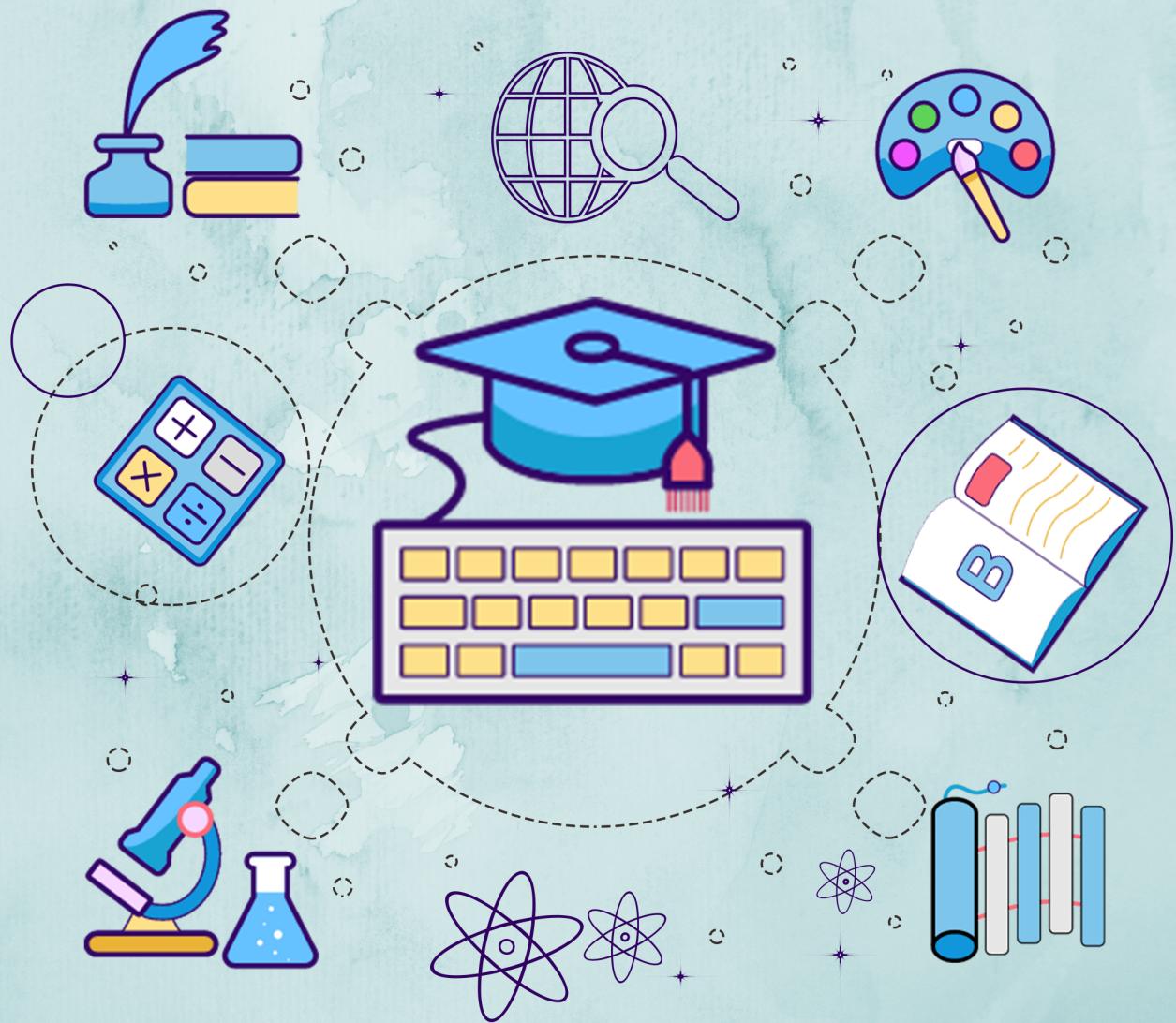


Kerala Notes



SYLLABUS | STUDY MATERIALS | TEXTBOOK

PDF | SOLVED QUESTION PAPERS



KTU STUDY MATERIALS

DISASTER MANAGEMENT

MCN301

Module 3

Related Link :

