

Disaster Management Vs COVID- 19: Strongest Fight from the World But Result Awaited...!!!

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ABSTARCT:

According to World Health Organization (WHO) Disaster defines as any occurrence that causes damage, ecological disruption, loss of human life, deterioration of health and health services, on a scale sufficient to warrant an extraordinary response from outside the affected community or area. Hazards are conditions that have the potential to harm to a community or environment. Human caused emergencies include those unplanned events or accidents that result from human activity or human developments. Recent example include COVID- 19 (Corona virus Disease- 2019) is a public health emergency of international concern. Disaster natural or manmade can destroy lives and properties on a very large scale, often pushing nations, in quest for progress, back by several decades. The Red Cross and Red Crescent societies define disaster management as the organisation and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies, in particular preparedness, response and recovery on order to lessen the impact of disasters. Disaster management includes sum total of all activities, programmes and measures which can be take before, during and after a disaster with the purpose of avoiding, reducing the impact or recovering from its losses. At an international level the International Federation advocates with Governments, international organizations and humanitarian donors for better practice and accountability in disaster management and greater respect of the dignity of the vulnerable people.

KEYWORDS: Disaster, COVID- 19, disaster management, preparedness, response, recovery

INTRODUCTION

An **act of invisible energy** is a legal term for accident events outside from human control, such as sudden natural disasters, for which no one can be held responsible. Disasters and natural hazards are common and occur not only in India but all over the world. The disasters can be sudden such as earthquakes, floods or hurricanes or they can be slow such as drought or famines. The super cyclone in Orissa in October, 1999, the Bhuj earthquake in Gujarat in January, 2001, the natural calamity in Uttarakhand in 2013 and in Kashmir in 2014 have drawn attention towards the need to adopt a multi dimensional undertaking involving various scientific, engineering, financial and community procedures and practices; the need to adopt multi disciplinary and multi sect oral approaches and integration of risk diminution in the developmental plans and strategies (GOI, 2004).

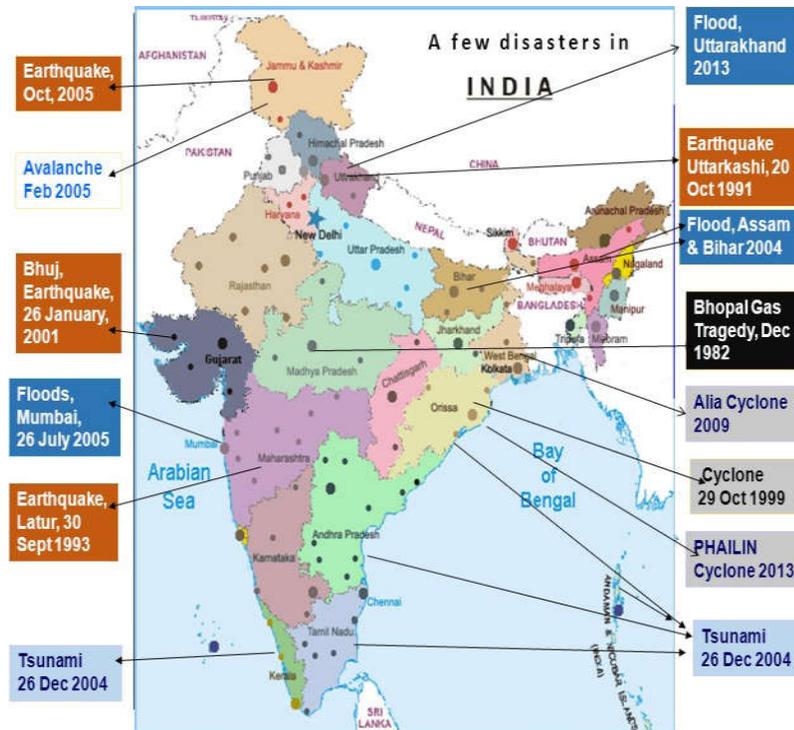


Fig- 1 Natural disasters in India

What are Disaster, Emergency and Hazards?

