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MANAGEMENT OF NATURAL AND MANMADE DISASTERS

Professor D.K.Awasthi

ABSTRACT
According to the International Federation of Red Cross and Red Crescent Societies: "More people are becoming vulnerable to disasters or are forced to cope with acts of violence, financial crises and growing uncertainty, often without adequate support from their governments." Disasters can be either natural or human-made events and can include pandemics, technological disasters or environmental cataclysms. Mitigation aims to minimize the loss of human life that would result from a disaster. Both structural and nonstructural measures may be taken. A structural measure means changing the physical characteristics of a building or an environment to curb the effects of a disaster. For example, clearing trees away from a house can ensure that dangerous storms don't knock down the trees and send them crashing into homes and public buildings. Non-structural measures involve adopting or amending building codes to optimize safety for all future building construction. Disaster typesinclude:Earthquakes,Tornadoes,Hurricanes,Pandemics,Volcanoeruptions,Wildfires,Floods,Mass shootings ,Acts of terror, Nuclear explosions., Chemical emergencies Specifically, disaster management is about organizing and directing resources to cope with a disaster and coordinating the roles and responsibilities of responders, private sector organizations, public sector agencies, non-profit and faith-based organizations, volunteers, donations, etc. The ultimate goal of the disaster-management leader is to minimize the event's impact, something that involves preparedness, response, recovery and mitigation.

Keywords:
Natural or human-made, Environmental, Diaster,wildfires,Pandemic

INTRODUCTION

Details:
One of the most sobering lessons of the COVID-19 pandemic is that disasters can befall any community, at any time. While infectious disease represents one form of disaster, it could just as readily be a hurricane, flood or chemical spill. According to the United Nations, a disaster is any event that seriously disrupts a community or society's ability to function; a disaster's impact may be human, economic or ecological**.**

Definition of Natural Vs. Man-made disasters
It is difficult to apply a single universal definition to a disaster, though it is generally described as an event that complies with the following criteria:

- Sudden catastrophic event
- Exceeds a community's capacity to cope
- Ruinous outcome in terms of human and economic losses

According to the cause of the event, disasters are classified as either **natural** or **man-made**.

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Natural disasters can be defined as an event caused bynatural forces that surpasses the coping ability of the community it affects, which is the extreme occurrence of hydrological, geological or meteorological events. Man-made disasters are equally devastating, but unlike natural disasters, it results directly from human activity. To have enough impact to be classified as a natural disaster, an event needs to comply with the following:

- A considerable amount of energy supplied by natural forces
- The energy must then be focused in the right environment

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- A considerable amount of energy supplied by natural forces
- The energy must then be focused in the right environment
- A concentration of assets or people within the focus of the event

When these factors combine, the magnitude of the effects determines its disastrous implications.
Man-made Man-made disasters are so diverse in origin that, to be defined as a man-made disaster, it is merely be classified as:

- Large and far-reaching effects
- Serious damage caused

Causes of Natural Vs. Man-made disasters

Usually, a single disaster or hazard result in casualties and damage due to different contributing forces, as in the case of a natural disaster like a cyclone there are strong winds, water surges, rain and so on. Volcanoes on the other hand pose problems due to lava streams, fires, ash falling or release of harmful gases, among many others. On the other hand, a man-made disaster may be due to human error, negligent behavior, dysfunction of a human-engineered system or intentional instigation and/or attacks. The economic and social impact is substantial and just can be just as catastrophic as a natural disaster.

Examples of Natural Vs. Man-made disasters

Floods (cited to be the most common disasters worldwide), hurricanes, tornadoes, and earthquakes are all natural disasters. The physical damages greatly impact the social structure and later the recovery period of a community and losses in various sectors. Hurricane Katrina or tsunami that devastated Southeast Asia provide examples of natural disasters and the extensive impacts thereof.
Disastrous events such as harmful chemical spillage, industrial accidents, detonations, biological or chemical attacks, plane crashes, and so on, are all man-made disaster. The effects of man-made disasters may be

amplified by natural processes, for example, the nuclear accidents that occurred in Japan in 2011. This was a result of inadequate storage; the storage planning did not take into account the effects that an earthquake may have and this resulted in a nuclear accident

Similarities

- Critically impacts society
- Physical impacts: chemical pollution, loss of property or resources, health impacts (injuries, illness, and death)
- Social impacts: psychosocial symptoms (emotional or physical), socioeconomic loss (economic pressure, affect workforce productivity), sociodemographic loss (i.e. housing, infrastructure), political disturbance (social activism, terrorism), pressure on healthcare and emergency systems

Prevention of Natural Vs. Man-made disasters

Natural disasters cannot be prevented, although there are localities that are more prone to it and pre-emptive measures can be taken to minimize the damage. This is not the case with man-made disasters since it often occurs at unanticipated localities but it can be prevented by careful planning or vigilant monitoring schemes. No preventative measures can avoid natural disasters since the natural forces that cause them are uncontrollable. Unlike man-made disasters, certain localities that are more prone to natural disasters can be identified and prepared to mitigate the effects as much as possible.