- KTU S5 STUDY MATERIALS
- KTU S5 NOTES
- KTU S5 SYLLABUS
- KTU S5 TEXTBOOK PDF
- KTU S5 PREVIOUS YEAR
SOLVED QUESTION PAPER

Disaster management

Module 3

Disaster risk management

Disaster risk management

- **Elements of disaster risk management:** Prevention, mitigation, preparedness with risk assessment and recovery constitutes DRM.
- Aims at risk reduction by lessen vulnerabilities and exposure and increase capacity, there by build resilience.
- Disaster risk assessment > taking proper measures to protect people and properties, i.e.**disaster risk management**

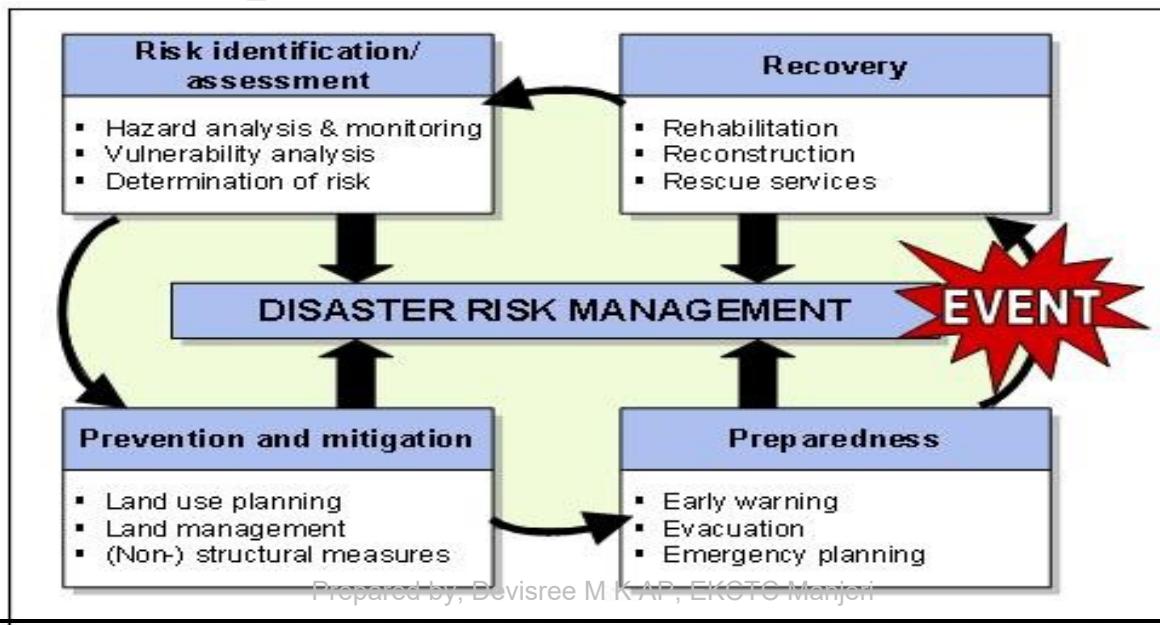
Disaster risk management

Definition:

- The systematic process of using administrative directives, organisations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.

Disaster Risk Management Framework

- The disaster risk management process (cycle) comprises the following main elements:



► Risk identification and assessment:

- This involves determining and analysing the potential, origin, **characteristics and behaviour of the hazard**
- E.g. frequency of occurrence/magnitude of consequences.

► Application of risk reduction measures in mitigation:

- Planning and implementation of **structural interventions** (e.g. dams, sea defence) or **nonstructural measures** such as disaster legislation.

► Disaster preparedness and emergency management:



- Activities and measures taken in **advance** to ensure effective response to the impact of a hazard.

