

Unit - II

→ Disaster (written in unit 1)

→ Classification → Natural (written in unit-1)
→ manmade

→ Causes of disaster:

Natural disaster

- global warming
- Natural activities in the earth's crust
- Mining
- Deforestation
- Soil erosion
- Pollution
- Air pressure
- Ocean currents

Manmade disaster

- Negligence
- Oil spilling
- Nuclear bombing testing
- Lack of fund, investments, education
- Terrorism
- Pollution

→ Impact

→ social
→ economic
→ political
→ environmental

for surroundings

→ health
→ psychosocial

people
(money)

can be written in own words just issue they face.

To prevent Drought :-

Impact on caste:-

→ Scheduled caste people are inhabited at low land areas.

→ housing condition of these people are at risk

→ During Floods they have no space to take shelter, neither the higher caste people allow them to take temporary shelter.

→ Such poverty & disaster make them worse.

→ Lack of information about occurrence of disaster.

Impact on gender:-

→ Women, children, widow, destitute & adolescent girls are most vulnerable & threat to various types of health hazard.

→ Elderly persons are both women & men are neglected in all respect & aspect.

impact on age:-

→ Youngest & oldest people are mostly impacted during any disaster for that matter.

impact on location:-

→ People living in the lowland areas, river sides, side of the river embankment-s, sea coast line are most prone to be effected by the natural calamities.

→ places prone to earthquake. (Kashmir, North & middle Bihar etc..)

impact on disability:- (Visually challenged, hearing impaired, physically disabled, mentally challenged)

→ Unable to hear danger signals, alarm, etc.
→ Difficult in evacuation & protection
→ Difficult in getting access to relief & compensation money
→ Difficult to locating avenues of escape.

To prevent Drought :-

→ global trends in disaster:-

write about past disasters which are written in unit 1

→ Urban disasters:-

When a disaster affect cities or urban areas they are referred to as urban disasters.

ex) Floods, earthquake, Tsunami, cyclone

drought

impact of urban disasters can be explained if asked for higher marks

- human / loss of lives
- Destruction of buildings & infrastructure
- Water contamination.
- Damage of (factories, storage, agricultural lands).

(you can write in your own words anything else)

→ Pandemics:

- It is related to geographic spread
- Describes disease that affects a whole country or the whole world.
- These arise from food sources, water sources, etc...

ex. SARS - CoV-2 (COVID-19)

→ Spread of them is rapid

causes → commonly from food source / water sources.

effects:

- human / loss of lives.
- loss of employment
- shutdown / lockdown of multiple place
- economical losses
- Changes of future lives (way of living etc.).

To prevent Drought :-

General countermeasures:-

- An effective medical & health plan,
- Close post disaster monitoring of medical & health aspects
- Public awareness & education, both before & after disaster impact
- Reinforcement of medical resources & supplies in anticipation of epidemic outbreak

Special problem areas of disaster management-

- Loss of medical & health resources (clinics, medical supplies) during disaster impacts.
- In some places/countries shortage of special equipment
- Integration of outside (international) medical & health assistance with local systems.
- Controlling other common spread-diseases

→ Epidemic: a sudden violent shaking of

→ It is related to local spread

→ Event in which a disease is actively spreading

→ Epidemic may arise from food sources, water source etc. (surrounding)

e.g. typhoid, diphtheria, malaria, cholera, influenza, enteritis, skin / food poisoning.

→ Speed of onset is mostly rapid.

cause

→ wide spread or from food / water

→ from surrounding

effects

→ human / loss of lives

→ loss of employment

→ economical loss

→ Change in way of living.

General countermeasures:-

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General countermeasures
Special problem area } ing

→ Complex emergencies

These emergencies involve a break down of authority, looting & attacks on strategic installations
it includes conflict situations & wars.

→ Civil Unrest / wars

→ Usually the responsibility of police, paramilitary & armed forces
→ violent & disruptive activities occur.

