MODULE 3

DISASTER RISK MANAGEMENT

SYLLABUS

- Introduction to Disaster risk management, **Core elements of Disaster Risk Management**.
- Phases of Disaster Risk Management, **Measures for Disaster Risk Reduction.**
- Measures for Disaster prevention, mitigation, and preparedness.
- **Disaster response- objectives, requirements**. Disaster response planning; types of responses.
- Introduction- **Disaster Relief**, Relief; international relief organizations.

I.INTRODUCTION TO DISASTER RISK MANAGEMENT

DISASTER RISK MANAGEMENT

- Disaster risk management is a structured approach to manage uncertainty and potential adverse impacts from a natural hazard event, through a process of risk assessment and the development of strategies and specific actions to control and reduce risks.
- It is systematic, institutionalised, and covers both strategic and operational issues related to reducing vulnerability and exposure to hazards while increasing coping and response capacity.
- Risk management is about dealing with uncertainty
- The purpose of disaster risk management is to prevent, reduce or transfer the adverse effects of hazards.
- It comprises prevention, mitigation and preparedness

CORE ELEMENTS/PHASES OF DISASTER RISK MANAGEMENT (UNIV QSTN)

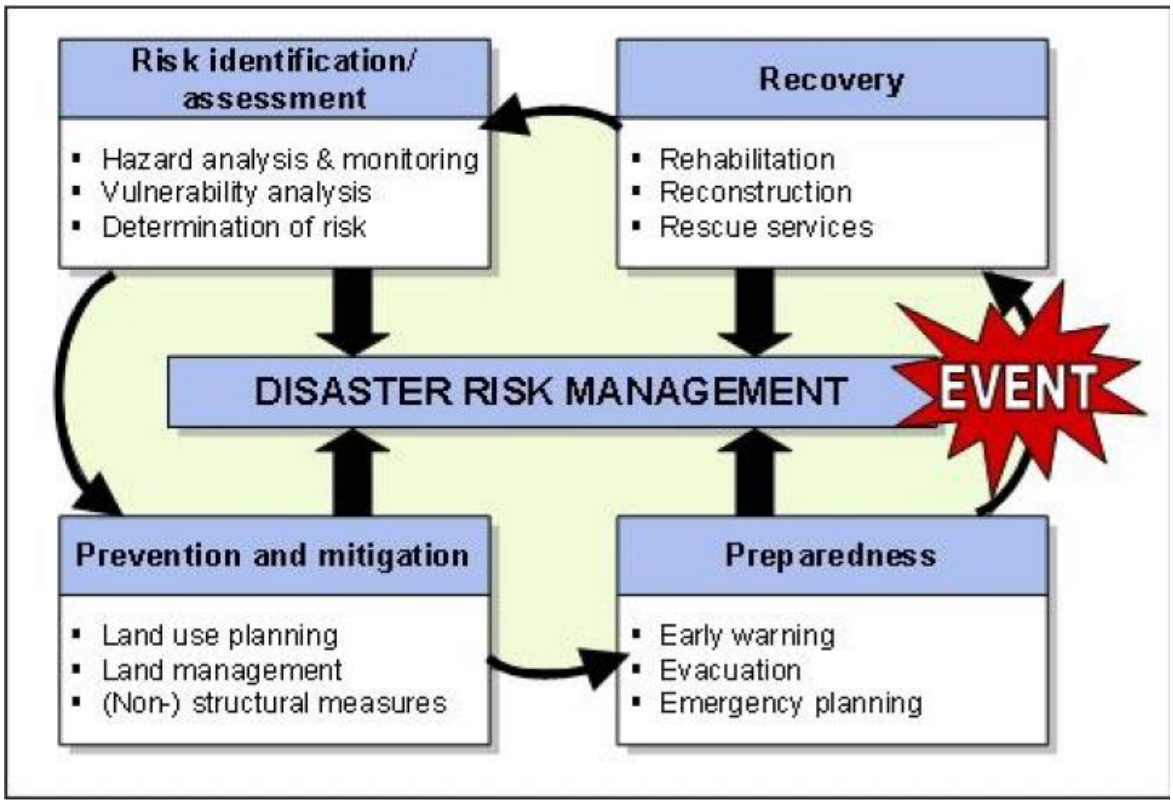
Disaster Risk Management Framework

In this framework, the disaster risk management process (cycle) comprises the following main elements:

