Cyclone Management Framework

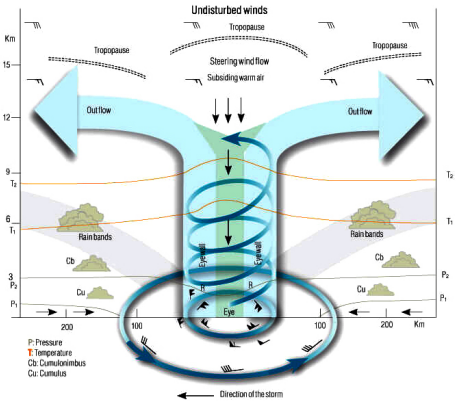
Why in News

Recently, **Cyclone Jawad** has hit the east coast of India particularly the **State of Odisha and Andhra Pradesh.**

- Although the cyclone weakened and didn't cause much damage, it highlighted that India's cyclone management approach was **largely based on evacuation.**
- Thus, India's cyclone management must incorporate **Mitigation and Preparedness measures.** Mitigation means measures taken prior to the impact of a disaster to minimize its effects.

Key Points

- **About Cyclone**: Cyclones are rapid inward air circulation around a low-pressure area. The air circulates in an **anticlockwise direction** in the Northern hemisphere and **clockwise** in the Southern hemisphere.
    - Cyclones are usually accompanied by violent storms and bad weather.
    - The word Cyclone is derived from the **Greek word Cyclos meaning the coils of a snake.**
    - It was coined by **Henry Peddington** because the tropical storms in the Bay of Bengal and the Arabian Sea appear like coiled serpents of the sea. //



- **Classification of Cyclone:** There are two types of cyclones:
    - **Tropical cyclones**: Tropical cyclones develop in the region between the **Tropics of Capricorn and Cancer.**
        - **They are large-scale weather systems developing over tropical or** subtropical waters, where they get organized into surface wind circulation.
        - The **World Meteorological Organization** uses the term 'Tropical Cyclone' to cover weather systems in which winds exceed 'Gale Force' (minimum of 63 km per hour)
    - **Extra Tropical cyclones:** They are also called Temperate cyclones or middle latitude cyclones or Frontal cyclones or Wave Cyclones.
        - Extra tropical cyclones occur in temperate zones and high latitude regions, though they are **known to originate in the Polar Regions.**

Case Study of India's Cyclone Management

- **Cyclone Phailin & Fani:** India has gained much recognition globally for its swift action during some of the major cyclones in the recent past such as **Cyclone Phailin (2012), Fani (2019), etc.**
    - The state government of Odisha has started undertaking **mega evacuation drives in the aftermath of the Super Cyclone in 1999.**
        - For example,more than a million people were evacuated for both these events.
    - The evacuations were considered to be the **primary reason for the limited human deaths reported.**
    - However, **there is an inadequate focus on response aspects** other than evacuation, such as measures to minimize crop damage, assistance for quick harvest, adequate relief and timely distribution of post-cyclone assistance such as for damaged houses, etc.
- **Cyclone Jawad:** Too little attention being given to key disaster response functions other than evacuation.
    - The current threat from Cyclone Jawad, which comes at a time when crops in most parts are nearing harvest.
    - There was **distress selling and premature harvesting because of the cyclone.**

Mitigation and Preparedness Measures for Cyclone

- **Hazard Mapping:** Hazard mapping for cyclones represents the results of cyclone hazard assessment on a map, **showing the frequency/probability of occurrences of various intensities or durations.**

- **Land Use Planning:** Policies should be in place to regulate land use and enforcement of building codes.
    - Vulnerable areas should be kept for parks, grazing grounds or flood diversion instead of human settlements.
- **Engineered Structures:** Some examples of **general good construction practice include:**
    - Constructing buildings on stilts or on earthen mounds.
    - Buildings should be wind and water resistant.
    - Buildings storing food supplies should be protected against the winds and water.
- **Cyclone Shelters:** Cyclone Shelters are necessary for areas vulnerable to recurrent cyclones.
    - The construction of cyclone shelters **requires substantial funding, therefore, generally linked to support from government or external donors.**
    - For construction of cyclone shelters, the most appropriate sites should be selected, using the **Geographical Information System.**
- **Flood Management:** Flooding will result from a cyclonic storm. Storm surges will **flood** the coastal areas. Heavy rains will bring in **flash floods.**
    - **Embankments** along the rivers, sea walls along the coasts may keep water away from the flood plains.
    - Water flow can be regulated through **construction of reservoirs, check dams and alternate drainage channels/routes.**
- **Mangrove Plantation:** **Mangroves** protect the coastal area from storm surge and wind accompanied with cyclones.
    - Communities should participate in the mangrove plantation which could be organized by the local authorities, NGOs or the community itself.
    - **Mangroves also help in erosion-control and coastal conservation.**
- **Public Awareness Generation:** Public awareness through education is the key to saving many lives. It has been proved that most of the damage to lives and livelihoods are due to lack of public education and awareness.
- **End to End Warning System**: There is a need for an end to end early warning which will **enable people at all levels to respond quickly and effectively.**
    - The community should be well aware of the warning system, the warning signals and the source where they can get the early warning of cyclones.
- **Community Participation:** Since the local people are the persons best aware of the **strengths and weaknesses** of their area, location, culture and customs, some mitigation measures should be developed by the community themselves.
    - These community mitigation activities can be achieved with the support from government and other civil society organizations.