→ Patterns of civil unrest are difficult to predict.

e.g. strikes, wars, bombing.

~ sudden violent shaking of

→ General countermeasures

→ Firmly applying law & order regulations & requirements

→ Imposing special emergency measures & regulations.

→ positive information programs aimed at maintaining public support for government actions.

→ Special problem areas for disaster management

→ Overloading of resource organization

(eg. medical authorities, welfare agencies & essential services) because of demand of civil unrest incidents, in addition to normal commitments

→ Difficult to maintain peace
→ Organizing everything is

complex.

→ Climatic change:

→ Climatic change can increase disaster risk in variety of ways by altering frequency & intensity of hazard events.

→ Impact on ecosystem, reduction in water & food availability & changes to livelihoods will increase vulnerability.

→ Climatic change disasters include hydro-meteorological hazards / disasters like droughts, floods, tornados, cyclones, droughts, wild fires, floods.

→ It can lead to global warming increasing the temp of earth.

→ Could lead to multiple disasters & huge losses.

→ Cyclones : a sudden violent shaking of the

→ It is a type of rotating storm that occurs in ocean or sea near the tropic (tropical cyclone).

→ If it is rotating clockwise near southern hemisphere.

anticlockwise near northern hemisphere.

→ In Indian ocean we call them as cyclone.

Characteristics

→ Size of it can be 80 km to 300 km in diameter. even smaller ones are 50 km or less.

→ Speed can be above 32 km/hr

→ In ocean its velocity increases

& on land its velocity decreases.

→ In center of cyclone we have low pressure (650 mb).

→ Cyclones can also be mobile & non mobile (moving & not moving)
→ mostly seen in summer.

→ Formation of cyclone (img)

→ general counter measures
→ special problem areas in DM } in Tropical cyclone

→ Tropical cyclone's

→ It is a type of rotating storm that occurs in ocean or sea near the tropic is called Tropical cyclone

→ Characteristics same as above

Major effects

→ ~~Destruction & for severe~~
damage to buildings & other structures, roads, essential services, crops & the

environment. a sudden violent shaking of the

→ Major loss of life & livestock may occur.

→ general countermeasures

→ moving people to safe shelters

→ Precautionary measures during warning period.

→ Public education & awareness should be given

→ information/details of info about cycle should be announced using TV/radio/social media.

→ Special problem areas for DM:

→ assessing effects & needs may be

difficult → widespread destruction or loss

of counter-disaster resources

→ Search & rescue is a bit tough.

→ widespread destruction.

→ Storms:

→ Any disturbed state of environment due to strong winds.

→ It is disruption to normal conditions like strong wind, tornadoes, lightning (thunderstorm), heavy precipitation snowstorm, rain storm.

→ Storms are similar to cyclones
(on land) (in water)

(→ you can write same concepts from cyclones)

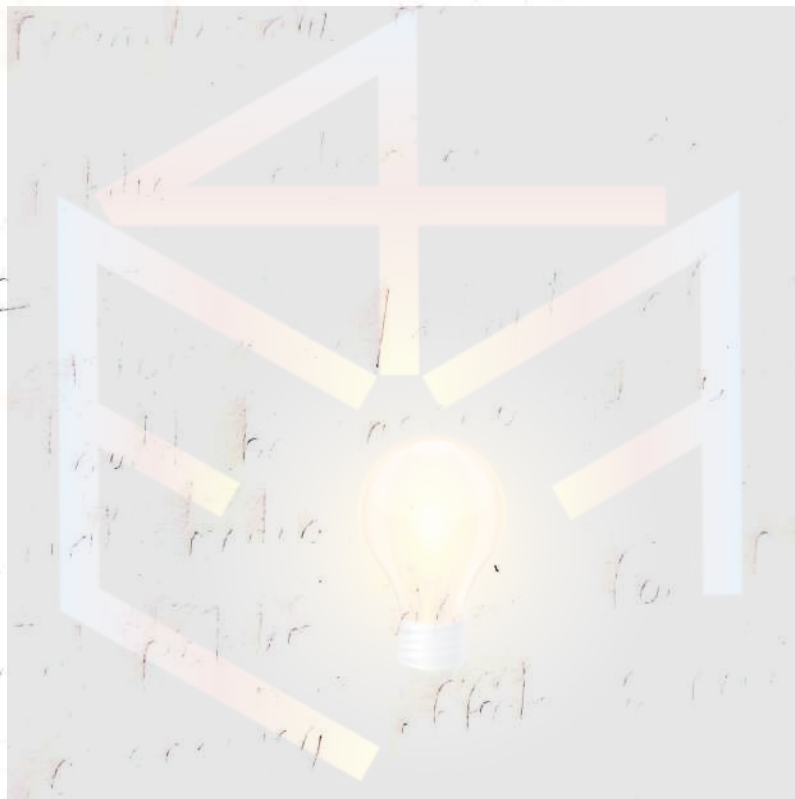
→ Cumulative atmospheric hazards & disasters

