**DISASTER MANAGEMENT**

**‘A Stitch in time, saves nine’**

**INTRODUCTION:** Emergencies and disasters do not only affect health and well-being of people, frequently large number of people are displaced, killed or injured or subjected to greater risk of epidemics. Disasters cause great harm to the existing infrastructure and threaten the future of sustainable development. Disasters are not confined to a particular part of the world, they can occur anywhere and at any time. Major emergencies and disasters have been occurred throughout history. Statistics gathered since 1969 show a rise in the number of people affected by disasters.

**DEFINITION OF DISASTER:**

**1.** A Disaster can be defined as “any occurrence that causes damage, ecological disruption, loss of human life or deterioration of health and health services on a scale sufficient to warrant an extra-ordinary response from outside the affected community or area.”

**2. ‘**Disaster is a sudden calamitous event bringing great damage, loss and destruction and devastation to life and property.’ ***Thus, in simple terms we can define disaster as a hazard causing heavy loss to life, property and livelihood. e.g. a cyclone killing 10,000 lives and a crop loss of one crore can be termed as disaster.***

**FEATURES OF A DISASTER:**

o        Unpredictability

o        Unfamiliarity

o        Speed

o        Urgency

o        Uncertainty

o Threat

**TYPES OF DISASTER:**  **1. Generally**, disasters are of two types – **Natural** and **Manmade**. Based on the devastation, these are further classified into major/minor natural disaster and major/minor manmade disasters. Some of the disasters are listed below:

**Major natural disasters:**

·     Flood

·     Cyclone

·     Drought

 ·    Earthquake **Minor natural disaster:**      ·      Cold wave

 ·      Thunderstorm

 ·     Heat waves

 ·      Mud slides

·      Storm

**Major manmade disaster:**

* Setting of fires
* Epidemic
* Deforestation
* Pollution due to prawn cultivation
* Chemical pollution.
* Wars
* Terrorism

# Minor manmade disaster:

·     Road / train accidents, riots ·     Food poisoning ·     Industrial disaster ·     Environmental pollution

**2. Another classification is:** There are four main types of disaster (WCPT, 2010), which are as follows:

-Natural disaster - Environmental emergencies - Complex emergencies - Pandemic emergencies

***- Natural disaster:*** These includes floods, hurricanes, earthquakes and volcano eruptions that can have immediate impact on human health as well as secondary impacts causing further death. Natural disasters are further divided:

a) Techtonic: Earthquakes, tsunamis and volcanic eruptions. b) Meterological: Hurricanes, droughts and floods. c) Topological: AValanches and landslides.

***-Environmental emergencies:*** These include technological or industrial accidents, usually involving hazardous material and occurs where these materials are produced, used or transported; e.g. chemical contamination, mass intoxication, explosions etc.

***-Complex emergencies:*** Involve a breakdown of authority, looting and attacks on strategic installations. These include conflict situations and area. .

***-Pandemic emergencies:*** Involve a sudden onset of a contagious disease that affects health but also disrupts services and business, bringing economic and social costs.

**DISASTER LEVELS:**

Disasters are often classified by the resultant anticipated necessary response:

***Level 1:***  Local emergency response personnel and organizations can contain and effectively manage the disaster and its aftermath.

***Level 2:*** Regional efforts and aid from surrounding communities are sufficient to manage the effects of disaster.

***Level 3:*** Local and regional assets are overwhelmed; statewide or federal assistance is required.

**DISASTER MANAGEMENT:**

***Definition:*** Disaster management can be defined as the organization and management of resources and responsibilities for dealing with humanitarian aspects of emergencies in particular preparedness, response and recovery in order to lessen the impacts of disaster.

***Management sequence of a disaster:***

 There are three fundamental aspects of disaster management:

 a) disaster response;

 b) disaster preparedness;

 c) disaster mitigation.

***a) Disaster response:*** An emergency response plan must provide the resources and information needed to evaluate the human and environmental health impacts of the event, assess and reduce human exposures to contaminants, and develop science-based strategies for remediation and rebuilding (NIEHS, 2011).

***b)Disaster preparedness/Emergency preparedness:*** Emergency preparedness is ‘a programme of long term development activities whose goals are to strengthen the overall capacity and capability of a country to manage efficiently all types of emergency. Preparedness is way of mitigating unwanted outcome and it is one of the crucial actions in achieving safety and security in the event of calamities, disasters, and terrorism. The objective of disaster preparedness is to ensure that appropriate systems, procedures and resources are in place to provide prompt effective assistance to disaster victims, thus facilitating relief measures and rehabilitation of services.

