

## Flood Management

### What is flood?

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- A flood is an overflow of water that submerges land which is usually dry.
- Some floods develop slowly, while others such as flash floods can develop in just a few minutes and without visible signs of rain.
- Floods occur due to heavy rainfall when the natural water routes exceed their capacity to hold the entire mass.
- But floods are not always caused by heavy rainfall.
- There are two facets to flooding i.e natural and manmade.
- The manmade component is dangerously mixing up with the natural factors to give flooding propelled by natural factor a more lethal dimension.

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### What is the condition in India?

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- In India floods are most common and frequently occurring source of disaster.
- The data compiled by the National Flood Commission shows that about **40 million hectares of land area in the country is flood prone.**
- Over 60% of the flood damage results from **river floods.**
- Another 40% is the result of **heavy rainfall and cyclones**, most of which is in peninsular river basins.
- State wise study shows that about 27% of the flood damage in the country is in **Bihar**, 33% by **Uttar Pradesh and Uttarakhand** and 15% by **Punjab and Haryana.**

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- On an average, the area affected by floods annually is about 8 million hectare, out of which the about 3.7 million hectare is cropped area affected.

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- The major flood areas in India are in the **Ganges-Brahmaputra-Meghna basin** which accounts for nearly 60% of the total river flow of the country.

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## **What are the reasons for floods in India?**

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- **Seasonality** - The rainy season is heavily concentrated in a short span of 3-4 months of the season. It results in heavy discharge from rivers resulting in devastating floods at times.

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- **Cloud Burst** - Heavy precipitation and at time cloud bursts in the hills or upstream also floods the rivers. The rivers start spilling over if rainfall of about 15cm or more occurs in a single day. This affects **Western coast of Western Ghats**, Assam and sub-Himalayan West Bengal and Indo-Gangetic plains.

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- **Accumulation of silt** - The Himalayan Rivers having huge ingredients bring in large amount of silt and sand that ultimately get accumulated with no clearing operations taking place for years on. As a result the water carrying capacity of the rivers is drastically reduced, resulting in floods. e.g Jhelum flooding

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- **Obstruction** - Obstruction caused by construction of embankments, canals and railway related activities also results in floods.

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- **Deforestation** - Trees play a vital role to hold the surface on mountains and create natural barriers for the rain waters. Therefore deforestation of hill slopes results in the water level rivers suddenly raising and causing floods.

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- **Town Planning** - The new addition to this is the phenomena of urban flooding as witnessed in the metropolitan cities of Mumbai, Chennai, Bengluru and Srinagar.

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- The root cause is the rampant migration from rural areas to the cities that has caused immense pressure on land, the failure of the civic authorities in checking encroachment of land which are traditional outlets for the

overflowing rivers, poor planning and corruption.

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- **Monsoon Pattern** - These factors are further compounded by irregular pattern of monsoon, unseasonal rains or even shift in the traditional periodicity of Monsoon.

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## **What should be done?**

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- Due to technological up gradation the meteorology experts have of late been predicting monsoon and other weather conditions with near perfection.

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- It definitely provides enough time-frame for the government to plan disaster management.

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- But it is beyond any scientific means to either design or keep the rain patterns under control.

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- Therefore a **multi-pronged strategy** is needed in consonance with the changing rain patterns to manage floods.

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- It will be naive to look at flood management as an isolated subject. It should be seen in the light of environmental degradation, global warming and poor governance at various levels.

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- Efforts made by the Centre and the state governments to check deforestation should be intensified. The tree plantation drives at all levels are steps in the right direction.

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- **Cleaning of drains and rivulets** near the cities should be accorded top priority.

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- Construction of embankments, flood walls, ring bunds, flood control reservoirs should be scientifically carried on.

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- **Improvement of river channels** and surface drainage and most importantly checking erosion of land on river banks are others measures that could help checking the spread of flood.

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- **Advance town planning** and yearly preparations should be done to mitigate the effects of urban planning.

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- Flood control as a subject has **no clear cut legislative marking**. As a subject it is not included in any of the legislative lists of the country that is the Union, the State or the Concurrent lists.

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- Issues related to drainage and embankments find a mention in Entry 17 of List II of the State List. That entails that preventing and fighting floods is primarily the responsibility of the state governments.

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- The state level set up has water resources departments, flood control board and state technical advisory committee. The Central mechanism has a network of organisations and expert committees constituted from time to time to study advice on flood management.

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- **The Centre-states mechanism** needs to be further strengthen with focus on greater coordination. This has to be a continuous and ongoing system rather than waking up at the time of the calamity only. The Centre and the states through a joint plan should undertake various measures to control floods.

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