

India accounts for one fifth of global flood deaths; an average of 1,650 Indians lost their lives every year between 1953 and 2016 as a result of floods. This article throws light on the economic impact of floods in India, the loss of lives, the major causes of floods, measures to tackle it and the Government agencies working to tackle the problem.

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Floods in India - Overview of the Major Problem

The below points share some important statistics regarding floods in India, to help one gauge the magnitude of the problem caused by frequent floods and help understand the priority that needs to be given to tackle the problem.

1. Floods are the most lethal of natural disasters in India. Between 1980 and 2017, India experienced 235 floods, which led to 126,286 deaths and affected 1.93 billion people.
2. The economic losses due to floods stood at a humongous \$58.7 billion. Floods in India are also the costliest among disasters, accounting for around 68 per cent of economic losses caused by all disasters (Emergency Events Database).
3. As per data given in the [Rajya Sabha](#), in 2018; the economic losses suffered by India due to floods across the country, was at approximately Rs 95,000 crores and unfortunately 1,808 people lost their lives.
4. Floods in India account for over 40 percent of the deaths out of all natural disasters. Empirical studies have also shown that flood damage has a negative impact on economic growth in the long run and considerably reduces female employment opportunities in the agricultural sector.
5. In 1980, Rashtriya Barh Ayog (National Commission on Floods) assessed that the total flood-prone area of India is around 40 million hectares which is equivalent to 12 percent of the total area of India. The Working Group on Flood Control Programme set up by the Planning Commission for the Tenth Five Year Plan put this figure at 45.64 million ha. About 80 percent of this area, i.e. 32 million ha, could be provided with a reasonable degree of protection.
6. According to the ministry of home affairs, around 1,153 people were killed due to floods and landslides in 14 Indian states till August 27, 2020. Around 17.3 million people have been adversely affected on account of upheavals that took place after floods. The major fatalities reported are in West Bengal, Maharashtra, Bihar, Gujarat, Assam, Madhya Pradesh, Kerala, Karnataka, Jammu and Kashmir, Chhattisgarh.
7. Government data shows that between 1953 and 2011, on an average, floods claimed 1,653 lives every year and caused losses – including the house, public property and crop damage of Rs. 3,612 crores every year.
8. Since 1947, in Assam, more than 1.25 lakh families have lost either their agricultural land or residential land due to floods.

Some of the major floods in India in the past decade are

1. Patna (2019)
2. Kerala in 2018 and 2019
3. Chennai (2015)
4. Kashmir (2014)
5. Uttarakhand (2013)

Floods in India - Major Causes

1. Inadequate capacity within the banks of the rivers to contain the high flows brought down from the upper catchments due to heavy rainfall.
2. Encroachment of floodplains
3. Synchronization of floods in the tributaries and its main rivers.
4. Some parts of the country, mainly coastal areas of Orissa, Tamil Nadu, Andhra Pradesh, and West Bengal, experience cyclones, which are often accompanied by heavy rainfall leading to flooding.
5. Unplanned growth of urban areas
6. Flooding is accentuated by erosion and silting of the river beds, resulting in a reduction of the carrying capacity of river channels

Flood Management in India - Different Factors

Flood management in India is dependent on various factors associated with climate change which are listed below

1. The frequency and intensity of floods
2. Rise in sea levels
3. Rainfall

Floods in India - Different Agencies for Flood Control in India

1. [India Meteorological Department \(IMD\)](#) - provides rainfall or cyclonic event forecast which is used by all the agencies for preparedness to deal with the floods.
2. [National Disaster Management Authority \(NDMA\)](#) - The job of relief and rescue is carried out by the National Disaster Response Force (NDRF) with state counterparts. NDMA works under Prime Minister Office (PMO) – and National Institute of Disaster Management (NIDM) – works under the Union Ministry of Home Affairs (MHA).

3. [Central Water Commission \(CWC\)](#) - The main job of CWC is to procure the data of hydrology at the national level – like river discharge measurement and water level in dams etc – to alert the states about any imminent or potential flood.

Floods - Broad Categories

1. Coastal Floods
2. Flash Floods
3. Urban Floods
4. River/Fluvial Floods
5. Ponding/Pluvial Flooding

Floods in India - 4 Different Regions

1. Central India and Deccan - this region is prone to sea level rise, severe coastal erosion, and tidal flooding caused by cyclones.
2. The Ganges - in this region the impact of heavy rainfalls is augmented by earthquakes and unregulated sand mining, which destabilizes riverbeds.
3. The Brahmaputra - incessant rainfall can be aggravated by landslides and earthquakes, disrupting the natural flow of the river.
4. The Northwest - vary across the area's diverse landscapes, in the agriculture-dominated Punjab, flooding may be more associated with inadequate drainage facilities in irrigated fields. In the [Himalayas](#), flooding is mostly associated with cloudbursts and glacial lake outbursts

Flooding - Measures to Control or reduce Damages

1. To prevent coastal flooding due to more powerful and frequent [cyclones](#) (result of climate changes), [mangroves](#) will act as a perfect natural bulwark to prevent flooding in coastal areas. Hence conservation of Mangroves from degradation and destruction is of paramount importance.
2. Use of Intelligent flood warning systems like IFLOWS (integrated flood warning system).
3. Structural measures such as embankments and dykes
4. Nonstructural measures such as flood forecasting and community participation in flood risk management
5. Strict implementation of building laws, demarcation of flood prone areas.

Urban Floods and Major Causes

With massive rise in population in major cities due to migration of people in search of better economic opportunities, has resulted in expansion of cities rapidly, and people in the position of power have put the planned expansion of cities into the backburner, without implementing any proper policies. The country has witnessed urban floodings, which is the result of such unbridled expansion. Some of the major urban floodings were witnessed in

1. Patna (2019)
2. Chennai (2015)
3. Mumbai (2005)

There are a plethora of examples for urban flooding, but the above 3 floodings had caused too much damage to those cities and its dwellers.

Urban Flooding - Major Causes

Some of the major causes of urban flooding are

1. Lack of proper **drainage network** in the cities.
2. Dying water bodies
3. Encroachment of water bodies like lakes, ponds for building infrastructure or [waste disposal](#).
4. Disposal of garbage without proper planning.
5. Climate change has resulted in erratic and very heavy [rainfalls](#).
6. India's Land policy has not helped in managing or controlling the recurrence of major floods in urban areas. The reason for poor land policy could be economic, social and political. The importance of proper land policy has been highlighted even by [World Meteorological Organisation \(WMO\)](#)

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