It includes

- cyclones, storms
- Tornadoes
- Flooding
- Drought
- Wild fire
- earthquakes
- Volcano

From PDF

→ cold & heat waves } img'
→ Road hazards



Earthquake

→ A sudden violent shaking of the ground, typically causing great

Characteristics

- Usually no warning.

However, following a major earthquake, secondary shocks may warn of a further earthquake.

- Speed of onset usually sudden.
- Major effects (see also paragraph 4) is due to

- land movement, fracture,
- or slippage;

result;

- damage (usually very severe) to structures and systems and considerable casualties due to lack of warning.

General countermeasures

- Developing possible warning indicators,
- Land-use regulations,
- Building regulations,
- Relocating communities, and
- Public awareness and education programs.

Special problem areas for disaster management

- Severe and extensive damage,
- creating the need for urgent countermeasures
- Difficulty of access and movement;

effects:

- ~~destruction~~ destruction of property, roads etc.
- Building collapse
- huge damage & lives loss.

disturbance, a result of movement within earth's crust or volcanic action.

Causes

- An earthquake occurs when you have a sudden slip on a Fault
- due to volcanic eruption's underground.

- Widespread loss of or damage to infrastructure, essential services, and life-support systems;
- Recovery requirements e.g., restoration and rebuilding) may be very extensive and costly; and
- Rarity of occurrence in some areas may cause problems for economies of countermeasures and public awareness.

Volcanic Eruption

→ It happens when lava & gas are discharged from a volcanic vent.

Characteristics

- Volcanic blast can destroy structures and environmental surrounds
- Lava flow can bury buildings and crops. It may also cause fires and render land unusable.
- Ash, in its airborne form, can affect aircraft by ingestion into engines.
- Ash may also cause respiratory problems.

General countermeasures

- Land-use regulations,
- Lava control systems,
- Developing a monitoring and warning system,
- Relocating the population

causes

- Formation of magma
- pressure from gases in magma

Special problems areas for disaster management

- Access during eruption.
- Timely and accurate evacuation decision(s).
- Public apathy, especially if there is a history of false alarms or small eruptions

effects

- volcanic gases } dangerous
- lava flow
- landslides etc...

- Control of incoming sightseers

Tsunami (Seismic Sea Wave)

Characteristics

- The velocity of the wave depends on the depth of water where the seismic disturbance occurs.
- Warning time depends on the distance from the point of wave origin.
- Speed of onset varies.

→ A series of waves caused by an earthquake, underwater volcanic eruption, landslides or other abrupt disturbance.

Effect

- flooding;
- saltwater contamination of crops, soil, and water supplies;
- destruction of or damage to buildings, structures, and shoreline vegetation.

General countermeasures

- Optimum arrangements for receipt and dissemination of warning;
- Evacuating threatened communities from sea level/low-level areas to high ground
- Land-use regulations
- Public awareness and education programs.

