



Schweizerische Eidgenossenschaft  
Confédération suisse  
Confederazione Svizzera  
Confederaziun svizra

Swiss Agency for Development  
and Cooperation SDC

# Workshop on Managing Mountain Hazards (Rock-Ice Avalanches, Rockfalls, and Debris Flows) in the Indian Himalayan Region

Date: 11<sup>th</sup> -12<sup>th</sup> November 2025

Venue: India International Centre - Annex Building  
(Lecture Hall-2, Basement), 40, Max Mueller Marg, New Delhi 110003

Location: <https://maps.app.goo.gl/8um2fh5fBduVhq069>

## Introduction

The Indian Himalayan Region (IHR), with its steep terrain and fragile ecosystems, is increasingly exposed to cascading mountain hazards—rock-ice avalanches, rockfalls, debris flows, landslides and floods. The frequency and intensity of these events are rising due to climate change, often triggered by extreme weather or other factors.

These necessitate a science-based understanding of geomorphic and climatic processes, along with localized and integrated risk assessments tailored to the region's unique vulnerabilities. Addressing these challenges requires coordinated efforts among scientific and technical institutions, government departments, and practitioners.

The **Strengthening Climate Change Adaptation in the Himalayas (SCA-Himalayas)** project, supported by the **Swiss Agency for Development and Cooperation (SDC)**, exemplifies an integrated approach. The project builds technical capacity and supports risk-informed planning through advanced Indo-Swiss collaborative research. Focusing on high-risk mountain hazards such as rock-ice avalanches SCA-Himalayas is contributing to advance long-term risk reduction and enhances the resilience of mountain ecosystems and communities.

## Background

The catastrophic rock-ice avalanche of February 2021 in Chamoli, Uttarakhand, which claimed over 200 lives and destroyed vital hydropower infrastructure, highlighted the urgent need for stronger disaster preparedness in the Himalayan region. In response, under the SCA-Himalayas framework, a **collaborative initiative between the WSL Institute for Snow and Avalanche Research SLF (Switzerland), the Central Building Research Institute (CBRI), Roorkee, and SDC India** is advancing hazard modelling in Uttarakhand. The initiative involves pilots and validates innovative tools for thermomechanical modelling of rock-ice avalanches to support large-scale hazard maps, and satellite-based detection of mass movements in the Patalganga region. These key studies test and validate new approaches to ensure they serve as reliable instruments for future hazard mapping and risk management. Through these efforts, SDC is facilitating the



WSL Institute for Snow  
and Avalanche Research SLF



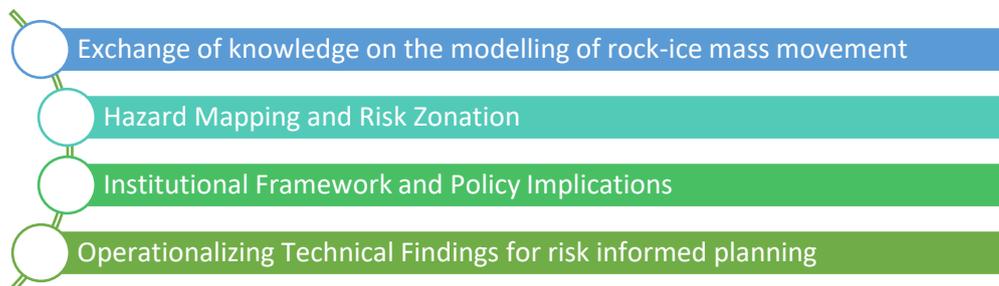
सीएसआर  
CSIR  
भारत का नवाचार इंजन  
The Innovation Engine of India



केंद्रीय भवन अनुसंधान संस्थान, रूड़की  
Central Building Research Institute, Roorkee  
सुरक्षित और स्वस्थ: सुरक्षित  
Safe & Sustainable Habitat

transfer of advanced scientific approaches and methods to enhance risk management and build climate resilience in the Himalayas.

