

General Studies – 3 Topic: Disaster management

Cyclone Disaster Management

1) Introduction

- Indian coasts are highly vulnerable to tropical cyclones and the consequent recurrent loss of life and property.
- Tropical storms are an annual affair, with the more vulnerable eastern coast with 92 severe cyclones out of a total of 262 between 1891 and 1990, and several more in the years since.
- Such weather events are a part of the climate system, and their impact in the form of economic losses could well be greater going forward, as development creates more assets in coastal cities.

2) Background

- Cyclones are caused by atmospheric disturbances around a low-pressure area distinguished by swift and often destructive air circulation.
- Approximately 5700 km out of around 7516 kms of India's coastline, its flat coastal terrain and high population density are extremely vulnerable to cyclones
- Recurrent cyclones account for a large number of deaths, loss of livelihood opportunities, loss of public and private property, and severe damage to infrastructure.
- Cyclones are associated with Strong Winds, Torrential rains and inland flooding and Storm Surge.

3) Awareness Generation

- prepare communities to deal with disasters in a manner that people's lives and properties are protected, and to ultimately become resilient
- public awareness generation will serve to empower people with knowledge about the role and responsibilities of the state
- Targeting schools, colleges and all educational institutions is a very important part of awareness generation.
- It has to be sustained through constant updating, upgrading and mock drills.
- Awareness will also help in induction of the constantly evolving knowledge of science and technology as well as research and development applications.

4) Management of Cyclones

- **structural measures**
 - a) Construction of cyclone shelters, construction of cyclone resistant buildings, road links, bridges, canals, drains, saline embankments, communication and power transmission networks etc.
- **Non-structural**
 - a) Early warning dissemination systems, management of coastal zones, awareness generation and disaster risk management and capacity building of all the stakeholders involved.
 - b) These measures are being adopted and tackled on State to State basis under National Cyclone Risk Mitigation Project (NCRMP) being implemented through World Bank Assistance.

5) Cyclone Vardah

- Cyclone Vardah that lashed India's east coast has once again demonstrated that India's cyclone preparedness has reached its mark.
- Three severe cyclones in a row - Phailin in Odisha (2013), Hudhud in Andhra Pradesh (2014), and now Vardah in Tamil Nadu - have proved conclusively that India has won the battle against the natural hazard that used to create havoc to the coastal area not so long ago.

- The Indian Meteorological Department was able to track the movement of Vardah with precision and issue early warnings
- Our success in cyclone preparedness surely offers a lesson for improving our preparedness for earthquake, flood and landslides

6) Measures to be taken

- **Pre disaster**
 - a) provide cyclone forecasting, tracking and warning systems
 - b) Construction of cyclone shelters, cyclone resistant buildings, road links, bridges, canals, drains etc.
 - c) Establishing Early Warning Dissemination System (EWDS), and Capacity building for coastal communities.
 - d) Mock drills, and training of local population and police by NDRF and SDRF
 - e) Plantations of strong rooted trees, canopies, mangroves and proper vegetation cover which act as first line of defence.
 - f) Proper drainage system throughout the city to discharge the water as soon as possible to avoid flood like conditions
 - g) Use of NAVIC and RESOURCESAT-2 for disseminating coastal information and helping in disaster management.
 - h) Implementation of National Cyclone Risk Mitigation Project
- **During disaster**
 - a) Cautionary advice put out on social platforms urging people to stay safe can reduce the number of casualties as seen in Chennai during recent cyclone Vardha.
 - b) Social media and the Internet, speedy official and community messages, creating online groups and sharing messages offering help and advice.
 - c) Perception of people decides the intensity of disaster. If people take necessary proactive steps to deal with disaster then even the severe disaster can be dealt with minimum damage.
 - d) Delivery of food and health care via mobile hospitals, with priorities to women child & elders.
 - e) Protection of the community and their evacuation and quicker response.
- **Post disaster**
 - a) It is vital that the learning from each event is shared nationally, and the capacity of officials and communities to manage disasters built continuously.
 - b) Among the securities available to individuals in many countries is insurance against property losses. Viable policies should be made available in India too.
 - c) Providing alternative means of communication, energy and transport just after the disaster.

7) Need of the Hour

- To overcome the power cut it is important to have rooftop solar and battery storage systems as supplementary power sources for households and corporates.
- Planting trees with strong root systems and pruning the canopy ahead of cyclone season could reduce uprooting.
- Government should restore infrastructure and provide priority relief to the families of those who lost their lives, and the worst-hit communities.
- Efficient use of technology and implementation of the Sendai framework is the need of the hour
- Collaboration with other countries in the region to strengthen the cooperation and efforts and to make a common fund for disaster management.

- Construction of multipurpose cyclone shelters, access roads, saline embankments and underground cabling.
- By taking long and short term mitigation measures, the loss of life and property can be minimized.