According to World Health Organization (WHO) Disaster defines as any occurrence that causes damage, ecological disruption, loss of human life, deterioration of health and health services, on a scale sufficient to warrant an extraordinary response from outside the affected community or area. A disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material and economic or environmental losses that exceed the community's or society's ability to cope using its own resources. Disaster natural or manmade can destroy lives and properties on a very large scale, often pushing nations, in quest for progress, back by several decades.

$$[\text{Hazards X Vulnerability}] \div \text{Capacity} = \text{Risk}$$

A hazard is a situation that poses a level of threat to life, health, property and environment. Most hazards are dormant or potential, with only a theoretical risk of harm; however, once a hazard becomes "active", it can create an emergency situation.

Hazards are conditions that have the potential to harm to a community or environment.

"Hazards may be inevitable, but disasters can be prevented"

Human caused emergencies include those unplanned events or accidents that result from human activity or human developments. Recent example include COVID- 19 (Corona virus Disease- 2019) is a public health emergency of international concern. As of this time, there is no known effective pharmaceutical treatment, although it is much needed for patient contracting the severe form of the disease.

Types of Hazards and Disaster

Hazards are commonly classified into following types:

Table – 1: Types of Hazards

Types of Hazards	
Biological	Bacteria, Viruses, insects, plants, birds, animals, and humans, etc.
Chemical	Depends on the physical, chemical and toxic properties of the chemical.
Ergonomic	Repetitive movements, improper set up of workstation, etc.
Physical	Radiation, Magnetic fields, pressure extremes (high pressure or vacuum), noise, etc.
Psychosocial	Stress, violence, etc.
Safety	Slipping/ tripping hazards, inappropriate machine guarding, equipment malfunctions or breakdowns

There is no country that is immune from disaster, through vulnerability to disaster varies.

There are four main types of disaster.

Natural disasters: It includes floods, hurricanes, earthquakes and volcano eruptions that have immediate impacts on human health and secondary impacts causing further deaths and suffering from for example floods, landslides, fires, tsunamis.

Environmental emergencies: It includes technological or industrial accidents, usually involving the production, use or transportation of hazardous material, and occur where these material are produces, used or transported, and forest fires caused by humans.

Complex emergencies: It involves a break- down of authority, looting and attacks on strategic installations, including conflict situations and war.

Pandemic emergencies: It involves a sudden onset of contagious disease that affects health, disrupts services and businesses, and brings economics and social costs.

Table – 2: Classification of disasters

General classification of Disasters	
Geological disaster	Earthquakes, landslides, tsunami, mining.
Hydro- meteorological disaster	Floods, cyclone, lightning, thunder storm, hail storm, avalanches, droughts, cold and heat waves.
Biological disaster	Epidemics, pest attack, forest fire.
Technological disaster	Chemical, industrial, radiological, nuclear.
Manmade disaster	Building collapse, rural and urban fire, road and rail accidents.

Geophysical Disaster				
Disaster Generic group	Disaster Sub-group	Disaster Main Type	Disaster Sub Type	Disaster Sub-sub Type
Natural Disaster	Geophysical	Earthquake	Ground Shaking Tsunami	
		Volcano	Volcanic eruption	
		Mass Movement (dry)	Rock fall	
			Avalanche	Snow avalanche, Debris avalanche
			Landslide	Mudslide, Lahar- Debris flow
			Subsidence	Sudden subsidence, Long-lasting subsidence

Meteorological Disaster				
Disaster Generic group	Disaster Sub-group	Disaster Main Type	Disaster Sub Type	Disaster Sub-sub Type
Natural Disaster	Meteorological	Storm	Tropical Storm, Extra-Tropical cyclone (winter storm)	
			Local/Convective storm	Thunderstorm/ Lightening, Snowstorm/ Blizzard, Sandstorm/Dust storm, Generic (severe) Storm Tornado, Orographic storm (Strong winds)

Hydrological Disaster				
Disaster Generic group	Disaster Sub-group	Disaster Main Type	Disaster Sub Type	Disaster Sub-sub Type
Natural Disaster	Hydrological	Flood	General river flood, Flash flood Storm surge/coastal flood	
		Mass Movement (wet)	Rock fall	
		Landslide	Debris flow, Debris avalanche	
		Avalanche	Snow avalanche, Debris avalanche	
		Subsidence	Sudden subsidence, Long-lasting subsidence	