1. Risk Identification and assessment
2. Prevention and Mitigation.

3. Preparedness.

4. Recovery

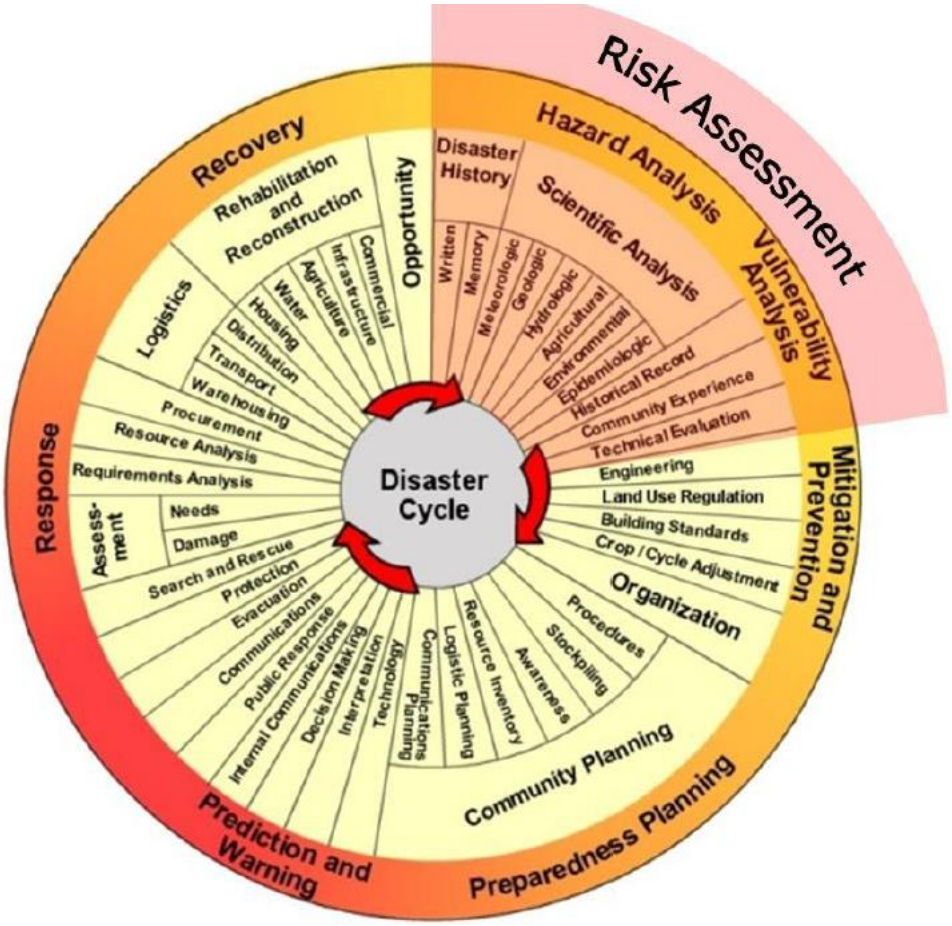


1. Risk identification and assessment: This involves determining and analysing the potential, origin, characteristics and behaviour of the hazard – e.g. frequency of occurrence/magnitude of consequences.

2. Application of risk reduction measures in mitigation: Planning and implementation of structural interventions (e.g. dams, sea defence) or non-structural measures such as disaster legislation.

3. Disaster preparedness and emergency management: Activities and measures taken in advance to ensure effective response to the impact of a hazard, including measures related to timely and effective warnings as well as evacuation and emergency planning.

4. Recovery/Reconstruction: Decisions and actions taken in the post-disaster phase with a view to restoring the living conditions of the affected population.



DISASTER MANAGEMENT CYCLE

Disaster Risk Management includes measures:

- *Before* (risk analysis, prevention, preparedness),
- *During* (emergency aid), and
- *After* a disaster (reconstruction).

Sometimes disaster risk management includes only a part of disaster management, focusing on the *before* of the extreme natural event (GTZ, 2004, p. 18)

A holistic approach to disaster risk management is needed in order to enhance resilience and reduce vulnerability to disasters.

