

# SELVAM COLLEGE OF TECHNOLOGY, NAMAKKAL - 03

## Ph: 9942099122

DEPARTMENT OF EEE | 080280074 - Disaster Management - IV YEAR

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### UNIT -1 INTRODUCTION

**1. Define Disaster.**

Disaster may be defined as realization of a hazard that inversely impacts things of human value.

**2. Name the categories of disaster.**

Natural disaster and  
Manmade disaster.

**3. List the types of natural disaster**

1. Rapid onset natural disaster and
2. Slow onset natural disaster.

**4. What are the examples of rapid onset disaster?**

Earth quake , Cyclone ,Flood and Landslide.

**5. What are the examples of slow onset natural disaster?**

Drought ,Desertification , Environmental degradation and Famine.

**6. Give examples of Manmade disaster.**

Wars , Industrial accidents , Transport accidents ,Terrorism and Crow incidents.

**7. What is disaster preparedness?**

It is based on the root causes of the event and a sustainable approach towards relief and rehabilitation.

**8. Expand the following.**

- a. INDR : International Decade of Natural Disaster Reduction
- b. CHAD : Conflict and Humanitarian Affairs
- c. DFID : Department for International Development
- d. HDP : Holistic Development Program
- e. DRM : Disaster Risk Management
- f. ITDG : Intermediate Technology Development Groups
- g. DMF : Disaster Management Facility
- h. GIS : Geographic Information System

**9. Explain about holistic development planning.**

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**It is based on adequate analysis , will not leave room for hazards and disaster.**

**10. What is DRB? Explain.**

**DRM : Disaster Risk Management. It is the integral part of a comprehensive development for any geographical area or sector leave to reduction in relief and rehabilitation.**

**11. Mention some goals of ISDR programme.**

- a. Reduce the economic and social losses of disaster**
- b. Increase public awareness of the risk that natural, technological and environmental hazards pose to modern societies.**

**12. Mention the objectives of ISRD programme.**

- a. Develop a proactive interface between management of natural disaster & risk reduction practises.**
- b. Form of global community dedicated to make risk and disaster prevention.**

**13. Explain Risk Identification.**

**It involves information on the nature & extend of risk that characterises a particular location. It includes information on the nature or particular physical hazards obtained through hazard assessment.**

**14. Explain Risk Sharing.**

**In emergency economics, the state and the individuals bear much of the cost of disaster. Tools have to be developed to assist the very poor to more effectively manage disaster risk.**

**15. Mention about developement plans & disaster management.**

**Some of the concepts & definitions that appear in the current discussion on the questions of disaster & developement. Demonstrates the application & non application of the same at the ainstitutional & community levels.**

**16. What are the four different institutional arrangements?**

- a. Rural and Urban developement**
- b. Developement planning & implementation c. Ministry of agriculture**
- d. Irrigation developement department**

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### 17. What is disaster event?

Social & economic issues related to disaster have been discussed for over a decade. During this period some important concepts & terms have been introduced and clarified and researchers and practitioners have elaborated the classes, which leads to what is commonly termed as disaster event.

### 18. Define hazard.

Hazard is defined as the probability of the occurrence of a dangerous phenomenon at a given place within a given period of time.

### 19. Define Risk.

Risk is defined as the product of Hazard and Vulnerability.

$Risk = Hazard \times Vulnerability$

### 20. What are the factors that affect people's vulnerability?

Caste, Class, Gender and Disability.

### 21. What are the five roles to be played by insurance in natural disaster relief?

- a. The insured persons are entities.
- b. The primary insurers.
- c. Re-insurers.
- d. Capital markets and
- e. Govt / public authorities.

### 22. Give the Principle of risk partnership.

Under this partnership the roles played by the affected persons & entities, the financial sector and the state are described from an international perspective drawn from actual business practice.

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### UNIT 2

#### APPLICATION OF TECHNOLOGY IN DISASTER RISK REDUCTION

1) Explain YOKOHAMA declaration.