Eg:- measures related to timely and effective warnings , evacuation and emergency planning, backup generators, food and water storage etc.

► Recovery/Reconstruction:

- Decisions and actions taken in the **post-disaster phase**
- Having a view to **restoring** the living conditions of the affected population.



Disaster Risk Reduction (DRR)

- The concept and practice of reducing disaster risks through systematic efforts to analyse and manage the causal factors of disasters, including
 - ❖ Through reduced exposure to hazards
 - ❖ Lessened vulnerability of people and property
 - ❖ Wise management of land and the environment
 - ❖ Improved preparedness for adverse events.

Prepared by, Devisree M K AP, EKCTC Manjeri

Hyogo Framework for Action (2005-2015):



- The Hyogo Framework for Action (HFA) was a global blueprint for disaster risk reduction efforts with a ten-year plan, adopted in January 2005 by **168 Member States of the United Nations at the World Conference on Disaster Reduction**

Given the importance of DRR in the international policy arena, five (5) priority areas are underscored in the **Hyogo Framework for Action (2005-2015)**:

- 1. Governance
- 2. Risk identification, assessment, monitoring and early warning
- 3. Knowledge management and education
- 4. Reducing underlying risk factors
- 5. Preparedness for effective response and recovery

- The Hyogo framework for action was succeeded by the Sendai Framework for Disaster Risk Reduction 2015-2030 at the Third United Nations World Conference on DRR which took place in March 2015 in Sendai, Japan.

The four (4) cornerstones of Disaster Risk reduction:

- Four parallel and complementary lines of actions can be considered to reduce exposure to disasters and achieve a more sustainable approach to development:
 - 1. Community / stakeholder participation
 - 2. Public policy actions
 - 3. Safer construction and urban development
 - 4. Development of a culture of prevention

Definition:

- Disaster Prevention is defined as those activities taken to prevent a natural phenomenon or potential hazard from having harmful effects on either people or economic assets.
- Broadly, disaster prevention refers to measures taken to eliminate the root causes that make people vulnerable to disaster.

The Basis of Disaster Prevention

For disaster prevention to be successful, a priori planning is required.

- ❑ Planning of prevention hinges on two (2) issues:
1. Hazard identification (identifying the actual threats facing a community)
 2. Vulnerability assessment (evaluating the risk and capacity of a community to handle the consequences of the disaster).
- Once these issues are put in order of priority, emergency managers can determine the appropriate prevention strategies.

Prepared by, Devisree M K AP, EKCTC Manjeri

Types of Disaster Prevention:



Disaster prevention may be considered as either primary or secondary.

- Primary prevention is to reduce, or avoid the risk of the event occurring, by getting rid of the hazard or vulnerability,
e.g. to avoid overcrowding, deforestation, choked drainage and to provide services.
- Secondary prevention means to recognise promptly the event and to reduce its effects,
e.g. by staying alert to possible displacements of population; by being ready to provide immunisation, food, clean water, sanitation and health care to the affected population.

Disaster Mitigation

Definition:

- Disaster mitigation refers to the lessening or limitation of the adverse impacts of hazards and related disasters.

Primary Objectives:



The primary objectives of disaster mitigation are two (2) fold, namely

- Hazard likelihood reduction
- Risk consequence reduction.

- **Hazard likelihood reduction**

This objective is only appropriate for a few natural hazards, as it is not possible to reduce the occurrence of many hazards.

Eg: the likelihood of floods occurrence can be reduced by mitigation measures such as sea defence walls.

- **Risk consequence reduction**
- This is a reduction in the impact of a hazard, via a reduction in exposure and/or vulnerability.
- It involves ensuring that the population, structures, or other systems are able to withstand such an event with as few negative consequences as possible.

Example: the construction of the erosion-resistant sea defence wall.

So in reducing both hazard likelihood and risk consequence,

- The primary aim is to decrease risk of death and injury to the population.
- The secondary aims are to decrease damage and economic losses inflicted on public sector infrastructure and to reduce private sector losses.

