

{ UTTARAKHAND } RISK WARNING

# 7 hydel projects 'vulnerable' to damage from disasters

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**NEW DELHI:** A disaster risk management company has listed seven hydropower projects in Uttarakhand (apart from the Rishi Ganga and Tapovan Vishnugad projects on the Rishi Ganga river, both of which were destroyed in the February 7 floods) as extremely vulnerable to damage by floods, avalanches and other natural disasters.

RMSI, a global disaster risk management firm said in its advisory dated February 11 that although this event damaged two hydropower projects, many other hydropower projects are vulnerable to natural disasters caused by floods, cloud bursts, Glacial Lake Outburst Floods (GLOFs), avalanches, landslides, and rockslides, in the Himalayan region. The advisory lists Lata Tapovan (171 MW) on Dhaul Ganga; Vishnuprayag (400 MW) on Alaknanda; Tehri (1000 MW) on Bhagirathi; Vishnugad Pipalkoti (444 MW) on Alaknanda; Naitwari-Mori (60 MW) on Tons; Phata Byung (76 MW) on Mandakini and Singoli Bhatwari (99 MW) also on Mandakini. Each of these projects costs ₹7 to 8 crore per MW.

"RMSI applied its understanding of the Uttarakhand geography with its machine learning-based models for landslide and avalanche and hydrodynamic models for flood and GLOF to do a quick review of the hydropower projects in Uttarakhand. We found several of them at risk from these hazards," said Pushpendra Johari, senior vice presi-



The Dhauliganga river in Chamoli district in Uttarakhand. REUTERS

dent sustainability, RMSI.

The analysis has been contested by some of the project developers. "I haven't seen this advisory yet. But I believe it's based on half-cooked information. Tehri has been standing strong for two decades... In 2013, Tehri helped save Rishikesh and Haridwar from the floods. Tehri is built to face a one-in-10,000-years disaster. Vishnugad Pipalkoti, located next to Tapovan Vishnugad, which was destroyed in the February 7 glacier breach disaster, wasn't affected," said Rajeev Kumar Vishnoi, director (Technical), THDC (Formerly Tehri Hydro Development Corporation Limited).

The advisory states that the Rishi Ganga Power Corporation and National Thermal Power Corporation (NTPC) are assessing the damage to their projects on account of the February 7 disaster, which has resulted in the deaths of at least 150 people, mostly workers on the project

site. Preliminary estimates suggest damages worth ₹1,500-2,000 crore.

The floods also washed away five bridges of the Border Roads Organization (BRO) that connected narrow roads in the hills with 13 villages, including Gahar, Bhangyun, Raini Palli, Pang Lata, Surraithota, Tolma and Fagrasu.

NTPC's Tapovan-Vishnugad project was under construction when the disaster occurred, while the Rishi Ganga project resumed generating power since June 2020. Nearly 75% of the total cost of the Tapovan-Vishnugad project, estimated to be about ₹4,000 crore has been spent. NTPC officials did not respond to requests for comment.

Johari said the analysis highlights the importance of disaster-proofing projects. "We can make the slope stable by applying natural vegetation, slope stabilisation techniques as well as (building) retention walls to stop the

slides from either impacting the dam or river. Similarly, small interventions upstream of the dam such as creating structures below the river bed that are covered with steel mesh that separates the debris from the water when it flows over it, can reduce the impact of debris flows like what happened in the recent event."

Some independent experts, however, said disaster management firms have started seeing a business opportunity in Uttarakhand.

"We clearly said in our report that projects in the para glacial zones (2200-2500 m height) and those located north of the main central thrust (a geological fault in the Himalayas) are extremely vulnerable to landslides, GLOFs and floods. So, this advisory comes as no surprise," said Hemant Dhyani, member of the Supreme Court-appointed expert body formed in 2013 to study the environmental impact of hydropower projects after the 2013 Kedarnath floods.

A senior retired geologist said on condition of anonymity that "both hydropower and disaster management businesses are benefitting from the risks. Tehri is quite downstream while many are upstream and in really dangerous locations. So of course, there is risk, but we don't know yet how many models have been used for such analyses."

The Kathmandu based International Centre for Integrated Mountain Development said last week that there is a link between the February 7 disaster with infrastructure development.