigation.

Capacity building for technology use: The use of technologies in monitoring hazard risks is increasing – the use of remote sensing technologies in risks forecasting, low-cost telemetry-based flood early warning systems at the community level, use of new media for information dissemination, and so on. However, there are challenges in implementing these across multiple levels. There is a need to transfer knowledge to different stakeholders though capacity building for effective disaster risk management and mitigation. Emphasis should be placed on gender- inclusive bottom–up approaches in order to make these technologies sustainable.

A common monitoring network: Such a network can aid long-term observation of different hazards, and the current early warning systems can be further expanded to incorporate upstream–downstream linkages in the basin.

Science–policy–practice nexus: Increasing disaster resilience in the basin requires strengthening the science–policy–practice nexus. Multiple actors at different levels must work in collaboration to design and implement evidence-based interventions tailored to the local context. This requires involving vulnerable communities and local bodies in co-developing solutions.

Transboundary cooperation: There are already a number of opportunities for transboundary collaboration in DRR in the basin. Regional cooperation among governments and research institutions can support in the application of science and technology for landslide and sedimentation management, and these success stories could be shared for wider uptake.

Operationalizing the KDKH strategy and guidelines: The cost of non-cooperation among the three countries is very high. As the impacts of disasters are increasingly felt across the region, it is important to collaborate to reduce risks and minimize loss and damages. Failure to do so could result in catastrophic losses in the basin. Operationalizing the KDKH strategy and guidelines requires commitment and ownership from the country chapters. At the same time, there is a need to set up a robust regional committee for transboundary collaboration that is composed of (representatives of) the country chapters.

SESSION 1

Opening

Session hosts: **Kanchan Shrestha** and **Arun B. Shrestha**
Rapporteurs: Malin Ahlback and Subina Shrestha

This session provided an overview of the annual dialogue and a summary of the country consultations in Nepal and India and a meeting in China from 2019. It set the stage for discussions about the KDKH, where representatives from the three basin countries reinforced the need for transboundary collaboration to enhance regional cooperation across the Koshi basin and enhance policy and practice in the three countries.

Pema Gyamtsho, Director General, ICIMOD, emphasized that the KDKH is a call for action to address the increasing number of disasters in the Koshi basin, which transcend geopolitical boundaries. Pushpa Raj Kadel, Vice Chairman of the National Planning Commission, Nepal, noted, "Reducing these disaster risks in the basin is not possible without cooperation across administrative boundaries and with upstream and downstream countries. We need strong collaboration between different stakeholders to move the needle from disaster response to disaster risk reduction in the basin." He emphasized the role of the hub's country chapters to identify gaps, barriers, and challenges in transboundary collaboration for the science–policy nexus and disaster resilience. Kiran Rupakhetee, Division Chief/Joint Secretary, National Planning Commission, Nepal, added that the draft strategy and guidelines can be a sound basis for further discussion at the national and provincial levels to establish the country chapters.

Kanchan Shrestha, Programme Coordinator of the Koshi Basin Initiative at ICIMOD, presented on the progress of the KDKH and provided a brief overview of the activities of the TWGs. A panel discussion among high-level speakers from the three countries was moderated by Arun B. Shrestha, Regional Programme Manager for River Basins and Cryosphere, ICIMOD. The discussion focused on how the KDKH can support disaster risk reduction in the basin countries, and was guided by the following key questions:

In what ways can transboundary collaboration benefit DRR in the Koshi basin, both within the country and beyond?

> "This is not a one-country challenge, it is a transboundary-level challenge."
>
> **– Yang Yongping**
> Vice President of CN-ICIMOD, and Deputy Director of Xishuangbanna Tropical Botanical Garden, Chinese Academy of Sciences (CAS), China

> "Whether we live upstream or downstream, all of us want enough water to meet our domestic needs. All of us want to live in a safe environment without the fear of being washed away by floods."
>
> **– Pema Gyamtsho**
> Director General, ICIMOD

There is limited knowledge and common understanding of transboundary hazards and basin-wide approaches, and upstream–downstream linkages. The KDKH can act as a mediator, sharing knowledge and information between countries at different levels and from various stakeholders, including through people-to-people dialogues.

The Koshi basin is undergoing dynamic changes in terms of land use practices, infrastructure development and urbanization, and climate change. There is need to reassess how these have changed the transboundary basin's hazards, risks, and vulnerabilities. Negative impacts on livelihoods (agriculture in particular), food security, and water resources decrease the resilience of communities while causing deaths and displacement as immediate effects.

How can the KDKH be leveraged to achieve the benefits?

Research: A holistic, multi-sectoral approach is needed to increase the resilience of communities overall, stretching beyond the country borders. To solve such complex issues, we need transboundary and multi-stakeholder approaches.

"This hub can work as a mediator for all these countries. And when I say all these countries, I do not only visualize government-to-government contact. I visualize people-to-people contact."