II. DISASTER RISK REDUCTION

- The practice of reducing the risk of a disaster through systematic efforts.
- It includes analysing and managing casual factors affecting disasters.
- Factors affecting the disaster include exposure to hazards, vulnerability of people and property, improved preparedness etc…

MEASURES FOR DISASTER RISK REDUCTION (IMP)

The following measures should be taken for disaster risk reduction:

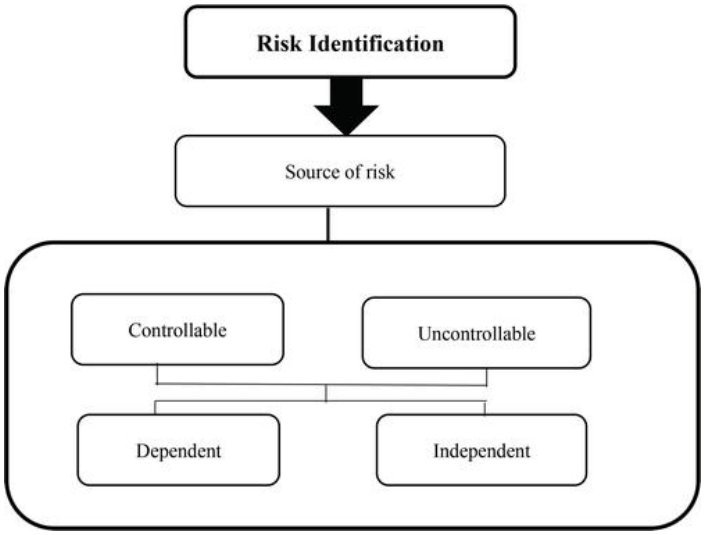
1. Governance
2. Risk identification, assessment, monitoring and early warning
3. Knowledge management and education
4. Reducing underlying risk factors
5. Preparedness for effective response and recovery.

1. GOVERNANCE:

- Governance, as defined by UNDP, is the exercise of political, economic and administrative authority in the management of a country's affairs at all levels.
- Governance is the umbrella under which disaster risk reduction takes place.
- The existence of public awareness, political will and sufficient capacity are key to making disaster risk reduction (DRR) an underlying principle in all relevant development sectors.
- With its significant experience in DRR, democratic governance, and development, UNDP is taking forward the practical and conceptual work on DRR governance and mainstreaming.
- Governance influences the way in which national and sub-national actors (including governments, parliamentarians, public servants, the media, the private sector, and civil society organizations) are willing and able to coordinate their actions to manage and reduce disaster-related risk.
- Good governance include broad participation, transparency, accountability, efficiency and responsiveness.

2. RISK IDENTIFICATION, ASSESSMENT, MONITORING AND EARLY WARNING

- **Risk identification** (RI) is a set of activities that detect, and identifies all potential risks that could have a negative impact.
- It includes identifying the amount of exposure and vulnerability of a disaster.



- Assessment is the process of identifying potential hazards and analyse what could happen if a hazard occurs. It is the estimation of expected losses during a hazard
- **Monitoring** is a continual process of measuring effectiveness of a risk.it contribute to the organisational and global body of knowledge about what works, what does not work and why. Knowledge gained through monitoring and evaluation should be a core part of risk reduction.
- **Early Warning** will provide prior signals for the people for preparing against a disaster.

3. KNOWLEDGE MANAGEMENT AND EDUCATION

- Knowledge management is **a process of sharing information within an organization** and spread among the peoples.
- It is the process of acquiring information about a hazard from higher authorities and taking preparedness prior to the hazard.
- It can be done through awareness classes.

4. PREPAREDENESS FOR EFFECTIVE RESPONSE AND RECOVERY

- Disaster preparedness involves the knowledge and practices developed by governments, communities and recovery organisations for effectively responding and recovering from the impacts of hazard.

Types of Disaster Preparedness

Disaster preparedness can be studied under three specific categories:

- *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.

➢ **Components of a Comprehensive Disaster Preparedness Strategy:**

The essential elements include the following:

- 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

III. DISASTER PREVENTION

- 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.
- Disaster prevention refers to measures taken to eliminate the root causes that make people vulnerable to disaster

Stop and Reflect 3.4.2

Types of Disaster Prevention

Disaster prevention may be considered as either primary or secondary.

