

'Chamoli disaster due to avalanche'

The February 7 flash flood claimed 72 lives; at least 200 are missing or dead

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The flash flood on February 7 in Chamoli district, Uttarakhand, that claimed at least 72 lives with at least 200 missing was due to a large mass of snow, ice and rock avalanche along with a hanging mass of rock crashing into the Raunthi Garh valley floor.

This impact pulverised the combination of rock, snow and ice causing a rapid flow downstream of Raunthi Garh and into the Rishiganga valley leading to the deluge, the Geological Survey of India (GSI) said in a report on Tuesday.

The deluge had destroyed the 13.2 MW Rishiganga power plant and damaged the 520 MW Tapovan-Vishnugadh hydel power project, in whose tunnels several workers had been fatally trapped.

The event had sparked global scientific interest with several groups of scientists, both in India and abroad, perusing satellite imagery as



Massive damage: A file photo of the flood-ravaged Tapovan-Vishnugadh hydel project. ■ V.V. KRISHNAN

well as some teams making field visits to the site to determine the cause of the disaster. A report in the journal *Science* earlier this month too came to a similar conclusion, reporting that nearly 27 million cubic metres of rock and ice had crashed into the valley floor.

Warm weather

A contributory factor, according to Saibal Ghosh, senior scientist at the GSI, was unusually warm weather in the region. "Observed change in the hydro-meteor-

ological conditions between 4th and 6th February, 2021 (heavy snowfall followed by sudden warmer climate) possibly triggered this huge snow and rock avalanche/ landslide causing sudden domino effect of flash flood in the downstream."

Satya Prakash Shukla, Deputy Director General, International Affairs Division, GSI Central Headquarters, who led the team of geologists investigating the disaster site, said, "Lessons have also been learnt from this event of 7th February 2021 which

is an excellent example of multi-hazard phenomena that occurred during the winter time, when this type of phenomenon leading to such disastrous deluge is least expected in the Himalayas."

There was no evidence of a Glacial Lake Outburst Flood (GLOF) having caused the event, he noted.

Due to the large volume of debris and the deluge, an artificial dam had formed near the confluence of Raunthi Garh and Rishiganga river, by the flowing debris which blocked the flow of the Rishiganga river and formed a small lake temporarily.

A study by the National Remote Sensing Centre indicated that the time taken from the initiation of the avalanche and its disastrous impact up to Tapovan barrage site near Joshimath was "barely 50 minutes", which indicates availability of a "very low lead time for raising any warning for the downstream areas."