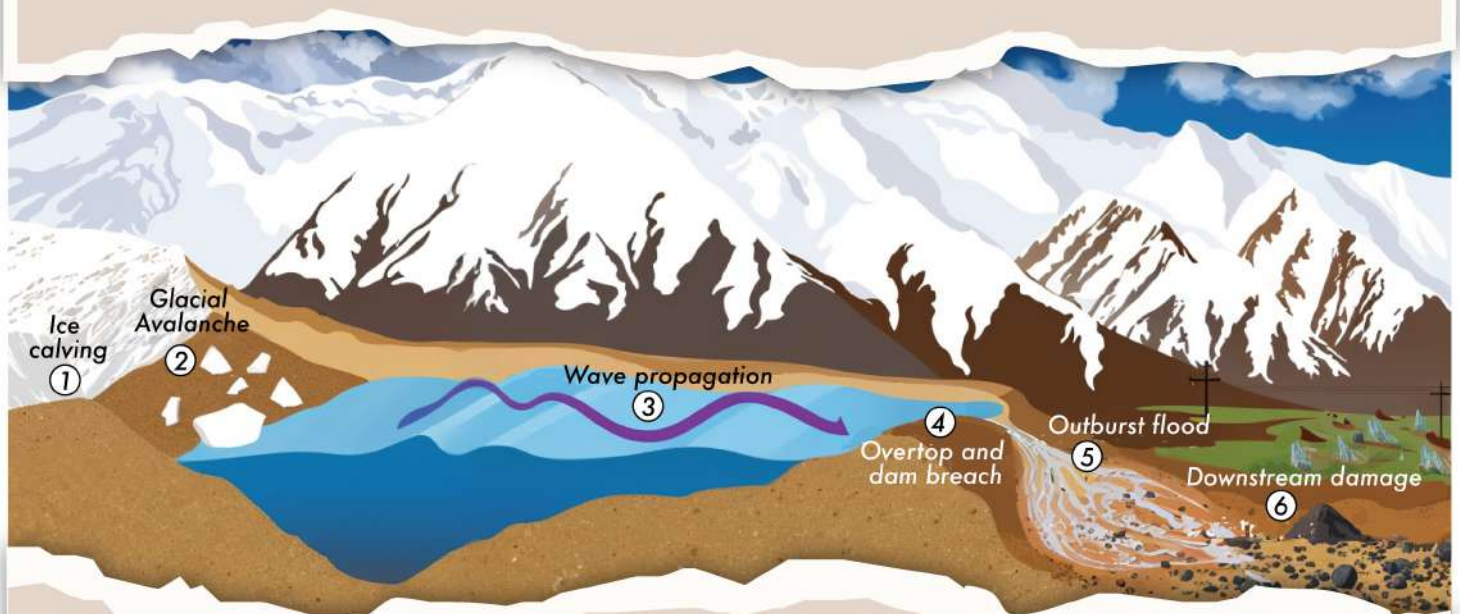


GLACIAL LAKE OUTBURST FLOOD (GLOF)



Glacial Lake Outburst Flood (GLOF)

A Glacial Lake Outburst Flood (GLOF) occurs when water held in a glacial lake is suddenly released, leading to a rapid and often catastrophic downstream flood. Glacial lakes form when meltwater from glaciers accumulates behind natural dams made of ice, moraine (glacial debris), or bedrock.

Causes:

- **Ice or Moraine Dam Failure:** The most common cause is the failure of a moraine or ice dam due to melting, weakening, or structural collapse.
- **Landslides:** Landslides or avalanches into the lake can displace water and trigger a breach.
- **Seismic Activity:** Earthquakes can destabilize the dam structure.
- **Rapid Snowmelt or Heavy Rainfall:** Sudden influxes of water can increase pressure on the dam.



Effects:

- **Catastrophic Flooding:** The released water can cause devastating floods downstream, damaging infrastructure, homes, and agricultural lands.
- **Loss of Life:** GLOFs can lead to significant loss of life, especially in densely populated or poorly prepared regions.
- **Environmental Damage:** The floods can result in habitat destruction, loss of biodiversity, and long-term changes to the landscape.



GLOFs are increasingly common due to climate change, which accelerates glacial melt and increases the formation of glacial lakes, posing a growing risk to communities in mountainous region.



Design: Peter S. Lepcha

DO'S AND DON'TS IN THE EVENT OF GLACIAL LAKE OUTBURST FLOOD (GLOF) AND FLASH FLOOD

Before

- Keep your emergency kit and emergency plan of the area ready.
- Pay attention when river level rises or river volume increases.
- Identify pre-designated higher ground to evacuate.
- Conduct mock drills on specific hazards of local area.

During

- Stay indoors.
- Listen to radio, TV stations and authorities for current situations/information.
- If there is any possibility of a flash flood, move immediately to higher ground.
- Do not work or drive into flooded streets. Water depth is unknown and conditions of the roadway may not be certain.
- Disconnect electrical appliances. Do not touch electrical equipment if you are wet or standing in water.
- Follow evacuation plan if required.
- Special attention may be given to vulnerable groups such as elderly, children and differently-abled while evacuating.



After

- Stay away from flood waters.
- Be aware of areas where flood waters have receded.
- Keep away from areas where power lines are dangling or poles are down.
- Stay away from moving water. It can knock you off your feet.
- Stay out of the way of emergency workers so that they can do their job easily.

FLOOD PREPAREDNESS KIT

- Cash
- Drinking water
- Non-perishable food items enough to last for seven days
- First-aid kit
- Flashlight and batteries
- Clothes
- Toiletries-hygiene items
- Important documents
- Baby and elderly needs (food, diapers, medicine, etc.)



SIKKIM STATE DISASTER MANAGEMENT AUTHORITY (SSDMA)

LAND REVENUE AND DISASTER MANAGEMENT DEPARTMENT,
GOVERNMENT OF SIKKIM