

## C14T: Disaster Management

### Unit-1

#### 3. Responses to hazard: Preparedness, trauma and aftermath, Resilience and capacity development

### Responses to hazard



## Environmental Hazards & Human Health



A hazard is an agent which has the potential to cause harm to a vulnerable target. Hazards can be both natural or human induced.

According to Alexander (2000, p. 7), “a hazard is an extreme geophysical event that is capable of causing a disaster.” The word “extreme” is used here to signify a substantial departure (either in the positive or the negative direction) from a mean or a trend.

Although Alexander did not specify the distinction between these two terms in his definition, it does suggest that hazards may transform into disasters and thus become sequential events. That is, every disaster starts with a hazard (Thywissen, 2006).

Hazards are harmful to people, but it fails to recognize people’s role in causing or amplifying the impacts associated with hazards. For example, floods can originate either from a natural variability in meteorological conditions or from human actions, such as deforestation, intensive use of land, or failure of dams constructed to control flooding (Haque, 1997). Similarly, landslides are commonly triggered by heavy rainfall (sometimes on hills and mountainsides previously denuded by wildfires), earthquakes, and volcanic eruptions, but also result from human activities such as logging, road building, and home construction, all of which can expose bare soil.

## Major categories of environmental hazard

### NATURAL HAZARDS (extreme geophysical and biological events)

- Geologic – earthquakes, volcanic eruptions, landslides, avalanches
- Atmospheric – tropical cyclones, tornadoes, hail, ice and snow
- Hydrologic – river floods, coastal floods, drought
- Biologic – epidemic diseases, wildfires

### TECHNOLOGICAL HAZARDS (major accidents)

- Transport accidents – air accidents, train crashes, ship wrecks
- Industrial failures – explosions and fires, release of toxic or radioactive materials
- Unsafe public buildings and facilities – structural collapse, fire
- Hazardous materials – storage, transport, mis-use of materials

### CONTEXT HAZARDS (global environmental change)

- International air pollution – climate change, sea level rise
- Environmental degradation – deforestation, desertification, loss of natural resources
- Land pressure – intensive urbanization, concentration of basic facilities
- Super hazards – catastrophic earth changes, impact from near-earth objects

## Hazard preparedness

preparedness is the pre activity to reduce the impact of hazard. Preparedness refers to the degree of alertness and readiness of an individual, a household, or a community against an impending disaster. That is, **to predict** and, **where possible, prevent hazard, mitigate their impact on vulnerable populations, and respond to and effectively cope with their consequences**. Preparedness minimizes the negative consequences of extreme events.

Hazard preparedness activities embedded with risk reduction measures can prevent Hazard situations and also result in saving maximum lives and livelihoods during any disaster situation, enabling the affected population to get back to normalcy within a short time period.

Hazard preparedness provides a platform to design effective, realistic and coordinated planning. It is a continuous and integrated process resulting from a wide range of risk reduction activities and resources rather than from a distinct sectoral activity by itself. It requires the contributions of many different areas—ranging from training and logistics, to health care, recovery, livelihood to institutional development. Hazard preparedness is often divided into three categories:

### Institutional level preparedness

- Infrastructure development- shelter or infrastructure development for to protect human resource, like Cyclone shelters.
- Develop community alarming system (Hazard warning)
- Increase public awareness through training and awareness activates about probable hazard risk.

- Hazard zone identification and repapered zone mapping- which helps to proper planning to reduce hazard impact.
- Identify what hazards could occur in a particular place and a risk analysis to determine the likely problems that an extreme event could impose- prepare based on possible hazards. (Like people of coastal region aware about cyclone, tsunami hazard and prepared to face this type hazard)
- Management team development by given proper training to tackling the situation
- Develop food storage and availability facilities for the disaster time
- Develop good communication system in hazard zone

### Community level preparedness

- Know your community’s vulnerabilities—Understanding what types of disasters are most likely to affect your location will help inform your plan.
- Develop a written plan- Prepare, plan and practice. It is important for individuals and families to increase their awareness, get educated, engage in preparedness conversations and stay informed. Keep the plan up-to-date, and test it.
- Plan for all types of risks—Emergencies are not all related to natural hazards. Some are man-made (e.g., fires, industrial or transport accidents, oil spills, explosions). It is important to be prepared for all possible risk scenarios.
- Establish and train an in-house disaster response team. Training in:
  - disaster response techniques,
  - identification and marking on floor-plans and enclosures of irreplaceable and important material for priority salvage.