Special problem areas for disaster management

- Timely dissemination of warning
- Effective evacuation time-scale;
- Search and rescue; and

causes

- earthquake
- Ice Fall
- Volcanic eruption

- heavy rainfall
- Landslides

effect

- destruction
- damage both gov & private property
- direct loss.

- Recovery problem may be extensive and costly because of severe destruction and damage.

Flood

→ definition, effect, causes already written in unit I

Characteristics

- Long, short, or no warning, depending on the type of flood
- Speed of onset may be gradual or sudden;
- There may be seasonal patterns to flooding; and
- Major effects arise mainly from inundation and erosion;

Effect;

- isolation of communities or areas, and involve the need for large-scale evacuation.

General countermeasures

- Flood control (e.g., by walls, gates, dams, dikes, and levees);
- Land-use regulations;
- Building regulations;
- Forecasting, monitoring, and warning system(s);
- Relocating population;
- Planning and arranging evacuation;
- Emergency equipment, facilities, and materials
- Public awareness and education programs.

Special problem areas for disaster management

- Difficulties of access and movement;
- Rescue;
- Medical and health difficulties (e.g., arising from sanitation problems);
- Evacuating;
- Loss of relief supplies; and
- Large-scale relief may be required until next crop harvest.

Landslide

Characteristics

- Warning period may vary. Little or no warning may be available if the cause is an earthquake.
- Speed of onset is mostly rapid.
- Damage to structures and systems can be severe
- Rivers may be blocked, causing flooding.
- Crops may be affected
- When landslides are combined with very heavy rain and flooding, the movement of debris (e.g., remains of buildings, uprooted trees) may cause high levels of damage and destruction.

General countermeasures

- Land-use and building regulations;
- Monitoring systems, where applicable;

effects

- damage of roads & buildings
- blocks & jams
- lives lost

→ a sudden collapse of a mass of earth or rock from a mountain or cliff.

causes

- earthquakes
- heavy & prolonged rainfalls

- geographical factors

- Evacuating and/or relocating communities
- Public awareness programs.

Special problem areas for disaster management

- Difficulties of access and movement in affected areas;
- Search and rescue;

Risk of follow-up landslides may hamper response operations;

- Relocation
- Rehabilitation and recovery may be complex and costly; and

Bushfire (or Wildfire)

→ a large, destructive fire that spreads quickly over woodland or brush

Characteristics

- Bushfire threat tends to be seasonal.
- Speed of onset may vary
- fragments of fire from a main front may be carried forward by the wind, starting new fires further ahead. This is sometimes known as "spotting."
- Effects can be very destructive, especially in loss of buildings, timber, and livestock
- Recovery from effects on the environment may take several years.

General countermeasures

- Accurate risk assessment;
- Effective monitoring and warning systems, including remote sensing to define "curing" or drying out of vegetation;
- Fire prevention regulations;

causes

- electric power
- vehicle

- lightning
- campfire
- playing with fire

- smoking.

effects → ↓ O₂

→ an indirect deforestation

→ huge pollution.

- Seasonal mitigation measures
- Building regulations; and
- Public awareness and education programs,

Special problem areas for disaster management

- Maintaining adequate community awareness and preparedness;
- Establishing and maintaining adequate fire-fighting resources
- Establishing an adequate warning system,
- Timely dissemination of warning and, if applicable, decision to evacuate;
- Long-term recovery may be prolonged
- Evacuation movements, either out of affected areas or to safe havens within such areas.

Major Accident

/Road hazards

Characteristics

- Usually violent in nature
- Can have limited or widespread effect
- Mostly limited or no warning,
- Speed of onset usually rapid.

General countermeasures

- Good physical planning
- Special building regulations, if applicable;
- Good in-house safety and management standards/procedures

- Effective organizational emergency services (e.g., fire services and rescue teams)
- Effective community or area disaster plans
- Training in handling the effects of specific hazards.

