ELCS 0045- DISASTER MANAGEMENT

LECTURE 4

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DISASTER MITIGATION

Introduction to Disaster Mitigation

Disaster mitigation refers to all measures taken to reduce or eliminate the long-term risk to human life, property, and environment from natural or human-made disasters.

Mitigation focuses on

- Preventing disasters where possible
- Reducing impacts of hazards
- Increasing community resilience
- Protecting infrastructure and resources

Objectives of Mitigation

- Minimize loss of life
- Reduce economic damage
- Protect infrastructure
- Ensure sustainable development
- Improve preparedness and resilience to reduce vulnerability

Needs and Approaches Towards Prevention

Need for Disaster Prevention

Disaster prevention is important because:

- Population growth increases vulnerability
- Urbanization creates unsafe settlements
- Climate change intensifies disasters
- Economic losses are increasing
- Human activities degrade the environment

Approaches Towards Prevention

Structural Approaches

- These involve physical constructions and engineering techniques.

Examples:

- Dams
- Flood barriers
- Earthquake-resistant buildings
- Cyclone shelters
- Retaining walls

Non-Structural Approaches

- These involve policies, awareness, and planning.

Examples:

- Disaster laws
- Land-use planning
- Public education
- Insurance
- Early warning systems

Community-Based Prevention

Communities actively participate in identifying and reducing risks.

Activities:

- Local disaster committees
- Volunteer groups
- Community training
- Local evacuation planning

Environmental Approaches

Protection of natural systems to reduce hazards.

Examples:

- Afforestation
- Mangrove protection
- Watershed management
- Soil conservation

Principles and Components of Mitigation

Principles of Disaster Mitigation

1. Risk Reduction

Identify hazards and reduce vulnerability.

2. Sustainability

Mitigation measures should support long-term development.

3. Community Participation

Local people should participate in planning and implementation.

4. Multi-sectoral Coordination

Government, NGOs, media, and communities must cooperate.

5. Scientific Planning

Use research, technology, and data.

6.Preparedness Integration

Mitigation should be linked with preparedness and response.

Components of Mitigation

A. Hazard Assessment

Identifying hazards and their intensity.

B. Vulnerability Assessment

Determining who and what are at risk.

C. Risk Analysis

Estimating possible losses and impacts.

D. Infrastructure Protection

Strengthening buildings and lifelines

E Capacity Building

Training institutions and communities.

F. Policy and Planning

Creating disaster management plans and regulations.

4. Early Warning System (EWS)

An Early Warning System is a set of technologies and procedures used to detect hazards and provide timely warnings to reduce disaster impacts.

Components of EWS

1. Risk Knowledge

Understanding hazards and vulnerable populations.

2. Monitoring and Detection

Using scientific equipment and observation systems.

Examples

Weather satellites

Seismic sensors

River gauges

3. Communication and Dissemination

Sending warnings to authorities and communities.

Methods:

I. Radio
II. Television
III. SMS alerts
IV. Sirens
V. Social media

4. Response Capability

Communities should know how to act after receiving warnings.

- Importance of Early Warning Systems
- Saves lives
- Reduces property damage
- Improves preparedness
- Supports quick evacuation
- Protects livelihoods
- Advisories from Appropriate Agencies

Agencies Providing Advisories in Tanzania

- Tanzania Meteorological Authority
- Prime Minister's Office – Disaster Management Department
- Ministry of Health
- International Agencies
- World Health Organization
- United Nations Office for Disaster Risk Reduction
- International Federation of Red Cross

Types of Advisories

- Cyclone warnings
- Flood alerts
- Earthquake advisories
- Tsunami warnings
- Disease outbreak alerts
- Drought forecasts

END