## Household level preparedness

- Organized a basic emergency kit  
Make sure your kit is easy to carry and everyone in the household knows where it is. Keep it in a backpack, duffle bag or suitcase with wheels, in an easy-to-reach, accessible place, such as your front-hall closet.
  - Drinking water for emergency situation
  - Food that won't spoil, such as canned food, energy bars and dried foods (Replace food and water once a year).
  - First aid kit
  - Extra keys to your car and house
  - A copy of your emergency plan and contact information
  - Special items such as prescription medications, infant formula, equipment for people with disabilities or food, water and medication for your pets or service animal (personalize your kit according to your needs)
- Prepare and keep an up-to-date set of documentation including:
  - List of disaster control services, in-house supplies and equipment, and in any central store, including locations and names of contacts with home telephone numbers.
  - List of suppliers of services and sources of additional equipment and supplies, including names of contacts and home telephone numbers.

## Trauma

Some disaster survivors often face shock and depression after experiencing death and injury among family members, friends, neighbours, or co-workers, loss of personal property, and/or witnessing damage and destruction. Disasters render some people homeless and jobless, with no apparent means to support their families.

Trauma is the response to a deeply distressing or disturbing event that overwhelms an individual's ability to cope, causes feelings of helplessness, diminishes their sense of self and their ability to feel the full range of emotions and experiences.

There are various types of common traumatic events, all known to lead to Post Traumatic Stress Disorder (PTSD). One type of **trauma results from natural disasters** such as earthquakes, tornados or hurricanes, forest fires, floods, volcanic eruptions, landslides, or tsunamis.

Natural disasters can be sudden and overwhelming. The most immediate and typical reaction to a calamity is shock, which at first manifests as numbness or denial. Quickly—or eventually—shock can give way to an overemotional state that often includes high levels of anxiety, guilt or depression.

### Common Responses and Symptoms of Trauma

Response to a traumatic event varies significantly among people, but there are some basic, common symptoms.

- Feelings become intense and sometimes are unpredictable. Irritability, mood swings, anxiety, and depression are common manifestations of this.
- Flashbacks: repeated and vivid memories of the event that lead to physical reactions such as rapid heartbeat or sweating
- Confusion or difficulty making decisions
- Sleep or eating issues
- Fear that the emotional event will be repeated
- A change in interpersonal relationships skills, such as an increase in conflict or a more withdrawn and avoidant personality
- Physical symptoms such as headaches, nausea, and chest pain

### **Aftermath of hazard**

Aftermath meaning is the **consequences or after-effects** of a significant unpleasant event. Aftermath of a hazard consequences or after-effects of a hazard. A distinction can also be made between rapid onset natural hazards, technological hazards and social hazards which are described as being of sudden occurrence and relatively short duration, and the consequences of longer-term environmental degradation such as-

- Environmental impact
  - Disruption of natural environment, ecosystem and biodiversity
  - Pollution and damage of natural resources-water, land and air pollution.
- Health impact
  - Loss of human resource by death
  - Threat on human resource by injury and disability
  - Impact on mental health
  - Increase communicable disease
- Socio economic impact
  - Loss of livelihood system
  - Property damage
  - Financial loss
  - Poverty, famine
  - Migrate population
  - Infrastructural damage and loss- road connectivity, school, hospital etc damage

### **Resilience**

Disaster resilience is part of the broader concept of resilience – ‘the ability of individuals, communities and states and their institutions to absorb and recover from shocks, whilst positively adapting and transforming their structures and means for living in the face of long-term changes and uncertainty’

- ❖ *According to the Hyogo Framework for Action (UNISDR, 2005)*, disaster resilience is determined by the degree to which individuals, communities and public and private

organisations are capable of organising themselves to learn from past disasters and reduce their risks to future ones, at international, regional, national and local levels.

- ❖ **According to DFID (2011)** ‘the ability of countries, communities and households to manage change, by maintaining or transforming living standards in the face of shocks or stresses – such as earthquakes, drought or violent conflict – without compromising their long-term prospects’.