Man-made disasters can be prevented if proper precautionary measures are taken and risk management strategies are vigilantly maintained and monitored. Many of these disasters seem to accompany human development since there has been a marked increase in this category of disaster in the 20th century, as commented upon by Perrow (1984) and later agreed upon by many authors and researchers:

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‘‘As our technology expands, as our wars multiply, and as we invade more and more of nature, we create systems – organizations and the organization of organizations – that increase the risks for the operators, passengers, innocent bystanders, and future generations.”

Effects of Natural Vs. Man-made disasters

For both disaster categories, the stronger economic countries are usually better prepared and able to mitigate the damage, but the worst effects are seen in regions with weaker economic and social circumstances. This is due to the fact that there are great measures being taken to prepare for natural disasters as much as possible, for example in areas with high seismic activity, stricter building codes will be adhered to. In the case of man-made disasters, prevention can often avoid the damage it causes. The effective preventative schemes and monitoring are better maintained in communities with less other social pressures, for example, poverty-stricken communities often prioritize other problems before it

The rate at which a natural disaster occurs, the total duration and cues prior to the event are also critical determinants of the amount of damage it can cause. Human activity may be a contributing factor to the intensity of a natural disaster, for example, erosion caused by land misuse might intensify the effects of drought. The extent of damage caused by a man-made disaster is directly correlated to the magnitude of the event, the locality in which it occurs, and the speed and efficiency of emergency measures that are taken to deal with it.

Natural Vs. Man-made disasters: Comparison Chart

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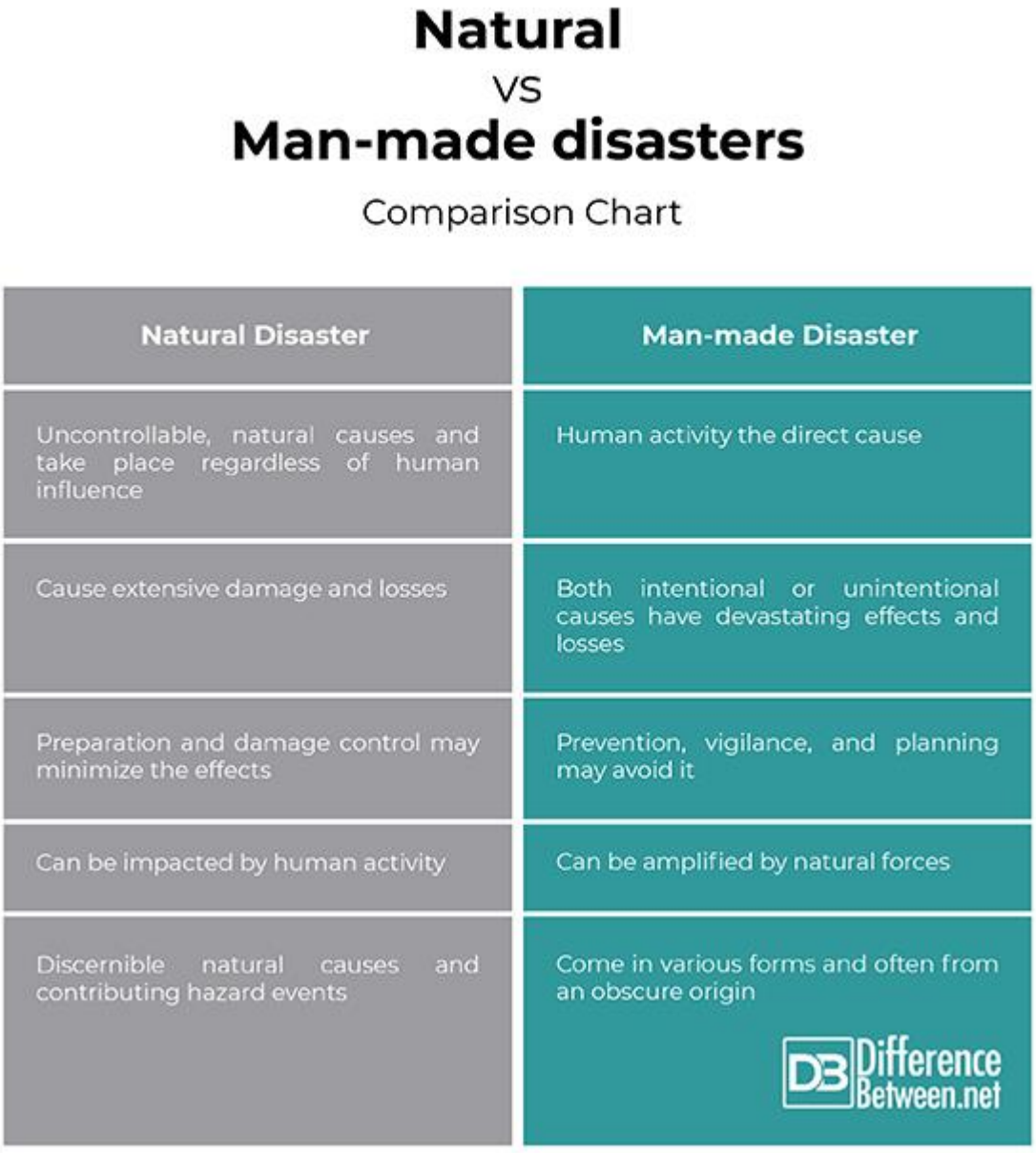