Types of Disaster Mitigation Measures:

Broadly, disaster mitigation measures can be categorised into two:

Structural Mitigation Measures:

- This refers to any physical construction to reduce or avoid possible impacts of hazards, which includes engineering measures and construction of hazard-resistant and protective structures and infrastructure.

Non-structural Mitigation Measures:

- This refers to policies, awareness, knowledge development, public commitment, and methods and operating practices, including participatory mechanisms and the provision of information, which can reduce risk and related impacts.



Disaster Preparedness

Definition:

- Disaster preparedness encompasses the knowledge and capacities developed by governments, professional response and recovery organizations, communities and individuals to effectively anticipate, respond to, and recover from, the impacts of likely, imminent or current hazard events or conditions.

Components of a Comprehensive Disaster

Preparedness Strategy include  Kerala Notes

- Hazard, risk and vulnerability assessments
- Response mechanisms and strategies
- Preparedness plans
- Coordination
- Information management
- Early warning systems
- Resource mobilisation
- Public education, training & rehearsals
- Community-based disaster preparedness

Types of Disaster Preparedness:

- **Target-Oriented Preparedness:**

Preparedness plans may be target specific, for instance, we may require different types of planning for the vulnerable groups of women, children, elderly and disabled.

- **Task-Oriented Preparedness:** Specific groups jointly develop activities based on one of the community's plans to evaluate the community's capability to activate the preparedness plan in a real emergency. Eventually, these tasks enable the development of plan revisions, employee training and material resources to support readiness.

- **Disaster-Oriented Preparedness:** This addresses the likelihood of occurrence of a specific disaster. Emphasis is placed on structural and non-structural mechanisms.

Disaster Response

- **Disaster responses** are the set of activities taken during a disaster or immediately following a disaster, directed towards saving life and protecting property.
- The activities that deal with the effect of disaster may include medical care, evacuation, search and rescue, provision of emergency water, food and shelter, debris removal and stabilization of unsafe buildings and landforms.

• **The Objectives of Disaster Response**

- It is aimed at providing immediate assistance to maintain life, improve health and support the morale of the affected population.
 - It is focused at meeting the basic needs of the people until more permanent and sustainable solutions can be found.
 - It depends on the adequacy of preparedness.
-
- ## • **The Objectives of Disaster Response**

- The success in responding appropriately depends on early planning, organisation and training.
- Disaster response preparedness are the pre-disaster activities that are undertaken to minimise loss of life, injury and property damage in a disaster, and to ensure that rescue, relief, rehabilitation and other services can be provided following a disaster.

Factors that Determine the Nature of Disaster Response



- *The type of disaster:* Disaster manifests in many forms, its onset may provide long warning, short warning, or no warning at all. It would influence the effectiveness of activating preparedness plans, mobilisation, and application or response effort.
- *The ability to take pre-impact actions:* Responses to disaster are operationalized in three main phases namely the “pre-, during and post-disaster” situation. Disaster early warning systems may provide timely warnings for anticipating impending disaster. Pre-impact responses may be carried out if time and conditions are favourable.

Factors that Determine the Nature of Disaster Response

- *The severity and magnitude of disaster:* The severity and size of the problem determines the response required. Particular effects could be seen in the ability of responses to cope with the problem.
- *The capability of sustained operations:* This is influenced by factors such as resource capability, management capability, community self-reliance, and availability of international assistance. It is important that these issues are clearly addressed in preparedness planning and response action plans.

Factors that Determine the Nature of Disaster Response

- Many urgent and significant tasks involving injuries, deaths, or property loss/damage.
- Large numbers of personnel and agencies required.
- High levels of public interest and/or controversy.
- Many examples of information mishandling.
- Potential for some key tasks to be overlooked, under-resourced, over-resourced.
- Potential for some of the available key resources to not be used.

Requirement for Effective Response

- *Information:* An early warning system provides vital information for effective response operation. It must be robust to transmit warnings as early as practicable. Information gained from these systems could help in the planning and decision-making as well as inform the general public.

