ASIA-PACIFIC NETWORK FOR GLOBAL CHANGE RESEARCH

FINAL REPORT

GoAL: Gender-orientated Adaptive Transformation cross-Learning for climate change and disaster risk resilience among India, Nepal, Sri Lanka and Japan



CBA2023-06MY-Harshit

2026

Project Reference Number: CBA2023-06MY-Harshit

Project Duration: 1 October 2023 – 30 September 2026

Funding Awarded: USD 79,987

Grant DOI: https://doi.org/10.30852/p.25924

Date of Publication: 31 October 2026

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Recommended Citation:

Lakra, H. S., Dabral, A., Kakuchi, S., Mehrotra, S., Minz, S., Poudel, S., & Wickramasinghe, D. (2026). Gender-orientated adaptive transformation cross-learning for climate change and disaster risk resilience among India, Nepal, Sri Lanka, and Japan. Project Final Report. Asia-Pacific Network for Global Change Research.

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1. Summary

Project GoAL (Gender-orientated Adaptive Transformation cross-Learning) created a shared space for co-designing, co-researching and cross-learning among researchers, practitioners and communities in four APN member countries - India, Nepal, Sri Lanka and Japan - on gender-oriented adaptive transformation in climate change adaptation (CCA) and disaster risk reduction (DRR). It started from a simple observation: women, particularly in tribal, rural and marginalised communities, experience climate and disaster risks differently from men, yet their knowledge rarely reaches planning and policy. GoAL set out to change that by placing community members, and especially women, at the centre of research and communication.

At the heart of the project was the Training of Community Trainers (ToCT). Over three years, 39 community knowledge partners - mostly young women and men from Indigenous and disadvantaged communities - were trained across five case study sites: Udham Singh Nagar (Uttarakhand), Dumka (Jharkhand) and Bishnupur (Manipur) in India, Chitwan in Nepal and Gampaha in Sri Lanka. Working in their own languages, they used focus group discussions, transect walks, participatory mapping, folk songs, handicrafts and flashcards to co-produce case studies on six themes. Japan's experience of community-based DRR was brought in through a literature- and expert-based case study, and the work was extended to Bangladesh through bridge funding from the Himalayan University Consortium (HUC), ICIMOD.

The project held 20 in-person workshops, 8 online and hybrid workshops and a seven-day International Policy Round Table (7-13 January 2025; 45 participants, 34 sessions). Co-design moved up through every level of governance: in Uttarakhand, from Nagautaggu village to Khatima block and the state; in Jharkhand, from two Chigal Pahari community workshops to two Dumka district workshops and a state-level co-review with JSLPS; and in Manipur, from community focus group discussions to district stakeholder dialogues at the DC Office, Bishnupur. In Chitwan and Gampaha, field visits and co-designing workshops brought local stakeholders and communities together, and Sri Lanka hosted the first ToCT workshop. Forty Master's students at IIT Roorkee and MANIT Bhopal, 7 interns and 6 early-career professionals learnt alongside communities.

The results are visible across sites. Findings on women's multi-sectoral climate burdens in Uttarakhand are published as a Springer chapter; the Bishnupur study documented Indigenous strategies for living with floods; a comparative study of adaptation practices in Nepal, India and Sri Lanka was presented in Brazil; and the University of Colombo developed a training module on gender-wise determination of disaster risk. In Chigal Pahari (Dumka), residents painted a participatory risk map on a village wall in traditional Santhali style, and district leadership recommended regular women-only village meetings. Community knowledge partners in Dumka also produced 32 podcast videos in Santhali - a "memory-environment dialogue" on topics like seeds, water, soil, birds and sacred groves - creating a community-owned archive of Indigenous ecological knowledge.

With a journal article in *Environmental Research: Climate* comparing Indigenous knowledge across India, Nepal and Sri Lanka - now translated into Santhali, Kurukh and Hindi so that the

findings return to the communities they came from - six conference presentations and the project website (https://www.iitr-apn-goal.com), GoAL leaves behind trained local researchers, tested tools and an evidence base for gender-oriented climate and disaster resilience in South Asia and beyond.