In the framework of this collaborative initiative, a two-day technical workshop is **being organized on 11-12 Nov 2025 at New Delhi**. This workshop aims to present and discuss the following topics:



## Target Audience

The workshop is intended for technical experts, representatives from National and State Disaster Management Authorities (SDMAs), relevant line departments, and professionals from scientific institutions, academia, and research organizations involved in assessing and managing mountain hazards in IHR. Participants from other Himalayan countries, such as Nepal and Bhutan, will also be invited.

The workshop will be conducted over two days. On **Day One**, Swiss experts will present work developed under the SCA Himalayas project in Uttarakhand, focusing on the **modelling of rock-ice avalanches** followed by discussion sessions towards practical applications in the Himalayan region. **Day Two** will feature contributions from Indian and regional stakeholders, with a focus on the **institutional framework, policy implications**, and the formulating key messages to take forward the scientific approaches.

## Expected Outputs

- **Joint Statement** – A shared commitment to strengthen hazard mapping, risk assessment, and scenario-based modelling, with guidance for risk-informed planning and a shift from post-disaster response to proactive preparedness.

\*\*\*\*



[Scan to View Agenda](#)



[Scan to Explore Publications](#)

## Programme Schedule

Time	Session	Key Speakers
<b>Day 1: November 11, 2025 (Tuesday)</b>		
<b>09:30-10:00</b>	Registration	<b>SCA-Himalayas Team</b>
<b>Inaugural Session</b>		
<b>10:00-10:10</b>	Welcome Address	<b>Mr. Pierre-Yves Pitteloud,</b> First Secretary, Humanitarian Affairs Embassy of Switzerland in India and Bhutan
<b>10:10-10:20</b>	Keynote Address	<b>Professor R. Pradeep Kumar</b> Director, CSIR-CBRI, Roorkee, Uttarakhand
<b>10:20-10:30</b>	Context Setting and Overview of the Workshop	<b>Dr. D. P. Kanungo</b> Chief Scientist, CSIR-CBRI, Roorkee
<b>10:30-10:45</b>	Special Address	<b>Sh. Safi Ahsan Rizvi,</b> Advisor (Mitigation), National Disaster Management Authority (NDMA), Government of India
<b>10:45-10:50</b>	Vote of Thanks	<b>Ms. Divya Mohan,</b> Team Leader, SCA-Himalayas Project, SDC
<b>10:50-11:20</b>	<b>Tea followed by a Group Photograph</b>	
<b>Technical Session I: Hazard Mapping - Approaches in the Alps and the Himalayas</b>		
<b>11:20 – 11:40</b>	Snow Avalanches, Rock Fall, Debris Flow Hazard Assessment and Prioritization in the Himalayas	<b>Dr. D. P. Kanungo,</b> Chief Scientist, CSIR-CBRI, Roorkee
<b>11:40-12:00</b>	Tools and Methods for Hazard Mapping and Risk Zonation in the Himalayas	<b>Dr. Rajesh Kumar Dash,</b> Project Scientist, CSIR-CBRI, Roorkee
<b>12:00- 12:20</b>	Evolution of Hazard Mapping and Risk Zonation in Mountainous Areas of the Alps	<b>Dr. Yves Bühler (online),</b> Team Leader Alpine Remote Sensing, WSL-SLF, Davos, Switzerland
<b>12:20- 12:40</b>	Mapping and monitoring mass movements with satellite radars in the Alps and Himalayas	<b>Dr. Andrea Manconi,</b> SLF Research Scientist, WSL SLF, Davos, Switzerland
<b>12:40-13:00</b>	<b>Q &amp;A Session</b>	
<b>13:00- 13:45</b>	<b>Lunch Break</b>	
<b>Technical Session II: Hazard and risk assessment of Extreme Disasters – Example from the Indian Scenario</b>		
<b>13:45- 14:30</b>	Thermomechanical Modelling of Rock Ice Avalanches for Large-scale Hazard Indication Mapping of Uttarakhand, India	<ul style="list-style-type: none"> <li>• <b>Dr. Andrea Manconi,</b> SLF Research Scientist, WSL SLF, Davos, Switzerland</li> <li>• <b>Dr Rajesh Kumar Dash,</b> Project Scientist, CSIR-CBRI, Roorkee</li> </ul>
<b>14:30- 14:45</b>	New insights on the Patalganga valley from optical and radar satellite data	<b>Dr. Andrea Manconi,</b> SLF Research Scientist, WSL SLF, Davos, Switzerland
<b>Group discussion: Hazard Challenges and Perspectives for DRR</b>		
<b>14:45-15:30</b>	Group A	Government & Disaster Management Authorities
	Group B	Scientific & Technical Institutions