Summary of Natural Vs. Man-made disasters

Both categories of disasters wreak havoc and cause immense losses, economic and social. Natural disasters are inevitable since natural forces cannot be controlled, but emergency measures can be put in place to minimize the effects. Man-made disasters, however, can be prevented and avoided with proper planning and precautionary measures. The area these disasters hit will also determine the extent of the damage since better-developed regions often have more effective emergency measures in place. The locality affected by a natural disaster Emergency management, also referred to as disaster management, means preparing for potential calamities and responding to them as quickly, strategically and effectively as possible. Typically, this involves following the basic disaster management cycle, which comprises five crucial stages.

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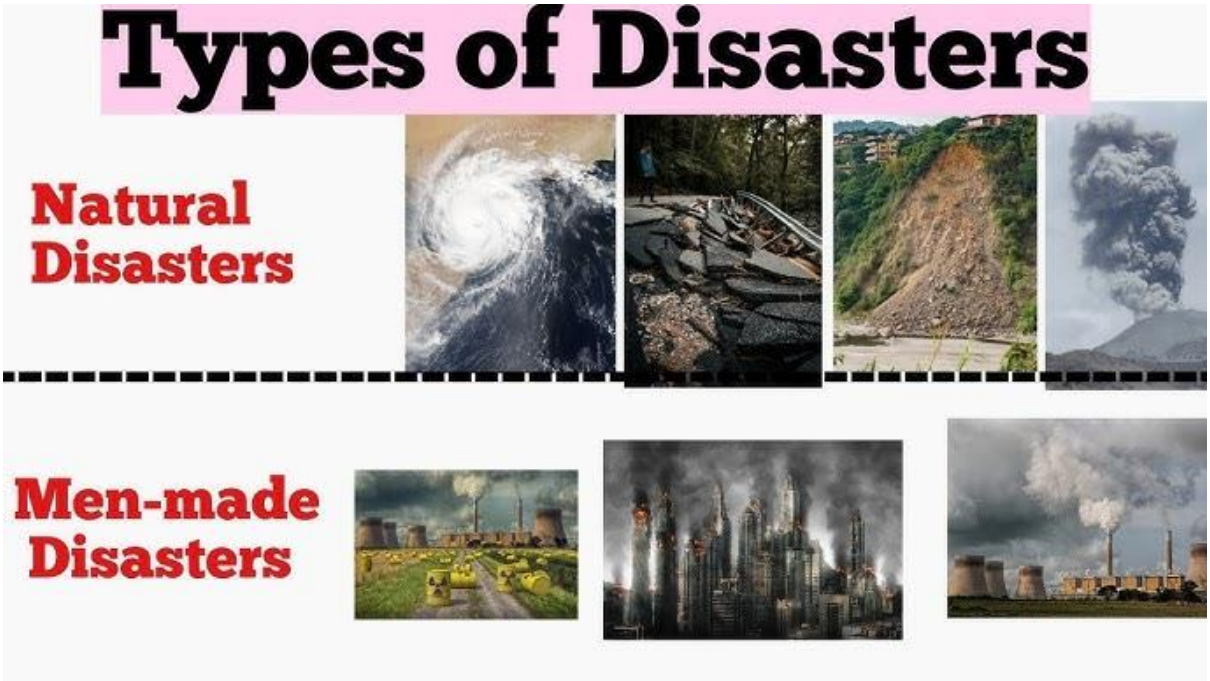

What is Disaster Management?

One of the biggest challenges of disaster, or emergency, management is the need to be prepared for a wide range of contingencies. A good place to begin a discussion of disaster management is by considering what constitutes a disaster.

Defining Disaster

According to the International Federation of Red Cross and Red Crescent Societies: "More people are becoming vulnerable to disasters or are forced to cope with acts of violence, financial crises and growing uncertainty, often without adequate support from their governments." Disasters can be either natural or human-made events and can include pandemics, technological disasters or environmental cataclysms.