2. Objectives

1. **Co-design the case study framework and train community trainers**
   - Work with community representatives to co-design a framework that captures women's and men's experiences of adaptive transformation in CCA and DRR, and select suitable tools through a joint needs assessment
   - Train community representatives on gender, CCA and DRR, and on community-oriented research tools, data collection, analysis and communication
2. **Build case studies on gender-sensitive adaptive transformation in CCA and DRR and prepare training resources**
   - Develop case studies in India, Nepal and Sri Lanka, complemented by a literature- and expert-based case study from Japan, using narratives, films, photo essays, maps and other community-friendly formats
   - Turn the case studies into training resources drawn from diverse geographic and cultural settings
3. **Share knowledge and co-learn across regions**
   - Host community, district, state and international workshops, exhibitions and policy dialogues for communities, stakeholders, policymakers and institutions
   - Disseminate findings through the project website, publications and freely downloadable training content

3. Outputs, Outcomes and Impacts

Outputs	Outcomes	Impacts
Co-designed case study framework covering six thematic areas, with gender-disaggregated dimensions and indicators, developed through co-design and input workshops (October-November 2023)	A shared analytical framework applied consistently across all case study sites, allowing comparison between countries while keeping local context Developed Teaching and Learning material	A replicable conceptual framework linking climate change, disaster risk and gender inequality, now published in peer-reviewed literature and open for reuse by researchers and practitioners
39 community knowledge partners/community trainers trained in Uttarakhand, Jharkhand and Manipur (India), Nepal and Sri Lanka	Knowledge partners led focus group discussions, mapping and documentation in their own languages, enabling women/marginalised community members who are usually excluded from formal decision-making to take part in workshops Trained community knowledge partners for long term knowledge generation and facilitation	A cadre of local, mostly young and Indigenous researchers able to carry climate and disaster conversations forward in their own communities beyond the project timeline
5 field-based case studies (Udham Singh Nagar, Dumka, Bishnupur, Chitwan and Gampaha), a literature- and expert-based case study on Japan, and an extended case study in Bangladesh supported by HUC-ICIMOD bridge funding	Grounded, comparable evidence from every site: multi-sectoral gendered climate impacts in Uttarakhand; Indigenous flood adaptation in Bishnupur; the feasibility of adaptation practices in Nepal, India and Sri Lanka; gender-wise disaster risk in Sri Lanka; and in Dumka, women's added drudgery from water and fuelwood scarcity alongside community-led adaptation such as drought-tolerant rice and collective bans on tree felling	An evidence/ narrative base that brings Indigenous and women's knowledge into CCA and DRR discussions across South Asia and the Hindu Kush Himalaya (HKH) region

Outputs	Outcomes	Impacts
20 in-person workshops across the case study sites - Uttarakhand (5), Jharkhand (5), Manipur (3), Nepal (2), Sri Lanka (2), Bangladesh (1) and IIT Roorkee (2) - spanning community, block, district and state levels, plus hands-on training in climate models, survey design and GIS	Community priorities carried upward and tested with decision-makers: village findings in Udham Singh Nagar were taken to block (Khatima) and state level; Chigal Pahari findings to Dumka district and Jharkhand state; in Bishnupur, community focus group discussions fed directly into a district stakeholder dialogue at the DC Office; and local stakeholders in Chitwan and Gampaha co-designed the case study approach	Stronger links between communities and governance at several levels - for example, Dumka district leadership recommended regular women-only village meetings so that gender issues overlooked in gram sabhas are heard, and Jharkhand state departments and JSLPS reviewed and refined the case study recommendations
8 online and hybrid workshops, including "Learning from Japan: DRR - National and Local Policy, Grassroots Activities and Gender Perspectives"	Cross-country learning on Japanese practice such as Machizukuri (community-led local development), mutual support in recovery and intergenerational disaster memory	A regional network of researchers and practitioners exchanging gender-responsive DRR practice between South Asia and Japan
International Policy Round Table (7-13 January 2025): 34 sessions over five days plus a field visit, with 45 participants	Policymakers, experts, practitioners and community representatives co-developed recommendations for gender-responsive CCA and DRR policy	Recommendations available to national and subnational decision-makers, providing a basis for mainstreaming gender in climate and disaster policy
Community risk communication tools: a participatory wall map painted in traditional Santhali style in Chigal Pahari (Dumka), folk songs, handicrafts and flashcards	Risk information made visible and accessible to everyone, regardless of literacy or language, and owned by the community that created it	Low-cost, culturally rooted communication tools that other villages and practitioners can adapt and replicate within their cultural systems

