

HAZARD AND DISASTER

Complete Study Notes

1. Core Concepts



Term	Definition
Hazard	A potentially damaging physical event, phenomenon or human activity that may cause loss of life, injury, property damage, or environmental degradation.
Disaster	A serious disruption of community functioning causing widespread human, material, economic or environmental losses that exceed the affected community's coping capacity.
Vulnerability	The characteristics/circumstances of a community that make it susceptible to the damaging effects of a hazard.
Risk	$\text{Risk} = \text{Hazard} \times \text{Vulnerability} / \text{Capacity}$ — the probability of harmful consequences.
Capacity	Resources, skills and strengths available within a community to reduce risk or cope with a disaster.



Exam Tip:

NTA frequently frames MCQs around the Risk equation and around distinguishing **Hazard (potential)** from **Disaster (actualized event)**.

MASTER THE NOTES? TAKE THE QUIZ

2.

Classification of Disasters



(A) Natural Disasters

Category	Examples
 Geological / Geophysical	Earthquake, Volcanic eruption, Landslide, Tsunami, Avalanche
 Hydro-meteorological	Flood, Cyclone / Hurricane / Typhoon, Drought, Heatwave, Cold wave, Hailstorm, Thunderstorm
 Climatological	Wildfire, Desertification, Sea-level rise
 Biological	Epidemic, Pandemic, Insect / Pest infestation (e.g., locust attack)

(B) Man-made / Anthropogenic Disasters



Category	Examples
 Industrial / Chemical	Bhopal Gas Tragedy (1984), Methyl Isocyanate
 Nuclear	Chernobyl (1986), Fukushima (2011), Three Mile Island (1979)
 Technological	Dam failure, Building collapse, Mining accidents
 Transport	Rail / road / air accidents, Oil spills
 Conflict-induced	War, Terrorism, Riots

(C) Cumulative Disasters



Category	Examples
 Cumulative Disasters	Climate change, Global warming, Sea-level rise, Desertification, Land degradation, Deforestation, Biodiversity loss, Soil salinization

MASTER THE NOTES? TAKE THE QUIZ



Detailed Disaster Profiles

(India & Global Relevance)

(1/2)

Disaster

Key Facts



Earthquake

Measured on Richter / Moment Magnitude Scale; India divided into 4 seismic zones (II–V); Zone V = highest risk (Kashmir, Himachal, NE states, Kutch).



Tsunami

Triggered by undersea earthquakes/volcanic eruptions; 2004 Indian Ocean Tsunami led to the Indian Tsunami Early Warning System (INCOIS, Hyderabad).



Cyclone

Classified by IMD; Bay of Bengal more cyclone-prone than Arabian Sea; naming done under the WMO/ESCAP panel.



Flood

India's most recurrent disaster; Brahmaputra & Ganga basins most flood-prone; managed under the National Flood Management Programme.

(2/2)

Disaster

Key Facts



Drought

Classified as Meteorological, Hydrological, Agricultural, Socio-economic; monitored via SPI (Standardized Precipitation Index).



Landslide

Common in Himalayan & Western Ghats regions; Geological Survey of India (GSI) is the nodal agency.



Heatwave / Cold wave

Increasingly frequent due to climate change; IMD issues colour-coded alerts (Yellow/Orange/Red).



Wildfire

Recurrent in Uttarakhand forests; linked to dry deciduous & coniferous forest vulnerability.

MASTER THE NOTES? TAKE THE QUIZ

4. Disaster Management Cycle



Phase	Activities
Mitigation	Reducing hazard impact — building codes, land-use planning.
Preparedness	Early warning systems, drills, community training.
Response	Search & rescue, relief, evacuation.
Recovery	Rehabilitation, reconstruction, restoring livelihoods.

MASTER THE NOTES? TAKE THE QUIZ

5.

Institutional & Legal Framework (India)



Body / Act

Key Points



Disaster Management Act, 2005

Enacted after the 2004 Tsunami; established NDMA, SDMA and DDMA.



सत्यमेव जयते

NDMA

National Disaster Management Authority — chaired by the Prime Minister; apex policy body.



NDRF

National Disaster Response Force — specialized force under NDMA for response operations.



National Policy on Disaster Management, 2009

Shifted focus from relief-centric to prevention/mitigation-centric approach.



NIDM

National Institute of Disaster Management — training, capacity-building, research (New Delhi).

6.

International Frameworks



Framework

Year

Key Focus



Yokohama Strategy

1994

Early international disaster risk reduction strategy.



Hyogo Framework for Action (HFA)

2005–2015

“Building the Resilience of Nations and Communities”.



Sendai Framework for DRR

2015–2030

Successor to HFA; 4 Priorities, 7 Global Targets; adopted at UN World Conference, Sendai, Japan.



UNDRR

—

UN Office for Disaster Risk Reduction — coordinates global DRR efforts.

MASTER THE NOTES? TAKE THE QUIZ