

WILL THE SIKKIM FLOOD IMPACT HYDEL PROJECTS?

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A basket carrying relief supplies is transported on a makeshift zip line across the Teesta to Dzongu village that became inaccessible after flash floods washed away a bridge at Sangkalang, Sikkim on October 9, 2023. | Photo Credit: Reuters

The story so far: During the early hours of October 4, [a sudden surge in the Teesta river washed away habitations in Sikkim](#), the Chungthang Dam, several bridges and parts of National Highway 10, leaving scores of people dead and missing and thousands homeless. As experts debate the reasons for the collapse, including the failure of automated weather stations, at two high-risk glacial lakes South Lhonak and Shako Cho, the focus is also on the status of other dams and hydel power projects in the State.

Experts point out that the floods in the Teesta river in Sikkim and West Bengal was triggered by a phenomenon called GLOF (Glacial Lake Outburst Flood). GLOF is a sudden release of water from a lake fed by glacier melt that has formed at the side, in front, within, beneath, or on the surface of a glacier. In case of the Sikkim floods, satellite images reveal a large chunk of ice may have fallen from the glacier into the lake creating waves that toppled the moraine dam leading to a GLOF and causing severe flash floods downstream in the Teesta.

Anil V. Kulkarni, glaciologist and scientist at the Divecha Centre of Climate Change, Indian Institute of Science, Bengaluru said the South Lhonak lake is one of the most studied lakes for GLOF. According to the glaciologist, recent satellite images suggest the risk has not been eliminated despite the floods because the lake has not dewatered or drained substantially. "Most of the lake is still intact; earlier, based on satellite images, experts thought that the lake had dewatered. But later it was found that under ice there is water," Dr. Kulkarni said.

Environmentalists, scientists and even the Sikkim government point out that the collapse of the hydel power dam at Chungthang added to the devastation. "The maximum damage took place after the Chungthang dam broke," said Sikkim Chief Minister Prem Singh Tamang.

The 1,200 MW Teesta Stage III hydro power project located at Chungthang village in Mangan district of north Sikkim was commissioned in February 2017 and in a little over six years, the dam collapsed. The Chief Minister of Sikkim raised the issue that the Central Water Commission while approving the project had said that it would be a concrete gravity dam whereas the dam constructed was a rock-filled dam that would not be able to withstand huge floods. According to him, the cost of the project was increased 2.5 times from 5,700 crore to 13,965 crore. The Chungthang dam, which has a majority stake of the State government under Sikkim Urja, has

stopped generating electricity and has filed an insurance claim.

After the floods, not only the Teesta Stage III hydro power project, but all the operational hydel power projects on the Teesta river in Sikkim have practically become defunct.

According to a filing at the Bombay Stock Exchange, two other hydel power projects of the National Hydel Power Corporation (NHPC) affected by the floods are Teesta-V Power Station (510 MW) and the proposed Teesta-VI (500 MW), being executed by Lanco Teesta Hydro Power Ltd, a wholly-owned subsidiary of the NHPC. In another BSE filing on October 18, the NHPC pointed out that the loss to the company was 233.56 crore. Electricity generation of about 1,806 MW from hydel power projects in Sikkim has come to a halt because of the floods, according to Chief Secretary V.B. Pathak. Along with the 1,200 MW Chungthang Teesta Stage III that was washed away by the floods, electricity generation at Teesta-V Power Station (510 MW), as well as Dikchu Hydroelectric Project (96 MW), has been stalled because of muck from the floods entering the power stations. Sikkim government officials said there has been no power crisis as the Centre is providing grid electricity.

The Sikkim government is yet to quantify the extent of damage in monetary terms. The Chief Secretary told *The Hindu* that the loss due to GLOF-triggered floods will be in thousands of crores and certainly higher than the Sikkim earthquake (2011), where the loss was estimated to be 7,425 crore.

After the GLOF-triggered Sikkim floods and widespread loss of lives and property, activists and scientists are calling for a rethink on proposed hydel power projects. Union Minister for Power and Renewable Energy R. K Singh, however, said the floods will not slow down India's reliance on hydropower.

In response to a question by MP Asaduddin Owaisi earlier this year, Mr. Singh had informed Parliament that 87 hydroelectricity projects (HEP) of installed capacity of 22,982 (MW) are operational across the Himalayan belt. Another 30 large HEPs (above 25 MW) with an installed capacity of 11,137 MW are being developed across the Himalayan belt. Five projects are proposed in Sikkim on the Teesta and other rivers. In Sikkim, the assessed hydro power potential is of 4,248 MW of which about 53.7 % (2,282 MW) has been developed and 24.4 % (1,037 MW) is being constructed, according to a PIB release of March, 2023.

Gyatso Lepcha, general secretary of the Affected Citizens of Teesta (ACT), an organisation campaigning against HEPs on the Teesta said in the aftermath of the tragedy, the government should scrap the proposed Teesta IV project and review the upcoming Teesta VI project. On October 17, the Sikkim government directed the State's Vigilance Police to conduct a comprehensive inquiry into any criminal irregularities in the construction of Teesta III dam project, submit a report and transfer the case to the CBI.

Glaciologist Kulkarni referred to recent floods in the Himalayas, the Kedarnath floods (in 2013, when moraines fell, creating temporary glaciers and flash floods), Rishi Ganga (2022, when fall of hanging glacier and rocks led to devastating floods) and the Sikkim floods (2023, GLOF-triggered floods), and said all three incidents were triggered by different climatic factors. Pointing out that there is major infrastructure building going on in the Himalayas, he said it is time to consider climate assessment reports, and designating mountain regulation zones where construction is limited.

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