Outputs	Outcomes	Impacts
32 community podcast videos, "Memory-environment dialogue", shot entirely in Santhali by community knowledge partners in Dumka, across 14 themes (fish, seeds, birds, snakes and reptiles, water, soil, trees, insects, kinship, domestic and wild animals, vegetables and sukti, roots, medicinal plants and sacred groves)	Elders, women and youth documented what they remember and what has changed in their environment; knowledge partners gained interviewing, filming and storytelling skills	A community-owned digital archive of Indigenous ecological knowledge in Santhali that helps safeguard this knowledge for future generations and makes it accessible to researchers and policymakers Local language also provides data sovereignty to the community members
Classroom integration with 40 Master's students from IIT Roorkee and MANIT Bhopal; 7 interns and 6 early-career professionals supported	Students gained field-based experience in community engagement, participatory research and gender-responsive planning, and presented the Jharkhand case study to state officials	A new generation of planners equipped to bring gender and community knowledge into climate and disaster planning, and a tested model for linking applied research with planning curricula
Knowledge products: 1 peer-reviewed journal article (translated into Santhali, Kurukh and Hindi), 1 Springer book chapter, 1 contribution accepted for publication, 6 conference presentations, 1 invited lecture, 1 newsletter article and theme wise training tools	Stronger research-to-policy interface through academic dissemination and stakeholder dialogue	Contribution to regional and global discourse on gender, climate change and disaster risk through peer-reviewed research and open educational resources
Translations of the project's peer-reviewed journal article (Mehrotra et al., 2026) into Santhali and Kurukh, two Indigenous languages of Jharkhand, and into Hindi, prepared and reviewed by translators from these language communities and freely available on the project website	Research findings returned to the communities whose knowledge shaped them, in their own languages, so that community knowledge partners, local leaders and readers outside academia can read, discuss and use them	A fairer flow of knowledge between science and communities, support for Indigenous languages in climate and disaster research, and a model for returning research to the people it is about
Project website (https://www.iitr-apn-goal.com), launched in January 2025 and maintained by IIT Roorkee	Improved visibility of, and access to, project resources, case studies and good practices	Lasting learning infrastructure for gender-responsive climate and disaster resilience

4. Key facts/figures

1. **3 years** of implementation across **4 countries** - India, Nepal, Sri Lanka and Japan - and **5** field-based case study sites
2. **39** community knowledge partners/community trainers trained across Uttarakhand, Jharkhand and Manipur (India), Nepal and Sri Lanka
3. **29** capacity-building, co-design and policy events**:** 20 in-person workshops, 8 online/hybrid workshops and a seven-day International Policy Round Table (34 sessions, 45 participants) - see the site-wise breakdown below
4. **All four levels of governance** engaged in India: community (5 workshops), block (1), district (4) and state (2), alongside district and community workshops in Chitwan (Nepal), Gampaha (Sri Lanka) and Kolapara (Bangladesh)
5. **5** field-based case studies (Uttarakhand, Jharkhand, Manipur, Nepal and Sri Lanka), complemented by a case study on Japan and an extended case study in Bangladesh through HUC-ICIMOD bridge funding
6. **30** community podcast videos in Santhali on **14** themes, produced by community knowledge partners in Dumka, and **1** community-painted participatory wall map in Chigal Pahari, Dumka.
7. **40** Master's students (MURP, IIT Roorkee and MANIT Bhopal) trained through classroom integration
8. **7** interns and **6** early-career professionals (4 in project management, 2 in website development) supported
9. **1** peer-reviewed journal article, translated into **3** languages (Santhali, Kurukh and Hindi); **1** Springer book chapter and **1** contribution accepted for publication
10. **6** conference presentations (India, Nepal and Brazil) and **1** invited lecture