1. Disaster prevention

2. Mitigation

3. Preparedness

2) How comprehensive emergency management is viewed.

1. 2 P's ----Prevention & Preparedness

2. 2 R's ----Response & Recovery

3) Give the objectives of database

The objective is to limit the human material and economic cost of an emergency or disaster and this is achieved through a range of strategies from hazard management and prevention to speedy restoration of the affected community.

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#### **4) Explain in brief about RDBMS**

**RDBMS- Relational Database management System**

The databases may be compiled using RDBMS so that it will be possible to subject this database to queries for more informed decision making.

#### **5) Explain about MIS.**

**MIS- Management Information System**

The Management Information System for disaster management brings together data and information so that policy analysis and problem solving exercises can be carried out for more informed decision making.

#### **6) What are the functions of DSS?**

**DSS- Decision Support System**

These are value added extension of the management information system. It facilitates more informed decision making, problem solving and policy analysis.

These provide linkages to predictive and forecasting models for carrying out simulation and scenario analysis.

#### **7) What is GIS?**

**GIS- Geographic Information System**

According to Dale and Mc Laughlin GIS is a system of capturing, storing, checking, integrating, analyzing and displaying data about the earth is spatially referenced.

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In the words of Cowen, GIS is a decision support system involving the integration of spatial reference data in a problem solving environment.

8) Explain intranets and extranets.

The information technology revolution has facilitated the setting up of Local Area Networks (LAN) within organization, which link together computers scattered across different departments and different locations.

Wide area networks (WAN) link together computers across geographical locations covering a wider area.

9) Give the abbreviations of the following

(i) LAN : Land Area Network

(ii) WAN : Wide Area Network

(iii) YASHADA : Yaswantrao Chawan Academy of Development Administration (iv) MEERP : Maharashtra Earthquake Emergency Rehabilitation Programme (v) EOC : Emergency Operation Centre

10) List out the two major hurdles in the disaster management. (i) Attitudinal insensitivity

(ii) The other problem is that the present disaster management plans though very exhaustive and detailed do not have a spontaneous functional mechanism for the response to be enacted in time.

11) Explain trigger mechanism.

There are number of factors which contribute to the natural disaster striking different parts of world.

The effects of modern culture are evident as, (i) Global warming

(ii) Excessive generation of heat energy

(iii) Continuous depletion of the protective atmospheric layer

12) Give the primary objectives of trigger mechanisms

The primary objectives of trigger mechanism are to undertake immediate rescue and relief operations and stabilize the mitigation as quickly as possible.

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13) What are the planners required for trigger mechanism?

- (i) To identify disaster and the probability of the problem occurrence
- (ii) To evolve an effective signal or warning mechanism
- (iii) To identify the activities
- (iv) To identify the sub activities

14) Mention the 5 phases of disaster management programme. (i) Pre-disaster planning phase

- (ii) Disaster preparedness or early warning phase
- (iii) Monitoring phase
- (iv) Emergency response
- (v) Recovery and relieve phase

15) Define remote sensing.

It is defined as the science of extracting information about the earth surface from images acquired at distance. The remote sensing is concerned with the observation of the earth by means of reflected or emitted electromagnetic energy.

16) Give the abbreviation for the following.

EMS ---Electro Magnetic Spectrum SAR --- Synthetic Aperture Radar DIP ---Digital Image Processing  
GPS ---Global Positioning System

17) Give some of the earth resource satellites

The earth resource satellite such as LANDSAT, SPOT, IRS, RADARSAT, IKONOS, etc.

18) Give some of the sun synchronous satellites

The sun synchronous satellites are LANDSAT, IRS, SPOT that provide data in the VIS & IR range of EMS at spatial resolutions within a few seconds.

19) Mention the 2 weather satellite.

The weather satellite such as INSAT,  
GOES that provides datum about weather and climatic changes.

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### UNIT 3 AWARENESS OF RISK REDUCTION

#### 1) Define Trigger mechanism

Trigger mechanism is a preparedness plan in which all the participating managers know in advance the task assigned to them and the manner which they have prepared themselves to respond.