- **Primary prevention** is to reduce, avert 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.

MEASURES FOR DISASTER PREVENTION:

There are two measures for preventing a disaster

1. Structural measures

2. Non-structural measures.

1. Structural measures

- Structural measures includes all the engineering knowledge for preventing a disaster
- E.g.: flood wall, base isolation techniques.

2. Non-structural measures

- It includes the awareness class prior to a disaster.
- Raising awareness about potential hazards and how to address them
- Educating the public about how to properly prepare for different types of disaster
- Installing and strengthening prediction and warning systems

THE BASIS OF DISASTER PREVENTION

- For disaster prevention to be successful, ***a priori*** **planning is required**. Planning of prevention hinges on two (2) issues:
  - **Hazard Identification** (identifying the actual threats facing a community) and
  - **Vulnerability Assessment** (evaluating the risk and capacity of a community to handle the consequences of the disaster).

- While natural hazards cannot be prevented, human-made hazards such as those associated with industries, technological failures and pollution can be prevented.
- Although the literature sometimes uses prevention and mitigation synonymously, there is conceptual difference between the two terminologies.
- Prevention has more to do with prohibiting man-made hazards such as chemical accidents, household fires, etc., which are caused by human activities, errors or insufficient precautionary actions.
- However, mitigation and preparedness are considered as key measures of risk reduction for natural hazards.

IV. DISASTER MITIGATION

- It refers to a set of measures to reduce or neutralise the impact of natural hazards by limiting the vulnerability.
- Primary mitigation refers to reducing the resistance of the hazard and reducing vulnerability.
- Secondary mitigation refers to reducing the effects ofthe hazard (preparedness).

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.

OBJECTIVES OF DISASTER MITIGATION:

The primary objectives of disaster mitigation are two (2) fold, namely hazard likelihood reduction and 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.
- An example is the construction of the erosion-resistant sea defence wall in Keta, Volta Region of Ghana
- In reducing both *hazard likelihood* and *risk consequence*, the primary aim is to decrease risk of death and injury to the population.

MITIGATION MEASURES BY ECOSYSTEM:

- Structural and non-structural disaster mitigation measures are mainly carried out by human beings. However, nature through ecosystem functions also provides several mitigation measures as shown in Table.

Ecosystem	Hazard Mitigation
Mountain forests, vegetation on hillsides	Vegetation cover and root structures protect against erosion and increase slope stability by binding soil together, preventing landslides (Dolidon *et al*., 2009; Peduzzi, 2010) Catchment forests, especially primary forests, reduce risk of floods by increasing infiltration of rainfall and delaying peak floodwater flows, except when soils are fully saturated (Krysanova *et al*., 2008) Forests on watersheds are important for water recharge and purification, drought mitigation and safeguarding drinking water supply (see World Bank, 2010)
Wetlands, floodplains	Wetlands and floodplains control floods in coastal areas (Campbell *et al*., 2009) Marshes, lakes and floodplains release wet season flows slowly during drought periods.
Coastal ecosystems (mangroves, saltmarshes, coral reefs, sand dunes)	Coastal wetlands, tidal flats, deltas and estuaries reduce the height and speed of storm surges and tidal waves. Coastal ecosystems protect against storm surges, flooding and other coastal hazards – combined protection by coral reefs, seagrass beds and sand dunes/ coastal wetlands/coastal forests is particularly effective (Batker *et al*., 2010).
Drylands	Natural vegetation management and restoration in drylands contributes to ameliorate the effects of drought and control desertification, as trees, grasses and shrubs conserve soil and retain moisture. Prescribed burning and creation of physical firebreaks in dry landscapes reduce fuel loads and the risk of unwanted large-scale fires (PEDRR, 2010).

V.DISASTER PREPAREDNESS

Disaster preparedness involves the knowledge and practices developed by governments, communities and recovery organisations for effectively responding and recovering from the impacts of hazard.

Types of Disaster Preparedness

Disaster preparedness can be studied under three specific categories:

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➢ **Components of a Comprehensive Disaster Preparedness Strategy: (IMP)**

The essential elements include the following:

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- Coordination
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VI.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 stabilisation of unsafe buildings and landforms.
- It is the second phase of the disaster management cycle.