– Sri Vyas Ji
Vice-Chairperson, Bihar State Disaster Management Authority

"Many communities in the mid-hills of Nepal are being forced to leave their homes due to lack of water. This raises important issues of equitable water access, well-being, and livelihoods. Through the KDKH, we could build a roadmap for both transboundary collaboration and contribute to these multidisciplinary issues."

– Anil Pokhrel
Chief Executive at National Disaster Risk Reduction and Management Authority, Nepal

"The Institute of Disaster Management and Reconstruction at Sichuan University could co-host the next dialogue session in China."

– Gretchen Kalonji
Dean of Sichuan University,
Hong Kong Polytechnic University,
Institute for Disaster Management and Reconstruction

Policy implementation: Coherent policies at the basin level can be developed to support the growing and multiple needs of the basin. Support for capacity building and technology is needed to translate central-level policies and plans into local actions. The KDKH can serve as a platform for holding continuous dialogue to facilitate coherent policy development.

Actions: Local authorities are developing action plans to tackle associated risks and climate change impacts. Synergies can be built among these plans to achieve multiple benefits. Community-based approaches to DRR have played a vital role in increasing disaster resilience. Community based early warning systems, in particular, have been very successful in the downstream countries.

How can the existing organizations play a role in supporting the KDKH?

A steering committee at the regional level can be established to provide guidance and coordination.

All three basin countries have their own advantages in terms of knowledge and experience – e.g., monitoring systems in China, and community based early warning systems in India and Nepal. Leveraging these advantages to learn from them can foster transboundary collaboration across the basin countries.

Different institutions across the three countries are actively engaged in DRR in the Koshi basin. Bihar State Disaster Management Authority (BSDMA) is actively working at the community level to enhance local actions on resilience, with a focus on livelihoods. Likewise, Nepal's National Disaster Risk Reduction Management Authority (NDRRMA) has developed a national risk information portal "BIPAD", which houses data on disaster risks and impacts in Nepal. Across China, academic institutions are conducting research on disaster risks and their transboundary impacts in the basin.

Capacity building of young researchers as well as policymakers is important to disseminate DRR research and empower the future generation. UNESCO's initiatives or the National Natural Science Foundation of China could play an important role here.

SESSION 2A

Glacial lake outburst floods

Session hosts: **Finu Shrestha** and **Jakob Steiner**
Rapporteurs: **Reeju Shrestha** and **Yathartha Dhungel**

Background

The transboundary Koshi River basin experiences multiple water-related hazards. One such hazard is GLOF, which affects human lives and livelihoods, settlements, and infrastructure in the downstream communities. The Koshi basin has already experienced 26 GLOF events, of which six have occurred since 1990 and four since 2015. There are 42 PDGLs, out of which 24 are in China and 18 in Nepal. This session brought together both experts and early-career scientists working in the field of glacial lake and GLOFs to (a) contribute to knowledge advancement by sharing data and information; (b) standardize the methodology for GLOF risk assessment; and (c) discuss and propose ideas for adopting best practices to reduce GLOF risk through regional collaborative research.

Key messages

The number and area of glacial lakes in the Koshi basin are increasing. The separation of lakes from the mother glacier is also prominent in this region. GLOF is an extremely complex phenomena that is hard to predict and caused by many different factors.

There is a likelihood of risk from GLOFs where glacial lakes show a significant expansion trend. It is necessary to understand and identify the various factors resulting in GLOFs. This can be supported through their assessment and historical outburst events. Transboundary collaboration is required for better preparedness, prevention, mitigation, and understanding of GLOF events in the region.

Key challenges

There are model uncertainties associated with GLOF simulations. Validating the model on site is often impossible, since most GLOFs are one-off events.

Volumetric estimation of debris, ice, and water is difficult as accurate measurements cannot be obtained due to difficult terrain or lack of instruments.

The lack of collaboration between countries and policy implementation is a challenge.

Lowering the water level through outlets (channels) is possible for mitigation; however, the presence of debris, for example, to excavate makes this a challenging task. In addition, despite the available ground-penetrating radar technology, there are limitations that prevent proper measurement, as attenuation of data can be caused by large boulders too.

Possible solutions

TRANSBOUNDARY- AND COMMUNITY-LEVEL SOLUTIONS

Collaboration and dialogue between Nepal and China is needed to establish a clear guideline for risk reduction and management of GLOF in these countries.

Set up early warning systems along the river channel that provides clear and timely information on the hazard degree, with flow arrival time, water depth, and flow velocity. Such information should be promptly delivered to downstream communities to give them enough time for evacuation and to take necessary adaptive measures.

Increase awareness of GLOF and involve local people and communities in developing adaptive measures.

RESEARCH SOLUTIONS

Glacier and glacier hazard assessment is required to increase understanding of transboundary impacts and mitigate risks.

If PDGLs are identified at an early stage, mitigation measures would be more effective in saving lives and reducing economic stress.

