

GS Paper 3
Disaster Management – Sept’18

IOWave16

In News

- India along with 23 other countries participated in a large-scale tsunami simulation exercise organized by the Intergovernmental Oceanographic Commission (IOC) of UNESCO on 7 and 8 September.
- The tsunami mock drill, known as the IOWave16, will test the standard operating procedures of the Indian Ocean Tsunami Warning and Mitigation System and is designed to assess the effectiveness of communication flows between operational centres and stakeholders, emergency procedures and country readiness, according to the IOC.
- The exercise will include community evacuation drills in at least 10 countries, involving over 50,000 participants, and will comprise two scenarios.
 - I. The first drill will simulate an earthquake on 7 September with a magnitude of 9.2 south of Sumatra, Indonesia.
 - II. The second drill on 8 September will simulate an earthquake with a magnitude of 9.0 in the Makran Trench south of Iran and Pakistan

While the **first drill** will involve the **east coast**, India’s **west coast** will be part of the **second drill**.

- Operations will begin when the Joint Australian Tsunami Warning Centre, the Indian Tsunami Early Warning Centre and the Indonesian Tsunami Early Warning System issue alert notifications to the 24 countries concerned.
- Simulating tsunami waves travelling across the Indian Ocean, both exercises will be conducted in real time lasting about 12 hours.
- In India, massive community-level evacuations will be carried out in about 350 villages involving some 35,000 participants from coastal communities mostly in Odisha, Andaman and Nicobar Islands, Andhra Pradesh, Tamil Nadu, West Bengal, Kerala, Gujarat and Goa.
- In Sri Lanka, 14 villages will be evacuated, involving some 7,000 participants. In Oman, eight schools and about 8,000 students will take part in simulated evacuations.

Indian Ocean nations called for the establishment of an Indian Ocean Tsunami Warning and Mitigation System in the wake of the 2004 tsunami disaster. “The Indian Tsunami Early Warning Centre (ITEWC), based out of the Indian National Centre for Ocean Information Services (INCOIS), which was set up in 2007 in Hyderabad is an autonomous institution under the Ministry of Earth Sciences and can detect tsunamigenic earthquakes within 10 minutes of their occurrence and disseminate timely advisories to disaster management officials and the vulnerable communities.

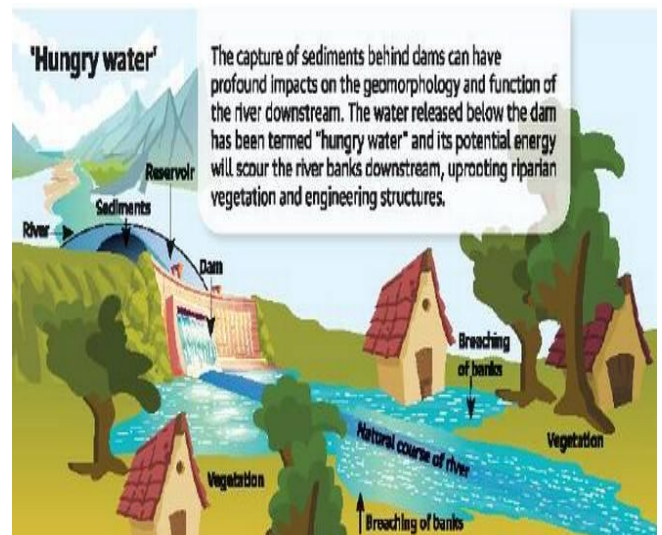
What Caused The Floods In Kerala?

A combination of four factors led to extreme flooding across Kerala this year, a study says. *Above normal seasonal (May-August) rainfall, extreme rainfall events occurring almost across the State during the season, over 90% reservoir storage even before the onset of extreme rainfall events, and finally, the unprecedented extreme rainfall in catchment areas of major reservoirs in State led to the disaster.*

1. The summer monsoon rainfall in Kerala from May to August this year was 2,290 mm, which was 53% above normal. The average rainfall during the summer monsoon period (June-September) is about 1,619 mm. This makes 2018 Kerala's third wettest year in the last 118 years (1901-2018)
2. Kerala received 1634.5 mm rainfall during the period May 1 to August 7, which is more than the average rainfall (1619.37 mm) during the summer monsoon period (June-September). As a result, six of the seven major reservoirs in the State had over 90% storage before August 8, well before Kerala received the unprecedented extreme rainfall events.
3. Finally, the catchment areas of major reservoirs in the State received extreme rainfall never before witnessed in the State. The role of other factors such as changes in how infrastructure has grown at the expense of vegetation and drainage remains to be studied.

The State-wide flooding shows that reservoirs can play a major role in improving or worsening the flood situation. The widespread damage caused by recent floods in Kerala can be attributed to the 'hungry water' effect' caused by the surge of sediment-starved water from the upstream reaches of a river. While heavy rainfall is also a key factor behind the floods, hungry water had a more pronounced effect.

- Dams and reservoirs trap the sediments eroded from rocks and soils, leaving the river starved of its sediment load. When the sediment transport is interrupted, the potential energy of the hungry water released from dams will scour the river banks downstream, uprooting trees or riparian vegetation and damaging bridges and other engineering structures.
- Overloaded with silt and clay from the eroding river banks, the highly turbid and viscous water clogs drainage channels. Subsequent discharge of water from the dam will lead to inundation and water logging of large areas.
- Hungry water can also develop in high gradient river channels devoid of adequate quantity of sand and gravel, especially during periods of high rainfall.
- Years of uncontrolled sand mining have left most of rivers in Kerala depleted or exhausted of sand & gravel. This creates a situation similar to release of hungry water from dams.
- When the river channel has adequate supply of sand and gravel, the potential energy of the water is used to transport the mixture. The water does not scour the banks or turn muddy.



Centre To Hike Grant For State Disaster Response Fund (SDRF)

In News

The Centre has enhanced its contribution in the SDRF from 75% to 90%. Kerala, which has recently faced the worst floods, will be a major beneficiary of the Centre's decision. Henceforth all States will be required to contribute 10% to the SDRF.

What Does The Act Have

- Under the **Disaster Management** Act 2005, a financial mechanism has been set up by way of National Disaster Response Fund (NDRF) at national level and SDRF at the State level to meet the rescue and relief expenditure during any notified disasters.
- The SDRF has been constituted in each State in which the Centre, so far, had been contributing 75% for the general category states and 90% for special category States of hilly regions every year.
- The SDRF is a resource available to the States to meet the expenses of relief operations of immediate nature, for a range of specified disasters. At any point, the state government has fair amount of funds available under the SDRF.
- Based on the recommendations of successive Finance Commission, the central government approves the annual allocation to SDRF.