➤ **Resources:** It form an essential component of disaster response. The ability to mobilise the needed resources on short notice is most often hampered by many factors. The response plan as a component of the disaster management plan includes ways of managing human and financial resources, response to supplies availability and communication procedure. This involves identifying, strengthening and organising resources and capacities for timely and effective response to a potential disaster.

Disaster Response Planning

- In disaster response planning, roles and responsibilities are defined, policies and procedures are developed and generic tools for responses are identified and developed.
- Plans must be monitored, evaluated and adapted to the specific situation in times of disaster.

Rationale for Disaster Response

Responses are mainly directed at:

- limiting casualties;
- alleviating hardship and suffering;
- restoring essential life support and community systems;
- mitigating further damage and loss; and
- providing the foundation for subsequent recovery.

The Humanitarian Charter

The Humanitarian Charter provided 4 principles that must be followed in responding to emergencies based on the right to live in dignity, the right to receive humanitarian assistance, and the right to protection and security (The Sphere Project, 2011).

The principles are:

- avoid exposing people to further harm as a result of your actions;
- ensure people have access to impartial assistance;
- protect people from physical and psychological harm due to violence and coercion;
- enable access to remedies and recovery from abuse (Sphere Handbook, 2012).

The Sphere Project aims to improve the quality of assistance provided to people affected by disasters, and to improve the accountability of humanitarian actors to their constituents, donors and affected people. This Project has suggested 4 minimum standards that often need consideration during response to disasters.



These are:

1. water supply, sanitation and hygiene promotion;
2. food security and nutrition; and
3. shelter, settlement and non-food items; and
4. health action.

Disaster Responses

Disaster responses include actions that embrace the following:

- Search and rescue
- First aid and emergency medical care
- Evacuation
- Evacuation centre management
- Development of Standard Operation Procedure (SOPs)
- Immediate repair of community facilities and services
- Relief delivery
- Coordination and Communication
- Psycho-social counselling and stress debriefing
- Medical services

Prepared by, Devisree M K AP, EKCTC Manjeri

Search and rescue

- This activity is usually conducted by well-trained volunteers in finding disaster victims, that is, lost, sick or injured persons in either a remote or difficult to access areas such as water bodies, desert, forest or probably in the course of mass population movement.
- They are often directed at, locating endangered persons at an emergency incident, removing those persons from danger, treating the injured, and providing for transport to an appropriate health care facility.

Basic Key Steps of Search and Rescue

1. Size up - involves assessing the situation and determining what one is going to do and if yes, then how.
The decision whether to attempt a rescue should be based on:
 - a. The risks involved; and
 - b. Achievement of the overall goal of doing the greatest good for the greatest number.
2. Search - involves locating victims and documenting their location.
3. Rescue - involves the procedures and methods of extricating and moving victims to safety.

First aid and emergency medical care



- First aid is the provision of initial care for an illness or injury.
- It is usually performed by non-expert, but trained personnel to a sick or injured person until definitive medical treatment can be accessed.
- Emergency medical care is immediate paramedic attention to severe wounds and the rapid transportation of the ill or injured to a health facility.

Evacuation

Evacuation is an organised movement of people from an area at risk to a safer place.

Types of Evacuation

- Precautionary evacuation before disaster
- Protective evacuation after disaster
- Evacuations for reconstruction purposes

Evacuation

Services provided during evacuations include:

- Registration
- Assistance with financial and legal queries
- Water, food, clothing
- Rest areas
- Blankets and personal items
- Interpreter services
- Assistance in contacting family/friends
- Services for animals
- Emergency financial assistance
- First aid, medical and health
- Information

Standard Operating Procedures (SOPs)

- SOPs are the set of standard procedures that “operationalize” the disaster response and/or contingency/ plans. The SOPs set out what should be done, how it should be done, who is responsible for implementing what, and specifies available resources.
- SOPs take cognisance of four stages of preparation and procedures:
 - during normal times
 - alert/warning and
 - during disaster
 - rehabilitation