 Disaster preparedness is an ongoing multisectoral activity. It forms an integral part of the national system responsible for developing plans and programmes for disaster management and reconstruction. The system known by a variety of names depending on the country depends on the coordination of a variety of sectors to carry out the following tasks:

* Evaluate the risk of the country or particular region to disaster.
* Adopt standards and regulations.
* Organize communication, information and warning system
* Ensure coordination and response mechanism.
* Adopt measures to ensure that financial and other resources are available for increased readiness and can be mobilized in disaster situation.
* Develop public education programmes.
* Organize disaster stimulation exercises that test response mechanisms.

***Disaster mitigation:*** Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters (FEMA, 2010).  FEMA's Federal Insurance and Mitigation Administration (FIMA) manages the National Flood Insurance Program (NFIP) and implements a variety of programs authorized by Congress to reduce losses that may result from natural disasters (FEMA, 2010). In most cases mitigation measures aim to reduce the vulnerability of the system. Medical causalities can be drastically reduced by improving the structural quality of houses, schools and other public and private buildings. Mitigation complements the disaster preparedness and disaster response activities.

 

***Cultural considerations:*** Any disaster or mass causality incident can be expected to involve members of diverse religious and ethnic groups or may be targeted at and predominately affect a specific religious or ethnic group. Health care providers likewise include members of all religious and ethnic backgrounds and should bear in mind that victims may have:

* Language difficulties that increase fears and frustrations.
* Specific religious practices related to medical treatment, hygiene or diet.
* Specific places/times for prayers.
* Rituals about handling the dead.
* Timing of funeral services.

 Some religious communities have for emergencies and disasters, and local hospitals should integrate these plans to the extent possible into their emergency operation plans.

**DISASTER MANAGEMENT CYCLE:**



 **MANAGEMENT ASPECTS/INITIATION OF EMERGENCY PLAN:**

 Notification of a disaster situation to a facility varies with each situation. Generally the notification comes from outside sources unless the initial incident occurred. If communication is functioning, field incident command will give notice of the approximate number of arriving patients, although the number of self-referring patients will not be known. Disaster management includes the following aspects:

 ***1.*** ***Command Post:*** The purpose of a command post is to coordinate activities at the disaster site. Lack of organization coupled with the presence of various rescue squads and relief groups that rush to the disaster site (the fire department, the police, Red Cross bridges, mobile hospital units, emergency medical services and volunteers) cause chaos. In order to avoid this, a single authority for operations must be established to coordinate activities at the disasters site including health actions. This role is usually assigned to a ranking officer of the police or fire department.

 ***- Functions of command post:***

 The functions of command post are to provide:

* a preliminary evaluation of the magnitude of disaster.
* co-ordinate emergency medical care.
* delimit the affected area.
* establish safety measures and a network of emergency communication.
* regulate traffic.
* set up a public information post for the press.
* the relief agencies or bridges working at the disaster area should assign a representative to the command post.
* all staff assigned to the command post should wear a badge to identify themselves clearly.

 ***2. Identifying Patients and Documenting Patient Information:*** Patient tracking is a critical component of casualty management. Disaster tags, which are numbered and include triage priority, name, address, age, location and description of injuries and treatments or medications given, are used to communicate patient information. The tag should be securely placed on the patient and remain with the patient at all times. The tag number and the patient’s name are recorded in a disaster log. The log is used by the command center to track patients, assign beds and provide families with information.

 ***3. Triage of disaster victims:*** The word *triage* is of French origin and means selection or categorization. The concept of triage in a disaster situation means classifying victims in order to assign priorities for medical care and transportation.

 ***-Triage activities:*** This concept is based on establishing the urgency of a case and the victim’s likelihood of survival. It differs from daily emergencies where the most serious cases always receive priority care, without consideration for the likelihood of survival. Triage actions at the disaster site include:

* identifying victims
* assessing injuries
* assigning priorities for care
* Stabilizing and transporting victims to centers for further care.

 ***-Tagging:*** All patients should be identified with tags stating their name, age, place of origin, triage category, diagnosis and initial treatment. Several tagging methods have been used such as:

* making the victim’s skin in a visible place
* applying piece of adhesive tape to the victim’s forehead to indicate priority.
* using color codes
* the most popular method is triage cards.

