

DISASTER STUDIES - 18BGE35S

UNIT – I

Introduction:

The term “**Disaster**” owes its origin to French word “**Disastre**”, which a combination of two words “**Des**” meaning “**Bad**” and “**Aster**” meaning “**Star**” thus the term Disaster refers to “**Bad or Evil Star**”. In earlier days disasters were considered to be an outcome or outburst of some unfavorable star.

“A serious disruption in the functioning of the community or a society causing wide spread material, economic, social or environmental losses which exceed the ability of the affected society to cope using its own resources”.

Disasters are as old as human history but the dramatic increase and the damage caused by them in the recent past have become a cause of national and international concern. Over the past decade, the number of natural and manmade disasters has climbed inexorably. From 1994 to 1998, reported disasters average was 428 per year but from 1999 to 2003, this figure went up to an average of 707 disaster events per year showing an increase of about 60 per cent over the previous years. The biggest rise was in countries of low human development, which suffered an increase of 142 per cent.

Indian:

The scenario in India is no different from the global context. The super cyclone of Orissa - 1999, the Gujarat earthquake - 2001 and the recent Tsunami – 2004. Affected millions across the country leaving behind a trail of heavy loss of life, property and livelihood. A list of some of the major disasters that have caused colossal impact on the community.

The list of major disasters in India

The impact we need to be aware of potential hazards, how, when and where they are likely to occur, and the problems which may result of an event. In India, 59 per cent of the land mass is susceptible to seismic hazard; 5 per cent of the total geographical area is prone to floods; 8 per cent of the total landmass is prone to cyclones; 70 per cent of the total cultivable area is vulnerable to drought. Apart from this the hilly regions are vulnerable to avalanches/landslides/hailstorms/cloudbursts. Apart from the natural hazards, we need to know about the other manmade hazards which are frequent and cause huge damage to life and property. It is therefore important that we are aware of how to cope with their effects.

Sl. No	Disaster	Impact
Cyclone		
1	29 th October 1971, Orissa	Cyclone and tidal waves killed 10,000 people
2	19 th November, 1977, Andhra Pradesh	Cyclone and tidal waves killed 20,000 people
3	29 th and 30 th October 1999, Orissa	Cyclone and tidal waves killed 9,000 and 18 million people were affected
Earthquake		
4	20 th October 1991 Uttarkashi	An earthquake of magnitude 6.6 killed 723 people
5	30 th September 1993 Latur	Approximately 8000 people died and there was a heavy loss to infrastructure
6	22 May 1997 Jabalpur	39 people dead
7	29 th March 1997, Chamoli	100 people dead
8	26 th January, 2001, Bhuj, Gujarat	More than 10,000 dead and heavy loss to infrastructure
Landslide		
9	July 1991, Assam	300 people killed, heavy loss to roads and infrastructure
10	August 1993, Nagaland	500 killed and more than 200 houses destroyed and about 5kms. Road damaged.
11	18 th August 1998, Maipa	210 people killed. Villages were washed away
Flood		
12	1978 Floods in North East India	3,800 people killed and heavy loss to property.
13	1994 Floods in Assam, Arunachal Pradesh, Jammu and Kashmir, Himachal Pradesh, Panjab, Uttar Pradesh, Goa, Kerala and Gujarat	More than 2000 people killed and thousands affected

CONCEPTS OF DISASTER

- A disaster is a result from the combination of hazard, vulnerability and insufficient capacity or measures to reduce the potential chances of risk. A disaster happens when a hazard impacts on the vulnerable population and causes damage, casualties and disruption.
- Hazard – flood, earthquake or cyclone which is a triggering event along with greater vulnerability (inadequate access to resources, sick and old people, lack of awareness etc) would lead to disaster causing greater loss to life and property.
- An earthquake in an uninhabited desert cannot be considered a disaster, no matter how strong the intensities produced.
- An earthquake is disastrous only when it affects people, their properties and activities.
- Disaster occurs only when hazards and vulnerability meet.
- But it is also to be noted that with greater capacity of the individual/community and environment to face these disasters, the impact of a hazard reduces.
- We need to understand the three major components namely hazard, vulnerability and capacity.

HAZARD

Hazard may be defined as “a dangerous condition or event, that threat or have the potential for causing injury to life or damage to property or the environment.” The word ‘hazard’ owes its origin to the word ‘hasard’ in old French and ‘az-zahr’ in Arabic meaning ‘chance’ or ‘luck’. Hazards can be grouped into two broad categories namely natural and manmade.

1. **Natural hazards** are hazards which are caused because of natural phenomena (hazards with meteorological, geological or even biological origin). Examples of natural hazards are cyclones, tsunamis, earth-quake and volcanic eruption which are exclusively of natural origin. Landslides, floods, drought, fires are socio-natural hazards since their causes are both natural and man made. For example flooding may be caused because of heavy rains, landslide or blocking of drains with human waste.
2. **Manmade hazards** are hazards which are due to human negligence. Manmade hazards are associated with industries or energy generation facilities and include explosions, leakage of toxic waste, pollution, dam failure, wars or civil strife etc.