	Group C	Civil Society, Private Sector and International Development Partners
15:30-15:45	<b>Tea Break</b>	
<b>Technical Session III: Advancing Science-Based Resilience in the Indian Himalaya: Dynamic Multi-hazard Risk Forecasting and Infrastructure Preparedness</b>		
15:45-16:00	Integrated Centre for Adaptation to Climate Change, Disaster Risk Reduction and Sustainability (ICARS): A Regional Hub for Science-Based Resilience	<b>Prof. Anil K. Gupta,</b> Professor -IIT Roorkee - WRDM, PI - ICARS (CoE of DST-GOI at Gr Noida campus), Sr. ICIMOD Fellow - DRR
16:00- 16:15	Need for infrastructure resilience in mountainous regions.	<b>Mr. Anup Karanth,</b> Sr. DRM Specialist, World Bank
16:15- 16:30	Dynamic Risk from Sediment Cascades in the Indian Himalaya	<b>Prof. Rajiv Sinha,</b> Professor, Department of Earth Sciences, IIT Kanpur
16:30-16:45	Avalanche Prevention Systems - Design Guidelines & Application	<b>Mr. Jitin Mukheja,</b> Deputy CEO, Geobruugg India Pvt Ltd (Geobruugg AG, Switzerland)
16:45- 17:00	<b>Q &amp; A Session</b>	
<b>Day 2: November 12, 2025 (Wednesday)</b>		
<b>Technical Session: IV - Institutional and Policy Framework with presentation from India, Bhutan &amp; Nepal</b>		
10:00 -10:20	National and State-Level Policies on DRR specific to Mass-movement processes like debris flows and rock-ice avalanches etc.	<b>Ms. Dipali Jindal,</b> Sr. Consultant, NDMA, India
10:20- 10:40	Perspectives on rock-ice avalanche and debris flows in the HKH	<b>Ms. Finu Shrestha</b> Remote Sensing and Geo-information Expert Climate and Environmental Risks, ICIMOD
10:40- 11:00	Multi-Hazard Risk Governance in the Himalayas: Nepal's Policy Innovations	<b>Dr. Basanta Raj Adhikari (Online)</b> Centre of Disaster Studies, Institute of Engineering, Tribhuvan University, Nepal
11:00-11:15	<b>Tea Break</b>	
<b>Session V – Panel Discussion: Institutional and Policy Frameworks for Himalayan Resilience: Aligning Regional Approaches to Common Mountain Hazards</b>		
11:15- 12:30	<p><b>Moderator: Mr. Pierre-Yves Pitteloud,</b> First Secretary, Humanitarian Affairs Embassy of Switzerland in India and Bhutan</p> <p><b>Panelist: Group Leaders from the group discussion on Day 1</b>  <b>TBC</b> (Group A- Government &amp; Disaster Management Authorities)  <b>Shri Debashish Dash,</b> Scientist/Engineer–'SC', Water Resources Division, NRSC (Group B -Scientific &amp; Technical Institutions)  <b>Dr. Suneel Kumar Joshi,</b> Director - Landscape Restoration Projects, Geo Climate Risk Solutions Pvt. Ltd. (Group C - Civil Society, Private Sector &amp; International Development Partners)  <b>Dr. Andrea Manconi,</b> SLF Research Scientist, WSL SLF, Davos, Switzerland</p>	
12:30- 13:00	<b>Way Forward Joint Statement &amp; Closing Remarks</b>	<b>Mr. Pierre-Yves Pitteloud,</b> First Secretary, Humanitarian Affairs Embassy of Switzerland in India and Bhutan
13:00-14:00	<b>Lunch</b>	