 ***-Color codes for priorties:*** Different triage systems of classification have been adopted and are still in use in some countries. The most common classification used is the internationally accepted *four color code system* i.e, Red, Yellow, Green and Black to identify priorities for care and to mobilize disaster victims.

* RED indicates high priority treatment or transfer.
* YELLOW indicates medium priority.
* GREEN indicates ambulatory patients.
* BLACK is used for dead or moribund patients.

 ***-Triage categories:*** Based on the typical conditions and priorities, patients are categorized as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| **Triage category** | **Priority** | **Color** |  **Typical conditions** |
| ***Immediate:*** Injuries are life threatening but survivable with minimal intervention. Individuals in this group can progress rapidly to expectant if treatment is delayed. |  1 |  Red | Sucking chest wound, airway obstruction seco-ndry to mechanical cause, shock, hemothorx, pneumothorax, asphyxia, unstable chest and abdominal wounds, incomplete amputations, open fractures of long bones and 2nd/3rd degree burns of 15-40% total body surface area. |
| ***Delayed:*** Injuries are significant and require medical care, but can wait hours without threat to life or limb. Individuals in this group receive treatments only after immediate casualties are treated. |  2  |  Yellow | Stable abdominal wounds without evidence of significant hemorrhage, soft tissue injuries, maxillofacial wounds without airway compromise, vascular injuries with adequate collateral circulation, genitourinary tract disruption, fractures requiring open reduction, debridement and external fixation, most eye and CNS injuries. |
| ***Minimal:*** Injuries are minor and treatment can be delayed hours to days. Individuals in this group should be moved away from the main triage area. |  3 | Green | Upper extremity fractures, minor burns, sprains, small lacerations without significant bleeding, behavioral disorders or psychological disturbances. |

|  |  |  |  |
| --- | --- | --- | --- |
| ***Expectant:*** Injuries are extensive and chances of survival are unlikely even with definitive care. Persons in this group should be separated from other casualties, but not abandoned. Comfort measures should be provided when possible. |  4 |  Black | Unresponsive patients with penetrating head wounds, high spinal cord injuries, wound involving multiple anatomical sites and organs, 2nd/3rd degree burns in excess of 60% of body surface area, seizures or vomiting within 24 hour after radiation exposure, profound shock with multiple injuries, axonal respirations, no pulse, no BP, pupils fixed and dilated. |

 ***-Stages of triage:*** Triage is an ongoing process that begins at the disaster site and continues until the patient enters the hospital to receive further treatment. The victim’s survival depends on the effectiveness and timelines of this activity.

 ***-Rescuing victims:*** Rescuing victims is often a very complex task, especially if they are trapped or under rubble in difficult-to-reach places or when they are exposed to secondary risks such as fires or toxic substances leaks. Usually complex rescue tasks are not within the scope of health teams. Specialized equipment and specific training was needed to rescue some victims.

 

***-Triage area and collection centers:*** Depending on the magnitude of the disaster and the number of victims, one or several, “victim collection center” or “triage areas” are indicated at the disaster site.

 - A triage area is the area where victims are placed immediately after rescue and where they undergo a physical examination in order to assign priority for treatment and transportation to hospitals. .

 - Emergency medical care at these areas is aimed at stabilizing the patient and providing basic care to ensure survival. The triage area should be the responsibility of a physician or a nurse or paramedic with experience in mass casualty management and with authority to coordinate emergency care activities at the disaster site.

 - The triage officer has an important role. After a rapid medical examination, he assesses the victim and assigns them the respective priority.

 ***-Mobilization areas:*** After triage, the victims are placed in areas designated for each priority. The areas should be easily identified by flags or other means using colors that correspond to each priority. In these areas, the victims are organized in lines until they are transported according to their assigned priority. At this stage, the personnel should take emergency actions to stabilize the patient, prepare him for transportation, complete identification data or suggest a 1 priority modification in accordance with the evaluation of the patient.

 

 ***-Mobile units:*** Depending on the nature of the disaster, damage to physical structures, distances and the super-saturation of the existing services, the use of mobile units to provide emergency medical care at the disaster site can be justified. These support units can function as first aid or rapid treatment centers. Mobile units are costly and their use should depend on the performance and self-reliance of the personnel, equipment and supplies.