Climatological Disaster				
Disaster Generic group	Disaster Sub-group	Disaster Main Type	Disaster Sub Type	Disaster Sub-sub Type
Natural Disaster	Climatological	Extreme Temperate	Heat Wave	Frost
			Cold Wave	
			Extreme Winter Conditions	Snow Pressure, Icing, Freezing Rain, Debris avalanche
		Drought	Drought	
		Wild fire	Forest Fire, Land fires (grass, scrub, bush etc.)	

Biological Disaster				
Disaster Generic group	Disaster Sub-group	Disaster Main Type	Disaster Sub Type	Disaster Sub-sub Type
Natural Disaster	Biological	Epidemic	Viral Infections, Diseases, Bacterial Infections, Diseases, Parasitic Infectious Diseases, Fungal Infections, Diseases, Prion Infectious Diseases	
			Insect infestation	Grasshopper/ Locust/Worms
			Animal Stampede	

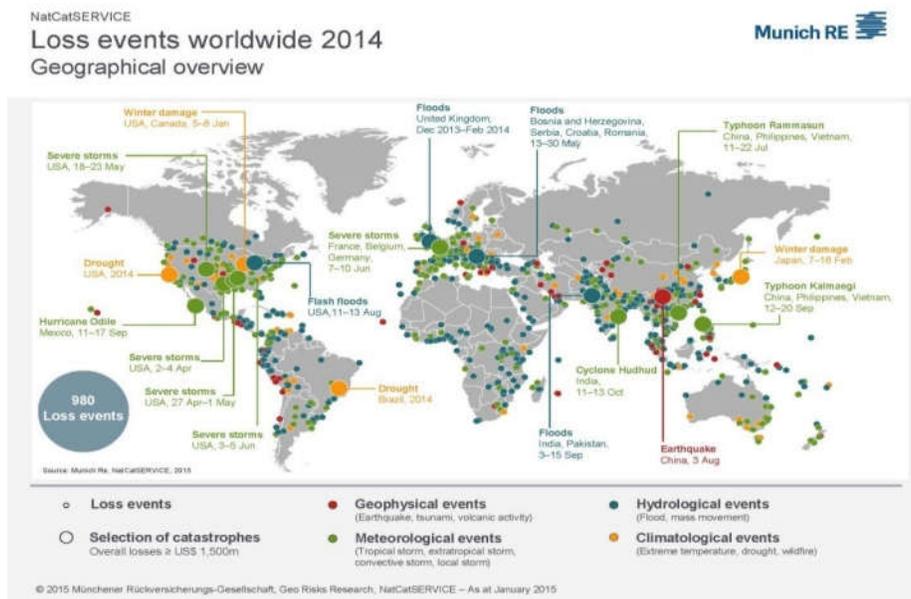


Fig- 2 World map of Natural disaster 2014

Health disaster: An epidemic is an outbreak of a contractible disease that spreads through a human population. A pandemic is an epidemic whose spread is global. There have been many epidemics throughout history, such as the Black Death. In the last hundred years, significant pandemics include the 1918 Spanish flu pandemic (killing an estimated 50 million people worldwide), the 1957–58 Asian flu pandemic, and the AIDS pandemic, which began in 1959. The 1968–69 Hong Kong water flu pandemic, the 2002-03 SARS pandemic, and the H1N1 Influenza (Swine Flu).

Now a day, **COVID- 19 (Corona virus Disease- 2019) is a public health emergency of international concern.** On 11 March 2020, WHO declared Novel Corona virus Disease (COVID-19) outbreak as a pandemic and reiterated the call for countries to take immediate actions and scale up response to treat, detect and reduce transmission to save people’s lives. Corona virus disease (COVID-19) is an infectious disease caused by a newly discovered corona virus.

Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment. Older people and those with underlying medical problems like cardiovascular disease, diabetes, chronic respiratory disease, and cancer are more likely to develop serious illness.

