



Disaster Management-I

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Why in News?

- In May 2019, more than 20 young people died due to a deadly fire at a coaching centre in Surat.
- According to National Crime Records Bureau data, India's record is appalling on fire safety. More than 17,000 people nationwide died in fire related incidences in 2015.
- These tragedies highlight the gaps in Disaster Management framework of India.
- In this context, there is a need to understand the various facets of Disaster Management and what should be done for fixing accountability and updation of disaster management protocol countrywide.

What is a Disaster?

- A disaster is a result of natural or man-made causes that leads to **sudden disruption of normal life**, causing severe damage to life and property to an extent that available social and economic protection mechanisms are inadequate to cope.
- It is an **undesirable occurrence** resulting from forces that are largely outside human control. It strikes quickly with little or no warning and requires major efforts in providing statutory emergency service.

Classification of Disasters

- Disasters are classified as per origin, into natural and man-made disasters. **As per severity**, disasters are classified as minor or major (in impact).
- **Natural disasters are sudden ecological disruptions** or threats that exceed the adjustment capacity of the affected community and require external assistance.
Natural disasters can be broadly classified into categories including **geophysical** such as earthquakes and volcanic eruptions; **hydrological** such as floods; **meteorological** such as hurricanes; **climatological** such as heat and cold waves and droughts; and **biological** such as epidemics.

- **Man-made disasters can include hazardous material spills, fires, groundwater contamination, transportation accidents, structure failures, mining accidents, explosions and acts of terrorism.**

Causes for Occurrence of Disaster

- **Environmental degradation:** Removal of trees and forest cover from a watershed area have caused, soil erosion, expansion of flood plain area in upper and middle course of rivers and groundwater depletion.
- **Developmental process:** Exploitation of land use, development of infrastructure, rapid urbanization and technological development have caused increasing pressure over the natural resources.
- **Political issues:** War, nuclear power aspirations, fight between countries to become super power and conquering land, sea and skies. These have resulted into wide range of disaster events such as Hiroshima nuclear explosion, Syrian civil war, growing militarisation of oceans and outer space.
- **Industrialization:** This has resulted into warming of earth and frequency of extreme weather events has also increased.

Impacts of Disaster

- Disaster **impacts individuals physically** (through loss of life, injury, health, disability) as well as **psychologically**.
- Disaster results in **huge economic loss** due to destruction of property, human settlements and infrastructure etc.
- Disaster **can alter the natural environment**, loss of habitat to many plants and animals and cause ecological stress that can result in biodiversity loss.
- After natural disasters, food and other natural resources like water often becomes scarce resulting into **food** and **water scarcity**.
- The disaster results in **displacement of people**, and displaced population often face several challenges in new settlements, in this process poorer becomes more poor.
- Disaster **increases the level of vulnerability** and hence multiply the effects of disaster.

Vulnerability Profile of India

- India is vulnerable, in varying degrees, to a large number of disasters. **Around 59% of the landmass is prone to earthquakes** of moderate to very high intensity.
- **About 12% (over 40 million hectares) of its land is prone to floods and river erosion.**
- Close to 5,700 kms, out of the 7,516 kms **long coastline is prone to cyclones and tsunamis.**

- **68% of its cultivable area is vulnerable to droughts;** and, the **hilly areas are at risk from landslides and avalanches.**
- Moreover, India is also **vulnerable to chemical, biological, radiological and nuclear (CBRN) emergencies** and other man-made disasters.
- Disaster risks in India are further compounded by increasing vulnerabilities related to **changing demographics and socio-economic conditions, unplanned urbanization,** development within high-risk zones, **environmental degradation, climate change, geological hazards, epidemics and pandemics.**
- Clearly, all these contribute to a situation where disasters seriously threaten India's economy, its population and sustainable development.

Worst Disasters in India

- **Kashmir Floods (2014)** affected Srinagar, Bandipur, Rajouri etc. areas of J&K have resulted into death of more than 500 people.
- **Uttarakhand Flash Floods (2013)** affected Govindghat, Kedar Dome, Rudraprayag district of Uttarakhand and resulted into death of more than 5,000 people.
- **The Indian Ocean Tsunami (2004)** affected parts of southern India and Andaman Nicobar Islands, Sri Lanka, Indonesia etc., and resulted in the death of more than 2 lakh people.
- **Gujarat Earthquake (2001)** affected Bhuj, Ahmedabad, Gandhinagar, Kutch, Surat, Surendranagar, Rajkot district, Jamnagar and Jodia districts of Gujarat and resulted in death of more than 20,000 people.
- **Odisha Super Cyclone or Paradip cyclone (1999)** affected the coastal districts of Bhadrak, Kendrapara, Balasore, Jagatsinghpur, Puri, Ganjam etc., and resulted into death of more than 10,000 people.
- **The Great Famine (1876-1878)** affected Madras, Mysore, Hyderabad, and Bombay and resulted into death of around 3 crore people. Even today, it is considered as one of the worst natural calamities in India of all time.
- **Coringa Cyclone (1839)** that affected Coringa district of Andhra Pradesh and **Calcutta Cyclone (1737)** are some other instances of natural calamities faced by the country in the past.
- **The Bengal Famine** in the years **1770** and **1943** affected Bengal, Odisha, Bihar very badly and resulted into death of nearly 1 crore people.
- **Bhopal Gas tragedy (December, 1984)** is one of the worst **chemical disasters** globally that resulted in over 10,000 losing their lives (the actual number remains disputed) and over 5.5 lakh persons affected and suffering from agonizing injuries.
- In recent times, there have been
 - **cases of railway accidents** (Dussehra gathering on the railway tracks crushed by the trains in 2018),
 - **fire accidents in hospitals** due to negligence and non implementation of existing mandatory fire safety norms,

- **collapse of various infrastructure constructs like flyovers, metro tracks and residential buildings** due to poor quality of construction, illegal addition of floors and recurring floods.
- **Stampede at large public gathering** like Kumbh Mela caused by poor people management and lack of adequate infrastructure to monitor and manage large crowd gathering.

