Flash Floods

Why in news?

Flash floods were witnessed in Khotinallah near Aut (in HP) on the Pandoh–Kullu stretch due to a heavy downpour and the Chandigarh-Manali highway was blocked.

What are flash floods?

- Flash floods are *sudden* and *rapid flooding* events that happen within a short period of time.
- Flash floods are *highly localised* but causes *high damages* because of suddenness.
- This occurs in hilly regions and sloping lands where heavy rainfall and thunderstorms or cloudbursts are common.
- Low-lying areas, such as riverbeds, canyons, and urban areas with poor drainage systems are also prone to it.

How India is vulnerable to flash floods?

- In India, flash floods are often associated with *cloudbursts*.
- Himalayan states and the Western Ghats in Maharashtra and Kerala are more vulnerable to flash floods caused by cloud bursts.
- Himalayan states further face the challenge of *overflowing glacial lakes*, formed due to the melting of glaciers.
- Frequently, flash floods are accompanied by landslides.
- Other factors of flash floods includes sudden release of waters from upstream reservoirs, breaches in landslide dams, embankments on the banks of the rivers, depression and cyclonic storms

Reasons for flood	States
Depression and cyclonic storms	coastal areas of Orissa, West Bengal, Andhra Pradesh, Karnataka, and Tamil Nadu
Cloud bursts	Arunachal Pradesh, Assam, Orissa, Himachal Pradesh, Uttarakhand, the Western Ghats in Maharashtra and Kerala
Breaches in embankments	Assam, Bihar, Uttar Pradesh, Orissa and Andhra Pradesh

> *According to the National Flood Commission, about 40 million hectares of land in the country are liable to floods and an average of 18.6 million hectares of land are affected annually.*

What are the reasons for frequent flood situations?

- According to the National Disaster Management Authority (NDMA), nearly 75% of the total Indian rainfall is concentrated over a short monsoon season of four months (June to September).
- **Climate change -** Rapid melting of glaciers in glacial lakes as an impact of global warming.
- **Manmade reasons -** Factors such as population growth, rapid urbanisation, increased developmental and economic activities in flood plains contribute to the increasing flood damage.
- **Wildfires -** Flash floods may be more frequent after wildfires in the future.
- Wildfires destroy forests and other vegetation, which in turn weakens the soil and makes it less permeable for water to seep through.

How dangerous are flash floods?

- Flash floods can occur without warning, catching people off guard and leaving little to no time for preparation and evacuation.
- Due to their speed and unpredictability, water levels can reach several feet in just a few minutes.
- They pose a significant threat to life, along with property and infrastructure.
- Flash floods accompanied by landslides further exacerbate the damage.

What are the mitigating measures?

- Comprehensive strategy of ***monitoring*** on the ground in hilly areas.
- ***Planning development works*** in a way that is sensitive to the region's ecology and mitigation to reduce the extent of damages due to flash floods and landslides.
- ***Early warning systems***, such as weather forecasts and monitoring of river levels are key to mitigating the risks associated with flash floods.
- Public education on flood ***preparedness*** and evacuation procedures.

Quick Facts
• **Cloudbursts** - Sudden, intense rainfall in a short period of time. • **Landslides** - Sudden movements of rock, boulders, earth or debris down a slope. - **Natural causes** - Heavy rainfall, earthquakes, snowmelting and undercutting of slopes due to flooding. - **Manmade causes** - Excavation, cutting of hills and trees, excessive infrastructure development, and overgrazing by cattle.

References

1. The Indian Express | What are flash floods?
2. Business Standard - India's vulnerability to flash floods

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