

## **JG COLLEGE OF COMMERCE**

BCOM THIRD YEAR SEM-5  
FOUNDATION COURSE

### **DISASTER MANAGEMENT**

#### **INTRODUCTION & SUMMARY OF COURSE: -**

Disaster Management refers to the management and response of disaster or natural calamities like floods, droughts, cyclones, earthquakes and landslides. India has been traditionally vulnerable to the natural disasters on the account of its unique Geo-climatic conditions.

#### **SYLLABUS OF DISASTER MANAGEMENT: -**

##### **Unit I: - Understanding disaster**

Concept of disaster - Different approaches - Concept of Risk - Levels of disasters  
Disaster phenomena and events (Global, national and regional)

##### **Unit II:- Hazards and Vulnerability**

Natural and man-made hazards; response time, frequency and forewarning levels of different hazards - Characteristics and damage potential of natural hazards; hazard assessment Dimensions of vulnerability factors; vulnerability assessment- Vulnerability and disaster risk – Vulnerabilities to flood and earthquake hazards

##### **Unit III Disaster management mechanism**

Concepts of risk management and crisis management - Disaster management cycle Response and Recovery - Development, Prevention, Mitigation and Preparedness Planning for relief

#### **Unit IV Planning for disaster management**

Strategies for disaster management planning - Steps for formulating a disaster risk reduction plan - Disaster management Act and Policy in India - Organizational structure for disaster management in India - Preparation of state and district disaster management plans

### **SOME IMPORTANT LONG QUESTIONS: -**

**Q.1 what is Disaster? Explain the concept with the level of Disaster.**

**Ans.**

A disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources. Though often caused by nature, disasters can have human origins. Disaster is a serious problem occurring over a short or long period of time that causes widespread human, material, economic or environmental loss which exceeds the ability of the affected community or society to cope using its own resources.

There are three different level of Disaster.

- 1) Minor Disaster**
- 2) Major Disaster**
- 3) Catastrophic Disaster**

Let's Understand the level of Disaster: -

**Minor Disaster:** Any disaster that falls within the response capabilities of Local Government and requires minimal State or Federal assistance.

For example,

- Cold wave.
- Thunderstorms.
- Heat waves.
- Mud slides.
- Storm.

**Major Disaster:** Any disaster that exceeds the local government capabilities and requires a broad range of State and Federal assistance.