The new corona virus usually enters the body through the nose or mouth and eventually settles in the air sacs, or alveoli, inside lungs. The virus “hijacks” cells in the alveoli and begins making copies of itself until the host cell dies, allowing the virus to spread and attack neighbouring cells. When the virus hijacks cells, it prompts an immune response in the form of inflammation. This leads to the accumulation of fluid in the alveoli, which causes a dry cough or shortness of breath. In severe cases, inflammation in the lungs can lead to a “cytokine storm”, which is a complication common among respiratory illnesses, including Sars and Mers. A cytokine storm is the result of the immune system causing hyper-inflammation and harms the body more than it helps. If too many alveoli collapse, a patient will require a ventilator to help with breathing. In very severe cases, patients may develop systemic inflammatory response syndrome, which can lead to septic shock and multiple organ failure. This has been recorded as a cause of death for Covid- 19 patients.

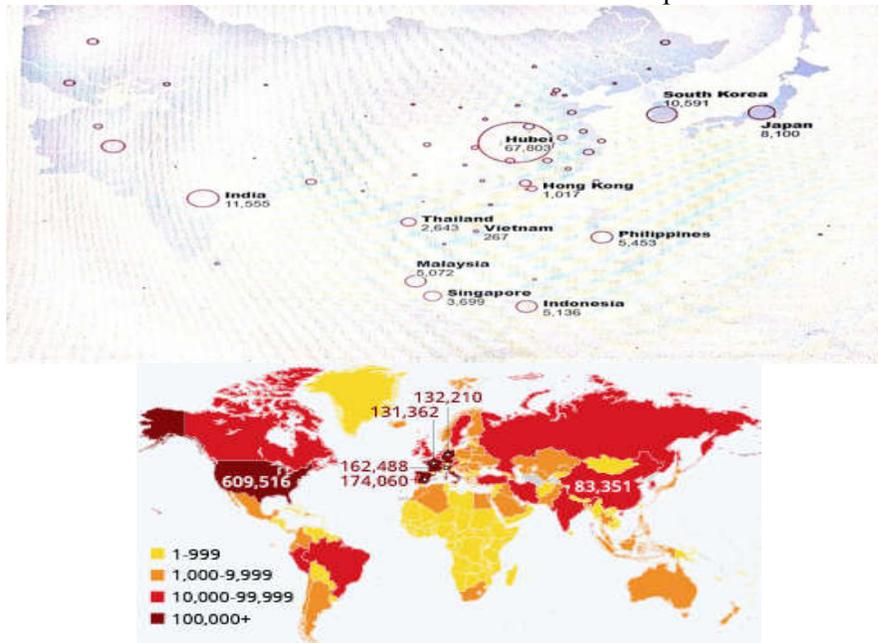


Fig- 3 Confirmed cases in COVID- 19 in Asia till April 15, 2020 and worldwide confirmed cases of CORONA virus

Effects of Disaster and natural Hazards

There are mainly Four types of effects have been identified as below:

Environmental Effects – Destruction of lands, homes, buildings, and surroundings; there are huge losses caused in water supplies, food availability, as there is destruction of crops, immense loss of life.

Effects on Health –Sudden natural disasters may cause not only widespread death but also massive social disruption such as famines, epidemic diseases; injuries are also caused by the natural disasters; when people get affected by disasters they tend to move to another place and this movement may lead to transmission of diseases.

Economic, Social and Political Effects –Disasters lead to destruction of economies, individuals become jobless if their place of work gets affected by the disasters. There is loss of machinery and equipment as well; farmers, shopkeepers and fishermen are the individuals who are affected by the disasters in most cases. Huge monetary and financial losses are caused by disasters and economic, political and social conditions of the region get severely affected.

Administrative and Managerial Effects –Administrative problems become more complicated and tedious due to emergence of disasters. Loss of community leadership, when there is loss of leaders due to death or when they get injured then the leadership functions get affected; there is severe damage to critical facilities and lifelines such as electrical generating and transmission facilities, water storage, purification and pumping facilities, sewage treatment facilities, transportation facilities, police stations, hospitals and other private buildings.

