



Himachal floods: a man-made disaster?

News:

- Flash floods during this year's monsoon season have caused **unprecedented damage** to both lives and assets in Himachal Pradesh. The death toll has crossed 150, and the estimated total loss amounts to ₹10,000 crore.
- One of the main reasons for the **devastating impact of floods** in the region is the uncontrolled construction of **hydropower projects**, which have essentially transformed mountain rivers into mere streams.
- A Commission of Inquiry must be instituted to bring the major stakeholders — the people — on board and discuss both the policy framework failures, as well as the peculiar aspects of the projects undertaken.



The story so far:

- Flash floods during this year's monsoon season have caused unprecedented damage to both lives and assets in **Himachal Pradesh**.
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Is climate change the only reason for the rain and floods?

- The IPCC (Intergovernmental Panel on Climate Change)** VI report has clearly stated that the Himalayas and coastal regions of India will be the hardest hit by climate change.
- In the Himalayas, there is a noticeable pattern of increased precipitation occurring in shorter periods of time.
- The **India Meteorological Department** data shows that the normal rainfall during this period is expected to be between 720mm and 750 mm.
- However, the advent of liberalisation led to significant changes, with the Central government demanding stringent fiscal reforms and mountain States being forced to generate their own resources for **fiscal management**.
- What were these resources?** The exploitation of natural resources, including forests, water, tourism, and cement production, became a major focus for development.



- This led to the **rapid construction of hydropower projects**, often causing damage to rivers and their ecosystems, widening of roads without proper geological and engineering assessments, expansion of cement plants altering land use patterns, and a shift in agricultural practices to cash crop economies that **affected the landscape and river systems**.

Is building hydropower projects wrong?

- One of the main reasons for the **devastating impact of floods in the region is the uncontrolled construction** of these hydropower projects, which have essentially transformed **mountain rivers** into mere streams.
- The technology employed, known as **“run of the river” dams**, diverts water through tunnels burrowed into the mountains, and the excavated material (muck) is often disposed of along the riverbeds.
- During periods of **higher precipitation or cloudbursts**, the water returns to the river, carrying the dumped muck along with it.
- This destructive process is evident in rivers like **Parvati, Beas and Sutlej**, as well as many other **small hydropower dams**.
- Moreover, long tunnels spanning 150 km have been planned or commissioned on the Sutlej river causing significant harm to the entire ecosystem.
- Currently, there are **168 hydropower projects** in operation.

What about tourism?

- The development-driven road expansion is aimed at **promoting tourism and attracting a large number of visitors**.
- The road-widening projects, often carried out by the **National Highway Authority of India (NHAI)**, involve transforming two-lane roads into four-lane roads and single lanes into two-lane roads.
- The development model follows a **public-private-partnership (PPP)** approach, emphasising the need to complete these projects **rapidly**. However, this has resulted in **bypassing essential geological studies and mountain engineering skills**.
- Traditionally, mountainous regions are not cut with vertical slits but are terraced, minimising the **damage to the environment**. Unfortunately, in both the four-lane projects in **Manali and Shimla**, the mountains have been cut vertically, leading to **massive landslides** and damage to **existing roads**.
- Restoring these roads after such disasters is a **time-consuming process**, often taking months or even years.
- The consequences of such road expansions are evident during even normal rainfall, as it leads to slips and slides, **amplifying the magnitude of the destruction during heavy rain or floods**.



How have cement plants harmed the environment?

- The establishment of massive cement plants and extensive cutting of mountains in districts like **Bilaspur, Solan, Chamba** have resulted in significant land use changes that contribute to flash floods during rainfall.
- The cement plants alter the **natural landscape**, and the removal of vegetation leads to reduced capacity of land to absorb water.

How have crop patterns changed?

- A silent transformation is occurring in **agriculture and horticulture patterns**, leading to significant shift in both landholdings and produce.
- More farmers are now embracing a cash crop economy over **traditional cereal farming**. However, this shift has implications for the transportation of these crops to markets within a short timeframe owing to their perishable nature.
- In response to this need, roads are being **constructed hastily without considering essential land cutting** and gradient requirements.
- Modern excavators are employed in construction, but **without creating proper drains or designated areas for dumping muck**.
- Consequently, when it rains, the water finds its own path, **carrying the dumped muck** along with it and depositing it into the river ecosystem.
- As a result, even during normal rainfall, rivulets and rivers experience rapid swelling.

What is the way out?

- A Commission of Inquiry must be instituted to bring the major stakeholders — the people — on board and discuss both the policy framework failures, as well as the **peculiar aspects of the projects undertaken**.
- A **new architecture** is required to empower local communities over their assets.
- The losses faced in the forms of culverts, village drains, small bridges, schools, other social infrastructure must be compensated; and this can be done if **the assets are insured** and the custodians are local communities.
- This will help to rebuild the assets quicker. With **climate change 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.



Questions :

- **Why is climate change alone not to blame for unprecedented rain and floods in the State?**
- **What are the anthropogenic reasons?**
- **Should the development model be relooked?**
- **How have changes in the way dams are being built, shift in crop patterns, rush of tourism added to the problem?**