Provide research grants to young researchers and students to conduct glacial lake studies and generate continuous data that will support hazard and risk assessment work.

Research funds and projects dedicated to the science of GLOF should be introduced in academic institutions to encourage disaster risk mitigation studies and strategies.

Ways to improve transboundary collaboration

The framework for assessing GLOF risk should be standardized to prepare holistic guidelines and a management strategy.

Upstream–downstream linkages and data sharing are important for developing regional and national policy and strategies for risk reduction.

Joint transboundary research needs to be initiated and implemented by concerned organizations, community, and government authorities that share the GLOF risk.

Regional collaboration between China and Nepal is required for prevention, mitigation, and understanding of GLOF risk in the region.

Regular meetings and exchange of ongoing investigations between all partner countries are important.

SESSION 2B

Community-based disaster risk management

Session hosts: **Neera S. Pradhan** and **Nishikant Gupta**
Rapporteurs: **Subina Shrestha** and **Sneha Verma**

Background

The session focused on key success stories, replicable practices, major lessons of community-based disaster risk management (CBDRM), and the potential for on-the-ground impact and scalability. Good practices such as citizen-based flood forecasting/information system; index-based flood insurance; cross-border community-based flood early warning system; and innovations in water, sanitation, and hygiene were shared. Results from the questionnaire survey of the TWG on CBDRM were shared to allow participants to better understand and document CBDRM practices and approaches in the basin, and identify where the science–policy nexus could be strengthened. This session highlighted experiences from the Koshi basin and beyond for community-based actions on DRR, with an emphasis on incorporating gender equality and social inclusion (GESI) issues within the scope of CBDRM practices.

Key messages

Disaster risk reduction and mitigation measures require innovations for local-level interventions that take into account the needs as well as preferences of communities.

There is a need to shift from disaster risk to resilience, and from relief and recovery to preparedness. The foundation for resilience is laid by enabling policy as well as implementing agencies, with active participation of community members. This requires involving vulnerable communities and local bodies in dialogue and development of solutions.

Across the Koshi basin, water-induced hazards, particularly floods and landslides, are increasing. These hazards impact water security, nutrition, and overall ecosystem health. These impacts are felt

unevenly by the population, and the hardest hit are marginalized and excluded groups. As community mobilization approaches are being increasingly used for enhanced localized action, CBDRM practices need to take GESI into account.

Citizen engagement for DRM is imperative to ensure the success of local level actions. Coupling current community efforts with existing indigenous knowledge and technologies, capacity building and technology transfer can ensure both sustainability and ownership of resilient practices. Successful examples are already present in the form of CBFEWS, which has high potential for scaling out and scaling up.

Basing citizen science on a multi-layered, multi-actor approach can help generate evidence to quantify not only risks but also loss and damage so that fair compensation can be provided to build financial resilience.

Key challenges

Community members might be skeptical about newly introduced science and technology-oriented solutions for resilience as they are not familiar with the processes behind these.

DRR solutions are not necessarily available to the most vulnerable groups. This is particularly felt when flood insurance schemes are based on land ownership. For example, tenant/lease farmers, who are most affected by crop losses during floods, face a lot of difficulty in claiming flood insurance. This is also true for other forms of relief and recovery support.

There are several challenges in integrating DRR across multiple levels of governance. Often, there is a disconnect between the central and local level. Transformative thinking is still missing when it comes to disaster risk policies.

Possible solutions

It is imperative to build trust and partnerships with community members to successfully utilize science and technology based approaches. Working with local NGOs and civil society to build community awareness can be a crucial starting point. Similarly, strengthening indigenous knowledge and technologies and leveraging digital platforms is also helpful.

Engaging in multi-stakeholder dialogues to identify priority areas for disaster risk reduction across federal, provincial, and local levels of governance could help promote inclusion of marginalized and disadvantaged communities.

Pre-existing schemes can be transformed to place emphasis on resilience. For example, social protection schemes can be transformed to reduce underlying risk factors and leverage social safety nets to enhance recovery and rehabilitation.

Ways to improve transboundary collaboration

Carry out comprehensive mapping of different stakeholders, technologies, and innovations in the transboundary basin. This needs to be implemented at the local level.

Carry out data sharing to quantify risks and estimate loss and damages. The evidence base generated in this manner can then be used in policy making.

Develop cohesive and coordinated plans and policies that take into account the needs of local communities, as well as the transboundary nature of disasters.

SESSION 3

Floods

Session hosts: **Mandira Singh Shrestha** and **Nishikant Gupta**
Rapporteurs: **Malin Ahlbäck** and **Sneha Verma**

Background

The session included an interactive discussion on the floods of 2020, with a special emphasis on gender/GESI-sensitive flood preparedness and response and technology for early warning systems. This session focused on the need to connect high-level and local initiatives and build the capacity of communities for timely and effective response to floods. Though the floods were relatively mild, COVID-19 posed an unprecedented challenge. Furthermore, climate change and human activities have increased the occurrence of floods in recent decades, reinforcing the need for transboundary collaboration. The flood dialogue of 2018 was very fruitful, and its outcomes along with the work of the TWG will be summarized in a research paper that is now being revised.

