



Earth



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years & beyond..

WE BELIEVE

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A group of people, including men, women, and children, are in a small boat navigating through deep floodwaters in an urban area. The water is murky brown. In the background, there are multi-story buildings and palm trees under a cloudy sky. The text 'Floods: How Indian Cities Are At Risk?' is overlaid in large, bold, blue letters.

Floods: How Indian Cities Are At Risk?

Source: <https://www.dawn.com/news/1224187>

India is exposed to many natural disasters viz. cyclone, drought, earthquake, flood, tsunami etc. With economic progress, more people are migrating to cities that have emerged as center of commercial and industrial activities. However, the cities themselves face various risks such as unplanned growth, congested roads, and exposure to natural disasters.

Poor handling of these risks affects people, city's business potential, and reputation of country as a whole.

This article focuses on impact of Natural Disasters affecting major Indian cities. North, Northeastern, and Central Indian cities are exposed to earthquakes. Coastal cities face cyclones and tsunamis. Air pollution, especially during winters, is becoming a major challenge for the north Indian cities. Likewise, more and more cities including Metro like Chennai are facing water-scarcity. Collectively, all disasters are hampering business activities from time to time that results in loss of productivity.

However, flood affects almost entire India. Flooding has become an annual affair for various places either due to riverine flood or due to urban floods.



Source: <https://fiinnovationblogs.wordpress.com/tag/2005-mumbai-catastrophe/>

Scientists believe due to Global Warming and Climate Change, rainfall patterns are changing. Observations of recent years reflect, despite number of days that experienced rainfall are reduced, volume of water received is more. As most cities do not have the drainage network to discharge the more than expected amount of water, flash floods occur.



A flooded road in Mumbai during July 1-2, 2019 | Source: *DNA*

Furthermore, cities located on riverbanks face flooding when water is released from dams or river overflows due to excessive rains. The increased water level forces the local government to rehabilitate the people to safe places. Those who have bought insurance will be indemnified as per policy terms and conditions; the uninsureds would either bear the cost themselves or seek assistance from government.

At times, to cater to the needs of increasing population, the city authorities approve construction in areas those either are located in flood plains or developed on places those previously had protected the city from floods such as Mangroves or a natural drainage. Shrinkage of water bodies aggravate the flood risk as evident in various Indian cities.

Loss of Productivity and Livelihood

Due to their intensity and duration, floods occurring in the cities affect human life and properties alike. Some consequences are:

- Shutdown of air, rail, and road transport
- Disruption of tele-communication services
- Shutdown of hospitals and disruption in medical services
- Pollution of water bodies that may trigger epidemic
- Loss of building, contents and working hours
- Price rise of essential commodities

During the Chennai Floods in 2015, some companies airlifted their key personnel to other cities to complete projects of critical importance. However, the organisations cannot move their workforce especially when the roads, railway tracks, and even airports are flooded.

At times, employees, despite being willing, cannot come to work due to flooded streets and lack of transportation. Furthermore, if essential services such as electricity and Internet are hit, businesses - both public and private - , are hit harder.

Table below shows Insured and Economic Loss in Recent Floods in India

Date	Region(s)	Economic Loss (Mln US\$)	Insured Loss (Mln US\$)
July – Aug 2018	Kerala	4,400	600 Mln plus (Estimated)
July – Aug 2017	Maharashtra (Mumbai, Thane, Palghar), Gujarat, West Bengal, Jharkhand, Assam, Arunachal Pradesh, Nagaland, Manipur	2,670	78
July- Aug 2016	Andhra Pradesh, Telangana, Maharashtra, Madhya Pradesh, Assan	1,039	44
Nov –Dec 2015	Tamil Nadu (Chennai), Andhra Pradesh, Pondicherry	2,200	

Date	Region(s)	Economic Loss (Mln US\$)	Insured Loss (Mln US\$)
November 2015	Tamil Nadu, Andhra Pradesh, Pondicherry	110	NA
October 2015	Tamil Nadu	15	NA
Aug –Sep 2015	Assam	50	NA
March 2015	Jammu & Kashmir	76	NA
September 2014	Assam, Meghalaya	158	NA
September 2014	Jammu and Kashmir	5,970	237
August 2014	Odisha	100	NA
14-30, June 2013	Uttarakhand	1,100	500
September 2012	Uttarakhand	20	NA
Sept – Oct 2011	Uttar Pradesh, Bihar, Odisha	957	NA
August 2011	West Bengal	239	NA
June-July 2011	Uttar Pradesh, Uttarakhand	20	NA
December 2010	Tamil Nadu	22	
September 2010	Uttar Pradesh, Uttarakhand, Bihar	1,680	
July 2010	Assam, Kerala	447	NA
November 2009	Tamil Nadu	64	
Sep – Oct 2009	Andhra Pradesh, Karnataka	2,150	51
Aug- Sep 2008	Assam, Bihar	20	NA
Aug 2008	Andhra Pradesh	195	NA
June – Aug 2008	Uttar Pradesh, Odisha, Assam, West Bengal	123	NA
March 2008	Tamil Nadu, Karnataka	2	NA
July- Aug 2007	Uttar Pradesh, Bihar, Assam, West Bengal	320	NA
August, 2006	Surat, Gujarat	3,390	407
October 2005	West Bengal, Odisha	117	NA
September 2005	Andhra Pradesh	400	
July 2005	Mumbai, Madhya Pradesh, Gujarat	3,330	844
June –July 2005	Gujarat	444	156

As the table shows, floods have occurred in all major states. Today, people are more aware and weather forecast is much improved and accurate. Nonetheless, a lot is to be done as the exposure has been increasing steadily in the urban centers. Local governments must ensure that floodwater is discharged timely and transportation network is up at the earliest. If they fail to do so, businesses might start thinking of moving to a safer place that would result in loss of revenue and employment for inhabitants, and finally loss of nation's growth and its reputation as a global business hub.

References:

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- DNA
- IMD
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- The World Bank

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