Stages in Disaster Management

- Disaster Management efforts are geared towards **disaster risk management**.
- Disaster Risk Management implies the systematic **process of using administrative decisions, organisation, operational skills, and capacities to implement policies, strategies and coping capacities** of the society and communities to lessen the impact of natural hazards and related environmental and technological disasters.
- These comprise all forms all activities including structural and non- structural measures to avoid (prevention) or to limit (mitigation and preparedness) adverse effects of hazards.
- There are **three key stages** of activities in disaster management:
 1. **Before a disaster:** to reduce the potential for human, material, or environmental losses caused by hazards and to ensure that these losses are minimised when disaster strikes;
 2. **During a disaster:** to ensure that the needs and provisions of victims are met to alleviate and minimise suffering; and
 3. **After a disaster:** to achieve rapid and durable recovery which does not reproduce the original vulnerable conditions.

The different phases of disaster management are represented in the disaster cycle diagram.

Disaster Risk Reduction (DRR)

- Disaster risk reduction is the concept and practice of reducing disaster risks through systematic efforts to analyse and reduce the causal factors of disasters.
- Pre-Disaster risk reduction includes-
 - **Mitigation:** To eliminate or reduce the impacts and risks of hazards through proactive measures taken before an emergency or disaster occurs.
 - **Preparedness:** To take steps to prepare and reduce the effects of disasters.
- Post-Disaster risk reduction includes-
 - **Rescue:** Providing warning, evacuation, search, rescue, providing immediate assistance.
 - **Relief:** To respond to communities who become victims of disaster, providing

relief measures such as food packets, water, medicines, temporary accommodation, relief camps etc.

- **Recovery:** This stage emphasises upon recovery of victims of disaster, recovery of damaged infrastructure and repair of the damages caused.

Disaster Risk Reduction in Sustainable Development Goals

- **Goal 1:** Target 1.5, which relates to building the resilience of the poor, further strengthens the position of disaster risk reduction as a core development strategy for ending extreme poverty.
- **Goal 2:** Target 2.4 supports the immediate need to advance actions in mainstreaming disaster risk reduction and **climate adaptation into agriculture sector planning** and investments in order to promote resilient livelihoods, food production and ecosystems.
- **Goal 3:** Target 3.d, relates to **strengthening early warning and risk reduction of national and global health risks** presents an opportunity to further actions to promote resilient health.
- **Goal 4:** Target 4.7 focusing on building and upgrading education facilities and **promoting education** for sustainable development, contribute significantly to resilience-building in the education sector.'
- **Goal 6:** Target 6.6, which relates to **protecting and restoring water-related ecosystems**, will significantly contribute to strengthening the resilience of communities to water-related hazards.
- **Goal 9:** Targets 9.1 related to **developing sustainable and resilient infrastructure development** are vital not only to protect existing infrastructure but also future infrastructure investments.
- **Goal 11:** Action targets under this goal (11.1, 11.3, 11.4, 11.5, 11.b and 11.c) focusing on upgrading urban slums, integrated urban planning, reducing social and economic impacts of disaster risk, **building the resilience of the urban poor, adopting and implementing urban policies in line with the Sendai Framework** and building sustainable and resilient urban infrastructure, are strategic opportunities to ensure increased capacity to support cities, to protect current and future development prospects and to build safer, more resilient cities throughout the world.
- **Goal 13:** Target actions under this goal, focusing on **strengthening resilience and adaptive capacity**, capacity building and integrating climate change measures into policies and plans, awareness raising on climate adaptation and early warning (Targets 13.1 to 13.3 and 13.a to 13.b) provide opportunities to **strengthen the integration between disaster and climate resilience** and to protect broader development paths at all levels.
- **Goal 14:** Target action 14.2, focusing on the sustainable management and protection as well as **strengthening resilience of marine and coastal ecosystems**, can contribute to reducing disaster risk and increase in demand for healthy marine and

coastal ecosystems.

- **Goal 15:** Target actions 15.1 to 15.4 and 15.9, focus on **managing and restoring forests**, combating land degradation and desertification, conserving mountain ecosystems and their biodiversity and integrating ecosystem and biodiversity values into national and local planning, development processes, poverty reduction strategies.
- **These targets are also in line with the Sendai Framework** focus on building environmental resilience through the inclusion of ecosystems in risk analysis and planning.

Challenges in Disaster Risk Reduction

- There are **insufficient levels of implementation** for each monitored activity. For example, Disaster risk management plans or a risk sensitive building codes exist but they are not enforced because of a lack of government capacity or public awareness.
- There is **lack of local capacities** to implement disaster risk management. Weak capacity at the local levels undermines the implementation Disaster preparedness plans.
- **Absence of integration of climate change into Disaster risk management plans.**
- There is **divergence of obtaining political and economic commitments** due to other competing needs and priorities such as poverty reduction, social welfare, education etc. require greater attention and funding.
- **Due to poor coordination between stakeholders**, there is inadequate access with respect to risk assessment, monitoring, early warning, disaster response and other Disaster related activities.
- **Insufficient investment in building disaster resilient strategies**, also private sector are least contributors in the share of investment.