Key messages

Transboundary collaboration is important, especially for flood preparedness and response (including early warning systems, or EWSs). There are opportunities for cross-learning, in particular between India and Nepal. It is also important to invest resources for capacity-building across multiple layers of governance and integrate gender-responsive approaches.

A framework for cooperation to manage floods is necessary for the Koshi basin. For example, in the Mekong basin, initial EWS cooperation later evolved into more extensive/holistic cooperation. Once a framework is established, it is easier to bring in the technology.

Children and women can become change agents for disaster resilience. Capacity building at the local level on gender-responsive plans is still at an initial stage and needs to be further developed.

RS-based flood risk forecasting and EWS has witnessed positive development with successful pilot studies/prototypes, but challenges remain in implementation from the central to local level, especially with regard to ensuring women's participation and data analysis and dissemination. Technology needs to be sustainable in the long run.

To implement the agenda of federalization and localization, federal and provincial governments together with UN agencies, civil society, and the private sector should provide more technical support to the (most flood-prone) municipalities in a systematic, coordinated and collaborated manner.

Key challenges

Floods have devastating impacts on livelihoods, health, and other sectors. Recovery is often slow, stressful, and costly.

An early warning system makes real-time data accessible but it does not always reach the most vulnerable, including women. There is a need to make interventions more gender responsive and inclusive. Gender and social inclusion efforts remain inadequate and women's participation in decision making is weak. Technologies can be used to alert communities, but it is also important to ensure that people understand the information they receive and are able to share it.

The lockdown imposed during COVID-19 disrupted supply chains and kept the markets closed for a long time. This severely affected flood preparedness and response activities.

It was difficult to ensure that evacuation efforts and shelters for vulnerable groups (elderly, women, etc.) were inclusive and sensitive to different needs.

Limited real-time hydro-meteorological data and issues related to data quality and platforms/access pose a challenge.

Possible solutions

Capacity building of local communities for multi-hazard awareness, information dissemination and monitoring is important to enhance localization.

Government and other stakeholders need to be proactive about implementing EWS in flash flood-prone rivers. Cross learning between governments and agencies, as well as between different communities is important, especially on crosscutting topics such as GESI.

Communities in flood-risk areas are not homogenous. Therefore, multiple channels of communication are required for disseminating early flood warnings. Social media can be effectively used for information dissemination and networking for DRR, EWS, and livelihood support and training.

Ways to improve transboundary collaboration

From a municipality perspective, there needs to be better and increased communication between local communities, stakeholders, and the central government. Furthermore, local interventions have shown that more capacity building is needed, in particular for gender-responsive flood preparedness and response.

Countries should document their best practices and share them with one another.

Monitoring should be carried out on a regional scale, not country scale. Here, remote sensing can play a key role. ICIMOD has a regional flood forecast model to promote region collaboration. However, the information needs to be conveyed in simple language for local users.

A framework for cooperation for flood management is necessary for the Koshi basin. Providing the countries technical advice, access to imageries and data, and technical support to use the images – e.g., by partnering with regional agencies like ICIMOD, SAARC – will help in building resilience.

SESSION 4A

Landslide and Sedimentation

Session hosts: **Santosh Nepal**, **Kabir Uddin**, **Kripa Shrestha**, and **Subina Shrestha**
Rapporteurs: **Subina Shrestha** and **Kripa Shrestha**

Background

The transboundary Koshi basin is prone to multiple hazards including landslides and sediment flux, which are likely to hamper infrastructure development, ecosystem services, and livelihoods in the basin. In this context, members of TWG on Sedimentation and Landslide shared the results of research on landslide and sedimentation in China, India, and Nepal, as well as best practices in the basin for mitigating and adapting to sedimentation and landslides. The session also highlighted the future outlook for transboundary collaboration on sedimentation and landslides in the Koshi basin.

Key messages

The Koshi basin is prone to a number of hazards, which do not occur in isolation. For example, events such as GLOFs and seismic activities are known to trigger landslides and accelerate the sedimentation process. In this context, it is important to apply a multi-hazard approach to risk assessment in the basin.

Several technologies are already available for effective monitoring of landslides, such as LIDAR, RADAR, monitoring of trigger events, and community-based early warning systems. These present opportunities for learning as well as technology transfer among the basin countries.

There are several opportunities to promote transboundary collaboration by focusing on upstream–downstream linkages across the three countries. Regional cooperation among governments and research institutions can improve landslide and sedimentation management, with the potential for out- and up-scaling.

The cost of non-cooperation among the three countries could be very high. As the impacts of disasters are increasingly felt across the region, it is important to collaborate to reduce risks and minimize loss and damages.