#### 2) Give the other name of Trigger mechanism?

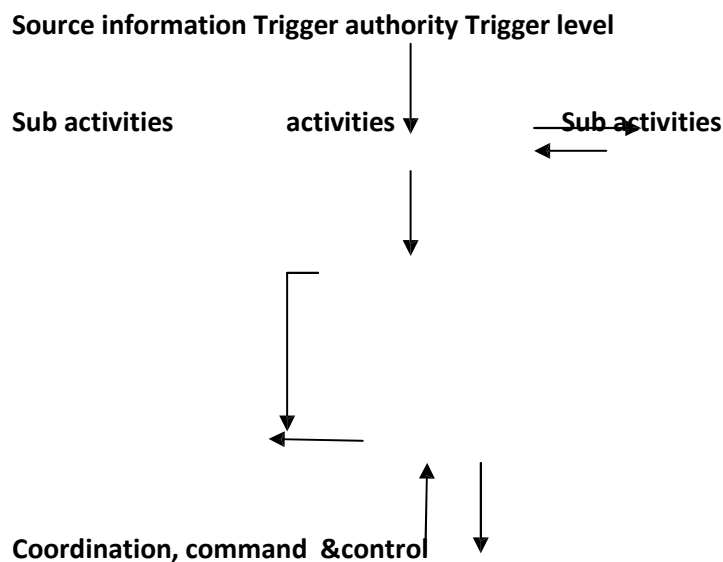
Trigger mechanism can also be called as "Operating standard procedure".

#### 3) What are two basic components of Trigger mechanism? (1) Trigger authority & the coordination

#### (2) Command & control activity

#### 4) Explain the constitution of Trigger mechanism.

#### 5) Give flow chart of Trigger mechanism?





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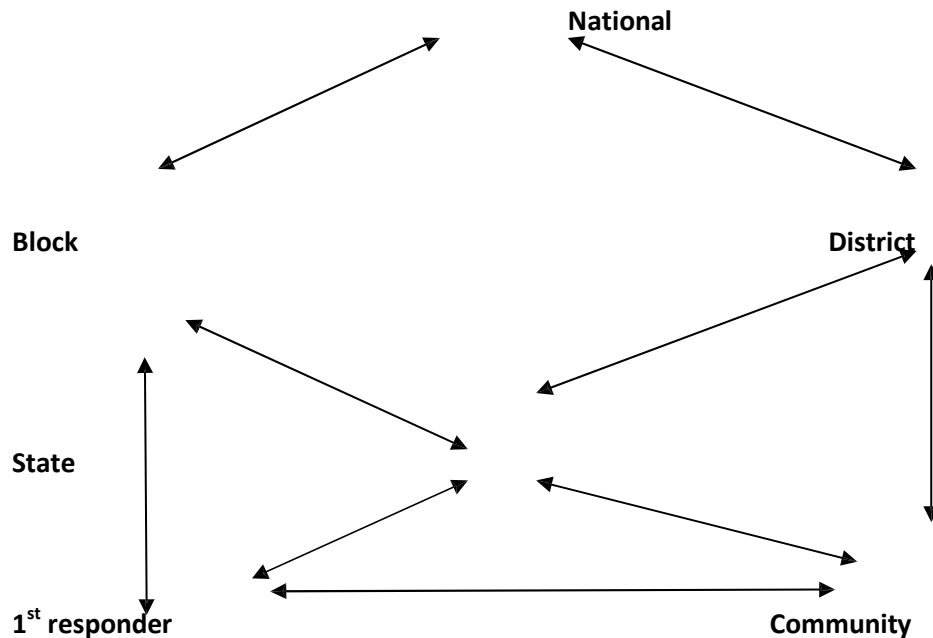
6) Mention some of the trigger authorities

The trigger authorities may be district magistrate ,The relief commissioner ,The central relief commissioner or any officer designated for the purpose.

7) What are the factors for the success of Trigger mechanism?