Disaster management

The Red Cross and Red Crescent societies define disaster management as the organisation and management of resources and responsibilities for dealing with all humanitarian aspects of emergencies, in particular preparedness before disaster, response and recovery on order to lessen the impact of disasters. Disaster management includes sum total of all activities, programmes and measures which can be take before, during and after a disaster with the purpose of avoiding, reducing the impact or recovering from its losses. At an international level the International Federation advocates with Governments, international organizations and humanitarian donors for better practice and accountability in disaster management and greater respect of the dignity of the vulnerable people. Disaster Management (or Emergency Management) is the discipline of dealing with and avoiding risks. It is a discipline that involves preparing, supporting and rebuilding when natural or human made disasters occur. The actions (efforts to avoid or ameliorate the impact) taken depends in part on the perceptions of the risk. Physical, economical, social, political factors determine people's level of vulnerability and the extent of their capacity to resist, cope with and recover from hazards. Clearly, poverty is a major contributor to vulnerability. Risk is a function of the hazards to which a community is exposed and the vulnerabilities of that community. However, that risk is modified by the level of the local preparedness or capacity of the community at risk.

There are three key stages of activities in disaster management:

- 1) **Before a disaster:** to reduce the potential for human, material, or environmental losses caused by hazards and to ensure that these losses are minimised when disaster strikes;
- 2) **During a disaster:** to ensure that the needs and provisions of victims are met to alleviate and minimise suffering; and
- 3) **After a disaster:** to achieve rapid and durable recovery this does not reproduce the original vulnerable conditions.

Aims/ Goals of disaster management

- ✓ reduce (avoid, if possible) the potential losses from hazards
- ✓ assure prompt and appropriate assistance to victims when necessary
- ✓ achieve rapid and effective recovery
- ✓ importance and relevance of disaster management in the present environmental scenario

Disaster Management Phases

The different phases of disaster management are represented in the disaster cycle diagram overleaf. Disaster/ emergency management activities can be grouped into five phases that are related by time and function to all types of emergencies and disasters. These Phases are also related to each other, and each involves different types of skills.

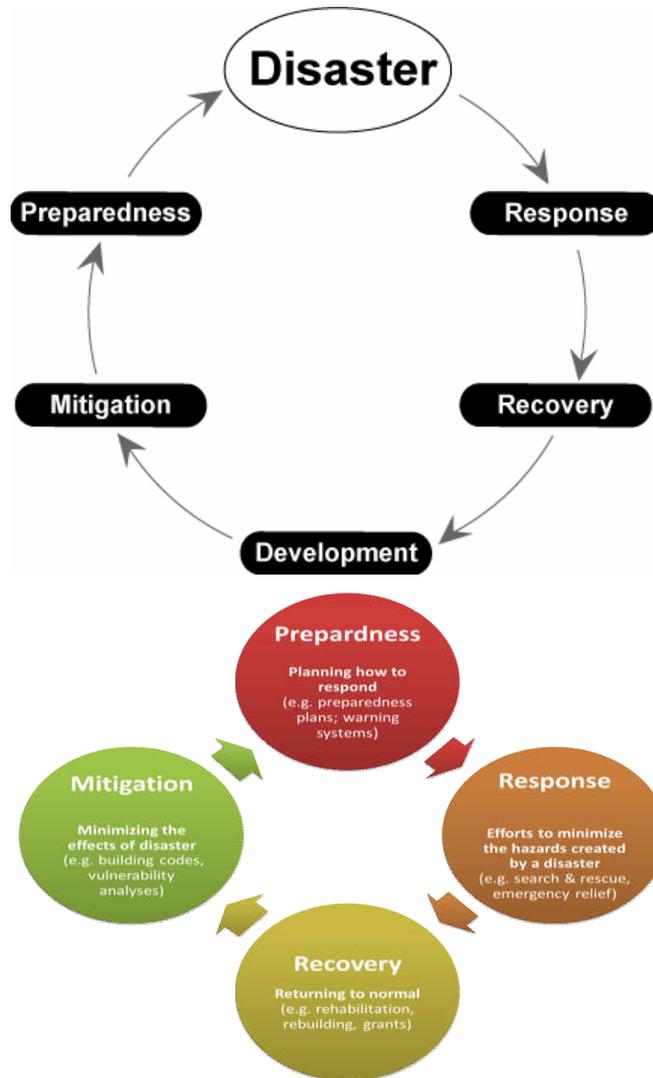


Fig- 4 Disaster management cycle

Stages of Disaster management cycle

The cycle generally comprises of four stages:

1. Disaster Prevention, Preparedness and Mitigation
2. Disaster response and immediate Relief
3. Disaster Rehabilitation, Reconstruction and Recovery
4. Long- term Development

Prevention, Mitigation and Preparedness are pre- disaster phases. Response, Rehabilitation and Reconstruction are post- disaster phases.

Table-3 Phases of Disaster management

Different phases of Disaster management	
Phases	Examples
<u>Mitigation-</u> Minimizing the effects of disaster.	building codes and zoning; vulnerability analyses; public education
<u>Preparedness –</u> Planning how to respond.	preparedness plans; emergency exercises/training; warning systems
<u>Response –</u> Efforts to minimize the hazards created by a disaster.	search and rescue; emergency relief
<u>Recovery –</u> Returning the community to normal.	temporary housing; grants; medical care

World Conference on Natural Disaster Reduction, Yokohama, 1994 Yokohama

Strategy and Plan of Action for a Safer World includes:

- Risk assessment
- Disaster prevention and preparedness
- Prevention and preparedness should be considered integral aspects of development
- Early warnings and their effective dissemination
- Preventive measures
- Application of proper design and patterns of development focused on target groups
- Share the necessary technology to prevent, reduce and mitigate disaster
- Strong political determination required to make efficient use of existing resources

Disaster management in India

During the British administration, relief departments were set up for emergencies during disasters. A permanent and institutionalised setup began in the decade of 1990s with set up of a disaster management. Shifting from relief and response mode, disaster management in India started to address the issues of early warning systems, forecasting and monitoring setup for various weather related hazards. A structure for flow of information, in the form of warnings, alerts and updates about the oncoming hazard, also emerged within this framework. The institutional structure for disaster management in India is in a state of transition.

