



DISASTER: AN OVERVIEW

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Disaster: An Overview

A disaster is the tragedy of a natural or a human made hazard that negatively affects society or environment. In contemporary academia, disasters are seen as the consequence of inappropriately managed risk. These risks are the product of hazards and vulnerability. Hazards that strikes in areas with low vulnerability are not considered as disaster, as is the case in uninhibited regions.

Developing countries suffer the greatest costs when disaster hits. More than 95% of all deaths caused by disaster occur in developing countries, and losses due to natural disasters are 20 times greater in developing countries than in industrialized countries. A disaster can be defined as any tragic event with great loss stemming from events such as earthquakes, floods, catastrophic accidents, fires or explosions.

Natural Disaster: A Natural Disaster is the effect of a natural hazard (example Flood, Volcano eruption, earth quake or landslides etc) that affects the environment, and leads to financial, environmental and or human losses. The resulting loss depends on the capacity of the population to support or resist the disaster, and their resilience

.Natural disasters are

- 1) Avalanches: A large mass of snow, ice, earth or other materials in swift motion down a mountain or over a precipice.
- 2) Earth quakes: An earth quake is a sudden shake of the earth's crust. The vibrations may vary in magnitude .The earthquake has point of origin underground called the focus. The point directly above the focus on the surface is called the epicentre. They are caused by the discharge of accumulated along the geologic faults.
- 3) Lahars: A Lahar is a volcanic mudflow or landslides.
- 4) Volcanic eruptions: An Eruption may in itself be a disaster due to the explosion of the volcano or the fall of rock ,but there are several effects that may happen after an eruption that are also hazardous to human life. Lava may be produced during the eruption of a volcano, a material consisting of super heated rock. There are several different forms which may be either crumbly or gluey. Leaving the volcano thus destroys any building and plants it encounters.

Volcanic ash –Generally meaning the cooled ash, may form a cloud, and settle thickly in nearby locations. When mixed with water this forms a concrete like materials.

Super volcanos: is a large volcano that has an eruption of 8,which is the largest value on the volcanic explosivity index(VEI).This means the volume of deposits for that eruption is greater than 1000 Km^3 .It is an unusually large volcano having the potential to produce an eruption with major effects on the global climate and ecosystems.

Natural hazards -is a threat of an event that will have a negative effect on people or the environment. Many natural hazards are related, for example, earth quakes are related with tsunamis and drought can lead directly to famine and disease.

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6) Pyroclastic flows: It consists of a cloud of hot volcanic ash which builds up in the air above under its own weight and streams very rapidly from the mountain burning anything in the path.

7) Floods: Tropical cyclones can result in extensive flooding storm surge. An overflow of a large amount of water beyond its normal limits, especially over what is dry land. It is a common natural disaster, and also very common.

8) Limnic eruptions: It occurs when CO_2 suddenly erupts from deep lake water, posing the threat of suffocating wildlife, livestock and humans. Such an eruption may also cause tsunamis in the lake as the rising CO_2 displaces water.

9) Tsunamis: It can be caused by undersea earthquakes. This would also fit within land movement category because it starts with an earth quake.

10) Blizzards: A blizzard is a severe winter storm condition characterised by low temperature, strong wind and heavy blowing snow.

11) Cyclonic storms: Cyclone, Tropical cyclone (some times called as Lehar in India), Hurricane and Typhoon are different names for the same phenomenon, a cyclonic storm system that forms over the oceans. In meteorology, a cyclone is an area of closed, circular fluid motion rotating in the same direction on the earth. This is usually characterized by inward spiralling winds that rotate counter clockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere of the earth.

12) Droughts: is defined as an acute shortage of water and crop failure that results when the average rain fall is very less than the normal. A drought is an abnormally dry period

when there is not enough water to support agricultural, urban or environmental water needs.

13) Hail storms (AKA hailstones) are rain drops that have formed together in to ice.

14) Heat waves: Is a period of excessively hot weather ,which may be accompanied by high humidity, especially in oceanic countries. It is measured relative to the usual weather in the area and relative to normal temperature of the season. It is a prolonged period of extremely high temperature for a particular region.