 ***-Medical equipment and supplies:*** Medical care at the disaster site requires a sufficient quantity of medical supplies to meet the needs of the emergency. Essential supplies should be duly classified and distributed in clearly identified and easy to transport boxes. The boxes should contain the following basic supplies and equipments:

* Triage cards and writing material.
* Basic equipment for ventilation and portable cylinders of oxygen.
* Treatment material including bandages and antiseptic solutions.
* Medical satchels with basic instruments and emergency drugs.
* Basic instruments for minor surgery and splints.
* Intravenous solutions, perfusion equipment and disposable syringes and needles.
* Portable lighting equipment including flashlights.
* Basic tools.
* Clothes, blankets and sheets.

 

**MANAGEMENT IN SOME SPECIFIC DISASTER SITUATIONS:**

## 1. *EARTHQUAKES:*

 

**SAFETY TIPS**

  **Earthquakes usually give no warning at all.**

 **Prepare your family**

* ***Before the earthquake:***

Now is the time to formulate a safety plan for you and your family.  If you wait until the earth starts to shake, it may be too late. Consider the following safety measures:

 ·        Always keep the following in a designated place: bottled drinking water, non-perishable food (chura, gur, etc), first-aid kit, torchlight and battery-operated radio with extra batteries.

  ·        Teach family members how to turn off electricity, gas, etc.

  ·        Identify places in the house that can provide cover during an earthquake.

  ·        It may be easier to make long distance calls during an earthquake.  Identify an out-of-town relative or friend as your family’s emergency contact.  If the family members get separated after the earthquake and are not able to contact each other, they should contact the designated relative/friend.  The address and phone number of the contact person/relative should be with all the family members.

**Safeguard your house**

 ·     Consider retrofitting your house with earthquake-safety measures.  Reinforcing the foundation and frame could   make your house quake resistant.  You may consult a reputable contractor and follow building codes.

·      Kutchha buildings can also be retrofitted and strengthened.

* ***During quake:***

 - Earthquakes give no warning at all. Sometimes, a loud rumbling sound might signal its arrival a few seconds ahead of time. Those few seconds could give you a chance to move to a safer location. Here are some tips for keeping safe during a quake.

 ·      Take cover. Go under a table or other sturdy furniture; kneel, sit, or stay close to the floor. Hold on to furniture legs for balance. Be prepared to move if your cover moves.

·      If no sturdy cover is nearby, kneel or sit close to the floor next to a structurally sound interior wall. Place your hands on the floor for balance.

·      Do not stand in doorways. Violent motion could cause doors to slam and cause serious injuries. You may also be hit be flying objects.

·      Move away from windows, mirrors, bookcases and other unsecured heavy objects.

·      If you are in bed, stay there and cover yourself with pillows and blankets

·      Do not run outside if you are inside. Never use the lift.

·      If you are living in a kutcha house, the best thing to do is to move to an open area where there are no trees, electric or telephone wires.

***- If outdoors:***

·      Move into the open, away from buildings, streetlights, and utility wires. Once in the open, stay there until the shaking stops.

·      If your home is badly damaged, you will have to leave. Collect water, food, medicine, other essential items and important documents before leaving.

·      Avoid places where there are loose electrical wires and do not touch metal objects that are in touch with the loose wires.

·     Do not re-enter damaged buildings and stay away from badly damaged structures.

***- If in a moving vehicle:***

Move to a clear area away from buildings, trees, overpasses, or utility wires, stop, and stay in the vehicle. Once the shaking has stopped, proceed with caution. Avoid bridges or ramps that might have been damaged by the quake.

* ***After the quake:***

Here are a few things to keep in mind after an earthquake. The caution you display in the aftermath can be essential for your personal safety.

·      Wear shoes/chappals to protect your feet from debris

·      After the first tremor, be prepared for aftershocks.  Though less intense, aftershocks cause additional damages and may bring down weakened structures.  Aftershocks can occur in the first hours, days, weeks, or even months after the quake.

·      Check for fire hazards and use torch lights instead of candles or lanterns.

·       If the building you live in is in a good shape after the earthquake, stay inside and listen for radio advises. If you are not certain about the damage to your building, evacuate carefully. Do not touch downed power line.

·        Help injured or trapped persons. Give first aid where appropriate. Do not move seriously injured persons unless they are in immediate danger of further injury. In such cases, call for help.

·      Remember to help your neighbours who may require special assistance-infants, the elderly, and people with disabilities.

·      Listen to a battery-operated radio for the latest emergency information.

·      Stay out of damaged buildings.

·      Return home only when authorities say it is safe. Clean up spilled medicines, bleaches or gasoline or other flammable liquids immediately. Leave the area if you smell gas or fumes from other chemicals. Open closet and cupboard doors cautiously.