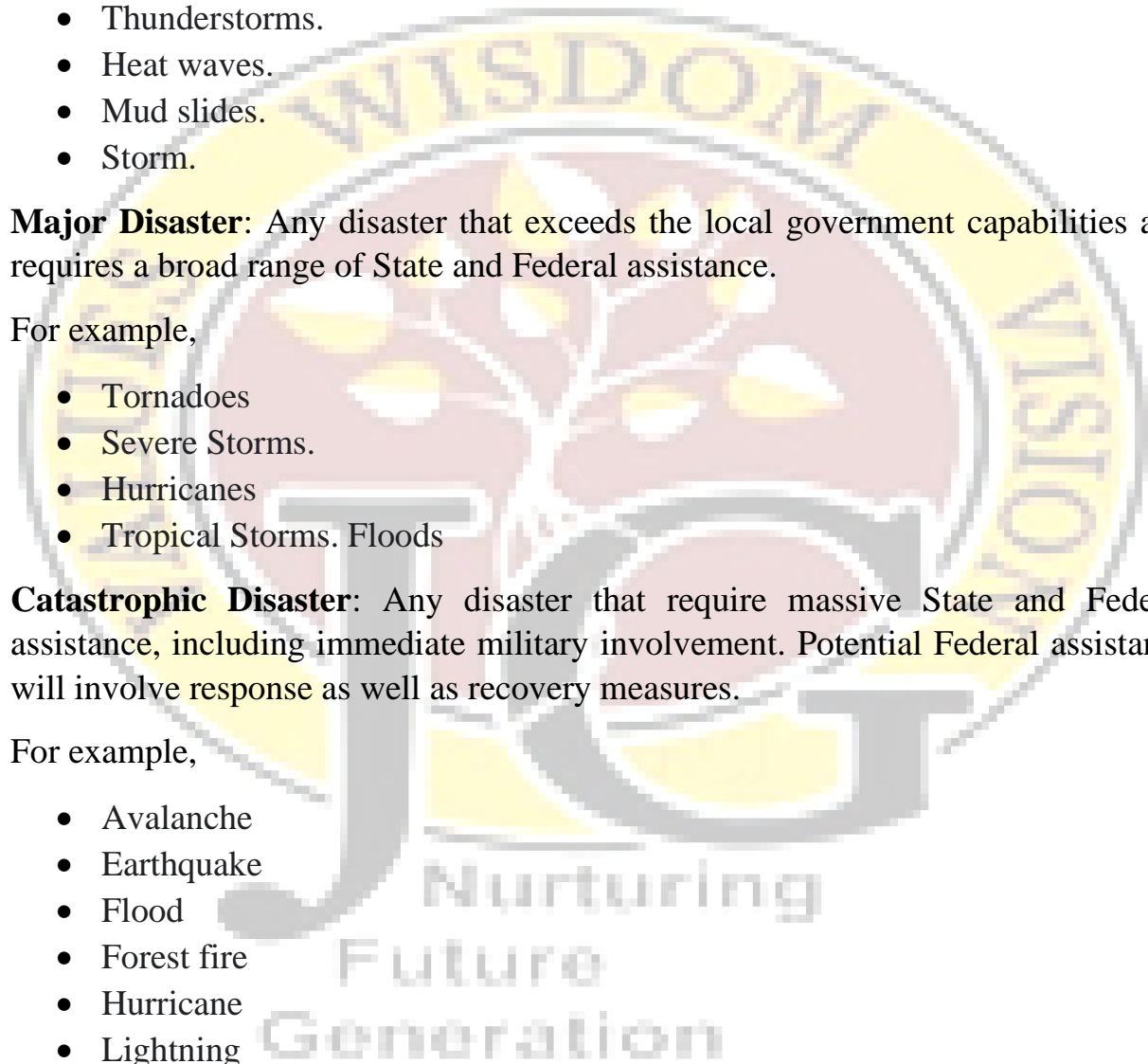
For example,

- Tornadoes
- Severe Storms.
- Hurricanes
- Tropical Storms. Floods

**Catastrophic Disaster:** Any disaster that require massive State and Federal assistance, including immediate military involvement. Potential Federal assistance will involve response as well as recovery measures.

For example,

- Avalanche
- Earthquake
- Flood
- Forest fire
- Hurricane
- Lightning
- Tornado
- Tsunami
- Volcanic eruption



## **Q.2 Explain Natural Disaster or Hazard and Man-made Disasters and Hazards. Also describe the different approaches of disaster management.**

**Ans.**

### **Natural Disaster and Hazard: -**

A natural disaster is a natural process or phenomenon that may cause loss of life, injury or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, or environmental damage. Various phenomena like earthquakes, landslides, volcanic eruptions, floods, hurricanes, tornadoes, blizzards, tsunamis, cyclones, wildfires, and pandemics are all natural hazards that kill thousands of people and destroy billions of dollars of habitat and property each year. However, the rapid growth of the world's population and its increased concentration often in hazardous environments has escalated both the frequency and severity of disasters. With the tropical climate and unstable landforms, coupled with deforestation, unplanned growth proliferation, non-engineered constructions make the disaster-prone areas more vulnerable. Developing countries suffer more or less chronically from natural disasters due to ineffective communication combined with insufficient budgetary allocation for disaster prevention and management.

Covid-19 pandemic is the recent example of natural disaster.

### **Man-made Disasters and Hazards: -**

Human-instigated disasters are the consequence of technological or human hazards. Examples include war, social unrest, stampedes, fires, transport accidents, industrial accidents, conflicts, oil spills, terrorist attacks, nuclear explosions/nuclear radiation. Other types of induced disasters include the more cosmic scenarios of catastrophic climate change, nuclear war, and bioterrorism. One opinion argues that all disasters can be seen as human-made, due to human failure to introduce appropriate emergency management measures.

### **Different approached of disaster management: -**

- Prevention of danger or threat of any disaster.

- Mitigation or reduction of risk of any disaster or its severity or consequences.
- Capacity-building.
- Preparedness to deal with any disaster.
- Prompt response to any threatening disaster situation or disaster.
- Assessing the severity or magnitude of effects of any disaster.
- Evacuation, Rescue and Relief.
- Rehabilitation and Reconstruction.

### **Q.3) what is Vulnerability? Explain the types of it.**

**Ans.**

Vulnerability describes the characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. There are many aspects of vulnerability, arising from various physical, social, economic, and environmental factors.

There are mainly four types of Vulnerability.

**1. Physical Vulnerability** may be determined by aspects such as population density levels, remoteness of a settlement, the site, design and materials used for critical infrastructure and for housing (UNISDR).

Example: Wooden homes are less likely to collapse in an earthquake, but are more vulnerable to fire.