Workshops and engagements by case study site:

Case study site	Workshops and engagements	Levels reached	No. of events
Udham Singh Nagar, Uttarakhand (India)	Field visit with transect walks and FGDs, Khatima (5-8 Dec 2023); detailed field visit (2-5 Mar 2024); Nagautaggu Community Workshop (4 Mar 2024); Khatima Block-Level Stakeholder Participation & Co-Designing Workshop, Block Development Office, Khatima (5 Mar 2024); Uttarakhand State-Level Stakeholder Participation & Co-Designing Workshop, IIT Roorkee (6-7 Mar 2024)	Community, block, state	5
Dumka, Jharkhand (India)	Chigal Pahari Community Co-Designing Workshop, Chigal Pahari, Jama (1 Jul 2024); Dumka District Stakeholder Participation & Co-Designing Workshop, Block Development Office, Dumka (3 Jul 2024); Chigal Pahari Community Co-Designing Workshop II (11 Sep 2024); Dumka District Stakeholder Participation & Co-Designing Workshop II, DC Office, Dumka (12-13 Sep 2024); GIS Hands-on Training, BIT Mesra, Ranchi (15-16 Sep 2024); Jharkhand State-Level Stakeholder Engagement & Co-Review Workshop, IIT Roorkee/online (5 Nov 2024)	Community, district, state	6 (5 in-person + 1 online)
Bishnupur, Manipur (India)	Bishnupur District Stakeholder Participation & Co-Designing Workshop, IIT Roorkee (7 Jan 2025, held during the International Policy Round Table); Bishnupur Community Focus Group Discussions (20-21 May 2025); Bishnupur District Stakeholder Focus Group Discussion on Climate Change Adaptation, Conference Hall, DC Office, Bishnupur (22 Aug 2025); Bishnupur Community Focus Group Discussions II (23 Aug 2025)	Community, district	3 (plus 1 held during the Round Table)
Chitwan, Bagmati Province (Nepal)	Field visit and Chitwan District-Level Workshop (26-29 Feb 2024), including a stakeholder participation & co-designing workshop (27 Feb 2024)	Community, district	2
Gampaha, Western Province (Sri Lanka)	Gampaha District Stakeholder Participation & Co-Designing Workshop (2 Aug 2024); Gampaha Community Workshop on Climate & Disaster Resilience, including the first Training of Community Trainers (13 Nov 2024)	District, community	2

Kolapara, Patuakhali (Bangladesh) - extended study, HUC-ICIMOD	Kolapara Community Workshop on Climate and Disaster Resilience, Kolapara Upazila (19 Apr 2025)	Community	1
Cross-site training and cross-learning (IIT Roorkee and online)	Online workshop on DRR in Japan (11 Oct 2023); hands-on training on weather prediction and climate models (16-20 Oct 2023) and survey parameters (3 Nov 2023); co-designing the case study framework (27-28 Oct 2023, hybrid); OpenStreetMap training (6-10 Nov 2023, hybrid); two indicator input workshops (13 and 15 Nov 2023); Learning from Japan (Nov 2023); co-review and co-planning across all case studies (7 Nov 2024); International Policy Round Table (7-13 Jan 2025)	Regional, international	2 in-person + 7 online/hybrid + 1 Round Table
Total	**20 in-person workshops, 8 online/hybrid workshops and 1 International Policy Round Table**		**29**