·      If you smell gas or hear hissing noise, open windows and quickly leave the building. Turn off the switch on the top of the gas cylinder.

·      Look for electrical system damages - if you see sparks, broken wires, or if you smell burning of amber, turn off electricity at the main fuse box.  If you have to step in water to get to the fuse box, call an electrician first for advice.

·      Check for sewage and water lines damage. If you suspect sewage lines are damaged, avoid using the toilets. If water pipes are damaged, avoid using water from the tap.

·      Use the telephone only for emergency calls.

·      In case family members are separated from one another during an earthquake (a real possibility during the day when adults are at work and children are at school), develop a plan for reuniting after the disaster.  Ask an out of state / district relative or friend to serve as the “family contact”.  Make sure everyone in the family knows the name, address, and phone number(s) of the contact person (s).

**2. *CYCLONES:***

 

 **-SAFETY TIPS**

* **Before the Cyclone Season:**
* Keep watch on weather and listen to radio or TV. Keep alert about the community warning systems- loudspeakers, bells, conches, drums or any traditional warning system.
* Get to know the nearest cyclone shelter / safe houses and the safest route to reach these shelters
* Do not listen to rumours.
* Prepare an emergency kit containing:
	+ A portable radio, torch and spare batteries;
	+ Stocks dry food – Chura, Chhatua, Mudhi, gur, etc.
	+ Matches, fuel lamp, portable stove, cooking utensils, waterproof bags
	+ A first aid kit, manual, etc.
	+ Katuri, pliers, small saw, axe and plastic rope
* Check the roof and cover it with net or bamboo. Check the walls, pillars, doors and windows to see if they are secure. If not, repair those at the earliest. In case of tin roofs, check the condition of the tin and repair the loose points. Cover the mud walls with polythene or coconut leaves mats or straw mats on a bamboo frame. Bind each corner of the roof with a plastic rope in case of thatched roof.
* Trim dry tree branches, cut off the dead trees and clear the place/courtyard of all debris, including coconuts and tree branches.
* Clear your property of loose materials that could blow about and cause injury or damage during extreme winds.
* If your area is prone to storm surge, locate safe high ground or shelter.
* Keep important documents, passbook, etc. in a tight plastic bag and take it along with your emergency kits if you are evacuating.
* Identify the spot where you can dig holes to store food grains, seeds, etc. in polythene bags.
* Keep a list of emergency addresses and phone numbers on display. Know the contact telephone number of the government offices /agencies, which are responsible for search, rescue and relief operations in your area.

 **- If you are living in an area where CBDP exercises have taken place, ensure:**

* + - * Vulnerability list and maps have been updated
			* Cyclone drill including search & rescue, first aid training have taken place
			* Stock of dry food, essential medicines and proper shelter materials maintained

 **-Upon a cyclone warning:**

* Store loose items inside. Put extra agricultural products/ stock like paddy in plastic bags and store it by digging up a hole in the ground, preferably at a higher elevation and then cover it properly. Fill bins and plastic jars with drinking water.
* Keep clothing for protection, handy
* Prepare a list of assets and belongings of your house and give information to volunteers and other authorities about your near and dear ones.
* Fill fuel in your car/motorcycle and park it under a solid cover. Tie bullock carts, boats securely to strong posts in an area, which has a strong cover and away from trees. Fallen trees can smash boats and other assets.
* Close shutters or nail all windows. Secure doors. Stay indoors, with pets.
* Pack warm clothing, essential medications, valuables, papers, water, dry food and other valuables in waterproof bags, to be taken along with your emergency kit.
* Listen to your local radio / TV, local community warning system for further information.
* In case of warning of serious storm, move with your family to a strong pucca building. In case of warning of cyclones of severe intensity, evacuate the area with your family, precious items and documents and emergency kit. Take special care for children, elders, sick, pregnant women and lactating mothers in your family. Do not forget your emergency food stock, water and other emergency items. **GO TO THE NEAREST CYCLONE SHELTER.**
* Do not venture into the sea for fishing.

 **-On warning of local evacuation:**

Based on predicted wind speeds and storm surge heights, evacuation may be necessary. Official advice may be given on local radio / TV or other means of communication regarding safe routes and when to move.

* Wear strong shoes or chappals and clothing for protection.
* Lock your home, switch off power, gas, water, and take your emergency kit.
* If evacuating to a distant place take valuable belonging, domestic animals, and leave early to avoid heavy traffic, flooding and wind hazards.
* If evacuating to a local shelter or higher grounds carry the emergency kit and minimum essential materials.