The success of Trigger mechanism is vision and perception of the planners.

8) Draw Trigger mechanism network



9) Explain risk reduction by education

Education is an important aspect of the development process particularly as it has a direct bearing on "health ,hygiene & sanitation"

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It is used to give awareness about the importance of drinking clean water and agricultural productivity.

**10) Who are the persons responsible for Disaster reduction under risk reduction by education**

- (1) Politicians in Governments**
- (2) The news & information media**
- (3) Government administrators & professionals**
- (4) People in the community**

**11) What is disaster information network**

A great reservoir of various forms of support human, material & financial has been grown in the developed countries in response to the need of disaster prone developing countries. When the disaster strikes they become dependent.

**12) What are the communities required for development of self help & self reliance under disaster information network.**

- (1) Government in all levels**
- (2) News and information media**
- (3) Administrators & professionals**
- (4) The people ,NGO & community based organizations and networks.**

**13) Give the expansion for the following**

- (1) IPA ---Institute of Public Awareness**
- (2) EWS ---Early Warning System**
- (3) FFW ---Food For work**
- (4) IGP ---Income generation Projects**

**14) Explain the role of schools & school children in existing public awareness programme.**

Class room learning programmes ,projects & experiments based upon environmental conservation practices can also be started in schools and as part of adult learning programmes.

**15) Explain the importance of mass media in public awareness?**

The press , radio and TV can be employed to propagate programs of public awareness and

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**information oriented towards disaster reduction.**

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### **UNIT – IV Development Planning on Disaster**

**1. What are the terms defined by Natural Disaster Relief Act?**

The Act defined the term Natural Disaster to include earthquakes, fires, storms, floods, landslides, heavy rains, drought, famine, epidemics and similar natural disaster.

**2. What is the responsible of DNDRC & CNDRC?**

The Central Natural Disaster Relief Committee (CNDRC), the highest organ of disaster management, chaired by the Home Minister as the nodal agency to formulate policies and plans related to Disaster Management.

The District Natural Disaster Relief Committee (DNDRC), which is mainly responsible for carrying out the post disaster activities at the district level.

**3. What is the major trust of the plan of action in implication of development planning?**

Major trust of the plan of action are Plan on disaster preparedness, Response, Rehabilitation & Mitigation.

**4. What are the various tasks undertaken by the department of development planning?**

The department undertakes the following tasks

- a. Developing hazard maps
- b. Mitigating the sufferings of the people
- c. Working towards reducing loss of life & property
- d. Coordinating with the non-governmental agencies.

**5. What are two funds given by financial arrangement for disaster?**

The Central Disaster Relief Fund (CDRF) at the center and the District Disaster Relief Fund (DDRF) at the district level.

**6. What are the two committees that control funds?**

The Central fund is controlled and operated by the Department of Narcotics Control and Disaster Management whereas the District fund is controlled and operated by the District Disaster Relief Committee.

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- 7. Mention some areas where improvement is needed to reduce disaster.**
  - a. The Institutional infrastructure for disaster management need to be strengthened.**
  - b. Proper communication and transport at the time of emergency is vital to emergency response.**
  - c. Arranging for temporary shelter to the victims as well as providing them timely medical care .**

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**8. What are the 2 keys involved in Disaster preparedness?**

Disaster preparedness involve two key elements namely , the event and the vulnerable people.

**9. What are the 3 basic questions needed for Disaster Preparedness?**

- a. Do people know they live in a potential disaster area?
- b. Do people know the risks?
- c. Do people know effective ways to reduce such risks?

**10. What are the most essential factors for Disaster preparedness?**

- a. The need for effective disaster preparedness is to be felt by government organisation , non-government organisation , private sector institutions and the community.
- b. Promoting multi-organisational cooperation , coordination , networking and partnerships.

**11. What are the principles required for disaster preparedness?**

- a. Adopt educational methods that have a heavy emphasis on community involvement and participation.
- b. Behaviour is motivated.
- c. Motivation is the inner drive that propels human beings towards attaining a desired goal.