Disaster types include the following:

- Earthquakes
- Tornadoes
- Hurricanes
- Pandemics
- Volcano eruptions
- Wildfires
- Floods
- Mass shootings
- Acts of terror
- Nuclear explosions
- Chemical emergencies

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Fig-1Natural Diaster:Uttarakhand

There were 10 weather and climate-related disasters each exceeding $1 billion in losses in the U.S. within the first half of 2020, according to the National Oceanic and Atmospheric Administration. The number of disasters resulting in billion-dollar loses has been steadily rising, from 29 disasters in the 1980s to 119 disasters in the 2010s. In addition to this increase, cascading disasters, such as a hurricane during the COVID-19 pandemic, reinforce the need for effective and ethical leadership across all sectors and levels of government.

Fig-2Natural Disaster:Sanfranscisco California

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Fig-3 Natural Disaster

Fig-4 Natural Disaster-Joshi Muth

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Fig-5Natural DISASTER

Fig-7 Man Made Disaster

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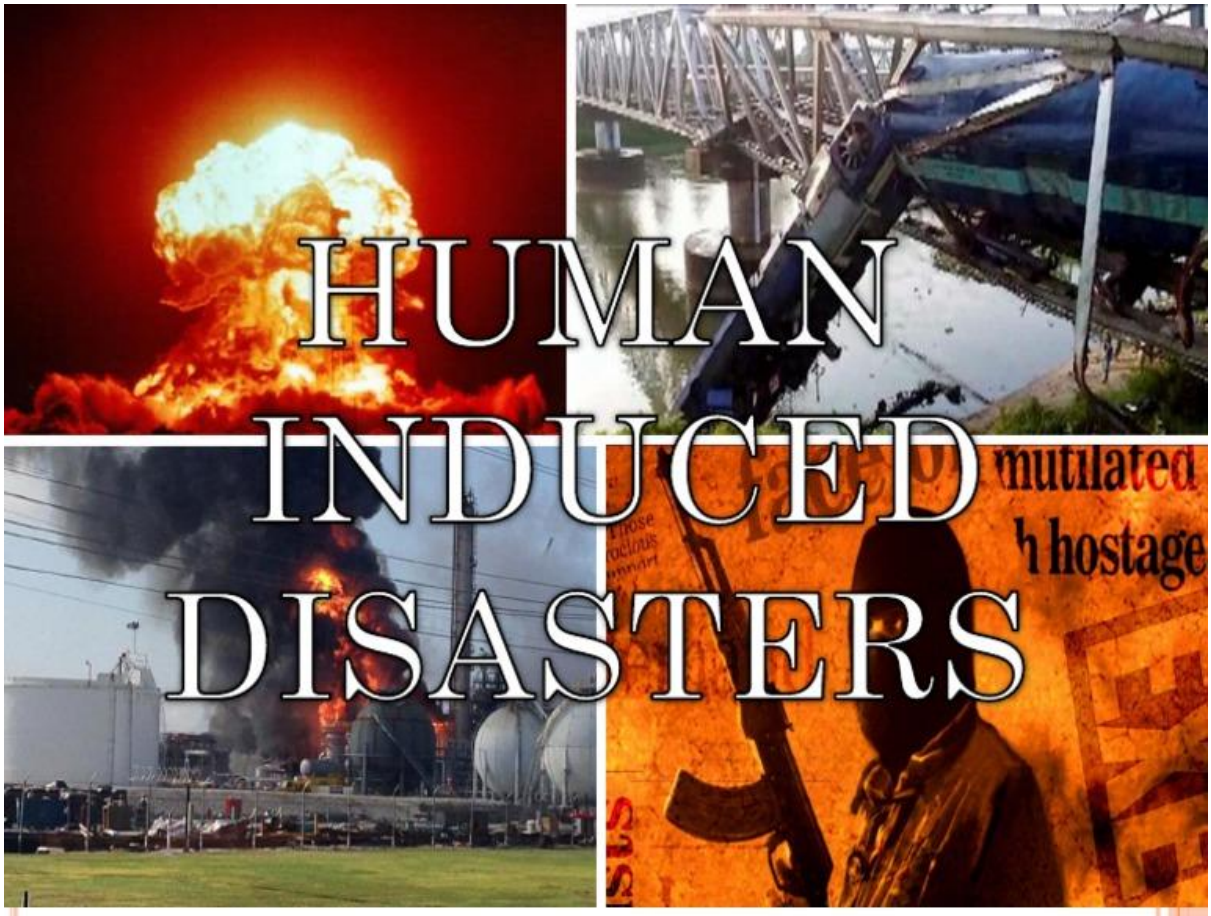

WHAT ARE MAN MADE DISASTERS???

A man-made disaster results from man-made hazards (threats having an element of human intent, negligence or error, or involving a failure of a man-made system). They differ from natural disasters that result from natural hazards.

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Fig-8- 50Years old Manmade Disaster

Managing Disasters

Specifically, disaster management is about organizing and directing resources to cope with a disaster and coordinating the roles and responsibilities of responders, private sector organizations, public sector agencies, nonprofit and faith-based organizations, volunteers, donations, etc. The ultimate goal of the disaster-management leader is to minimize the event's impact, something that involves preparedness, response, recovery and mitigation.

