



## Flash Floods in Himachal Pradesh

**For Prelims:** Flash Floods in Himachal Pradesh, [Monsoon](#), [Flash Floods](#), Intergovernmental Panel on Climate Change, [Indian Meteorological Department](#), [Western Disturbances](#).

**For Mains:** Flash Floods in Himachal Pradesh.

[Source: TH](#)

### Why in News?

The 2023 [Monsoon](#) rain in Himachal Pradesh has brought severe [Flash Floods](#) in many regions causing unprecedented loss of lives and assets.

### What are Flash Floods?

#### ▪ About:

- They are **sudden surges in water levels** generally during or following an **intense spell of rain**.
  - These are highly **localised events of short duration** with a very high peak and usually have less than six hours between the occurrence of the rainfall and peak flood.
- The flood situation worsens in the **presence of choked drainage lines** or encroachments obstructing the natural flow of water.

#### ▪ Causes:

- It may be caused by heavy rain **associated with a severe thunderstorm**, hurricane, tropical storm, or meltwater from ice or snow flowing over ice sheets or snowfields.
- Flash Floods can also occur due to Dam or Levee Breaks, and/or Mudslides (Debris Flow).

### How have been the Instances of Precipitation in Himachal Pradesh (HP)?

- In the Himalayas, there is a noticeable **pattern of increased precipitation occurring in shorter periods of time**.
  - The [IPCC \(Intergovernmental Panel on Climate Change\) 6 report has clearly](#) stated that the Himalayas and coastal regions of India **will be the hardest hit by climate change**.
  - The [India Meteorological Department \(IMD\)](#) data shows that the normal rainfall during this period is expected to be between 720mm and 750 mm. However, in certain instances, it has exceeded **888 mm in 2010 and 926.9 mm in 2018**.
- In 2023, the precipitation in HP so far has been attributed to the combined effect of the [South-West Monsoon with Western Disturbances](#).
  - The total rainfall from June to date **was 511 mm**.

### What are the Factors of Such Flash Floods in Himachal Pradesh?

- **Developmental Model Led by Liberalization:**
  - Himachal Pradesh's development model **brought progress and ranked second in social development** for mountainous regions.
  - **Liberalization** led to fiscal reforms, self-reliance, however increased **exploitation of natural resources**, causing ecological impacts.
- **Hydropower Projects:**
  - Uncontrolled construction of the Hydropower Projects has turned **mountain rivers into mere streams**.
  - The diversion of water through tunnels and disposal of excavated material (muck) along riverbeds **exacerbate the impact during periods of heavy rainfall** or cloudbursts.
    - Improper disposal of muck not only creates a **favorable situation for landslides during the rainy season** but **also clogs river valleys with heavy sediments dumped by humans**, leading to water diversion, overflow, **and, consequently, floods**.
- **Tourism and Road Expansion:**
  - Tourism-driven Road expansion has led to **four-lane and two-lane road transformations**, bypassing essential geological studies.
  - Vertical cutting roads of mountains during road construction has **resulted in landslides and damage to existing roads** during even normal rainfall, exacerbating **destruction during heavy rain or floods**.
    - **Earlier** there were terraced and curved roads in mountains which were somewhat safer against landslides, but **the vertical roads** are more susceptible to landslides and erosion.
- **Cement Plants:**
  - Massive cement plant **establishment and extensive mountain cutting have altered land use patterns**, reducing the land's water absorption capacity, and contributing to **flash floods during rainfall**.
- **Changes in Crop Patterns:**
  - The shift to cash crop and horticulture economies over traditional cereal farming, which have implications for transportation **to markets within short timeframes, since they are perishable in nature**.
  - Hasty road construction for cash crops or larger farm fields without proper land cutting and drainage leads to **rapid swelling of rivers during rainfall**, further contributing to the floods.

## What are the Government Initiatives to Tackle Flash Floods?

- **National Flood Risk Mitigation Project (NFRMP)**
- **[National Disaster Management Plan \(NDMP\)](#)**.
- **[National Disaster Management Authority \(NDMA\)](#)**.
- **[India Meteorological Department \(IMD\)](#)**
- **[National Flood Management Programme](#)**
- **Rashtriya Barh Ayog (National Flood Commission) 1976**

## Way Forward

- Institute a Commission of Inquiry involving major stakeholders, empowering local communities over their assets, and insuring assets to facilitate quicker rebuilding. Adequate changes in infrastructure planning are crucial to avert disasters while considering the reality of climate change.
- With climate change as a reality, humans should not add to the problem, but make **adequate changes in infrastructure planning** to avert disasters that the State has been witnessing for some time.