Key challenges

Due to technology gaps among different countries and diverse characteristics of landslides, various technological solutions are required to cope with landslides and sedimentation.

Funding and other opportunities for young scientists to engage in landslide research are limited.

Policies and plans are rarely informed by existing knowledge on landslides and sedimentation. Policy implementation at the local level is difficult.

Possible solutions

Improve data-sharing mechanisms among basin countries.

Strengthen collaboration to enhance technology, knowledge, and innovation along with good practices across different agencies engaged in DRR in the region – to work collectively for risk mitigation.

Strengthen institutional collaboration to strengthen the science–policy–practice nexus.

Community-based landslide early warning systems can be very important tools to build strategies for slope stabilization and prepare timely evacuation plans to save lives and property.

Ways to improve transboundary collaboration

Shift from a single-hazard perspective towards a multi-hazard perspective – start by developing a protocol for multi-hazard risk assessment at the basin scale.

Identify ways to bridge the science–policy–practice nexus. It is important for researchers and academics in and outside the Koshi basin – conducting state-of-the art research using cutting-edge technologies for monitoring hazards and risks in the Koshi – to provide inputs to policymaking in the region. For example, as shallow landslides are an issue in the region, research on groundwater monitoring systems could help identify these hotspots. This information can guide subsequent policy actions and mitigation measures.

Effectively document and disseminate community and localized efforts and best practices in local languages.

Build partnerships with institutions beyond the transboundary region.

SESSION 4B

Drought

Session hosts: **Vishnu Pandey**, **Saurav Pradhananga**, and **Kanchan Shrestha**
Rapporteur: **Saurav Pradhananga**

Background

The drought session shed light on various aspects of droughts in the Koshi basin. A panel discussion with representatives from the three countries focused on enhancing drought resilience in the basin.

Key messages

Drought has been increasing in recent times, noticeably since 2000. Different drought indices and Earth observations can be used for drought monitoring and to understand drought duration, frequency, severity, and intensity.

Seasonal outlooks on regional drought monitoring can be useful for decision making. However, uncertainties in the forecast and future projections of drought should be considered.

There is a need to transfer knowledge to different stakeholders through capacity building for effective drought management and mitigation.

Institutionalizing scattered efforts to understand/manage drought would enhance drought management in the basin.

Key challenges

Lack of collaboration in drought monitoring work and ground data measurement

Transferring knowledge to different levels of stakeholders

Possible solutions

Cross learning among countries for data collection and monitoring, analysis, as well as translation of knowledge into information and advisory

Technological developments in various areas (e.g., developing drought-tolerant varieties of cultivars for different climatic regions, improving prediction/forecasting of droughts and impacts, etc.)

Joint research and policy advocacy initiatives across the transboundary basin

Ways to improve transboundary collaboration

Focus on understanding the drought situation, including drought monitoring and mapping, forecasting and future projections, and impact assessment, and translate this understanding into advisory for different end-users.

Set up mechanisms for providing information to end-users.

Collect/analyse data on the socioeconomic aspects of drought and its impacts (and not just its biophysical aspects).

Strengthen stakeholders' capacity to communicate drought research results in ways that meet end users' needs.

Pilot interventions in different eco-regions, synthesize learning, and develop strategies for scaling them out in the Koshi basin and the broader HKH region.

Help create an enabling environment for strengthening regional collaboration for drought risk management.

SESSION 5

Sharing transboundary collaboration opportunities

Session hosts: **Arun B. Shrestha**, **Kanchan Shrestha**, and **Santosh R. Pathak**
Rapporteurs: **Malin Ahlbäck** and **Sneha Verma**

Background

During this session, participants summarized the previous sessions on CBDRM, GLOFs, landslides and sedimentation, floods and droughts. This was followed by a presentation on GESI in DRR in the Koshi basin, which highlighted the need for GESI-responsive and sensitive interventions, collaboration, and knowledge dissemination. The second part of the session included a panel discussion among participants from China, India, and Nepal with the objective of building a common understanding of issues discussed in the previous sessions, how to create an enabling environment for transboundary collaboration, and the way forward. Questions to panelists were as follows:

- What are your recommendations to/priorities for the TWGs?
- How can transboundary efforts be effective, and can you and your organization support this initiative?

Key messages

TWGs discussions suggest that different actions are required for different hazards, but they all require collaboration across scales and sectors.

Need for GESI-responsive and sensitive interventions, collaboration and knowledge dissemination to be integrated in transboundary collaboration for DRR, especially at the local level

Need for collaboration among different levels and stakeholders for science-based interventions to be implemented at the community level in a sustainable and context-specific manner

Need for a common monitoring network for long-term observation of different hazards such as GLOFs, landslides, floods and droughts to be expanded; upstream-downstream linkages are important

Key challenges

There are limited long-term basin scale data and limited research on hazards, impacts, and effective solutions.

GESI principles are not upheld and there is a lack of a GESI responsive monitoring and evaluation framework.

