



December 8, 2022



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## **United Nations Workshop on Space-based Technologies for Disaster Risk Reduction**

**Topic: Simulation of 7th February 2021 rock-ice avalanche event in the Rishiganga river valley of Uttarakhand Himalayas, India**

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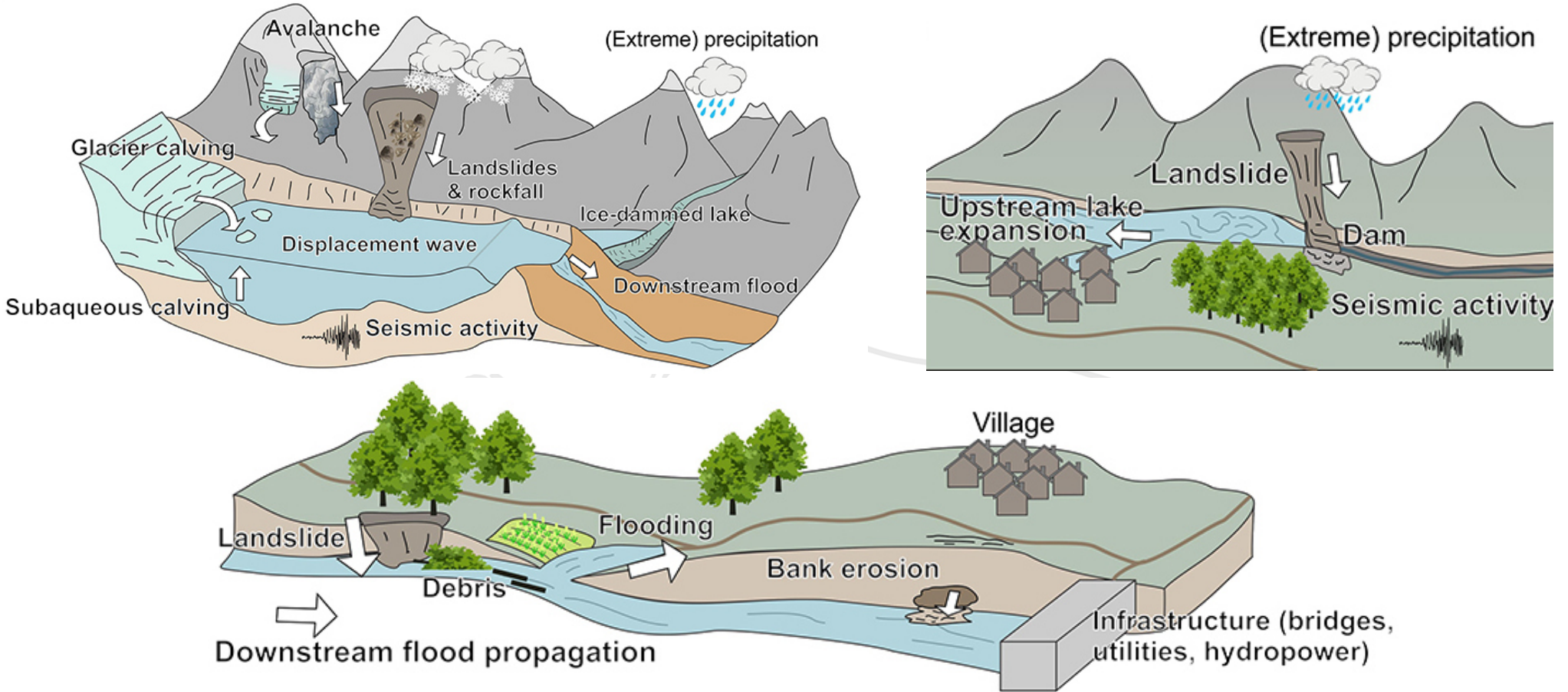
## Contents

- Background
- Research Objectives
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- Data used
- Methodology
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- Conclusions & Recommendations



# Cascading Hazards

One hazard triggers another hazard in a series.