 **-When the cyclone strikes:**

* Disconnect all electrical appliances and turn off gas.
* If the building starts crumbling, protect yourself with mattresses, rugs or blankets under a strong table or bench or hold on to a solid fixture (e.g. a water pipe)
* Listen to your transistor radio for updates and advice.
* Beware of the calm `eye’. If the wind suddenly drops, don’t assume the cyclone is over; violent winds will soon resume from the opposite direction. Wait for the official **“all clear**”.
* If driving, stop – but well away from the sea and clear of trees, power lines and watercourses. Stay in the vehicle.

**-After the cyclone:**

* Do not go outside until officially advised it is safe.
* Check for gas leaks. Do not use electric appliances, if wet.
* Listen to local radio for official warnings and advice.
* If you have to evacuate, or did so earlier, do not return until advised. Use a recommended route for returning and do not rush.
* Be careful of snake bites and carry a stick or bamboo
* Beware of fallen power lines, damaged bridges, buildings and trees, and do not enter the floodwaters.
* Heed all warnings and do not go sightseeing.

 **3. *FLOODS:***

 

**-SAFETY TIPS**

This guide lists simple things you and your family can do to stay safe and protect your property from floods.

**-Before flooding occurs:.**

* All your family members should know the safe route to nearest shelter/ raised pucca house.
* If your area is flood-prone, consider alternative building materials. Mud walls are more likely to be damaged during floods. You may consider making houses where the walls are made of local bricks up to the highest known flood level with cement pointing.
* Have an emergency kit on hand which includes a:
	+ A portable radio, torch and spare batteries;
	+ Stocks of fresh water, dry food (chura, mudi, gur, biscuits), kerosene, candle and matchboxes;
	+ Waterproof or polythene bags for clothing and valuables, an umbrella and bamboo stick (to protect from snake), salt and sugar.
	+ A first aid kit, manual and strong ropes for tying things

- **When you hear a flood warning or if flooding appears likely:**

* Tune to your local radio/TV for warnings and advice.
	+ Keep vigil on flood warning given by local authorities
	+ Don’t give any importance to rumours and don’t panic
	+ Keep dry food, drinking water and clothes ready
* Prepare to take bullock carts, other agricultural equipments, and domestic animals to safer places or to higher locations.
* Plan which indoor items you will raise or empty if water threatens to enter your house
* Check your emergency kit

 **-During floods:**

* Drink boiled water.
* Keep your food covered, don’t take heavy meals.
* Use raw tea, rice-water, tender coconut-water, etc. during diarrhoea; contact your ANM/AWW for ORS and treatment.
* Do not let children remain on empty stomach.
* Use bleaching powder and lime to disinfect the surrounding.
* Help the officials/volunteers distributing relief materials.

  -**If you need to evacuate:**

* Firstly pack warm clothing, essential medication, valuables, personal papers, etc. in waterproof bags, to be taken with your emergency kit.
* Take the emergency kit
* Inform the local volunteers (if available), the address of the place you are evacuating to.
* Raise furniture, clothing and valuables onto beds, tables and to the top of the roof (electrical items highest).
* Turn off power.
* Whether you leave or stay, put sandbags in the toilet bowl and over all laundry / bathroom drain-holes to prevent sewage back-flow.
* Lock your home and take recommended/known evacuation routes for your area.
* Do not get into water of unknown depth and current.

 **-If you stay or on your return:**

****Stay tuned to local radio for updated advice.

****Do not allow children to play in, or near, flood waters.

##### ****Avoid entering floodwaters. If you must, wear proper protection for your feet and check depth and current with a stick. Stay away from drains, culverts and water over knee-deep.

##### ****Do not use electrical appliances, which have been in floodwater until checked for safety.

##### ****Do not eat food, which has been in floodwaters.

##### ****Boil tap water (in cities) until supplies have been declared safe. In case of rural areas, store tube well water in plastic jars or use halogen tablets before drinking.

##### ****Be careful of snakes, snakebites are common during floods.

# - TIPS ON FIRE ACCIDENTS:

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**a)**      **High-Rise Fires:**

* Calmly leave the apartment, closing the door behind you. Remember the keys!
* Pull the fire alarm near the closest exit, if available, or raise an alarm by warning others.
* Leave the building by the stairs.
* Never take the elevator during fire!