**2. Social Vulnerability** refers to the inability of people, organizations and societies to withstand adverse impacts to hazards due to characteristics inherent in social interactions, institutions and systems of cultural values. It is linked to the level of well-being of individuals, communities and society. It includes aspects related to levels of literacy and education, the existence of peace and security, access to basic human rights, systems of good governance, social equity, positive traditional values, customs and ideological beliefs and overall collective organizational systems (UNISDR).

Example: When flooding occurs some citizens, such as children, elderly and differently-able, may be unable to protect themselves or evacuate if necessary.

**3. Economic Vulnerability.** The level of vulnerability is highly dependent upon the economic status of individuals, communities and nations the poor are usually more vulnerable to disasters because they lack the resources to build sturdy structures and put other engineering measures in place to protect themselves from being negatively impacted by disasters.

Example: Poorer families may live in squatter settlements because they cannot afford to live in safer (more expensive) areas.

**4. Environmental Vulnerability.** Natural resource depletion and resource degradation are key aspects of environmental vulnerability.

Example: Wetlands, such as the Caroni Swamp, are sensitive to increasing salinity from sea water, and pollution from storm water runoff containing agricultural chemicals, eroded soils, etc.

**Q.4 what is disaster management cycle? Explain different phases of this cycle.**

**Ans:**

The four disaster management phases illustrated here do not always, or even generally, occur in isolation or in this precise order. Often phases of the cycle overlap and the length of each phase greatly depends on the severity of the disaster.





**1. Mitigation** - Minimizing the effects of disaster. Examples: building codes and zoning; vulnerability analyses; public education.

Mitigation activities actually eliminate or reduce the probability of disaster occurrence, or reduce the effects of unavoidable disasters. Mitigation measures include:

- building codes;
- vulnerability analyses updates
- zoning and land use management;
- following regulations and safety codes;
- preventive health care;
- public education.

The mitigation phase, and indeed the whole disaster management cycle, includes the shaping of public policies and plans that either modify the causes of disasters or mitigate their effects on people, property, and infrastructure.

**2. Preparedness** –planning how to respond. Examples: preparedness plans; emergency exercises/training; warning systems.

The goal of emergency preparedness programs is to achieve a satisfactory level of readiness to respond to any emergency situation through programs that strengthen the technical and managerial capacity of governments, organizations, and communities.

These measures can be described as –

- i. logistical readiness to deal with disasters and can be enhanced by having
- ii. response mechanisms and procedures,
- iii. rehearsals,
- iv. developing long-term and short-term strategies,
- v. public education and
- vi. Building early warning systems.

Preparedness can also take the form of ensuring that strategic reserves of

- (i) food,
- (ii) equipment,
- (iii) water,
- (iv) medicines and

(v) other essentials are maintained in cases of national or local catastrophes.

**3. Response** - Efforts to minimize the hazards created by a disaster.

Examples: search and rescue; emergency relief.

The aim of emergency response is to provide immediate assistance to maintain life, improve health and support the morale of the affected population.

Such assistance may range from providing specific but limited aid, such as assisting refugees

- with transport,
- temporary shelter, and
- food,
- to establishing semi-permanent settlement in camps and other locations.

It also may involve initial repairs to damaged infrastructure. The focus in the response phase is on meeting the basic needs of the people until more permanent and sustainable solutions can be found.

Humanitarian organizations are often strongly present in this phase of the disaster management cycle.

**4. Recovery** - Returning the community to normal. Examples: temporary housing; grants; medical care.

As the emergency is brought under control, the affected population is capable of undertaking a growing number of activities aimed at restoring their lives and the infrastructure that supports them. There is no distinct point at which immediate relief changes into recovery and then into long-term sustainable development. Ideally, there should be a smooth transition from recovery to on-going development.

Recovery activities continue until all systems return to normal or better.

Recovery measures, both short and long term, include

- (i) returning vital life-support systems to minimum operating standards;
- (ii) temporary housing;
- (iii) public information;



- (iv) health and safety education;
- (v) reconstruction;
- (vi) counseling programs;

Economic impact studies. Information on resources and services include data collection related to rebuilding, and documentation of lessons learned.

## **Q.5 Discuss the Disaster Management Strategies in detail.**

It is being realised that disaster management ought to be given a proper policy direction and any strategy needs to adhere to the following principles:

- Fostering a culture of prevention
- Identifying the key issues to be addressed especially in the development process
- Permeating the concern for disaster risk reduction across all levels of government z Evolving equitable, consistent and fair mechanisms of provision of disaster assistance
- Providing transparency, participation and exchange of information
- Taking cognizance of local conditions and environment
- Devising efficient, effective, flexible, adaptive and sustainable strategies; and
- Introducing a multidisciplinary and integrated approach to manage disasters.

