

# Flash Floods

March 22, 2019

## Manifest Pedagogy

Floods and flash floods as part of disaster management had been asked in mains. Geographical aspects of flash floods and necessary guidelines are important area of preparation.

## In news

Flash floods hit Indonesia

## Placing it in the syllabus

Disaster and disaster management.

## Static dimensions

Concept of Flash Floods

## Current dimensions

- Reasons for flash floods in Indonesia.
- Recent flash floods in India.

## Content

### Definitions of Flash floods

**Flash floods are characterised by very fast rise and recession of flow of small volume and high discharge, which causes high damages because of suddenness. This occurs in hilly and not too hilly regions and sloping lands where heavy rainfall and thunderstorms or cloudbursts are common.**

A flood caused by heavy or excessive rainfall in a short period of time, generally less than 6 hours. Flash floods are

usually characterized by raging torrents after heavy rains that rip through river beds, urban streets, or mountain canyons sweeping everything before them. They can occur within minutes or a few hours of excessive rainfall. They can also occur even if no rain has fallen, for instance after a levee or dam has failed, or after a sudden release of water by a debris or ice jam.

A flash flood is a rapid inundation of geomorphically low-lying areas: washes, rivers, dry lakes and basins. 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.

### **Causes of Flash floods**

1. A flash flood is a rapid inundation of geomorphically low-lying areas: washes, rivers, dry lakes and basins. 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.
2. However, floods are not always caused by heavy rainfall. Flash Floods can be caused by a number of things, but is most often due to extremely heavy rainfall from thunderstorms.
3. Flash Floods can occur due to Dam or Levee Breaks, and/or Mudslides (Debris Flow).
4. In areas on or near volcanoes, flash floods have also occurred after eruptions, when glaciers have been melted by the intense heat.
5. The intensity of the rainfall, the location and distribution of the rainfall, the land use and topography, vegetation types and growth/density, soil type, and soil water-content all determine just how quickly the Flash Flooding may occur, and influence where it may occur.

### **Reasons for Indonesian(Papua New Guinea) flash floods**

- Torrential downpours (heavy rainfall) triggered flash floods
- Along with heavy rainfall, land use changes and decrease of recharge capacity has also led to flash floods.
- Experts are of the opinion that the combination of natural factors and human activities has caused this fatal disaster.
- Flooding is common in Indonesia, especially during the rainy season which runs from October to April.
- Earthquake triggered landslide
- The Southeast Asian archipelago of some 17,000 islands is one of the most disaster-prone nations on Earth, straddling the Pacific Ring of Fire, where tectonic plates collide. Earthquakes and volcanic eruptions are common.

### **Recent flash floods in India**

- 2012 Himalayan flash floods
- 2013: Uttarakhand, Uttarakhand.
- 2013: Kedarnath, Uttarakhand.
- 2014 and 2018: Srinagar, Jammu & Kashmir.
- 2017: Uttarakhand, West Bengal, Bihar and multiple states in the North East.

### **World Meteorological Organization (WMO) on Flash Floods**

World Meteorological Organization (WMO) has designated India as nodal centre for developing customized model to issue advance warning of floods to Asian countries, including Vietnam, Sri Lanka, Myanmar and Thailand. The model will be called as Flash Flood Guidance System. Indian Meteorological Department (IMD) under Ministry of Earth Sciences will work to customize this weather model.

### **About Flash Flood Guidance System**

- The model will provide forecasts by computing likelihood of rainfall and soil moisture levels to warn of possible

floods.

- It will carry out forecasts by using combination of satellite mapping and ground-based observation.
- It will be customized weather model, originally developed by US and donated to WMO to warn about flash floods at least six hours in advance.