5. Publications

Journal articles and book chapters

1. Mehrotra, S., Lakra, H. S., Dabral, A., Poudel, S., Minz, S., Wickramasinghe, D., Kumari, M., Kanathoor, M., Sahoo, A., Sapkota, B., Darshika, N., Kakuchi, S., & Shaw, R. (2026). Integrating indigenous knowledge into climate change adaptation to strengthen community resilience: Case studies from India, Nepal, and Sri Lanka. *Environmental Research: Climate, 5*(4), 045004. https://doi.org/10.1088/2752-5295/ae9631
2. Dabral, A., Lakra, H. S., Kumari, M., Mehrotra, S., Minz, S., Kanathoor, M., Poudel, S., Wickramasinghe, D., Kakuchi, S., Chatterjee, R., & Shaw, R. (2025). Climate crisis and its differential impacts: Multi-sectoral gender perspective from Uttarakhand, India. In: Abedin, M.A., Parvin, G.A., Takashino, N., Shaw, R. (eds) Climate Crisis in South and East Asia. Sustainability Solutions. Springer, Cham. https://doi.org/10.1007/978-3-032-01012-4_5
3. Lakra, H. S., Minz, S., Kanathoor, M., Mehrotra, S., Dabral, A., Wickramasinghe, D., Poudel, S., Jahan, N. N., Dema, C., & Noori, S. (in press). Gender-oriented adaptive transformation as a multi-scalar, long-term process of behavioural and institutional change for climate change adaptation and disaster risk reduction through co-design, co-research, and cross-learning in the Asia-Pacific and HKH regions [Abstract accepted for publication]. *Environmental Research: Climate*, Focus Collection on Bottom-up Construction of Climate Risk Information.

Translations of the journal article

4. Mehrotra, S., Lakra, H. S., Dabral, A., Poudel, S., Minz, S., Wickramasinghe, D., Kumari, M., Kanathoor, M., Sahoo, A., Sapkota, B., Darshika, N., Kakuchi, S., & Shaw, R. (2026). *Integrating indigenous knowledge into climate change adaptation to strengthen community resilience: Case studies from India, Nepal, and Sri Lanka* [Santhali translation, Devanagari script]. Translated by Snigdha Hansda (lead translator) and Sandip Kisku; reviewed by Manisha Murmu; proofread by Shantilata Murmu. GoAL Project, IIT Roorkee. https://api.iitr-apn-goal.com/media/pdfs/resources/Mehrotra_et_al_2026_Santhali_Translation.pdf
5. Mehrotra, S., Lakra, H. S., Dabral, A., Poudel, S., Minz, S., Wickramasinghe, D., Kumari, M., Kanathoor, M., Sahoo, A., Sapkota, B., Darshika, N., Kakuchi, S., & Shaw, R. (2026). *Integrating indigenous knowledge into climate change adaptation to strengthen community resilience: Case studies from India, Nepal, and Sri Lanka* [Kurukh translation, Devanagari script]. Translated by Riya Kujur (lead translator) and Aisha Tete (equal contribution); reviewed by Jyoti Vandana Lakra (lead reviewer) and Akanksha Tirkey (equal contribution); proofread by Nagraj Oraon. GoAL Project, IIT Roorkee. https://api.iitr-apn-goal.com/media/pdfs/resources/Kurukh_Paper_Translation.pdf
6. Mehrotra, S., Lakra, H. S., Dabral, A., Poudel, S., Minz, S., Wickramasinghe, D., Kumari, M., Kanathoor, M., Sahoo, A., Sapkota, B., Darshika, N., Kakuchi, S., & Shaw, R. (2026). *Integrating indigenous knowledge into climate change adaptation to strengthen community resilience: Case studies from India, Nepal, and Sri Lanka* [Hindi translation]. Translated by Monu Kumari (lead translator) and Tamrej Alam; reviewed by Wreath Tete (lead reviewer); proofread by Ankush. GoAL Project, IIT Roorkee. https://api.iitr-apn-goal.com/media/pdfs/resources/Hindi_Trans_CCA_Paper_1.pdf