Governmental Initiatives for Cyclone Management in India

- **National Cyclone Risk Mitigation Project:**
    - India initiated this project to undertake structural and non-structural measures to mitigate the cyclone's effects.
    - The aim of the project is **to protect the vulnerable local communities from the impact of cyclones** and other hydro-meteorological calamities.
    - After the formation of **National Disaster Management Authority (NDMA)**, the management of the Project was transferred to NDMA in September, 2006.
- **Integrated Coastal Zone Management (ICZM) Project:**
    - The Ministry of Environment, Forest and Climate Change (MoEFCC) has unveiled the **draft Environmental and Social Management Framework (ESMF)** for Integrated coastal management.
    - The draft plan will dictate how prospective infrastructure projects would be assessed for clearance by laying out guidelines for coastal States.
- **Coastal Regulation Zones (CRZ):** The coastal areas of seas, bays, creeks, rivers, and backwaters which get influenced by tides up to **500 m from the high tide line (HTL)** and the land between the low tide line (LTL) and the high tide line have been declared as **coastal regulation zone (CRZ)** in 1991.
    - The coastal regulation zones have been declared by the Ministry of Environment, Forest and Climate change under the **Environment Protection Act 1986.**
- **Color Coding of Cyclones:**

- It is a weather warning that is issued by the **India Meteorological Department** (IMD) to alert people ahead of natural hazards.
- The four colors used by IMD are **Green, Yellow, Orange, and Red.**

Source: DTE

Shyama Prasad Mukherji Rurban Mission

Why in News

According to the Lok Sabha, **Shyama Prasad Mukherji Rurban Mission (SPMRM)** has performed significantly well in the last four years.

Key Points

- **About:**
  - It is a **Centrally Sponsored Scheme (CSS)**, launched in 2016 by the MInistry of Rural Development (MoRD) to **deliver integrated project based infrastructure in the rural areas,** which also include development of economic activities and skill development.
    - A predecessor to SPMRM was the **Provision of Urban Amenities to Rural Areas (PURA), announced in 2003.**
  - Main objective of the scheme is **bridging the rural-urban divide**-viz: economic, technological and those related to facilities and services.
- **Background:**
  - According to the **2011 Census**, India has more than 6 lakh villages while there are around 7,000 towns and urban centres. Out of a total population **the rural population accounts for 69% and urban population 31%.**
    - About 70% of the population lives in rural areas and **about 50% of the overall labour force is still dependent on agriculture** that is not productive enough.
    - The **GDP (Gross Domestic Product)** contribution of **agriculture to the nation is only about 14%** while for **industries and services sector (employers of people living in urban areas), it is 26% and 60%** respectively.
  - Large parts of rural areas in the country are not stand-alone settlements but part of a **cluster of settlements,** which are relatively proximate to each other. These clusters **typically illustrate potential for growth, have economic drivers and derive locational and competitive advantages**.
  - These clusters, once developed, **can then be classified as 'Rurban'**. Hence taking cognizance of this, the Government of India, has launched the SPMRM, **aimed at developing such rural areas by provisioning of economic, social and physical infrastructure** facilities.
- **Rurban Clusters (Non-Tribal and Tribal):**
  - They are identified **across the country's rural areas showing increasing signs of** urbanization - i.e. increase in population density, high levels of non-farm employment, presence of growing economic activities and other socioeconomic parameters.
  - For the purposes of SPMRM, **Rurban areas refer to a cluster of 15-20 villages having about 30 to 40 lakh population.**
  - The clusters will be **geographically contiguous Gram Panchayats** with a **population of about 25000 to 50000 in plain** and coastal areas and a population of **5000 to 15000**

in desert, hilly or tribal areas.

- **Role of states:**
    - The **State Government identifies the clusters** in accordance with the Framework for Implementation prepared by the MoRD.
    - For the selection of clusters, the MoRD is adopting a scientific process of cluster selection **which involves an objective analysis at the district, sub district and village level**, of the demography, economy, tourism and pilgrimage significance and transportation corridor impact.
- **Progress:**
    - Out of 300 rurban clusters, 291 Integrated Cluster Action Plans (ICAPs) and 282 Detailed Project Reports (DPRs) have been developed by States /UTs with a proposed investment of Rs. 27,788.44 (Critical Gap Fund + Convergence Fund).
    - Out of total 76,973 projected works, a total of 40,751 **(55%) works are either completed or near completion.**
- **Significance:**
    - SPMRM growth clusters are playing a role in **reducing urban migration** by ensuring that basic infrastructure, utilities are provided and industrialization is promoted.
    - It is very relevant for **ensuring transformational developments** as against transitional developments in India's rural development sector.

Provision of Urban Amenities to Rural Areas

- **About:**
    - PURA was **mooted by the former President Dr. Abdul Kalam in January 2003** as a way of empowering and accelerating rural development.
        - PURA 2.0 as a **central sector scheme** was launched in 2012 focussing on the **development of potential growth centres** such as census towns.
    - It was launched in order to ensure Provision of livelihood opportunities and urban amenities in rural areas to bridge the rural – urban divide.
- **Mission:**
    - Holistic and accelerated development of compact areas around a potential growth centre in a Gram Panchayat (or a group of Gram Panchayats) through **Public Private Partnership (PPP) framework** for providing livelihood opportunities and urban amenities to improve the quality of life in rural areas.
    - Amenities and economic activities provided under PURA include **Water and Sewerage**, Construction and maintenance of Village streets, Drainage, **Solid Waste Management**, **Skill Development**, village street lighting, **telecom**, **electricity generation**, village linked tourism, etc.

Source: PIB