Women are not represented in top levels of government because of sociocultural and economic barriers.

Outmigration of men has increased women's burden in farm and household and exacerbated social and gender inequality. As agricultural lands are abandoned and degraded, poverty is rising across the Koshi basin, causing food and nutritional insecurity.

Possible solutions

Risk management to ensure equitable access to technologies, collaborative research and risk assessments, and establishing intercommunity linkages such as citizens' networks.

Strengthen multi-actor collaboration and networks between government, institutions, and civil society and invest heavily in capacity building of local government in GESI.

Establish upstream–downstream linkages to share disaster events near real time taking both scientific and capacity building components into account.

Establish a common monitoring network to generate information for research, and install EWS in smaller rivers in the Koshi basin to prevent disasters downstream.

Engage youth in research/academic projects as well as other DRR activities.

Ways to improve transboundary collaboration

Provide opportunities for cross-learning and awareness raising on transboundary impacts and risk mitigation.

Allocate funds for research as well as information dissemination; use online platforms where suitable.

Establish a robust monitoring network to reduce the science–policy gap.

Create opportunities for young scientists to get involved in research projects.

Explore multi-stakeholder dialogues to explore collaborative solutions.

SESSION 6

Media

Session hosts: **Maxim Shrestha** and **Debabrat Sukla**
Rapporteurs: **Sharmila Dhungana**

LI YOU – REPORTING ON EXPERIENCES OF FLOODS IN CHINA

In China, increasing rainfall has resulted in more frequent floods, causing loss of life and property and infrastructure damage. The risk of COVID has been an additional threat, especially in airports, health facilities, etc. As studies have shown higher risks of rainfall events in China, more collaboration between reporters and the scientific community is needed.

China has focused on massive flood protection and the Three Gorges Dam also experienced the highest water levels this year. Economic loss from flood was higher than average in 2020.

Reporting on flood is important to show the impacts on people's livelihoods to the general public and policy makers. Especially in small communities, there is a shortage of working age people, so when a flood hits they struggle with emergency response. The government had to call people working away from home to help with flood response; reporters also have to focus on this aspect.

Strengthening infrastructures in small river basins should be a priority. In China, there are river basin committees which plan and manage flood response. These also help prevent upstream–downstream conflicts.

IMRAN KHAN – REPORTING ON THE IMPACTS OF THE COVID-19 PANDEMIC ON FLOOD CONTROL MEASURES IN NEPAL AND INDIA

More than 8 million people were affected by floods this year. The COVID-19 pandemic has impacted flood control measures in Nepal and India, especially the quality of embankments (many of them were substandard and reports of embankment breaking came from different areas). Embankment repair is carried out in Nepal and India; however, due to the lockdown this year, the state government of India did not get permission to enter Nepal for the repair, and flood preparedness measures were affected by the pandemic too.

The Indo-Nepal border dispute also affected flood control measures.

Erosion control activities got delayed significantly due to COVID. Materials such as sandbags could not be supplied.

The pandemic also impacted maize farmers in India. The lockdown disrupted the maize market and severely affected poor/marginal farmers as they had to sell their harvest at very low prices. The government has no policy to procure maize. Farmers have demanded maize procurement under Minimum Support Price (MSP), and they have been protesting.

DIYA RIJAL – REPORTING ON FLOODS REMOTELY

She reported on the socioeconomic aspects of flood during COVID and people returning from foreign employment, for which she interviewed government and people on the ground.

She also wrote an article on human activities that intensify the impacts of annual monsoon rain. She did a lot of research and talked to many people including experts.

Due to remote reporting, she was unable to observe the impacts of flood firsthand.

None of the experts she interviewed were women.

It is difficult for the wider audience to read many pages of research with technical jargon, so interactive methods of storytelling should be promoted. Capacity building of media personnel and developing a reporter's handbook would be helpful.

OMAIR AHMAD – REPORTING ON KOSHI: "KOSHI IS NOT YESTERDAY'S TRAGEDY"

The Koshi basin has been experiencing multiple hazards for a long time, but each time reporters approach this as a new thing.

As majority of the flood victims (by drowning) tend to be women, getting women's voices into the systems is important. There is a need to report how disasters can be managed better and to amplify women's stories. Since few women are working in DRR, disaster response is not gender responsive.

While reporting on floods, one needs to look at the issue holistically. One must consider upstream–downstream links as well as capture learning opportunities among basin countries.

It is important to get core journalists and academics to sit together, have a webinar, share good research, and help journalists understand the research.

Reporters must build on research/storytelling that has been done earlier.

Panel discussion

Platforms like the Koshi Basin Information System could have FAQs on basic data such as how many people are affected on average by floods, how are women disproportionately affected by floods, etc.

Data gaps are pertinent. In China, much of the data come from the government, although in recent years, think tanks and government have regularly shared data on casualty number, economic loss, etc. If such data could be disaggregated by region, gender, etc., it could be analysed more rigorously. Government officials could share details such as the situation of flood control, work completed, etc.