- **Objectives of Disaster Response: (IMP)**
  - Aimed at providing immediate assistance to maintain life, improve health and support the affected population.
  - Focused at meeting the basic needs of the people until more permanent and sustainable solutions can be found.
  - Preparedness for the first and immediate response is referred to as "emergency preparedness"
- **Factors affecting Disaster Response:**
  - The type of disaster
  - The ability to take pre-impact actions
  - The severity and magnitude of disaster
  - The capability of sustained operations
  - Identification of likely response requirements
- **Requirements for Effective Response**
  - Information and resources are two essential requirements for effective response.

a) Information

- An **early warning system provides** vital information for effective response operation despite the unpredictability of some disaster events.
- An effective warning system 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.

b) Resources

- **Resources form an essential component** of disaster response.
- The need for disaster management organisations to be resource ready cannot be over emphasised considering the untimely occurrence of disasters, which most often is on short notice.
- The ability to mobilise the needed resources on short notice is most often hampered by many factors. Its effect on systems gives little room for procrastination of actions.

VII.DISASTER RESPONSE PLANNING

- Disaster management requires a carefully drawn **response plan** which is often prepared in anticipation of emergency and activated in times of urgency.

- 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 procedures.
- This involves identifying, strengthening, and organising resources and capacities for timely and effective response to a potential disaster.
- In disaster response planning, roles and responsibilities are defined, policies and procedures are developed and generic tools for responses are identified and developed.
- The response plan is developed based on assumptions of risks and hazards, and does not address specific disaster scenarios - as is the case for contingency plans.
- Plans thus, must be monitored, evaluated and adapted to the specific situation in times of disaster.

VIII.TYPES OF RESPONSES (IMP)

Disaster response actions are classified into 10 types:

1. Search and rescue
2. First aid and emergency medical care
3. Evacuation
4. Evacuation centre management
5. Development of Standard Operation Procedure (SOPs)
6. Immediate repair of community facilities and services
7. Relief Aid
8. Coordination and Communication
9. Psycho-social counselling and stress debriefing
10. Medical services.

1. 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 to access areas such as water bodies, desert, forest or probably in the course of mass population movement.
- The search and rescue operations 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:

The basic steps are:

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. formation of each volunteer teams.

2. Search - involves locating victims and documenting their location.

3. Rescue - involves the procedures and methods of moving victims to safety.

2. 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.

3. 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
- 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

4. Standard Operating Procedures (SOPs).

- SOPs are the set of standard procedures which could guide the team in effective operation.
- SOPs specify the way in which individuals or units will carry out their functions under the plan
- It consist of 4 stages:
    1) During normal times
    2) Alert/warning and
    3) During disaster
    4) Rehabilitation

During Normal Times:

- Formulate and distribute disaster preparedness plans
- Produce maps of Wards/Village Tracts showing areas most vulnerable to disasters.
- Make a list of vehicles and motor boats that can be used for emergency work
- Create shelters and safe locations for use during disasters
- Conduct educational talks on natural disasters and rehearse periodically for the local community
- Provide organising and training activities.

Alert/warning stage:

- Dissemination of news obtained through early warning systems to the community.
- Administrative bodies and NGOs to fly warning flags 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.
- Make the necessary arrangements to evacuate the public to safe locations

During Disaster Stage:

- Safeguard the road and water transport routes
- Evacuate the community from vulnerable areas to safe locations
- Operate relief camps and supervisory centres
- Keep available relief and aid supplies at the ready to launch relief operations quickly and effectively

- Make arrangements to evacuate movable property including cattle to designated locations
- Ensure that administrative personnel and NGOs in areas vulnerable to disaster and give disaster warnings door to door.

During Rehabilitation Stage:

- Conduct field inspections in affected areas as soon as possible and provide the necessary assistance and support.
- Make arrangements to provide health care and social protection to disaster victims.
- Clear collapsed buildings and trees as quickly as possible;
- restoration of transportation, electricity and water supply and telephone and telegraph services as soon as possible.
- reclaim contaminated wells and ponds for access to clean water and dig new wells for drinking water.
- Submit immediate preliminary reports with population figures, death and injury figures of cattle and animals, data on socio-economic losses, etc.. to get appropriate funds.
- Manage and systematically utilise disaster funds and supplies, as well as cash and supplies donated by well-wishers, social organisations and NGOs

5. Relief Aid

- 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.
- Relief aid must be targeted at the most vulnerable first: Vulnerable children or orphans, females, pregnant women, sick or elderly populations.