 **- If the exit is blocked by smoke or fire:**

* Leave the door closed but do not lock it.
* To keep the smoke out, put a wet towel in the space at the bottom of the door.
* Call the emergency fire service number and tell them your apartment number and let them know you are trapped by smoke and fire. It is important that you listen and do what they tell you.
* Stay calm and wait for someone to rescue you.

-  **If there is a fire alarm in your building which goes off:**

* Before you open the door, feel the door by using the back of our hand. If the door is hot or warm, do not open the door.
* If the door is cool, open it just a little to check the hallway. If you see smoke in the hallway, do not leave.
* If there is no smoke in the hallway, leave and close the door. Go directly to the stairs to leave**.**Never use the elevator.

**-** **If smoke is in your apartment:**

* Stay low to the floor under the smoke.
* Call the Fire Emergency Number which should be pasted near your telephone along with police and other emergency services and let them know that you are trapped by smoke.
* If you have a balcony and there is no fire below it, go out.
* If there is fire below, go out to the window. **DO NOT OPEN THE WINDOW**but stay near the window.
* If there is no fire below, go to the window and open it. Stay near the open window.
* Hang a bed sheet, towel or blanket out of the window to let people know that you are there and need help.
* Be calm and wait for someone to rescue you.

**COMMON TIPS:**

        **Do**keep the phone number of the Fire Service near the telephone and ensure that everyone in the family knows the number.

        **Do**keep matches and lighters away from children.

        **Do** sleep with your bedroom closed to prevent the spread of fire.

**4. *LANDSLIDE:***

 **-During a Landslide:**

       Stay alert and awake. Many debris-flow fatalities occur when people are sleeping. Listen to a Weather Radio or portable, battery-powered radio or television for warnings of intense rainfall. Be aware that intense, short bursts of rain may be particularly dangerous, especially after longer periods of heavy rainfall and damp weather.

      If you are in areas susceptible to landslides and debris flows, consider leaving if it is safe to do so. Remember that driving during an intense storm can be hazardous. If you remain at home, move to a second story if possible. Staying out of the path of a landslide or debris flow saves lives.

       Listen for any unusual sounds that might indicate moving debris, such as trees cracking or boulders knocking together. A trickle of flowing or falling mud or debris may precede larger landslides. Moving debris can flow quickly and sometimes without warning.

       If you are near a stream or channel, be alert for any sudden increase or decrease in water flow and for a change from clear to muddy water. Such changes may indicate landslide activity upstream, so be prepared to move quickly. Don't delay! Save yourself, not your belongings.

      Be especially alert when driving. Embankments along roadsides are particularly susceptible to landslides. Watch the road for collapsed pavement, mud, fallen rocks, and other indications of possible debris flows.

-**What to Do if You Suspect Imminent Landslide Danger:**

       Contact your local fire, police, or public works department. Local officials are the best persons able to assess potential danger.

      Inform affected neighbors. Your neighbors may not be aware of potential hazards. Advising them of a potential threat may help save lives. Help neighbors who may need assistance to evacuate.

       Evacuate. Getting out of the path of a landslide or debris flow is your best protection.

- **Media and Community Education Ideas:**

      In an area prone to landslides, publish a special newspaper section with emergency information on landslides and debris flows. Localize the information by including the phone numbers of local emergency services offices, the Red Cross, and hospitals.

      Report on what city and county governments are doing to reduce the possibility of landslides. Interview local officials about local land- use zoning regulations.

      Interview local officials and major insurers. Find out if debris flow is covered by flood insurance policies and contact your local emergency management office to learn more about the program.

       Work with local emergency services to prepare special reports for people with mobility impairments on what to do if evacuation is ordered.

      Support your local government in efforts to develop and enforce land-use and building ordinances that regulate construction in areas susceptible to landslides and debris flows. Buildings should be located away from steep slopes, streams and rivers, intermittent-stream channels, and the mouths of mountain channels.

- **After the Landslide:**

       Stay away from the slide area. There may be danger of additional slides.

       Check for injured and trapped persons near the slide, without entering the direct slide area. Direct rescuers to their locations.

      Help a neighbor who may require special assistance - infants, elderly people, and people with disabilities. Elderly people and people with disabilities may require additional assistance. People who care for them or who have large families may need additional assistance in emergency situations.

       Listen to local radio or television stations for the latest emergency information.

      Watch for flooding, which may occur after a landslide or debris flow. Floods sometimes follow landslides and debris flows because they may both be started by the same event.