A disaster management strategy was made in May 1994. The Yokohama strategy emphasized that disaster prevention, mitigation and preparedness are better than disaster response in achieving the goals and objectives of vulnerability reduction. The Yokohama Strategy for Disaster Reduction centered on the objective of saving human lives and protecting property. The strategy focused on:

- Development of a global culture of prevention 382 Disaster Management
- Adoption of a policy of self-reliance in each vulnerable country and community z Education and training in disaster prevention, preparedness and mitigation
- Development and strengthening of human resources and material capabilities and capacities of research and development institutions

- Involvement and active participation of the people z Priority to programs that promote community-based approaches to vulnerability reduction
- Effective national legislation and administrative action
- Integration of private sector in disaster reduction efforts
- Involvement of non-governmental organizations
- Strengthening the capacity of the United Nations system in disaster reduction

The World Conference on Disaster Reduction held in January 2005 at Hyogo, Japan identified the specific gaps arising out of the Yokohama strategy. These are:

- Governance: organisational, legal and policy frameworks
- Risk identification, assessment, monitoring and early warning
- Knowledge management and education Reducing underlying risk factors
- Preparedness for effective response and recovery

USAID's Disaster Mitigation Strategic Objective emphasizes preparing for and responding to natural disasters. This strategy targets the following broad sets of beneficiary groups:

- At-risk population for example, women, children, scheduled castes and tribes in high risk disaster prone communities
- Service providers, for example, first responders
- Public and private partners for example, banks, insurers, NGOs, business aid
- Government of India, public policy makers, military, police and disaster management officials.

This strategy has the following components:

### **Increased Community Preparedness to Mitigate and Manage Disasters**

This encompasses:

- Community level disaster planning
- Drought Mitigation
- Public awareness and Information campaigns
- First responder training
- Hospital preparedness z Exposure to "best practices" opportunities (in-country, regional and international)

- Building code enforcement
- Weather and flood forecasting

## **SOME IMPORTANT SHORT QUESTIONS: -**

### **Que-1) what is the concept of risk management?**

#### **Ans.**

Risk management is the process of identifying, assessing and controlling threats to an organization's capital and earnings. These threats, or risks, could stem from a wide variety of sources, including financial uncertainty, legal liabilities, strategic management errors, accidents and natural disasters.

### **Que-2) what are the Goals of Disaster Management?**

#### **Ans.**

- Reduce, or avoid, losses from hazards
- Assure prompt assistance to victims
- Achieve rapid and effective recovery

### **Que-3) Explain Mitigation, Preparedness, Response, and Recovery.**

#### **Ans.**

- **Mitigation** - Minimizing the effects of disaster.

Examples: building codes and zoning; vulnerability analyses; public education.

- **Preparedness** - Planning how to respond.

Examples: preparedness plans; emergency exercises/training; warning systems.

- **Response** - Efforts to minimize the hazards created by a disaster.

Examples: search and rescue; emergency relief.

- **Recovery** - Returning the community to normal.

Examples: temporary housing; grants; medical care.

**Que-4) List out any five Strategies for disaster management planning.**

**Ans.**

- Land use planning and building codes
- Essential infrastructure
- Structural works
- Landscape and environment.
- Examples of mitigation strategies include
- Design improvements to infrastructure or services
- Hazard specific control activities such as flood levees or bushfire mitigation strategies

**Que-5) what is the vision of NDMA?**

**Ans.**

The vision of NDMA is to build a safer and disaster resilient India by a holistic, pro-active, technology driven and sustainable development strategy that involves all stakeholders and fosters a culture of prevention, preparedness and mitigation.

**MCQS:-**

**1) In which Phase of Disaster damage Assessment is done?**

- (a) Warning phase
- (b) Impact Phase
- (c) Rescue phase

**(d) Re-Habilitation Phase**

**2) In relation to Disaster Preparedness, which one of the following is more serious from response point of view?**

- (a) 1st alert
- (b) 2nd alert**

**3) A physical situation which may cause human injury, damage to property or the environment, is called**

- (a) Hazard**
- (b) Risk

**4) How many Safety Integrity Levels exists?**

- (a) 1
- (b) 2
- (c) 3
- (d) 4**

**5) What is the full form of NDMA?**

- (a) National Disaster Management Authority**
- (b) National Dinosaur Management Authority
- (c) Noida Disaster Management Authority
- (d) National Disaster Monopoly Authority

**6) In case of an emergency involving a chemical or product, an emergency telephone number can be found in which section of the MSDS?**