15)Tornados: A tornado is a violent wind storm consisting of a tall column of air which spins round. Different type tornadoes :super cell tornados , Landspout, Gustnado, Waterspout ,Dust devils, Martian dust devils ,Fire whirl/swirl / fire tornadoes etc

Wild fires: Wild fires are an uncontrolled fire burning in wildlife areas. Common causes include lightning and drought, but wildfires may also be started by human negligence or arson. They can be a threat to those in rural areas and also in wildlife.

Gamma ray burst(GRB):GRB are extremely energetic explosions that have been observed in distant galaxies .They are the brightest electromagnetic events known to occur in the universe. Bursts can last from ten milliseconds to several hours.

Solar Flares: solar flare is a phenomenon where the sun suddenly releases a great amount of solar radiations ,much more than normal. The term is also used to refer to similar phenomena in other stars, where the term stellar flares apply. It affects all layers of the solar atmosphere(photo sphere,corona,and chromo sphere),heating plasma to tens of millions of Kelvin's and accelerating electrons ,protons and heavier ions to near the speed of light.

Supernovae and Hyper novae: A Supernova(supernovae) is a stellar explosion .They are extremely luminous and cause a burst of radiation that often briefly outshines an entire galaxy, before fading from view over several weeks or months.Hypernova refers to an exceptionally large star that collapses at the end of its life span .The core of hyper nova collapses directly into a black hole ,and two extremely energetic jets of plasma are emitted from its rotational poles at nearly the speed of light. Supernovae are exploding stars. They represent the very final stages of evolution for some stars.

Impact event: An "Impact event" is the collision of a large meteorite, asteroid, comet or other celestial object with the earth or other planet. Impact events have been a plot

and back ground element in science fiction since knowledge of real impact established in the science main stream.

Famine: A famine is a severe shortage of food (as thorough failure) resulting in violent hunger and starvation and death. It is usually caused by crop failure or disaster.

Epidemic: An epidemic is the rapid spread of infectious disease to a large number of people in a given population within a short period of time, usually two weeks or less. It may be restricted to one location ,however ,if it spreads to other countries or continents and affects substantial number of people ,it may be termed a pandemic.

Disaster Management: Disaster Management is the discipline of dealing with and avoiding risks. It is a discipline that involves preparing for disaster before it occurs. Disaster response (example emergency evacuation, quarantine, mass decontamination etc) ,as well as supporting ,and rebuilding society after natural or human –made disasters have occurred.

In general, any emergency management is the continuous process by which all individuals, groups, and communities manage hazards in an effort to avoid or ameliorate the impact of disasters resulting from the hazards. Actions taken depend in part on perceptions of risk of those exposed. Effective emergency management relies on thorough integration of emergency plans at all levels of government and non-government involvement.

Disaster management is one of a number of terms which, since the end of the cold war, have largely replaced civil defence, whose original focus was protecting civilians from military attack. Some disaster relief experts noted that in a sense the only real disasters are economic. The cycle of emergency management must include long –term work on infrastructure, public awareness and even human justice issues. The process of emergency management involves four phases: mitigation, preparedness, response and recovery.

Major Disasters of India since 2000:

In India out of 29 state and 7 UT,24 states are vulnerable for natural disasters- droughts,flood,cyclone and earth quakes. Only one state (west Bengal) faces all four types of disasters. Disasters stemming from these hazards kill thousands of people every year and cause huge economic loss.