❖ During Normal Times

The state institution mandated to respond to disaster ought to:

- Formulate and distribute disaster preparedness plans, and conduct drills in all areas;
- Produce maps of Wards/Village Tracts showing areas most vulnerable to storms, floods and other natural disasters;
- Make a list of vehicles and motor boats that can be used for emergency work;
- Compile a list of departments, non-governmental organisations (NGOs), and members of People's Strength that will take part in relief operations in the predisaster, disaster and post-disaster periods and designate representatives for contact;



❖ During Normal Times

- Obtain beforehand the required relief and aid supplies;
- Form the necessary disaster preparedness committees and organizations;
- Create shelters and safe locations for use during disasters depending on local conditions;
- Conduct educational talks on natural disasters and rehearse periodically for the local community depending on local conditions; and Coordinate with departments concerned to form Security services, Auxiliary Fire Brigades, communication agencies and Red Cross Societies; and
- Provide organising and training activities.

❖ Alert/Warning Stage

- Emphasize the dissemination of news obtained through early warning systems to the community;
- Assign duties to administrative bodies and NGOs to fly warning flags as part of the disaster preparedness programme in the vulnerable areas of the Ward/Village Tract;
- Alert and mobilise members of the Security services, Auxiliary Fire Brigade, communication agencies, the Red Cross, Youth, members of People's Strength and NGOs;

❖ Alert/Warning Stage

- Make the necessary arrangements to evacuate the public to safe locations (shelters) in a timely manner;
- Increase security sentries as required;
- Ensure that all levels of supervisors have all teams ready for assigned duties; and
- Keep the office operational 24 hours a day in the emergency period.

❖ During Disaster Stage

- Alert the community in areas the natural disasters likely to strike;
- Safeguard the road and water transport routes, keep relief and medical teams at the ready and arrange transport to affected areas at short notice;
- Evacuate the community from vulnerable areas to safe locations or designated shelters as quickly as possible;
- Operate relief camps and supervisory centers at designated shelters as quickly as possible;
- Ensure that administrative personnel and NGOs in areas vulnerable to storms give disaster warnings door to door as a matter of urgency;

❖ During Disaster Stage

- Keep available relief and aid supplies at the ready to launch relief operations quickly and effectively;
- Evacuate the public remaining in the area to designated safe locations;
- Make arrangements to evacuate movable property including cattle to designated locations; and
- Ensure the well-disciplined implementation of orders received from the coordinating agencies and sub-committees with the help of members of the Security services, Fire Brigade, Red Cross Youth members, and members of People's Strength, social organisations and NGOs.

❖ Rehabilitation Stage

The SOPs for the rehabilitation stage are:

- Conduct field inspections in affected areas as soon as possible and provide the necessary assistance and support;
- Submit immediate preliminary reports with population figures, death and injury figures of cattle and animals, data on socio- economic losses, and carry out further systematic data collection;
- Make arrangements to provide health care and social protection to disaster victims;
- Clear collapsed buildings and trees as quickly as possible;
- Prioritise the restoration of transportation, electricity and water supply and telephone and telegraph services as soon as possible;

❖ Rehabilitation Stage

- Make arrangements as quickly as possible to reclaim contaminated wells and ponds for access to clean water and dig new wells for drinking water;
- Make arrangements to bury/cremate the remains of disaster casualties and animal carcasses;
- Manage and systematically utilise disaster funds and supplies, as well as cash and supplies donated by well-wishers, social organisations and NGOs; and
- Support the local population for the resumption and recovery of economic activities to previous conditions.

- **Relief Aid**

- This relates to any provision of assistance during an emergency that is meant to attend to a person's immediate requirements for survival or recovery.
- It may include food, clothing, housing, medical care, necessary social services and security when a person is faced with circumstances beyond her or his control.
- Relief aid must be targeted at the most vulnerable first: Vulnerable children or orphans, female or child headed households, pregnant or lactating women, sick or elderly populations.