Special problem areas for disaster management

- problems of reaction and response time;
- Response problems may be severe, extensive, and difficult
- Identifying victim may be difficult in some cases.

Heat waves:

→ A heat wave, ~~it~~ is a period of excessively hot weather

- Prolonged period of excessive heat with humidity
- Develops slowly and kills and injure more animal and people
- Silent disaster

Effects:

- Heat stress
 - Sunstroke
 - Severe dehydration with vomiting and high fever
 - More severe in may and June in india
- effects which accompanied by high humidity, especially in oceanic climate countries

Causes:

- Higher atmospheric pressure, air from upper levels of atmosphere descends and rotates and compresses. Thus raising the temperature

- Occurs in elderly, babies < 4yrs, outdoor workers, pregnant women, infants

Heat stress on livestock:

- Animals change their behaviour

Effect of heat waves on Agriculture and crop

- No precipitation
- Dryness or drought
- Enormous damage, crop failure and harvest loss

Psychological and sociological effects due to heat waves:

- power outages
- Wildfire
- Physical damage – roads, water lines burst

Heat disorders

- Sun burn → skin redness and pain, fever, headache.
Take a shower using soap as first aid
- Heat cramps in legs and abdominal muscles
Gentle massage is done as first aid
- Heat exhaustion – heavy seating, weakness, skin cold pale, weak pulse, fatigue, vomiting
- Heat stroke – high body temperature, hot dry skin

Cold waves:

→ A rapid fall in temperature within 24 hrs & cooling wave / air are passed

- Influx of unusually cold air into middle or lower latitudes

Formation of cold waves

- When cold air masses transport only little moisture.
- Precipitation occurs as snow or sleet
- Cold waves accompanied by strong wind is called as winter storm

Effect on person and economic activity

- Hypothermia and frostbite
- Injury and death to livestock and wild life
- Mandates greater calorie intake
- Causes famines, droughts, forest fires
- Water supply may become unreliable
- People can stock up on food, water

Effect of cold wave on other sectors

- Demand for electrical power and fuels rises dramatically
- Some metals may become brittle at low temperature
- Antifreeze

Cool weather injuries

- Non freezing – hypothermia, chilblains, trench/ Immersion foot
- Freezing – frost nip, frost bite

Frost bite

- True freezing of tissues
- Pains, blanching of skin
- Treatment is rewarming

Snow blindness

- Light reflection of snow causes red, itchy eyes
- Treatment: rest eyes or bandage

Dehydration

- Loss of body moisture, dry air causes dry lips and mouth, fatigue
- Treatment – drink frequently

Hypothermia

- Less than 40 F causes shivering, slow speech

Chilblain

- Repeated, chronic exposure of bare skin appear as swollen, tender papules
- Treatment – passive warming at room temperature

Trench foot/ immersion foot

- Prolonged contact with moisture causes swelling, tingling and itching

Cold weather injury prevention tips

- Keep clothing clean
- Avoid overheating
- Wear clothing in layers

5/ 1) Write about road hazards in India?

→ People who drive on the wrong side of the road:

We do see many people drive in the wrong sides, few accidents do occur do this.

→ Potholes on the road:

low road qualities or damage due to heavy rain the holes are formed & which cause many issues for the driver.

→ Stray animals (dogs, cows)

dogs & cows are common animals which we do see on roads which do cause problems.

→ Drivers who don't use
rear view mirror

Most seen in student-
vehicles rear view mirror
are removed & which keep
them in risk

→ Overloaded & oversize
vehicles

We do see heavily
overloaded vehicles on National
Highway every day (which do cause
huge accident)

→ Driving at high speeds

High speed is a
huge problem for all other
& to them.

→ Switching lanes wrongly
which do cause
accidents

→ Stationary/Broken down
vehicles on road

Few do stop in the
middle of the road which cause
huge problems to other

→ reckless & drunk & drive

huge ill.

"Write point-1 on your own to
elaborate answer"

ii) Explain the factors which
contribute to risks

2