Conference presentations and lectures

7. Lakra, H. S., Minz, S., Kanathoor, M., Murmu, M., Murmu, R., Suria, P., & Bharti, A. (2026, April). *Memory-environment dialogue: Tribal epistemologies for an environment-friendly Bharat*. Paper presented at the International Conference on Vision 2047: Prosperous and Great Bharat 2.0, Indian Institute of Technology Roorkee, Roorkee, India. https://api.iitr-apn-goal.com/media/pdfs/resources/Session8_Environment_Harshit_Lakra.pdf
8. Lakra, H. S. (2026, February). *Adaptive transformation for climate change and disaster risk reduction* [Invited lecture, online]. MEASI Academy of Architecture, Chennai, India.
9. Poudel, S. (2025, November). *Assessing the feasibility of climate adaptation practices in South Asia: An empirical study from Nepal, India and Sri Lanka*. Paper presented at the Global Climate Smart Agriculture Conference, Brasília, Brazil. https://api.iitr-apn-goal.com/media/pdfs/resources/4._Poudel_S._2025_November_57.pdf
10. Mehrotra, S., Lakra, H. S., Kumari, M., Sahoo, A., & Deshpande, P. (2025, November). *Enabling local adaptation strategies for flood risk in Indigenous communities: A case study of Bishnupur, Manipur*. Paper presented at the International Conference cum Workshop on Urban Liveability - Navigating Climate Extremes in the Global South, Maulana Azad National Institute of Technology, Bhopal, India. https://api.iitr-apn-goal.com/media/pdfs/resources/3._Mehrotra_et_al_2025_conferance_paper.pdf
11. Dabral, A., Lakra, H. S., & Kumari, M. (2024, June). *Empowering resilience: Addressing climate change and disaster risk through a gender lens in Khatima, Udham Singh Nagar, Uttarakhand, India*. Paper presented at the International Conference on Applied Science and Engineering in Changing World (ICASECW-24), Pokhara University, Pokhara, Nepal.
12. Lakra, H. S. (2024, June). *Experience of youth engagement in CCA and DRR: Insight into classroom integration and community trainers*. Paper presented at the International Conference on Applied Science and Engineering in Changing World (ICASECW-24), Pokhara University, Pokhara, Nepal.
13. Lakra, H. S., & Kanathoor, M. (2024, June). *Cross-cultural learning and gender-oriented adaptation: Enhancing resilience in India, Nepal, and Sri Lanka*. Paper presented at the International Conference on Applied Science and Engineering in Changing World (ICASECW-24), Pokhara University, Pokhara, Nepal.

Other knowledge products

14. Lakra, H. S. (2025, November 10). The art of adaptation: Santhal wall paintings for gender-oriented climate narratives and actions. *Tishman Newsletter* (online). https://api.iitr-apn-goal.com/media/pdfs/resources/5._Lakra_H._S._2025_November_10.pdf
15. Wickramasinghe, D. (2025). *Gender-wise determination of disaster risk: Workshop module*. Colombo, Sri Lanka: University of Colombo.