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The 5 Stages of the Disaster-Management Cycle

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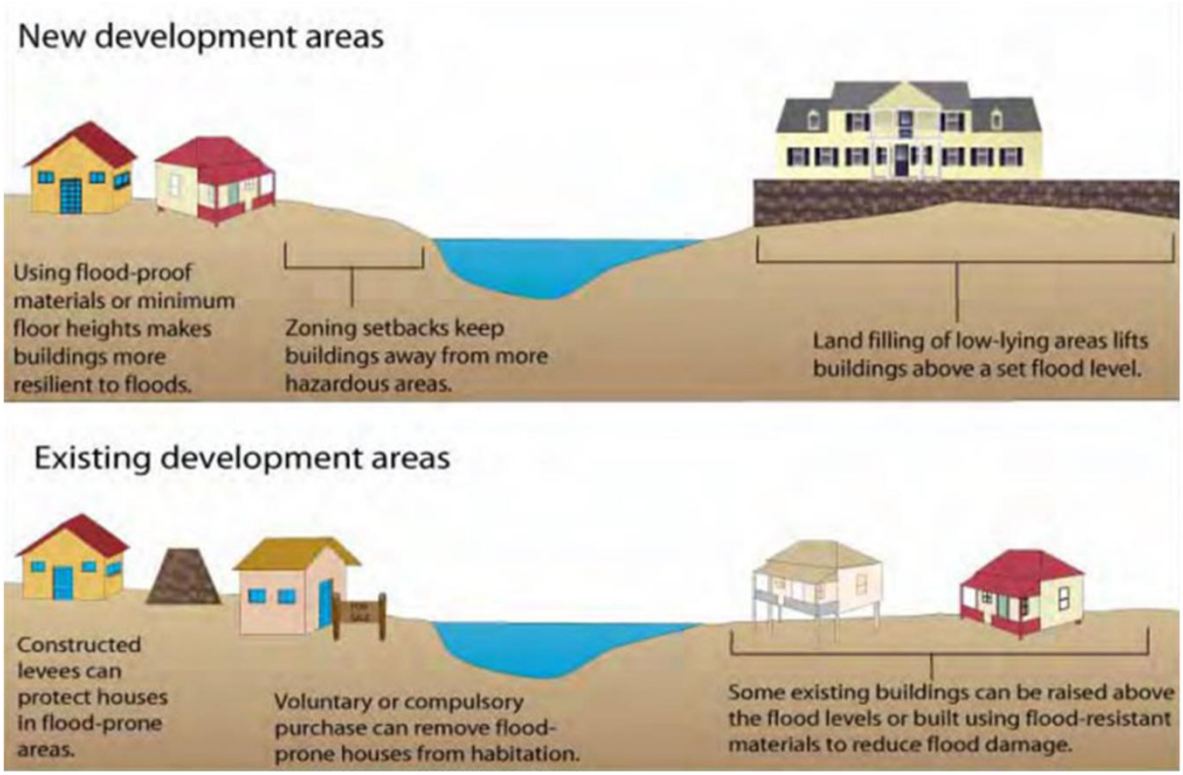

Fig-7-origin of natural Disaster

When properly implemented, the disaster-management cycle can lessen the impact of a catastrophic event. It can also incorporate the policies and emergency responses needed for a full, expedited recovery. The cycle involves the following five stages:

1. Prevention

The best way to address a disaster is by being proactive. This means identifying potential hazards and devising safeguards to mitigate their impact. Although this stage in the cycle involves putting permanent measures into place that can help minimize disaster risk, it's important to acknowledge that disasters can't always be prevented. Prevention involves scenarios such as the following:

- Implementing an evacuation plan in a school, for example, showing teachers how to lead students to safety in the event of a tornado or fire
- Planning and designing a city in a way that minimizes the risk of flooding, for example, with the use of locks, dams or channels to divert water away from populous areas

2. Mitigation

Mitigation aims to minimize the loss of human life that would result from a disaster. Both structural and nonstructural measures may be taken.

- A structural measure means changing the physical characteristics of a building or an environment to curb the effects of a disaster. For example, clearing trees away from a house can ensure that dangerous storms don't knock down the trees and send them crashing into homes and public buildings.
- Nonstructural measures involve adopting or amending building codes to optimize safety for all future building construction.

3. Preparedness

Preparedness is an ongoing process in which individuals, communities, businesses and organizations can plan and train for what they'll do in the event of a disaster. Preparedness is defined by ongoing training, evaluating and corrective action, ensuring the highest level of readiness.

Fire drills, active-shooter drills and evacuation rehearsals are all good examples of the preparedness stage.

4. Response

Response is what happens after the disaster occurs. It involves both short- and long-term responses.

