



Chamoli Flash Floods

This article is based on [“Rethinking run-of-the-river hydro projects”](#) which was published in The Hindustan Times on 11/02/2021. It talks about the increasing frequency of flash floods in the Himalayan region.

Recently, the [glacial burst in the Chamoli district of Uttarakhand](#) is an eye-opener to the ongoing disruption of the ecological balance. A similar flash flood caused by a glacial lake burst ravaged the Kedarnath Shrine at the peak of the pilgrimage season in 2013.

It is very rare that, anywhere in the world, two such big disasters in a region take place in a short duration of less than a decade. There is enough data to suggest that climate change is responsible for the increasing number of severe flash floods due to glacial melt.

However, apart from climate change, the sudden spurt of environmentally-unfriendly development activities is responsible for the frequent occurrence of the disaster due to flash floods.

Climate Crisis Aggravating Flash Floods

- A new report by the Kathmandu-based International Centre for Integrated Mountain Development (ICIMOD) held that 36% of the volume of glaciers in the Hindu Kush Himalayan region will be gone by the end of 2100 even if the world manages to keep the temperature rise within 1.5 degree Celsius target of the [Paris Climate Agreement](#).
- Similarly, the data from the [Indian Space Research Organisation](#) reveal that the melting of the glaciers has increased in the first 20 years of this century.
- The faster melting of Ganga glaciers will impact the livelihood of close to 600 million people living in the Ganga river basin, extending from Uttarakhand in the north to Bangladesh in the south.

Flash Floods: A Man-Made Disaster

- **Himalayas, a Volatile Mountain System:** The Himalayas are a young and therefore volatile mountain system. Even a minor change in the orientation of its rocks can trigger landslides.
 - Despite this, high-intensity stone quarrying, frequent blasting of mountains, and digging of tunnels through the base of the fragile mountain system for the back-to-back under-construction dams are going in the Himalayan region.
- **Overlooking Environmental Norms:** Moreover, little attention has been paid to the damage caused to local ecology and loss of forest cover in the upper reaches of the central Himalayas by building hydel dams and construction of wider roads overlooking environmental norms.
 - The upper reaches of Uttarakhand, the source for several small riverine systems feeding the Ganga, already have 16 dams and another 13 under construction.
 - The state government has proposed another 54 dams to harness the hydel energy potential of these rivers.
- **Hydropower, not Entirely Green Projects:** Hydropower is a low-emission energy source, but by

design, these projects are not environmentally suitable.

- This is because the river water is diverted for power generation, and this destroys the riverine ecology.
- The blasting and tunneling that happens while building a dam dry up mountain springs, which provide water for drinking and agriculture.

Note:

- Run of the River (ROR) projects are seen as a “green” alternative to high-dam hydropower projects such as the Tehri Hydropower Project.
- This is because an ROR dam diverts the river flow in a controlled environment to generate electricity and sends the water back to the river, whereas a high-dam project stores river water in a reservoir.

Way Forward

- **Broad Framework For Vulnerable Zones:** With the increasing frequency of flash floods in the Himalayan region, a broad framework for robust early warning systems, infrastructure development, construction, and excavation in vulnerable zones must be evolved.
- **Reexamining HydroPower Option:** IPCC report has assessed that the climate crisis has altered the frequency and magnitude of the natural hazards in high mountain regions of the world.
 - Thus, there is a need for adherence to the Chopra Committee recommendations, which studied the impact of receding glaciers on hydroelectric power projects (HEPs) and objected to the construction of HEPs in paraglacial regions (between 2,200 to 2,500 meters above the sea level).
 - Therefore, the hydropower projects must be weighed against their benefits and challenges.
 - Apart from this, other alternatives like solar energy, wind energy should be pursued as the green growth model of development.
- **Adhering to NDMA Guidelines:** The NDMA guidelines say that the construction of any habitation should be prohibited in the high hazard zone.
 - Restricting constructions and development in glacial lake outburst flood-prone areas is a very efficient means to reduce risks at no cost.
- **Research on Glacial Lakes:** Detailed Project Analysis should be conducted to understand which of the 12,000-odd glacial lakes in Uttarakhand are prone to flooding.
 - Such research should feed into environmental impact assessment reports and guide decisions on developmental projects in the region.

Conclusion

The exact cause of the recent Chamoli glacial lake outburst disaster will unfold in the coming times, but there is no doubt that the impact would have been far less with more prudent development of projects in the region. Policymakers should realize that damaging today and repairing tomorrow is not an option in the Himalayan region.

Drishti Mains Question

In the context of increasing flash floods in the Himalayan region, there is a need for reexamining the ways in which mountains and high-altitude regions have been positioned in the country's development discourse. Discuss.

This editorial is based on [“Cutting trans fat: On healthier food”](#) published in The Hindu on February

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