6. Media reports, videos and other digital content

1. **Memory-environment dialogue: community podcast series (32 videos, Santhali).** Shot entirely in Santhali by community knowledge partners in Dumka district, Jharkhand, the series records conversations with elders, women and youth across 14 themes - fishes, seeds, birds, snakes and reptiles, water, soil, trees, insects, kinship, domestic and wild animals, vegetables and sukti, roots, medicinal plants and sacred groves - exploring what people remember, what has changed and what this means for living with a changing climate. The videos are being released on YouTube on 02 November 2026 (Drive link for

Episodes: https://drive.google.com/drive/folders/1-gu1cRhnpfcJ7yDuNXnqsHgX6dlpnnxR?usp=sharing)

2. **Podcast:** CLIMATE CHANGE || इंसानों और पर्यावरण पर इसका प्रभाव, कारण और समाधान (Climate change: Its impact on people and the environment, causes and solutions) || Prof. Harshit Lakra, IIT Roorkee. The Tribals Unplugged, YouTube, 21 September 2024. https://www.youtube.com/watch?v=p02thZ-6X9g
3. **Project website:** https://www.iitr-apn-goal.com - case studies, workshop reports, training resources and project updates

7. Pull quotes

"We began our project recognizing that limited co-learning capacities and differences in power, status, class, gender, values, aspirations, and ethnicity constrain collective action (Armitage et al., 2008). Through the APN Goal project, we are glad that we collectively understood and challenged these limitations. Researchers, communities, students, institutions, and stakeholders had immense opportunities to co-learn, cross-learn, and build long-term relationships across India, Nepal, Sri Lanka, Japan, and beyond to act together at local and regional levels. Together, we developed locally grounded learning materials respecting data sovereignty. By acknowledging communities' capacities and creating platforms for co-learning and cross-learning, we sought to trigger adaptive transformation towards gender-oriented climate change adaptation and disaster risk resilience. I would say working with all women leaders within the project and with APN was fantastic and empowering."
- Dr. Harshit Sosan Lakra, PI, GoAL

"I joined GoAL hoping to contribute, but I came away with far more than I gave. In Gampaha, I walked through villages still recovering from floods and landslides, and sat with women who told us how they had lost their crops, their savings and sometimes their homes. At our community workshop in Sudewella, schoolchildren wrote letters and drew pictures of what disasters meant to them - some of those drawings I will never forget. Working alongside researchers and community partners from India, Nepal and Sri Lanka taught me that research is not only about collecting data. It is about listening, learning from one another and growing together."
- Nimali Darshika, Research Associate, Sri Lanka case study

"Being part of GoAL was a golden opportunity for me. As we sat with families in our villages and spoke in Santhali, elders shared memories of a time when the rains came on time, the ponds were full of fish and the forest gave us everything we needed. Women told us how far they now walk for water, and how they still turn to the plants their mothers taught them about when someone falls ill. Recording these stories for our podcast series, I realised that our memories are a kind of knowledge - they show what has changed and what we must protect. When I spoke at the International Policy Round Table at IIT Roorkee, I carried my village's voice

into a room of policymakers and experts. For the first time, I felt that our experiences truly mattered in the conversation on climate change."
- Reshma Murmu, Community Knowledge Partner, Dumka, Jharkhand

8. Acknowledgments

We extend our heartfelt gratitude to Mother Earth, and to every person and institution who walked this journey with us.

Indigenous and local communities: We are deeply grateful to the Indigenous and local communities of Udham Singh Nagar (Uttarakhand), Dumka (Jharkhand) and Bishnupur (Manipur) in India, Chitwan in Nepal and Gampaha in Sri Lanka. They opened their homes, shared their memories and knowledge, and shaped this work.

Community knowledge partners: Uttarakhand - Tanuja Dhami, Jyoti Bhat, Rinki Rana, Sonia Bhatt, Pooja Mehta and Savita Rana; Jharkhand - Ramesh Marandi, Reshma Murmu, Rajesh Kumar Hembrom, Binay Soren, Snigdha Hansda, Sandip Kisku, Neha Murmu, Shantilata Murmu, Jayanthi Murmu and Manisha Murmu; Manipur - Laishram Rachandra Singh, Shaikhom Linthoingambi Devi, Thokchom Nirmala Devi and Kshetrimayum Suresh Singh; Nepal - Bishnu Maya Sapkota, Jasmin Acharya, Srijana Bogati, Hemant Kumal, Dev Narayan Mahato, Ratnamaya Mahato, Nisha Mahato and Chandra Mahato; Sri Lanka - Harsha Dahanayake, Sujeewa Kumari and Kalawathi.