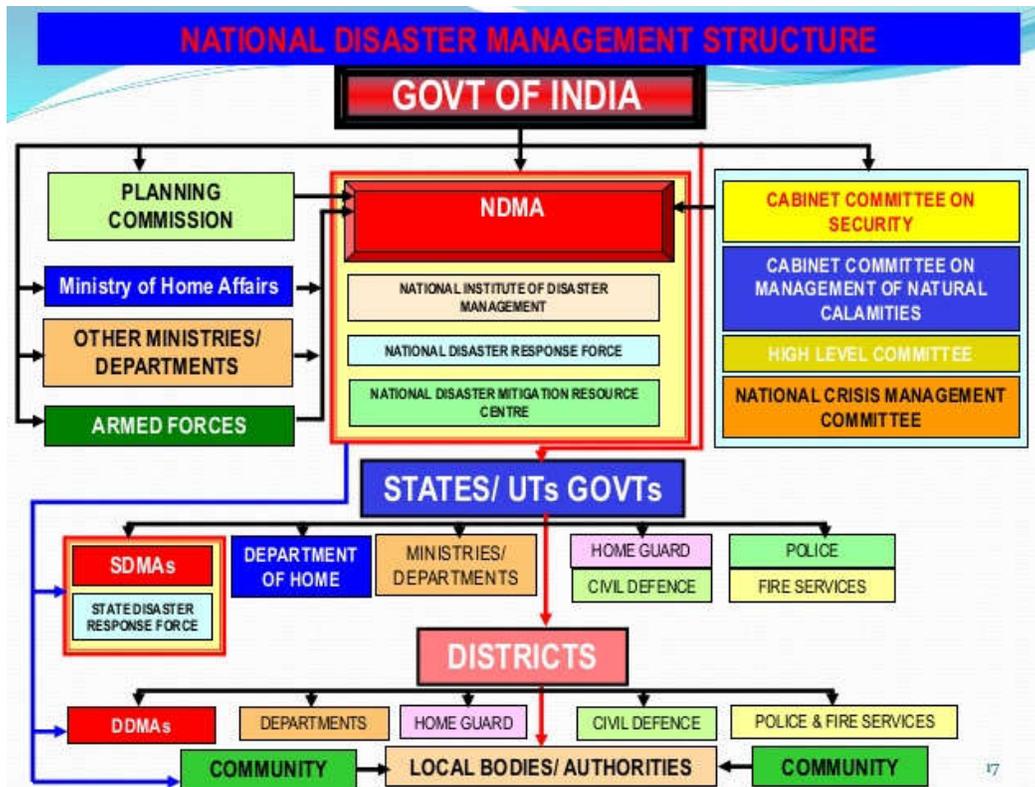


Fig- 5 National Disaster Management Structure

The National Disaster Management Authority has been established at the centre, and the SDMA at state and district authorities at district level are gradually being formalized. In addition to this, the National Crisis Management Committee, part of the earlier setup, also functions at the Centre. The nodal ministries, as identified for different disaster types of function under the overall guidance of the Ministry of Home Affairs (nodal ministry for disaster management). 2 Within this transitional and evolving setup, two distinct features of the institutional structure for disaster management may be noticed. Firstly, the structure is hierarchical and functions at four levels – centre, state, district and local. In both the setups – one that existed prior to the implementation of the Act, and other that is being formalized post-implementation of the Act, there have existed institutionalized structures at the centre, state, district and local levels. Each preceding level guides the activities and decision making at the next level in hierarchy. Secondly, it is a multi-stakeholder setup, i.e., the structure draws involvement of various relevant ministries, government departments and administrative bodies.

Role players in Disaster

- People: Individuals, House- holds, Volunteers
- Government Dept. Officers: Public health workers (Doctors, Nurses, Pharmacists, etc...), Agriculture, Engineers (Housing, Roads & Buildings, Irrigation), Revenue department, Police, Defence, NGOs
- Gram panchayat
- Village Elders

Disaster management for COVID-19 (Corona virus Disease- 2019)

WHO Country Office for India has been working closely with MoHFW on preparedness and response measures for COVID-19, including surveillance and contact tracing, laboratory diagnosis, risk communications and community engagement, hospital preparedness, infection prevention and control, and implementation of containment plan.

"India is at a crucial juncture in its fight against COVID-19. The country has responded with urgency and determination as reflected in the Prime Minister's bold and decisive leadership. The government has also aggressively stepped up the response measures - find, isolate, test, treat and trace. World Health Organization is supporting the government's endeavour to further strengthen and intensify surveillance and build capacity of the health system. WHO stands together in solidarity with the government in its firm resolve to overcome this unprecedented challenge," says Dr Henk Bekedam, WHO Representative to India.

“Prevention is better than cure”

Follow the guidelines to help **Prevent from catching, carrying and passing on COVID-19:**

- ✓ Wash your hands frequently and carefully for at least 20 seconds with soap and water. If soap and water are not readily available, use a hand sanitizer that contains at least 60% alcohol.
- ✓ Avoid touching your eyes, nose, and mouth with unwashed hands.
- ✓ Maintain social distancing (At least 1 meter distance)
- ✓ If you have fever, cough and difficulty breathing, seek medical care early
- ✓ Cover your mouth and nose with a cloth face cover when around others
- ✓ Do not share personal items like phones, makeup, or combs
- ✓ Clean and disinfect frequently touched surfaces daily. This includes tables, doorknobs, light switches, countertops, handles, desks, phones, keyboards, toilets, faucets, and sinks.
- ✓ Do not gather in groups
- ✓ Avoid eating or drinking in public places
- ✓ Wash fresh groceries
- ✓ Self-quarantine if sick
- ✓ Frequently drink hot water or coffee
- ✓ Do yoga , meditation and pray for COVID- 19 patient
- ✓ Stay informed and follow advice given by your healthcare provider

“Stay home, Stay safe, Stay happy”

Taking these prevention strategies seriously is extremely important to stop the spread of this virus. Practicing good hygiene, following these guidelines, and encouraging your friends and family to do the same will go a long way in preventing the spread of COVID- 19 virus.