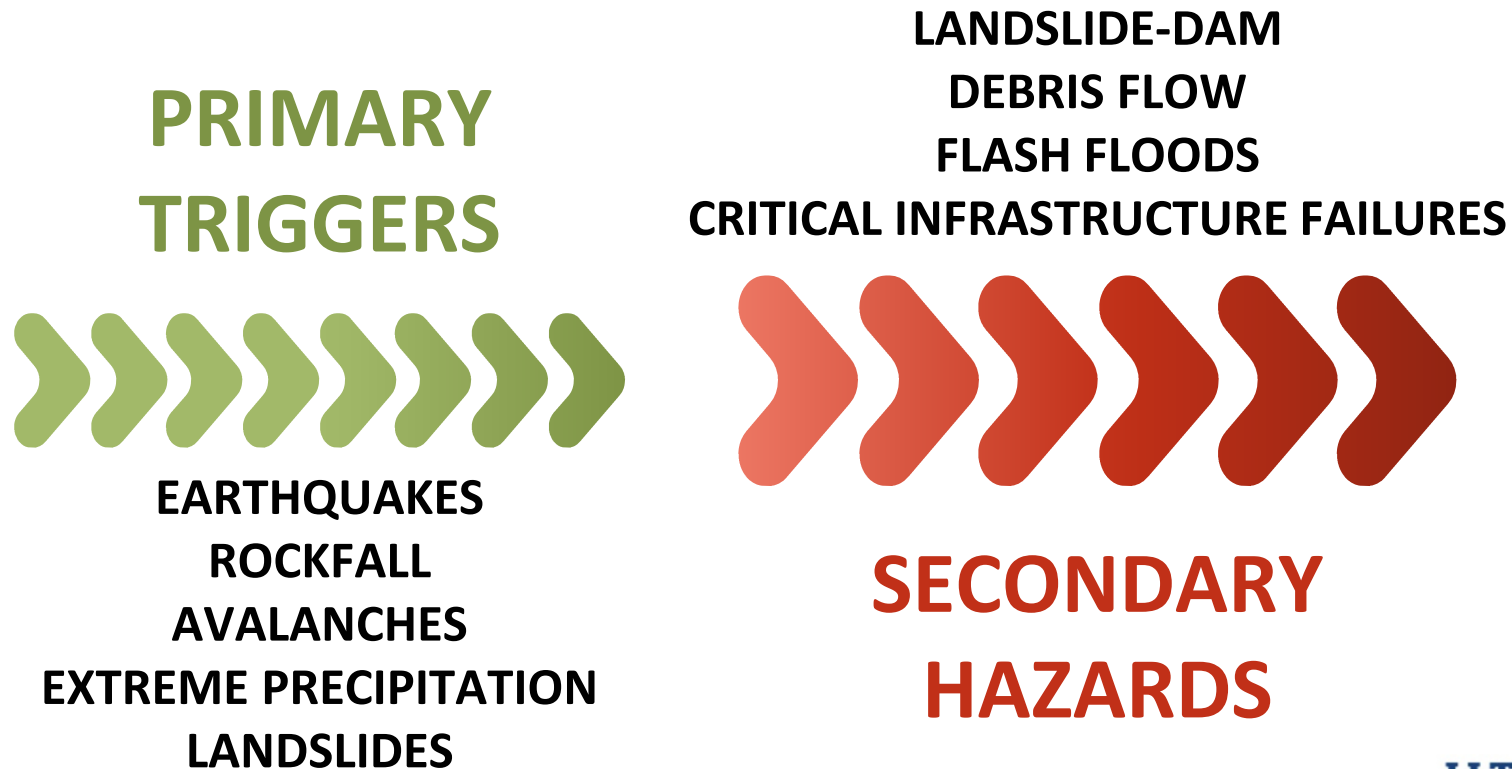


Source: Kirschbaum et al. 2019 (<https://doi.org/10.3389/feart.2019.00197>)



# Natural Hazards in Uttarakhand Himalayas

- Range of disruptive hazards and stresses, ranging from extreme weather events to unplanned land-use changes and environmental degradation.



# Chamoli disaster- February 7, 2021



Tapovan-Vishnugad HEP

Post-disaster

DESILTING C...

INTAKE

Breast wall washed away in flood

Bay#4

Boulders

Detailed Report: Uttarakhand Disaster on 7<sup>th</sup> February 2021, NDMA, MoHA, GoI, April 2022