In conceptual terms, vulnerability and disaster resilience are closely related. Some authors see *vulnerability as the opposite of disaster resilience*, while others view vulnerability as a risk factor and *disaster resilience as the capacity to respond* (Manyena 2006).

Resilience needs to be enhanced at all levels, from the local to the international. Five major requirements of being a disaster resilient society are the ability to (UNISDR, 2014):

- **Anticipate risk:** understand and assess risk
- **Prepare to adjust:** use tools to support decision-making in the face of the uncertainty of future risks (e.g. scientific models)
- **Share and learn:** improve people’s flexibility to deal with different challenges by making them better informed or experimenting with different approaches, enhancing understanding of risks and supporting flexibility
- **Integrate sectors:** promote greater dialogue and coordination across sectors and disciplines (e.g. climate change)
- **Include the most vulnerable:** manage risk across all levels, connect decision-making and consider the weakest part of the system.

Ultimately, the policy objective of disaster risk reduction and the activities to implement this policy are falling under the common process and goal of strengthening resilience.

## **Role of resilience**

The lens of resilience can help to enhance responses to disaster risk as it calls for a holistic consideration of hazards, exposure, risk, vulnerability and capacity.

Disaster resilience programming *aims to save lives whilst protecting infrastructure, livelihoods, social systems and the environment*. Evidence from a range of countries supports the potential contribution of disaster resilience to:

- **Saving lives:** Statistical evidence suggests disaster prevention has helped limit loss of life to disasters in a number of developed and developing countries. In Bangladesh, for example, the fact that far fewer people were killed by a cyclone in 2008 (3,000) than by a similar one in 1970 (almost 500,000) is attributed to better disaster prevention.
- **Protecting infrastructure and livelihoods:** A review by the Global Facility for Disaster Reduction and Recovery found that the cost of property damage from all hazards between 1970 and 2008 totalled US\$2,300 billion, but that effective disaster prevention had curtailed an upward trend.
- **Protecting social systems:** A review of humanitarian assistance provided by the Red Cross following the 2004 Indian Ocean tsunami found that community-based DRR had

a positive impact on social resilience through altering attitudes and behaviours towards risk

- **Protecting the environment:** Increased disaster resilience has in some cases been associated with behaviours that preserve the natural environment.
- **Supporting broader resilience in contexts of violent conflict or fragility:** The drivers and constraints that shape resilience to natural hazards are largely similar to those that shape people's resilience in contexts of violent conflict or fragile states.



## Measure resilience

There have been a number of approaches, tools and methods applied to measuring resilience, focusing on assessing elements such as:

- Technological capacity of community or society
- Skills and education levels of people
- Economic status and growth prospects of society
- Quality of environment and natural resource management institutions
- Livelihood assets
- Political structures and processes
- Infrastructure of the county or region
- Flows of knowledge and information
- Speed and breadth of innovation

Like any assessment, it is necessary to constrain the geographical and time-scale of the analysis.



# Capacity Building

**Capacity building is an ongoing process** that equips officials, stakeholders and the community to perform their functions to improve, and retain the skills, knowledge, tools, equipment and other resources in a better manner during a crisis/disaster. These actions can include: resource development, financial management (diversification of funding sources), organizational learning, leadership development and other activities.

The United Nations Development Program defines capacity building as-

– a long-term continual process of development that involves all stakeholders; including ministries, local authorities, non-governmental organizations, professionals, community members, academics and more.

## Levels of Capacity Building

- Individual: refers to the process of changing attitudes and behaviours-impacting knowledge and developing skills while maximizing the benefits of participation, knowledge exchange and ownership.
- Institutional: focuses on the overall organizational performance and functioning capabilities, as well as the ability of an organization to adapt to change.
- Systemic: emphasizes the overall policy framework in which individuals and organizations operate and interact with the external environment. Also known as 'enabling environment' or 'society'

## Need for capacity building

- Comprehensive formulation of objectives.
- Conduct of Training Needs Analysis
- Preparation of Knowledge, Skills and Attitude
- Administration of Face-to-Face Training Programme (FFTP)

## Elements of capacity building

- Education on disaster prevention and response
- Training to vulnerable communities
- Collaboration with relief agencies
- Mock drill
- Household preparation
- Understanding warning/de-warning messages
- First aid preparedness