Use visual tools and infographics to make it easier for people to understand complex information.

There is not enough collaboration between journalists/media from upstream and downstream areas. Journalists should try to gain a better understanding of river basins and work together on fact-checking to ensure accurate information is reported.

The KDKH could provide journalists with explanations of technical terms and processes (e.g., how an early warning system operates) as well as success stories.

Journalists can use the network provided by the KDKH to understand the transboundary nature of the basin since journalists tend to focus on what happens in one country and overlook the transboundary aspect.

SESSION 7

KDKH going forward

KDKH strategy and guidelines

Session hosts: **Farid Ahmad** and **Santosh R. Pathak**
Rapporteurs: **Nishikant Gupta** and **Subina Shrestha**

Background

This session aimed to build consensus among participants on the mission, vision, outcomes, change pathways, and the governance of the KDKH. A panel deliberated on the way forward for strengthening the KDKH.

STRUCTURE OF THE KDKH STRATEGY – SANTOSH R. PATHAK

The KDKH strategy and guidelines seek to provide a clear pathway for developing and sustaining the KDKH. The document is still in draft form and presents a great scope for both inputs and ownership from the members.

The KDKH strategy outlines the purpose of the document and its rationale, while the guidelines focus on the governance and operational mechanism.

The strategy document should be in line with the Sendai Framework with a clear set of actions, and also with national strategies on DRR, including provincial strategies.

THEORY OF CHANGE CONCEPT – FARID AHMAD

The draft KDKH strategy and guidelines build on the theory of change concept to identify the short-term, mid-term and long-term objectives of the KDKH. The participants provided their inputs and feedback on the draft, and suggested changes to the vision, goals and outcomes of the draft strategy.

The pathways for change should include interdisciplinary research and knowledge sharing. The strategy needs to uphold principles of gender equality and social inclusion, as well as take into account the disproportionate impacts on the most vulnerable populations.

As there is growing interest and increasing sense of ownership and commitment among the basin countries and partners, as well as a number of good practices, these can be leveraged as key opportunities. The Koshi basin also has people and stakeholders with diverse knowledge and capacity across different scales, which presents an opportunity for multi-stakeholder engagement and collaboration for addressing water and climate issues in the region.

The KDKH should include multiple actors and stakeholders as members and maintain a gender balance in the working groups. Also important is scoping and including civil society organizations (CSOs), private sector, as well as citizen groups that work in a transboundary manner for disaster response.

The KDKH structure is likely to require not only stakeholder mapping but also analysis of power relations and influence.

Country chapters must take the lead for overall governance of the KDKH; however, they should be flexible as international agencies and institutions are also willing to join the hub. The role of country chapters in KDKH governance is very important. Government agencies can work to promote ownership and commitment of each country chapter and build cooperation among the three countries while providing country perspectives through country working groups. TWGs may not report to the country chapter but they must share actions and outcomes with the country chapter. China's modality could be slightly different from that of Nepal and India, and needs further discussion.

A regional level committee can be formed that will work with the Secretariat, with emphasis on country chapters for ownership. If country ownership is achieved through government, the same has to be reflected on a regional scale. Other international agencies, institutions, CSOs, etc. could be members with an advisory role. Chairs and vice chairs from country chapters must be part of broader regional cooperation or regional committee. Representatives from Yugantar, Institute of Mountain Hazards and Environment (IMHE), and DP-Net volunteered to support the formation of the country chapter.

SESSION 8

Summary and closing

During this session, participants summarized the discussions and key points from the previous sessions, highlighted the challenges and opportunities, and provided insights on the way forward for the KDKH.

Farid Ahmad summarized the strategy and guidelines session and Kanchan Shrestha provided a general summary of the previous sessions. Next, there was a panel discussion guided by the following questions:

What are your recommendations for the KDKH strategy and guidelines?

The hub needs to focus on how to organize the knowledge platform so that it is accessible to everyone down to the community level, and creating an enabling environment for collaboration between different stakeholders.

> "It is important for government agencies to be part of this knowledge hub."
>
> **– Sangeeta Singh**
> Deputy Director, Centre for Disaster Studies
> Institute of Engineering

> "Common priorities and important issues in the Koshi basin such as inefficient drainage from construction of embankments, waterlogging, and the needs at the grassroots level for resilience building are poorly understood. Together with the BSDMA, the NDMA could help strengthen the platform for these issues."
>
> **– Krishna Vatsa**
> National Disaster Management Authority, India

"Good practices have come out of this initiative. Government departments are likely to be very supportive of this collaboration. Through dialogue and demonstration of good practices, the buy-in will come automatically."

– **Sri P.N. Rai**, Member, Bihar State Disaster Management Authority

"We can promote the KDKH during activities in China and share research outputs and experience with the hub."