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Ideally, the disaster-management leader will coordinate the use of resources (including personnel, supplies and equipment) to help restore personal and environmental safety, as well as to minimize the risk of any additional property damage.
During the response stage, any ongoing hazards are removed from the area; for example, in the aftermath of a wildfire, any lingering fires will be put out, and areas that pose a high flammability risk will be stabilized.

5. Recovery

The fifth stage in the disaster-management cycle is recovery. This can take a long time, sometimes years or decades. For example, some areas in New Orleans have yet to fully recover from Hurricane Katrina in 2005. It involves stabilizing the area and restoring all essential community functions. Recovery requires prioritization: first, essential services like food, clean water, utilities, transportation and healthcare will be restored, with less-essential services being prioritized later.
Ultimately, this stage is about helping individuals, communities, businesses and organizations return to normal or a new normal depending on the impact of the disaster.

Becoming a Leader in Disaster Management

Some leaders have more experience than others with handling disasters; ultimately, though, this is a field in which every business or community leader should hone their skills. Any organization or municipality can be hit with a disaster sooner or later, whether that's something as minor as a temporary power outage or as threatening as a hurricane, earthquake, bomb threat or active shooter.
The COVID-19 pandemic has really brought this home, as many business owners have confronted the crisis at hand. To ensure the safety of customers as well as employees, business leaders have shifted to remote work environments, implemented new communication infrastructures, and embraced new standards of office hygiene and sanitization. While no business leader could have precisely predicted the effects of the coronavirus, those companies that had some disaster plan in place are likely a step or two ahead of others.
Those looking for a career solely focused on mastering the disaster-management cycle have many opportunities to do so; some examples of jobs in this field include crisis-management lead, disaster-assistance specialist and emergency-planning coordinator. These roles all call for various levels of responsibility in preparing a company or a city for cataclysmic events. To find work in any of these positions, as well as to sharpen all the skills needed for success, earning a master's degree in emergency and crisis management can be a big step forward.

Learning More About Disaster Management

Through the University of Central Florida, students can engage in dynamic courses that help them feel fully prepared to prevent, mitigate and respond to major disasters, successfully limiting damage to property, the environment and people.
"Students in the undergraduate and graduate emergency management programs at UCF participate in real-world opportunities, which allows them to gain key skills and competencies needed for this complex and dynamic profession," says Knox. "One example is a functional exercise in an emergency operations center in which students apply multiple concepts to managing a fictional disaster using the same equipment and software programs as emergency management staff."
Ultimately, disaster management is all about preparedness, and formal training is the best way to achieve it. The UCF Online

The Scope of Disaster Management

Disaster management has a broad scope. To understand what disaster management is, it is useful to study prevention, preparedness, and response and recovery.

Prevention

Mitigation and prevention efforts aim to reduce the potential damage and suffering that disasters can cause. While disaster management cannot prevent disasters, it can prevent them from becoming compounded as a result of neglecting causal factors and manageable risks. Mitigation specifically refers to actions taken that can lessen the severity of a disaster's impact. Investing in measures that limit hazards can greatly reduce the burden of disasters. Strategies that disaster management professionals implement to protect vulnerable communities and limit hazards include the following:

- 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

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Managing hazards and risks means planning to minimize a community's vulnerability to disasters. This can involve:

- Encouraging community members to buy appropriate insurance to protect their properties and belongings
- Educating families and businesses on how to create effective disaster plans
- Promoting the use of fire-retardant materials in construction
- Advocating for capital works initiatives, such as the construction and maintenance of levees
- Building partnerships between sectors and agencies at the federal, state, and local levels to collaborate on mitigation projects

Disaster management professionals working on mitigation efforts also focus on the following:

Land Use and Building Codes

Building schools, hospitals, and neighborhoods in flood-prone areas increases their exposure to disasters. Disaster management spotlights these risks and presents ideas to use land in safer ways.

For example, rather than constructing homes in floodplains, community planners can designate those areas as places for outdoor recreation, wildlife attractions, or hiking trails. They can also urge people to avoid these areas during flood season. These measures make residents and their homes less vulnerable to harm.

Additionally, mitigation efforts can do the following:

- Address ways to engineer bridges to sustain earthquakes
- Enforce building codes that safeguard buildings during hurricanes

Critical Infrastructure

Protecting critical infrastructure during a disaster can mean the difference between life and death. Critical infrastructure, which comprises the systems and assets vital to a community's economy, security, and public health, deserves special attention as regards disaster management mitigation.

Setting up protective measures that limit damage to water and wastewater systems or nuclear plants, for example, can prevent serious repercussions.

As an example, Japan experienced devastating physical and psychological consequences after a 2011 earthquake triggered a tsunami. The inundation of water cut off the power supply to the cooling system for Fukushima Daiichi reactors, leading to a massive nuclear accident.

Preparedness

Well-coordinated responses to disasters require prior planning. This helps ensure fast, effective response efforts and limits duplicated efforts.