How to Recover from COVID- 19?

There's no treatment for COVID-19. Some of the things you can do to speed your healing are similar to how you might take care of the flu or a bad cold.

Eat healthy foods: If you feel like eating, fuel your body with the vitamins and nutrients it needs to get better. Limit sugary or highly processed foods like cookies and sodas. If you don't have an appetite, you don't need to try to force food down.

Drinks lots of fluids: Do this even if you don't feel like eating. Water is always a good pick.

Lower your fever: Take acetaminophen or ibuprofen if you have a temperature or body aches. Be careful not to take more than a total of 3,000 milligrams every 24 hours. That includes acetaminophen alone as well as in medications like cold and flu pills and syrups.

Rest: Know that you'll probably feel better eventually. If your symptoms do get worse, call your doctor.

CONCLUSION

Disasters and hazards can be manmade or natural; they can be prevented from taking place, steps and measures can be formulated in order to prevent them from taking place but at times they cannot be avoided. Disasters may take place accidentally; disasters and natural calamities, when they occur always lead to dire consequences such as loss of life, property, financial, economic and political resources, inventory, machinery and equipment and so forth. One of the most crucial aspects that has to be possessed is capacity; capacity means the resources, strengths and capital which exists in households, associations, organizations and communities which enable the individuals to mitigate, withstand, prevent, and recuperate from disasters at a fast pace.

Data from satellite sensors play an imperative role in disaster management and crisis prevention. Their effective application depends not exclusively on technical specifications, but is influenced by factors such as data distribution, capacity building, institutional development and information sharing. These are some of the skills that need to be possessed by the individuals who are involved in disaster management. While efforts are been implemented to develop new technologies in data collection and processing, the flow of data from providers to users has to be improved.

Disaster prevention: These are activities designed to provide permanent protection from disasters. Not all disasters, particularly natural disasters, can be prevented, but the risk of loss of life and injury can be mitigated with good evacuation plans, environmental planning and design standards.

Disaster preparedness: These activities are designed to minimize loss of life and damage – for example by removing people and property from a threatened location and by facilitating timely and effective rescue, relief and rehabilitation. Preparedness is the main way of reducing the impact of disasters.

Disaster recovery: Once emergency needs have been met and the initial crisis is over, the people affected and the communities that support them are still vulnerable. Recovery activities include rebuilding infrastructure, health care and rehabilitation.

Recovery aspects of COVID- 19

As of 16 April 2020 (5:00 PM), according to the Ministry of Health & Family Welfare (MoHFW), a total of 12759 COVID-19 cases, (including 76 foreign nationals) have been reported in 32 states/union territories. These include 1514 who have been cured/discharged, 1 who has migrated and 420 deaths. Hospital isolation of all confirmed cases, tracing and home quarantine of the contacts is ongoing.

“Patients are definitely recovering from Covid-19 ARDS [acute respiratory distress syndrome] and coming off vents,” Dr. Theodore “Jack” Iwashyna, a professor of pulmonary and critical care medicine at the University of Michigan, wrote on Twitter recently.

Health ministry has said that India's rate of recover from Covid-19 is 12%. The ministry has also said that 325 districts are corona virus free. The mortality rate from the virus is around 3.3 % in India. Interestingly, the rate of recovery and rate of death in India is almost half of

the global rates. The average rate of recovery across the globe is 24.86 per cent, while the mortality rate from the virus is 6.47 per cent.

"India is at a crucial juncture in its fight against COVID-19. The country has responded with urgency and determination as reflected in the Prime Minister's bold and decisive leadership. The government has also aggressively stepped up the response measures - find, isolate, test, treat and trace. World Health Organization is supporting the government's endeavour to further strengthen and intensify surveillance and build capacity of the health system. WHO stands together in solidarity with the government in its firm resolve to overcome this unprecedented challenge," says Dr Henk Bekedam, WHO Representative to India. Let's everyone pray to invisible power of God that every human beings in world get super power to fight against Covid- 19.

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