Student partners: Master of Urban and Rural Planning (MURP) students of IIT Roorkee, classes of 2022-2024 and 2023-2025, and Master's students of MANIT Bhopal, classes of 2023-2024 and 2024-2025.

Government partners:
Local, district and state governments of Uttarakhand, with special thanks to Ms. Kusum Ghildhiyal (Convenor, Uttarakhand IAG) and Dr. Deepshikha Rawat (Subject Matter Expert, Disaster Management, Advisory Support Group, Chief Minister's Office, Government of Uttarakhand).

Local, district and state governments of Jharkhand, with special thanks to Anjaneyulu Dodde, I.A.S. (Deputy Commissioner, Dumka); Abhijeet Sinha, I.A.S. (Additional Deputy Commissioner, Dumka); Satvik, I.F.S. (Divisional Forest Officer, Dumka); Pritilata Murmu (District Public Relations Officer, Dumka); Joyce Besra (Chairperson, Dumka Zila Parishad); Nishant Ekka (District Programme Manager, JSLPS, Dumka); Bishnu C. Parida (Chief Operating Officer, JSLPS, Jharkhand); Bimla Kisku (Mukhiya, Chigal Pahari Panchayat); and Baghray Marandi (Jog Manjhi).
Local, district and state governments of Manipur, with special thanks to Dr. T. Brajakumar Singh (Director, Environment and Climate Change, Manipur) and Pooja Elangbam (Deputy Commissioner, Bishnupur, Manipur).

Local government bodies and stakeholders in Chitwan, Nepal, and Gampaha, Sri Lanka, for their participation in the co-designing workshops.

NGOs and community-based organisations: Centre for Empowerment and Livelihood, Uttarakhand (special thanks to Mohan Pant), and Lahanti Organisation, Dumka, Jharkhand (special thanks to Bitiya Murmu).

Resource persons and training partners: Prof. Takako Izumi, Ms. Mitsuko Otsuyama, Ms. Fumiko Horiguchi and Ms. Suvendrini Kakuchi, for sharing Japan's experience of disaster risk reduction; Dr. Piyush Srivastava (CoEDMM, IIT Roorkee); Open Mapping Guru; Ms. Nishi Kullu (Jharkhand Space Applications Center) and BIT Mesra, Ranchi; and Pokhara University, Nepal.

Translators and reviewers: for making the project's journal article available in community languages - Santhali: Snigdha Hansda, Sandip Kisku, Manisha Murmu and Shantilata Murmu; Kurukh: Riya Kujur, Aisha Tete, Jyoti Vandana Lakra, Akanksha Tirkey and Nagraj Oraon; and Hindi: Monu Kumari, Tamrej Alam, Wreath Tete and Ankush.

Funding agencies: Asia-Pacific Network for Global Change Research (APN), under Grant No. CBA2023-06MY-Harshit, and the International Centre for Integrated Mountain Development (ICIMOD), through the Himalayan University Consortium (HUC).

In-kind contributions: Lead institution - Indian Institute of Technology Roorkee (IITR), Roorkee, India, through the Department of Architecture and Planning and the Centre of Excellence in Disaster Mitigation and Management. Participating institutions - Maulana Azad National Institute of Technology (MANIT), Bhopal, India; Jawaharlal Nehru University (JNU), New Delhi, India; RIKA India; Science Hub, Kathmandu, Nepal; and the University of Colombo, Sri Lanka.

Finally, we thank the interns, early-career professionals and project team, whose energy and commitment carried this work across countries.

9. Appendices

List of appendices (attached as separate files):

- Appendix 1 - Compiled Reports of Workshops, Field Visits and Stakeholder Engagements
- Appendix 2 - International Policy Round Table Report