Disaster preparedness plans:

- Identify organizational resources
- Designate roles and responsibilities
- Create procedures and policies
- Organize activities that improve disaster readiness

Anticipating the needs of communities that disasters affect improves the quality of the response efforts. Building the capacities of volunteers, personnel, and disaster management teams to respond to disasters also makes the response efforts more effective.

Plans may include the following:

- Emergency shelter sites
- Evacuation routes
- Emergency energy and water sources

They may also address:

- Chains of command
- Training programs
- Communication procedures
- Emergency supply distribution
- Stockpile needs

Contingency Planning

Disaster readiness calls for contingency planning, advance decisions about managing human and monetary resources, coordinating procedures between different agencies, and organizing logistics.

Contingency plans answer three basic questions:

- What will happen?
- What will the response be?

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- What will be done ahead of time to prepare?

Response and Recovery

During and immediately after an emergency, disaster management focuses on delivering help and interventions that can save lives, safeguard health, and protect buildings, animals, and community property. Following an initial response, efforts shift toward supporting communities as they rebuild emotionally, economically, and physically.

Disaster Relief

Disaster relief addresses the immediate and short-term needs of disaster-affected communities. It can include evacuations, search and rescue missions, and emergency medical assistance.

Examples of disaster relief are:

- Setting up temporary shelters that provide a safe place to sleep, food, and emotional support from trained personnel
- Delivering meals and water
- Distributing emergency supplies and necessities, such as toiletries for hygiene and tarps, shovels, trash bags for cleanup efforts
- Providing emergency health services, such as first aid for injuries and prescription medication replacements

Rebuilding

Emergency management helps communities rebuild their lives after trauma. This involves longer-term efforts to restore:

- Housing
- Economies
- Infrastructure systems
- Individual and community health

Federal agencies and supporting organizations help communities with problem-solving and finding resources as they redevelop and revitalize.

Recovery assistance may include the following:

- Unemployment assistance
- Housing assistance
- Legal services
- Mental health counseling
- Disaster case management
- **Protect Communities by Launching a Career in Disaster Management**

What is disaster management? It is a comprehensive approach to preventing, preparing for, responding to, and aiding in emergency recovery efforts. Whether spearheading emergency management for human-made or natural disasters, professionals in the field play invaluable roles in saving lives and reducing suffering. One of the most sobering lessons of the COVID-19 pandemic is that disasters can befall any community, at any time. While infectious disease represents one form of disaster, it could just as readily be a hurricane, flood or chemical spill. According to the United Nations, a disaster is any event that seriously disrupts a community or society's ability to function; a disaster's impact may be human, economic or ecological.

Emergency management, also referred to as disaster management, means preparing for potential calamities and responding to them as quickly, strategically and effectively as possible. Typically, this involves following the basic disaster management cycle, which comprises five crucial stages.

It gives me immense pleasure to lead 'National Disaster Response Force', world's single largest force dedicated to disaster response. NDRF has always led from the front, displayed high level of dedication & commitment, fulfilling our motto **आपदा सेवा सदैव सर्वत्र** which implies **Sustained Disaster Response Service** under all circumstances. The sincerity, professionalism and devotion displayed by the Rescuers during disasters have popularized NDRF so much among citizens that the NDRF Rescuers have been named "Angels in Disaster" by our fellow citizens.

In a very short span of time, NDRF has rescued over 1.55 lakh precious human lives and also evacuated more than 7.88 lakh stranded persons from disaster situations within the country and abroad. The swift and effective response of NDRF during Japan Triple Disaster-2011, Nepal Earthquake 2015 and Türkiye Earthquake 2023 was acclaimed globally. The force is fulfilling these responsibilities with its rigorous training regime and diligent application of skills on the ground.

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With all my sincerity and dedication, I would try to add further value to the efforts of my worthy predecessors and guide NDRF towards achieving world class excellence and best in class standards. **Space based inputs offer unique and crucial data** during natural disasters viz. flood, cyclone, agricultural drought, landslides, earthquakes and forest fires in near real-time using space and aerial remote sensing based inputs. **These services are available free for all users.**

National Database for Emergency Management NDEM) serves as national repository of GIS based database for entire country coupled with set of Decision Support System tools to assist the State / Central Disaster Management Authorities in decision making during emergency situations.

Current activities to support disaster management support are : Near Real Time Flood & Cyclone monitoring & mapping in the country, Flood Hazard/Risk Zonation for Flood prone states, Spatial Flood Early Warning, forest fire alerts, landslide zonation and inventory, agricultural drought studies and Capacity Building and institutionalization is being done to the stake holders.

DOS extends satellite data support under the following International Disaster programmes

- **International Charter Space and Major Disasters to international Disaster events.**
- **Sentinel Asia Framework**
- **United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER)**
- **United Nations Economic and Social Survey of Asia and the Pacific 2013 (UNESCAP)**

The services are available for the countries including Cambodia, China, Indonesia, Iraq, Japan, Myanmar, Nepal, Oman, Philippines, Sri Lanka, Taiwan, Tajikistan, Thailand, Vietnam.