       Look for and report broken utility lines to appropriate authorities. Reporting potential hazards will get the utilities turned off as quickly as possible, preventing further hazard and injury.

       Check the building foundation, chimney, and surrounding land for damage. Damage to foundations, chimneys, or surrounding land may help you assess the safety of the area.

       Replant damaged ground as soon as possible since erosion caused by loss of ground cover can lead to flash flooding.

       Seek the advice of a geotechnical expert for evaluating landslide hazards or designing corrective techniques to reduce landslide risk. A professional will be able to advise you of the best ways to prevent or reduce landslide risk, without creating further hazard.

**-Media and Community Education Ideas:**

      In an area prone to landslides, publish a special newspaper section with emergency information on landslides and debris flows. Localize the information by including the phone numbers of local emergency services offices, the American Red Cross chapter, and hospitals.

      Report on what city and county governments are doing to reduce the possibility of landslides. Interview local officials about local land- use zoning regulations.

      Interview local officials and major insurers regarding the National Flood Insurance Program. Find out if debris flow is covered by flood insurance policies from the National Flood Insurance Program and contact your local emergency management office to learn more about the program.

      Work with local emergency to prepare special reports for people with mobility impairments on what to do if evacuation is ordered.

      Support your local government in efforts to develop and enforce land-use and building ordinances that regulate construction in areas susceptible to landslides and debris flows. Buildings should be located away from steep slopes, streams and rivers, intermittent-stream channels, and the mouths of mountain channels.

- **Before a Landslide: How to Plan:**

Develop a Family Disaster Plan. Please see the "[Family Disaster Plan](http://karimganj.nic.in/dpo/rrr/talkdiz/family.shtm)" section for general family planning information. Develop landslide-specific planning.

Learn about landslide risk in your area. Contact local officials, state geological surveys or departments of natural resources, and university departments of geology. Landslides occur where they have before, and in identifiable hazard locations. Ask for information on landslides in your area, specific information on areas vulnerable to landslides, and request a professional referral for a very detailed site analysis of your property, and corrective measures you can take, if necessary.

 **-If you are at risk from landslides:**

              Talk to your insurance agent.

              Develop an evacuation plan.

              Discuss landslides and debris flow with your family. Everyone should know what to do in case all family members are not together. Discussing disaster ahead of time helps reduce fear and lets everyone know how to respond during a landslide or debris flow.

## ORGANIZATIONS INVOLVED IN DISASTER MANAGEMENT:

## *-International Organizations:*

 The International Association of Emergency Managers (IAEM) is the primary professional and academic organization of Emergency and Disaster Professionals worldwide.  The main goals of this organization are to protect human lives, assets, and the environment during disasters.  In addition, the organization's principles are to providing information, networking, education, professional opportunities, and to advance the emergency management profession (IAEM, 2011).

***-Other Non-Profit Organizations:***

* **United Nations:**

The United Nations (UN) has programs to assist any nation on mitigating the effect of disasters and enhancing the capacity of training institutions and government to develop strategic plans for disaster management.  UN provides guidelines and policies for Disaster Risk Reduction (DRR).

* **Red Cross/Red Crescen:**

 Red Cross/Red Crescent (RC) provides a web-based tool for their personnel including disaster trends, tools, and databases. RC has standard operating procedures to aid affected areas during disasters. Also, the provide immediate funding and food supplies for victims of poverty and disasters.

**BIBLIOGRAPHY**

**1. “MAHAJAN BK AND GUPTA MC”; Textbook of ‘Preventive and Social Medicine’; Jaypee publisher ; Edition-3rd ; page no. 629-639.**

**2. “SUDDARTH’S AND BRUNNER”; Textbook of ‘Medical-Surgical Nursing’; Lippincot publisher; Edition-10th ; page no. 2184-2194.**

**3. “PARK K”; Textbook of ‘Preventive and Social Medicine’; Banarsidas Bhanot publisher; Editon-19th; page no. 650-657.**

**4. “** [**http://en.wikipedia.org/wiki/Emergency\_management**](http://en.wikipedia.org/wiki/Emergency_management)**” (July 6, 2011).**

**5. “** [**http://www.wcpt.org/node/36987” (**](http://www.wcpt.org/node/36987) **July 24, 2011).**

**6.”http://web.worldbank.org/menuPK:341021~pagePK:149018~piPK:149093~theSitePK:341015, (July 5, 2011)**