- 1) 2001-Earthquake in Gujarat killed 25000 people, affected sixty three core people (63million).
- 2) 2002-Indian heat wave: India's heat wave at south region killed more than 1000 people. Most of the death occurred in state Andhra Pradesh. The heat was so intense that birds fell from the sky. Ponds and rivers dried up.
- 3) 2004 -Tsunami.Tsunami in 2004 killed 10749,missing 5640 and 2.79 Million affected.
- 4) 2005- Kosi Floods in Bihar saw 527 killed and affected 3.3Million.In Maharashtra floods was occurred just one month after June 2005 Gujarat floods. Mumbai the capital city was most badly affected and witnessed one of its worst catastrophes in the history of India , killing at least 5000 people.
- 5) 2007- Bihar Flood: The 2007-2008 Bihar Flood are listed as the worst hit flood in the living memory of Bihar in last 30 years. Bihar is India's most flood prone state. A recurring disaster appears annual basis and thousands of human lives apart from live stock and assets worth million are also losing.
- 6) 2010-Eastern Indian Storm: The eastern Indian storm was a severe storm struck part of eastern Indian states ,spanning for 30-40 minutes .At least 91 people died in Indian states and over 91000 dwellings were destructed and /or partially damaged.
- 7) 2013-Uttarakhand flood-Uttarakhand in 2013 killed 6054 people. Maharashtra drought-Maharashtra state was affected by the region's worst drought in 40 years. Worst hit areas are Jalana,Jalgaon and Dhule which were affected by the famine .Millions of people in Maharashtra are at serious risk of hunger after two years of low rainfall in the region.
- 8) 2014-Kashmir floods -death toll 500 plus
- 9) 2015-Floods in Chennai-Due to continuous rain flood occurred in Chennai and nearby areas, affected 4.3 millions.
- 10) 2017-Okhi cyclone/hurricane -in kerala and Thamilnadu costs.661 (261+400)people were missed in this disaster .A loss of about Rs 4.29 billion is calculated.

Recent Disasters across the world: Climate and weather disasters have hit nearly every continent in 2017.Flooding and monsoons in south Asia, Hurricane in North America, landslides and droughts in Africa and a tsunami threat to Central America. These disasters vividly demonstrate that we need to redouble our efforts to reduce the impact of such events in the future .

- 1) Zimbabwe: Floods in Zimbabwe(February-March 2017) have killed 2 and left nearly 200 homeless since December 2016.
- 2) China: June 2017,Heavy rain in southern China caused severe floods and landslide affecting over 7.3million people, left out at least 10 people died and nearly 100 people missing.
- 3) Peru: Floods and landslides in February 2017 :Heavy rains ,landslides and rivers overflowing have effected more than 700000 people across Peru.22 people died ,1105 houses were destroyed.
- 4) Afghanistan: In may 2014 a series of heavy rain induced in multiple landslides struck in the Badakhshan province in north eastern Afghanistan causing significant loss of life and widespread damage to homes and agriculture .Flash flood in Baghlan province in april 25 and june 6 of 2014 forced thousands of people to flee and more than 100 of the residence have lost their lives.
- 5) Democratic Republic of Congo (DRC): In 2015, August 7,an earthquake hit eastern DRC,resulting in a small number of reported death and injuries in the town Bukava.
- 6) Srilanka: In May 2017 incessant rains in Srilanka effected over a half a million people in 7 district .Again series of floods came across Sri lanka till August 2017,which affected millions of people ,thousands of people lost their houses etc.
- 7) Mexico: Earthquakes in 2017 – A magnitude of 8.1 on the Richter scale struck off the Pacific coast of Mexico. An estimate of 50 Million Mexicans felt the tremor as per the Mexican government. Death toll reached 90,thousands of houses damaged and over 2 million people were affected in the country.
- 8) Combodia:2013- Floods in September 2013 ,killed 188 people , affecting more than 107 million.144000 people were evacuated.
- 9) Sierra Leone: August 2017-Sierre Leone’s capital Freetown experienced a devastating mudslide and flooding that claimed over400 lives. The final death toll listed as 1141 people dead or missing. More than 3000 people were left homeless and hundreds of buildings were damaged or destroyed by the mudslides.

Humanity is too small in front of the nature and we all know our limitations that disasters cannot be prevented completely. But with the help of modern scientific forecasting and technological know-how the process can be brought to a manageable limit. The projects aiming at giving the quick returns should be

discouraged specially in areas which are prone to natural calamities .In Google search identified areas emphasis should be given to the programmes which are long lasting and can sustain on permanent basis.

Provision should be made to collect information regarding the nature and frequencies of the natural calamities in the sensitive areas in the country through international satellite network. This will help in making the forecasting system more effective and meaningful in reducing the damage. The disaster forecasting information should be passed on to various user agencies without much redtapism. The regions prone to natural disaster should be mapped and marked clearly with a view to monitor them very closely. Detailed scientific investigation should be carried out in areas which have been affected by the earthquake, cyclone and flood before venturing into any developmental activities.

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