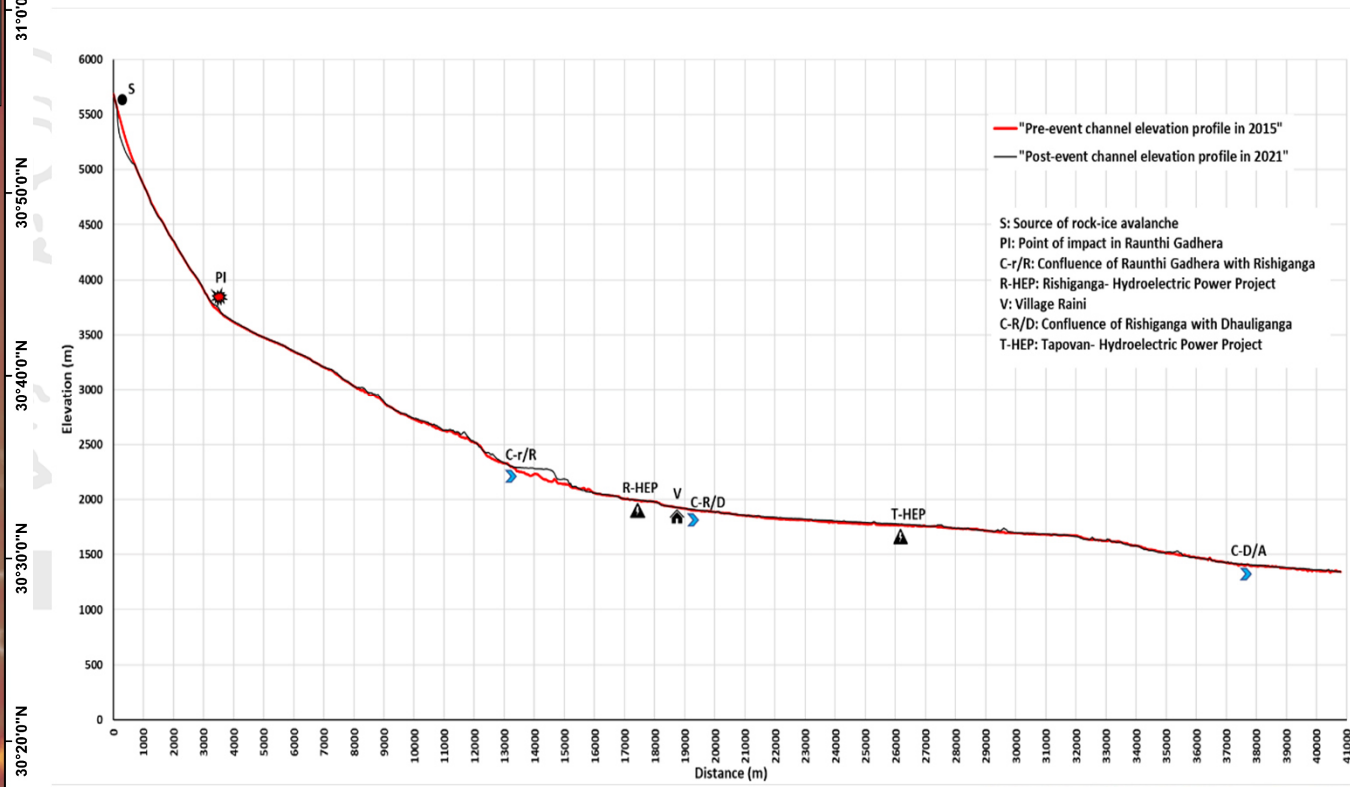
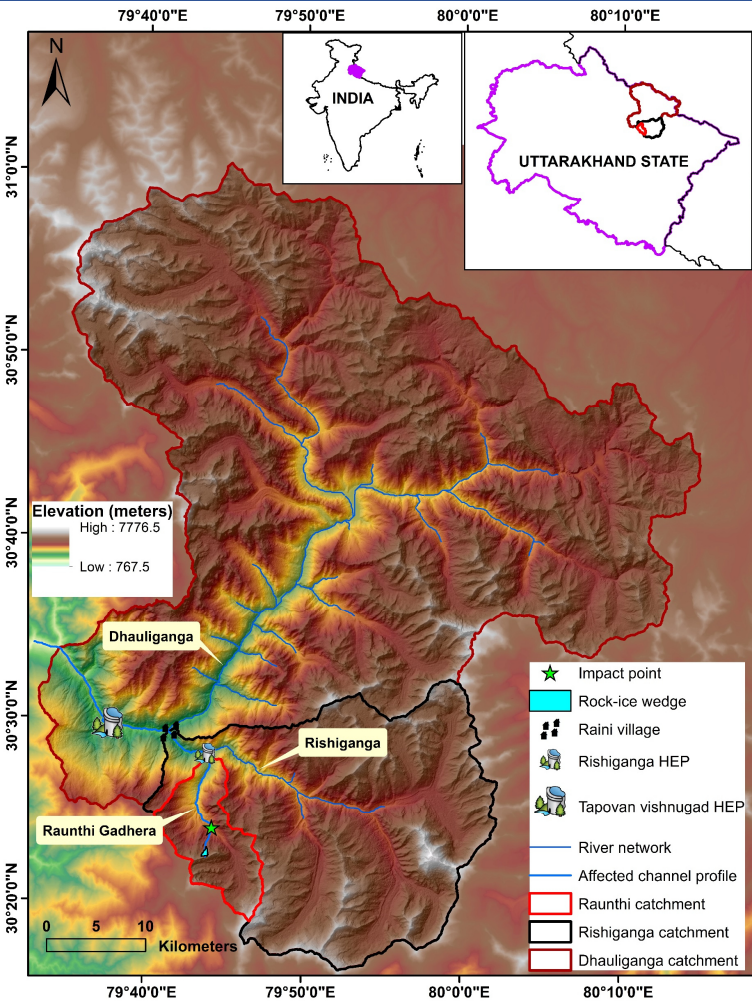
# Research objectives

Comprehensive assessment of the flash flood event in the Rishiganga and Dhauliganga river valleys

1. Debris flow simulation using RAMMS-debris flow software module.
2. Understanding the flow characteristics and deriving important flow parameters.
3. Assessing the extent of devastation and change in channel morphology.

# Study area characteristics

- Source area remains mostly snow covered.



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