## Factor of capacity building

1. Connect between Disasters and Development
2. Sustainable Development and Traditional Wisdom
3. Participation of all Stakeholders
4. Mainstreaming Disaster Risk Reduction (DRR)
5. Gender Mainstreaming



6. Psycho-social Support in Disaster Aftermath
7. Preparation of Training Manual
8. Unique Training Approach

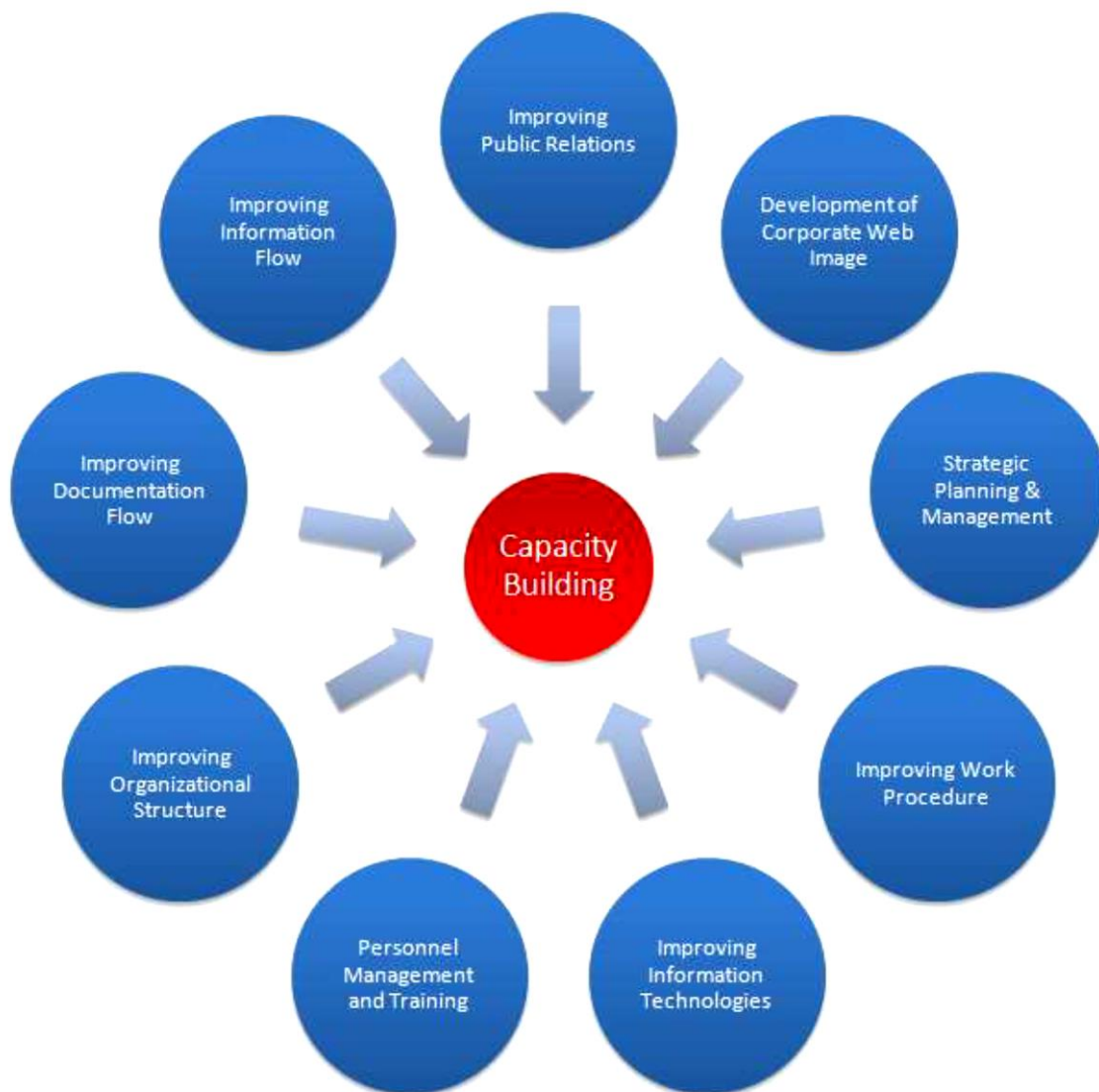


Fig: Ways of capacity building to manage crisis condition.