- (a) Section 1**
- (b) Section 2
- (c) Section 5
- (d) Section 8

**7) Monitoring the levels of exposure to toxic substances is medically done through analysis of body fluids e.g. blood, urine, expired air etc. The process is known as:**

- (a) Condition monitoring
- (b) Biological conditioning
- (c) Exposure monitoring
- (d) Biological monitoring**

**8) Which of the following steps of Toxic Risk Assessment exercise considers the possible routes of entry of chemicals into body and its reaction thereby?**

- (a) 1st step
- (b) 2nd step
- (c) 3rd step**
- (d) 4th step

**9) What is the purpose of hazard identification in Disaster preparedness?**

- (a) To identify the probable causes of disasters
- (b) To identify the probable disaster scenarios**
- (c) To quantify the consequences
- (d) To suggest mitigation measures

**10) In Risk Analysis, Vulnerability Model represents**

- (a) How many persons will be affected due to exposure**
- (b) How much area will be affected due to the event
- (c) How long the effect will last in the community
- (d) How probable that the community will be affected

**11) 'Pareto Analysis' is a**

- (a) Risk quantification technique
- (b) Risk analysis technique
- (c) Risk mitigation technique
- (d) Risk prioritization technique**

**12) A Deep burn, characterized by destruction of all skinlayers are termed as**

- (a) 1st degree burn
- (b) 2nd degree burn
- (c) 3rd degree burn**



**13) The purpose of Hazard maps is to identify and display the location of**

- (a) Hazard zones**
- (b) Risk zones
- (c) Vulnerability zones
- (d) Decontamination zones

**14) How many Hazard Class Labels exist for different hazardous substances?**

- (a) 10
- (b) 9**
- (c) 7
- (d) 5

**15) The best way to audit the efficacy of the disaster Preparedness is**

- (a) Walk-through survey
- (b) Table-top exercises**
- (c) Mock drills at field

**16) Which amongst the following is not a phase of Disaster management cycle?**

- (a) Mitigation
- (b) Presentation**
- (c) Response
- (d) Recovery

**17) The aim of emergency response is to provide \_\_\_\_\_.**

- (a) Improve health and support morale**
- (b) Reduce poverty
- (c) Reduce unemployment
- (d) Enhance Productivity

**18) \_\_\_\_\_ organizations are often strongly present in this phase of the disaster management cycle.**

- (a) Financial

- (b) Marketing
- (c) Manufacturing
- (d) Humanitarian

**19) Natural resource depletion and resource degradation are key aspects of \_\_\_\_\_.**

- (a) Physical Vulnerability
- (b) Social Vulnerability
- (c) Econ omical Vulnerability
- (d) Environmental Vulnerability

**20) \_\_\_\_\_ is the process of identifying, assessing and controlling threats to an organization's capital and earnings.**

- (a) Disaster management
- (b) Climate management
- (c) Risk management
- (d) Pollution control

**21) Which can be considered as man- made disaster?**

- (a) Flood
- (b) Oil spill
- (c) Land slide
- (d) Volcanic eruption

**22) Heat wave and mud slide are \_\_\_\_\_ type of disaster.**

- (a) Minor Disaster
- (b) Major disaster
- (c) Catastrophic disaster
- (d) None of the above

**(23) Seismic waves cause disaster named as \_\_\_\_\_.**

- (a) Nino

- (b) Typhoon
- (c) Tsunami
- (d) Hurricane

**24) The only active volcano in India is \_\_\_\_\_.**

- (a) Volcano Baratang
- (b) Barren Island volcano
- (c) Volcano Etna
- (d) None of the above

**25) When the situation of hazard arise?**

- (a) When there is the threat of natural calamity
- (b) When there is a threat to the consequences of the disaster
- (c) When there is a threat to property and lives from calamities
- (d) All of the above

**26) Among which of the following Hazards and Disasters are classified?**

- (a) Cultural and social
- (b) Natural and man-made
- (c) Chemical and physical
- (d) Human and Psychological

**27) Among which of the following Hazards and Disasters are classified?**

- (a) 2003
- (b) 2005

(c) 2006

(d) 2008

**28) Among which of the following Hazards and Disasters are classified?**

(a) Volcano

(b) Earth quakes

(c) Tsunami

(d) Sea surge

**29) Among which of the following Hazards and Disasters are classified?**

(a) Environment, forest and climate change

(b) Home affairs

(c) Commerce and Industry

(d) Finance

**30) If 'Cash' is a hazard, theft is a consequence, then if 'electricity' is hazard, what could be the consequences?**

(a) Damage

(b) Hearing loss

(c) Loss of water

(d) Shock

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