**12. Explain BYOD scheme.**

**Build Your Own Dam Scheme (BYOD):** The Government bears 60% of the total cost of the dam , while the villagers shoulder the remaining costs borne as voluntary labour.

**13. What are the features of Community Based Disaster Management?**

- a. Vulnerability causes disaster
- b. People's empowerment
- c. Indigenous knowledge and local capacities
- d. No quick fixes
- e. Puts premium on organizing communities

**14. What are the strategies for Community Based Disaster Management?**

- a. Community Risk Assessment
- b. Disaster Management Orientation
- c. Disaster Preparedness Training

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- d. Community Disaster Response Organisation (CO)**
- e. Emergency Response Training**

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**15. What is an emergency response?**

**Search & rescue , relief delivery , improving the quality of public relief , evacuation center management mobilization of the less vulnerable sectors.**

**16. Expand the following.**

**a. NDRA – Natural Disaster Relief Act**

**b. CNDRC- Central Natural Disaster Relief Committee c. DNDRC – District Natural Disaster Relief Committee d. IEC – Information Education Communication**

**e. BYOD – Build Your Own Dam scheme**



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### UNIT – V SEISMICITY

**1. Define Earthquake.**

An earthquake is caused by the sudden release of slowly accumulating strain energy along a fault within the earth's crust.

**2. Define earthquake fault zone.**

Areas of surface or underground fracturing that can experience earthquake are known as earthquake fault zone.

**3. What do mean by Ground Shaking?**

Ground Shaking or ground motion, a principal cause of the partial or total collapse of structures, is the vibration of the ground caused by seismic waves during an earthquake.

**4. What are 4 different types of wave propagated on the earth surface?**

- a. Sound wave or P wave b. Shear wave or S wave
- c. The third and fourth types are Slow low frequency surface waves.

**5. What are 4 principle characteristics of ground shaking?**

- a. Earthquake Severity or Size. b. Attenuation.
- c. Duration.
- d. Site Response.

**6. Write short notes on landslides and liquefaction.**

Landslides occur in a wide variety of forms. Not only can earthquakes trigger landslides, they can also cause the soil to liquefy in certain areas. Both of these forms of ground failure are potentially catastrophic.

In the liquefied condition soil deformation may occur with little shear resistance.

**7. What are the effects of earthquake?**

The effects of earthquake are

- a. Shaking and ground rupture b. Landslides and avalanches
- c. Fires

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### **d. Soil Liquefaction e. Tsunamis**

#### **8. What are the two types of ground failure?**

Ground failure grouped as liquefaction can be subdivided into several types

**a. Rapid Earth Flows. b. Earth Lateral Spreads.**

#### **9. Define Seismic Risk Assessment.**

A seismic risk assessment is defined as the evaluation of potential economic losses, loss of function, loss of confidence, fatalities and injuries from earthquake hazards.

#### **10. What are four steps involved in Seismic Risk Assessment?**

There are four steps involved in seismic risk assessment

**a. An evaluation of earthquake hazards and preparer hazard zonation maps. b. An inventory of elements at risk, e.g. structures and population.**

**c. A vulnerability assessment.**

**d. Determination of levels of acceptable risk.**

#### **11. What is a composite map?**

A composite map can be compiled showing the relative severity of all seismic hazards combined.

#### **12. Mention some of the earthquake mitigation measures. a. Ground Shaking Mitigation Measures.**

**b. Surface Faulting Mitigation Measures c. Ground Failure Mitigation Measures. d. General Land-use Measures.**

#### **13. Define Tsunamis.**

Tsunamis are water waves or seismic sea waves caused by large-scale sudden movement of the sea floor, due to earthquakes and on rare occasions to landslides, volcanic eruptions or man-made explosions.

#### **14. Write about Tsunamis Mitigation Measures.**

**a. Avoid tsunami runup areas in new development expect marine installations and others requiring proximity to water. Prohibit setting of high – occupancy and critical structures.**

**b. Set standards of construction for strctures within harbors and known runup areas.**