– **Su Lijun**, Vice Director General, Institute of Mountain Hazard and Environment, and Secretary General of CN-ICIMOD, CAS

"The Centre for Geographic Studies is conducting detailed analyses of how floods impact different communities differently. Small and marginal farmers are most impacted. The centre plans to open up a GIS/ remote sensing centre that could collect data, which can then be shared with the hub."

– **Poornima S. Singh,** Director, Centre for Geographical Studies, Aryabhatta Knowledge University, India

"The KDKH can attract technical experts including in agriculture, facilitate data sharing for research on upstream–downstream linkages, and support co-learning mechanisms. Young prospective students should be encouraged to join the KDKH."

– **Xiong Donghong**, Professor, IMHE, CAS, China

The three country chapters will contribute to the strategic direction of the hub, and also contribute to networking and knowledge exchange.

Clarification needed on funding sources, coordinator and co-coordinator, membership criteria, female participation quota, and the structure of the steering committee.

Need to discuss whether the different tiers are needed, as the KDKH should support rapid exchange of knowledge, e.g., real-time data exchange in case of hazard

Need to clarify the definition of a knowledge hub so that the members know what they can obtain from the hub

-Need to gauge the willingness to share data across borders for research and establish a mechanism for encouraging people to share their data

What could be the process for finalizing the strategy and guidelines?

- The steering committee could be involved in deciding the structure.
    - National steering committee representing national initiatives, including government agencies at different levels and communities to ensure ownership and community-based aspects
    - Regional steering committee above the national steering committee to facilitate regional knowledge sharing
- Once country chapters are formed, the strategy and guideline can be discussed at the provincial level and below. All levels need to be involved in Koshi basin DRR planning to get different perspectives, so consultations should be held at different levels and interactions should be carried out with other agencies.
- Knowledge from these sessions can be used to revise the draft and shared with the planning commission for country chapter formation. The National Planning Commission, Government of Nepal, will work with other relevant agencies to form the country chapter.

"The KDKH can be an example of how to bring science, policymakers and practitioners together to develop plans and policies that reduce risks and improve livelihood. The National Planning Commission is now working on the formation of the Nepal country chapter. DRR and development need to go hand-in-hand."

– Biju Shrestha
Joint Secretary, National Planning Commission, Nepal

"Greater inter-governmental collaboration is needed to address problems which are transboundary in nature. Achieving the targets of the Sendai Framework for DRR, the 2030 Agenda of Sustainable Development, and the Paris Agreement is only possible with meaningful engagement of multilateral agencies, government at all levels – international to local, academia research institutions, and local communities."

– Ayshanie Medagangoda Labe
Resident Representative of the United Nations Development Programme

"We need to build a common understanding of DRR and develop evidence-based strategies, strengthen collaboration, enhance people-based initiatives, and promote active participation of local agencies."

– Janak Dahal
Joint Secretary, Ministry of Home Affairs, Nepal

"Climate change has been creating huge problems which need to be solved together. The KDKH can help us share experiences, knowledge, and good practices to build safer communities. BSDMA is willing to be a facilitator to take the work forward."

– Shri P.N. Rai
Member, Bihar State Disaster Management Authority

"People in the Koshi basin share the same challenges and opportunities. Thus, regional cooperation is crucial and the KDKH will play an important role in building cooperation. This dialogue is a landmark event and has been successful in meeting its objectives and showing a possible way forward."

– Arun B. Shrestha
Regional Programme Manager, River Basins and Cryosphere, ICIMOD

How can we ensure greater buy-in from national stakeholders?

- Transboundary cultural connections and interlinkages could be emphasized.
- The KDKH can support and initiate inter-governmental dialogue where non-governmental perspectives can also be taken into account.
- Communities in India and Nepal have been able to build trust and acknowledge each other's needs. For example, communication for early warning initiatives has improved and continues to grow.
- The KDKH needs to build on work that has already been done and think about what different actors can get from the hub. This provides an opportunity to assess the interest/willingness of members for joining and contributing to the hub.
- Important to highlight regional human development (HH level, terms of assets, landholdings, livelihood, etc.). Areas vulnerable to recurrence of flood have seen huge outmigration of men, which has increased pressure on women and weakened education and health outcomes. Data on such social impacts of disaster (in addition to immediate disaster impacts) can be useful for advocacy.

Closing remarks were provided at the end of the session, emphasizing the need to achieve consensus on government mechanisms, form country chapters, continue to work within the TWGs, and work on common priorities and the operational structure of the KDKH.

Additional event information and materials are available at:
https://www.icimod.org/event/annual-dialogue-on-koshi-disaster-risk-reduction-knowledge-hub/

Proceedings prepared by Subina Shrestha, Nishikant Gupta, and Kanchan Shrestha
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International Centre for Integrated Mountain Development
GPO Box 3226, Kathmandu, Nepal
T +977 1 5275222 | **E** info@icimod.org | **www.icimod.org**