- **Coordination and Communication**

- Meetings - Plan to hold regular meetings with Movement partners to determine activities and roles;
- Information management - Information sharing on disaster impact, assessment and needs through input into DMIS (Disaster Management Information System);
- Communication means - Plan for continuous information and communication flow; Movement Coordination Frame works - Plan for strategic and operational coordination; and
- Partnership agreements - Identify existing agreements and determine additional agreements needed to meet needs.

• **Coordination and Communication**



- Accurate and comprehensive information is often a requisite without which response operations would be difficult. The setting of Emergency Operations Centres (EOC) is essential for the effective management of information. EOCs ensure that information is correctly processed according to the proven cycle of:
 - acquisition of information;
 - information assessment;
 - decision-making; and
 - dissemination of decisions and information.

• **Psychosocial Support**

- Impacts on psychosocial well-being can be both short term and long term.
- Psychological services play a crucial role in responding to crises that involve large populations.
- They help in the recovery process and reduce the development of mental health problems.
- Psychosocial support activities include identifying and referring individuals requiring specialised support through professional mental health services.

• **Public Health Services**

The relevance of medical services is most felt in which there are:

- Deaths, injuries
- Loss of clean water, shelter, sanitation, routine hygiene
- Disruption of solid waste management
- Public concern for safety
- Increased pests and vectors
- Damage to health care system
- Worsening of chronic illnesses
- Toxic/hazardous exposure
- Loss of food supply
- Standing surface water

• **Public Health Services**

The public health services required in responding to disasters include:

- Mass casualty management
- Mental health
- Environmental health
- Reproductive health
- Managing and continuation of existing health services
- Managing and continuation of medication on chronically affected diseases (HIV, TB, Leprosy, etc.)
- Management of the dead and missing
- Emergency feeding
- Communicable disease surveillance and response
- Sanitation

DISASTER RELIEF

Relief

- It is defined as the provision of assistance or intervention during or immediately after a disaster to meet the life preservation and basic subsistence needs of those people affected.

Relief can be of an :

- immediate,
- shortterm,
- protracted duration

Relief activities

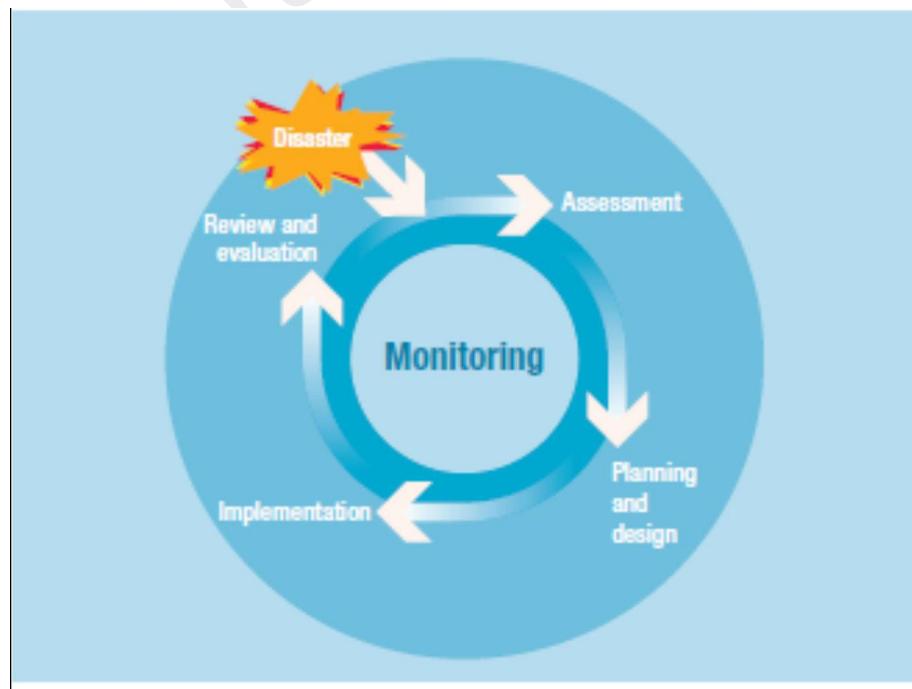
- provide goods and services to disaster-affected populations in the form of supplies, vouchers or cash transfers, so as to enable those populations to cover their essential needs.
- Relief measures differ, depending upon the nature of disaster. At certain occasions, money may have no value, but certain articles like food, clothes, etc. may be more important.
- The disasters that require relief may include fire, flood, lightening, earthquake landslides and sinking of land, snow avalanches, glaciers, drought, locusts, epidemics, land storms, excessive rains, cloud bursts and hailstorm.