The list of hazards is very long. Many occur frequently while others take place occasionally. However, on the basis of their genesis, they can be categorized as:

- **Geological Hazards:** Earthquake, Landslide, Tsunami, Dam burst, Volcanic eruption and Mine Fire.
- **Water and Climate Hazards:** Tropical Cyclone, Tornado, Floods, Drought, Hailstorm, Cloudburst and Hurricane, Landslide, Snow Avalanche, Heat & Cold wave and Sea erosion.
- **Environmental Hazards:** Environmental pollutions, Deforestation, Desertification and Pest Infection.
- **Biological Hazards:** Human / Animal Epidemics, Pest attacks, Food poisoning, Weapons of Mass Destruction.

CATASTROPHE

A natural disaster is a naturally occurring weather event that impacts a large geographical area with many people. Typically, property and infrastructure damage is on a large scale. A catastrophe occurs when inadequate forecasts are produced, evacuation of residents is not carried out and communication is lacking, fatalities and property damage are extremely high and the economic output becomes greatly reduced over a long period of time.

The number of global disasters continues to increase mainly due to property damage and re-insurance even though forecasts, public awareness of such upcoming events and proper evacuation plans have mitigated even further losses.

RISK AND VULNERABILITY

Vulnerability may be defined as “The extent to which a community, structure, services or geographic area is likely to be damaged or disrupted by the impact of particular hazard, on account of their nature, construction and proximity to hazardous terrains or a disaster prone area.”

Vulnerabilities can be categorized into physical and socio-economic vulnerability. **Physical Vulnerability:** It includes notions of who and what may be damaged or destroyed by natural hazard such as earth-quakes or floods. It is based on the physical condition of people and elements at risk, such as buildings, infrastructure etc; and their proximity, location and nature of the hazard. It also relates to the technical capability of building and structures to resist the forces acting upon them during a hazard event.

State Governments are primarily responsible for mitigation of drought. The Manual for Drought Management (2009) stipulates that State Governments should set up a mission/task force on drought mitigation for advising them on policies and programmes.

The said mission/task force should also conduct drought risk and vulnerability assessment for identifying drought prone areas, nature and severity of drought, vulnerable economic sectors, communities and individuals etc.

A composite risk and vulnerability assessment would help in developing long term policies and programmes for drought risk mitigation at the State level and in framing appropriate strategies for addressing the critical gaps during drought relief.

Disaster Zones Of India:

Disaster is an undesirable catastrophe resulting from the forces that are largely beyond human control, strikes quickly with little or no warning, and causes or threatens serious disruption of life and property. For example, earthquake, tsunami, cyclone, flood, etc.

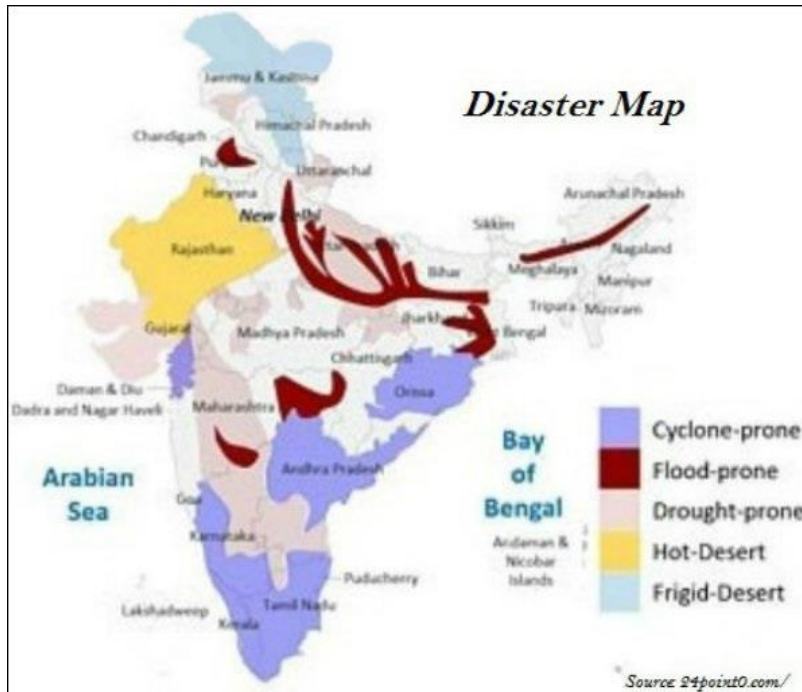
On the other hand, Natural Hazards are the elements of circumstances in the Natural environment that have the potential to harm people or property or both.

Categories of Natural Disaster:

Natural Disasters are broadly categorized as –

- Atmospheric Disasters
- Terrestrial Disasters
- Aquatic Disasters
- Biological Disasters

Disasters Zone in India



Very High Damage Earthquake Risk Zone in India include the north-eastern regions, areas to the north of Darbhanga and Araria along the Indo-Nepal border in Bihar, Uttarakhand, Western Himachal Pradesh (around Dharamshala) and Kashmir Valley in the Himalayan region, and the Kachchh (Gujarat).

High Damage Earthquake Risk Zone in India are parts of Jammu and Kashmir, Himachal Pradesh, Northern parts of Punjab, Eastern parts of Haryana, Delhi, Western Uttar Pradesh, and Northern Bihar.

Earthquakes and volcanic eruptions normally cause the sea-floor to move abruptly resulting in sudden displacement of ocean water in the form of high vertical waves, which are known as tsunamis (shown in the image given below).

References:

www.imd.ernet.in/section/seismo/static/welcome.htm

<https://www.tutorialspoint.com>.