6. Coordination and Communication

- Good coordination and communication is crucial for combining resources effectively and efficiently, in order to reach the disaster-affected more rapidly.
- It contributes to better cooperation, reduces the level of duplication and helps to ensure a well-organised operation.
- ***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).

7. Psychosocial support:

- During a disaster, many may lose not only properties, but also dear ones which cause negative psychological outcomes.
- Psychosocial support activities include identifying and referring individuals requiring specialised support through professional mental health services.

8. Public health services:

The public health services required in responding to disasters include:

 Mass casualty management

 Mental 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.

IX.DISASTER RELIEF

- Relief refers to the provision of essential, appropriate and timely humanitarian assistance to those affected by a disaster
- It is defined as the provision of assistance during or immediately after a disaster to meet the life preservation and basic needs of those people affected.
- Relief, as a disaster management process, provides timely essential needs such as basic household items, shelter, food, water and sanitation, or health items.
- 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.

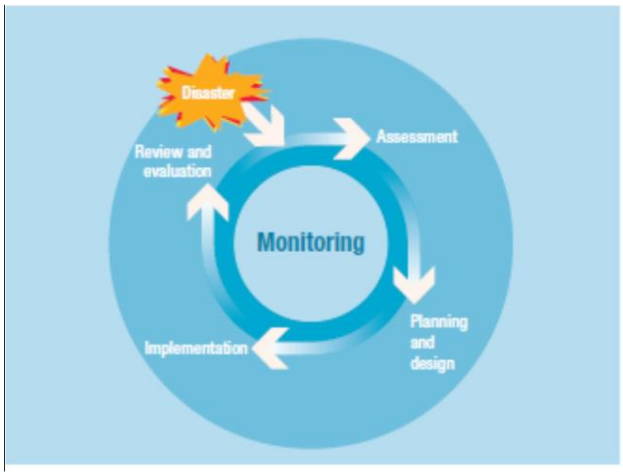
➢ Principles guiding Relief (IMP)

- Response to disasters must have humanitarian imperative.
- Aid is provided based on needs alone and must be done without discrimination of any kind (race, creed or nationality of the recipients).
- Aid will not be used to further a particular political or religious standpoint.
- Aid agencies do not to 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 be 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.
- Accountable to both those we seek to assist and those from who we accept resources.
- Information, publicity and advertising activities shall recognise disaster victims as dignified human beings and not hopeless objects.

➢ 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.
- It consist of 5 components:

  1) Assessment
  2) Planning & Designing
  3) Implementation
  4) Monitoring
  5) Review and Evaluation



1.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 of an assessment, therefore, is to ascertain the need for an intervention based on identified needs.
- This is done to identify the problem, its source and consequences.
- There are four (4) types of assessments that are usually conducted during disasters.

a) Immediate assessments

- Conducted within 72 hours after the disaster.
- It is generally conducted by in country actors and involves the collection of basic disaster information.

b) *Rapid assessments*

- 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.

c) *Detailed assessments*

- 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.

d) *Continual assessments*

- 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.

2. 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.

- This phase is aimed at defining the desired future situation of the affected population and to determining the objectives, strategies and activities needed to achieve it

2. 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.

➢ **SOME INTERNATIONAL RELIEF ORGANIZATIONS: (UNIV 3 MARK)**

1. Action Against Hunger (AAH),
2. Catholic Relief Services, (CRS - USCC),
3. Food For The Hungry International (FHI),
4. International Committee of the Red Cross (ICRC),
5. International Federation of Red Cross and Red Crescent Societies (IFRC)
6. International Organisation For Migration (IOM)
7. International Rescue Committee (IRC),
8. Save the Children
9. United Nations International Children's Emergency Fund (UNICEF),
10. United Nations High Commissioner for Refugees(UNHCR),
11. United Nations Office for the Coordination of Humanitarian Affairs(UNOCHA),
12. US Committee for Refugees (USCR),

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