

## Uttarakhand Disaster

### Why in news?

Various studies and reports on the flash floods in Uttarakhand are being published in identifying the cause.

### Why did the flash floods occur?

- The area has seen two days of heavy snowfall & suddenly the weather became clear & little warmer.
- This has led to melting of snow & since glaciers in the area contain large amounts of debris when snow melts they carry large amounts of debris.
- This eroded everything that comes in the way thereby triggering an avalanche leading to the flash floods.

### How big is the threat of such incidents continuing?

- When glaciers retreat due to rising temperatures, the snow melts but the debris remains which aids in the formation of lakes.
- Uttarakhand has 1,000 glaciers & over the years frequency of formation of such lakes has increased.
- But many glacial lake outburst flood events are not happening as in Sikkim because Uttarakhand has very steep slopes and the water manages to find a way out.
- But since the state has 1,200 big and small lakes in the high mountains, which are increasing in size, they do pose a threat of similar kinds of incidents.
- Hence it is extremely important to regularly monitor these lakes, measure the rates at which they are increasing or shrinking which needs to be incorporated into the planning process.

### Why such preventive measures are not taken?

- Large numbers of glaciologists are working in the area and generating data but they lack of coordination and focus.
- Multiple scientific groups and institutions are involved, lots of data are generated but there is no coherent output.
- All these groups collect data, write reports and publish their findings but it will be forgotten until the next disaster strikes.

- Hence a nodal national agency needs to be created which can coordinate all the research and also the operational things happening in this region.

### **How does Mission on Himalayan Ecosystem functions?**

- This mission was set up under the National Action Plan on Climate Change & there was a plan to set up a National Centre for Himalayan Glaciology but it was dropped.
- The separate centre functioning at the Wadia Institute of Himalayan Geology (in Dehradun) was merged with the institute.
- Hence there has to be one agency dedicated to this work which put these reports together, create a database and then focus on operational matters.

### **What can be done to minimise such risks?**

- It is not possible to completely prevent these kinds of incidents but their potential to cause destruction can be certainly minimised.
- The Lonar lake in Sikkim is one of the largest glacial lakes & scientists have found a way to slowly drain the water in a nearby river at a regulated rate so that there is no flooding.
- Such solutions can be applied in Uttarakhand but this cannot be applied to each of the 1,000-plus lakes.
- So a detailed study needs to be conducted to identify which lakes pose maximum risk, monitor them and look for possible solutions that are suitable to local environments.
- This exercise needs to be done not just in Uttarakhand but in the entire Himalayan region.

### **Does large hydroelectric dams contribute to disaster?**

- The hydropower projects in this area are run-of-the-river type & it is not prudent to construct dams at such heights.
- When DPR (detailed project report) for any project is done, study on glaciology is not carried out which is a major flaw.
- Hence overall environmental assessment must take into account the frequency of landslides and snow avalanches, the possibility of lake formation upstream, the ice volume in the glaciers.
- They should also find whether the glaciers are retreating or advancing and the rate at which these changes are happening.

**Source: The Indian Express**



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