NDEM essentially serves as national repository of GIS based data for entire country coupled with set of Decision Support System tools to assist the disaster managers in decision making during emergency situations.

National Database for Emergency Management (NDEM) is a national repository of multi-scale geospatial database coupled with decision support system tools. It is a unique and homogenous database served for entire country with essential database elements for addressing emergency/disaster management in the country. NRSC/ISRO established a state-of-art facility with structured framework with multi-institutional participation to assist the disaster managers of all States/UTs for preparedness, hazard/risk zonation, damage assessment, and emergency response under the behest of Ministry of Home Affairs (MHA), Government of India. NDEM services have been operationalised since 2013 providing timely information along with disaster specific products for effective decision making. Disaster risk management is the application of disaster risk reduction policies and strategies to prevent new disaster risk, reduce existing disaster risk and manage residual risk, contributing to the strengthening of resilience and reduction of disaster losses.

Annotation: Disaster risk management actions can be distinguished between prospective disaster risk management, corrective disaster risk management and compensatory disaster risk management, also called residual risk management.

Prospective disaster risk management activities address and seek to avoid the development of new or increased disaster risks. They focus on addressing disaster risks that may develop in future if disaster risk reduction policies are not put in place. Examples are better land-use planning or disaster-resistant water supply systems.

Corrective disaster risk management activities address and seek to remove or reduce disaster risks which are already present and which need to be managed and reduced now. Examples are the retrofitting of critical infrastructure or the relocation of exposed populations or assets.

Compensatory disaster risk management activities strengthen the social and economic resilience of individuals and societies in the face of residual risk that cannot be effectively reduced. They include preparedness, response and recovery activities, but also a mix of different financing instruments, such as national contingency funds, contingent credit, insurance and reinsurance and social safety nets.

Community-based disaster risk management promotes the involvement of potentially affected communities in disaster risk management at the local level. This includes community assessments of hazards, vulnerabilities and capacities, and their involvement in planning, implementation, monitoring and evaluation of local action for disaster risk reduction.

Local and indigenous peoples' approach to disaster risk management is the recognition and use of traditional, indigenous and local knowledge and practices to complement scientific knowledge in disaster risk assessments and for the planning and implementation of local disaster risk management.

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Disaster risk management plans set out the goals and specific objectives for reducing disaster risks together with related actions to accomplish these objectives. They should be guided by the Sendai Framework for Disaster Risk Reduction 2015-2030 and considered and coordinated within relevant development plans, resource allocations and programme activities. National-level plans need to be specific to each level of administrative responsibility and adapted to the different social and geographical circumstances that are present. The time frame and responsibilities for implementation and the sources of funding should be specified in the plan. Linkages to sustainable development and climate change adaptation plans should be made where possible. The need to prepare for a world of unexpected shocks has become clearer than ever. Epidemics, floods, storms, droughts and wildfires are all expected to become more frequent and severe, affecting hundreds of millions of people every year.

Red Cross and Red Crescent Societies around the world, supported by the IFRC, are working to improve their preparedness for disasters. This includes:

- Coordinating with national authorities and partners to know what risks and hazards to prepare for
- Training and equipping millions of volunteers as first responders to a wide range of hazards.
- Researching new technologies to improve their response
- Working with communities to understand the needs of those most at risk
- Setting up early warning system so communities can take early action before a disaster hits

Disaster preparedness isn't just the right thing to do, it's the smart thing to do. We must step up action and investment in preparedness now, rather than waiting for the next disaster to hit.

Scroll down to learn how we support National Society preparedness.

Preparedness for Effective Response (PER) is our cyclical approach designed to help us analyze capacities, strengths and weaknesses within a National Society's response system. It is based on decades of collective experience in preparedness and disaster response across our global network.

Our vision is that all National Societies continually improve their ability to respond to disasters in a way that is **timely, appropriate, well-coordinated, relevant** and **effective.**

The PER approach is made up of five phases:

1. **Orientation:** We explain the approach to a National Society and discuss which internal and external risks and hazards they want to prioritize.
2. **Assessment:** We assess a National Society's current response system to identify areas for improvement. This can be done through self-assessment, disaster simulations or reviews during or following an operation.
3. **Prioritization and analysis:** The National Society then narrows down which areas of its work it wants to focus on and conducts in-depth analysis to identify the barriers they need to overcome.
4. **Workplan:** Based on this analysis, we help the National Society develop a road-map to increase its response capacity. This includes outcomes, outputs, activities, timelines, targets and a clear accountability framework.
5. **Action and accountability:** The National Society puts their workplan into action, continually monitoring and reporting on their progress in the long-term.

Conclusion: The need to prepare for a world of unexpected shocks has become clearer than ever. Epidemics, floods, storms, droughts and wildfires are all expected to become more frequent and severe, affecting hundreds of millions of people every year.

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