- Aid will not be used to further a particular political or religious standpoint
- Aid agencies do not act as instruments of government foreign policy
- That culture and custom are respected in response and relief activities
- Disaster response is built on local capacities
- Ways are developed to involve programme beneficiaries in the management of relief aid
- Relief aid would reduce future vulnerabilities to disaster as well as meeting basic needs

Project Cycle Management Linked to Relief

- The project cycle management (PCM) is a conceptual tool used for the planning and management of programmes and projects leading to the improvement of programme effectiveness and outcome.
- In disaster response, the PCM provides five main continuous components that guide disaster response.
- They are: assessment, planning and designing, implementation, monitoring, review and evaluation

Project management cycle



Prepared by, Devisree M K AP, EKCTC Manjeri

Assessment

- The first step after the onset of a disaster is to assess the origin, magnitude and effect of the disaster on the affected population so as to be able to identify humanitarian needs
- and plan possible interventions.
- The purpose is to ascertain the need for an intervention based on identified needs.
- There are four types of assessments: immediate, rapid, detailed and continual assessments.

Assessment

- Immediate assessments are conducted within 72 hours after the disaster. It is generally conducted by in-country actors and involves the collection of basic disaster information.
- Rapid assessments are conducted immediately after the disaster and take up to a week. These involve gathering of information on the needs and existing capacities of the affected population.
- Detailed assessments are conducted after rapid assessments to obtain further information on the affected population's needs and capacities for programme planning. They can take up to a month to conduct, more or less depending on the area, the complexity of the issues and resources available.
- Continual assessments are conducted once the detailed assessment has been completed and relief programmes are running. They update information on the situation and involve beneficiaries for recovery programming.

Planning/Design

- The planning and design process is critical to a relief operation as it helps to set out in clear stages what the operation will do.
- It also determines how progress and results will be monitored and defines the duration of relief activities.
- The planning process describes the steps and order to undertake when planning relief interventions.
- The design describes the selection of relief interventions that are best adapted to the needs of the context faced.

- **Planning/Design**
- The factors that must be considered when planning relief activities are:
 - The needs identified during the assessment, presented by technical sector
 - The overall plan of action for the operation
 - The capacity and mandate of the disaster management organisation
 - Programmes conducted/planned by other stakeholders
 - The security and access to disaster-affected populations

- **Implementation**
- The implementation phase is when the activities are carried out to achieve the desired results.
- The implementation of relief activities is conducted once the assessment and the planning processes are completed.
- This may include the mobilisation and distribution activities.
- The key issues that would be considered are beneficiary targeting and identification and methods and tools for implementation.

The list of international relief response organisations is as follows:

- Action Against Hunger (AAH),
- CARE,
- Caritas Internationalis,
- Catholic Relief Services, (CRS - USCC),
- Emergency Nutrition Network (ENN),
- Doctors Without Borders,
- Food For The Hungry International (FHI),
- Food For The Hungry,
- Hunger
- Plus, Inc., Interaction,
- International Committee of the Red Cross (ICRC), International
- Federation of Red Cross and Red Crescent Societies (IFRC), International Organisation
- for Migration (IOM), International Rescue Committee (IRC), Lutheran World
- Federation, Mennonite Central Committee (MCC), Mercy Corps (MC)
- ETC...