

2.

The Conceptual Framework

What is a disaster?

What causes a disaster?



Hazard



Event



Structural Damage



Functional Damage



Needs



Emergency



Disaster

Hazard

a dangerous phenomenon, substance, human activity, or condition that may cause loss of life, injury, or other health impacts, property damage, loss of livelihoods and services, social and economic disruption, and/or environmental damage

- Natural or human-made phenomenon or mixture of both
- Has the *potential* to adversely affect human health, property, activity, and/or the environment
- **Potential energy”**

Hazards

- Natural
 - Geophysical
 - Climatological
 - Meteorological
 - Hydrological
 - Biological
- Human-made (anthropogenic)
 - Technologic
 - Stored chemicals
 - Unstable structures
 - Unexploded bomb
 - Transport
 - Potential Conflict
- Mixed (natural + human)
 - Health-related



Event

- Something that happens or takes place
- An occurrence that has the potential to affect living beings/and or their environment; the actualization of a hazard
- The actualization of the hazard
 - Primary (precipitating) event: event responsible for initiating the damage (eg. Hurricane Katrina)
 - Secondary events: events that result from the primary event (eg. flood of New Orleans as a result of Hurricane Katrina)
- Release of energy

Events

Natural

■ Geophysical

- Earthquake
- Volcano eruption

■ Climatological

- Wind
- Precipitation
- Wildfires
- Temperature extremes
- Drought
- Desertification

■ Hydrological

- Floods
- Avalanche
- Tsunami

■ Meteorological

- Storms

■ Biological

- Epidemic
- Insect infestation

Events

Human-made (anthropogenic)

- Technological
 - Substance release
 - Transport accident
 - Structural collapse/failure
 - Explosions
 - Fire
 - Environmental interference
- Conflict
 - Armed (war, terrorism, complex)
 - Unarmed (sanctions, embargo)

Mixed

- Landslide
- Epidemic



Hazard

Event

Characteristics of Events

- Onset
- Duration
- Amplitude
- Intensity
- Scope
- Magnitude
- Scale

Event Characteristics

ONSET

Sudden

(secs-hrs) _____

Gradual

(days-weeks) _____

Slow

(mnths-yrs)

DURATION

Brief (secs-hrs)

Earthquake
Tsunami
Volcanic eruption

Short (hrs-days)

High Winds
Flash floods

Floods
Temp extremes

Intermediate

(days-weeks)

Volcanic eruption
Armed conflict
Epidemics

Epidemics

Epidemics

Prolonged
(months-years)

Armed conflict

Armed conflict

Drought
Famine
Conflict

Event Characteristics

- Amplitude: the degree of departure from the point of equilibrium
 - Storm crest, storm surge height, Richter scale
- Intensity: the amount or force of energy per unit of time
 - the integral of amplitude over a given period of time (amplitude/time interval).
 - Rainfall/hour

Event Characteristics

- Scope: the extent of the area of subject matter that something deals with or to which it is relevant
 - the area covered by a given activity
 - in terms of a disaster, scope refers to the area effected by an event
- Magnitude: the total amount of energy released; a mathematical quantity
- Scale: the scope and magnitude of an event intensity in an area (intensity x area)
 - Incidence of disease in county, hectares flooded



Structural Damage

- The physical disruption of structure(s) that results from the energy released during an event:
 - Humans and other living things
 - Human-built structures
 - Environment
- Harm or injury impairing the value or usefulness of something, or persons

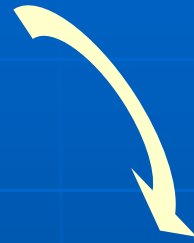


Event



Structural
Damage

Event



Structural Damage



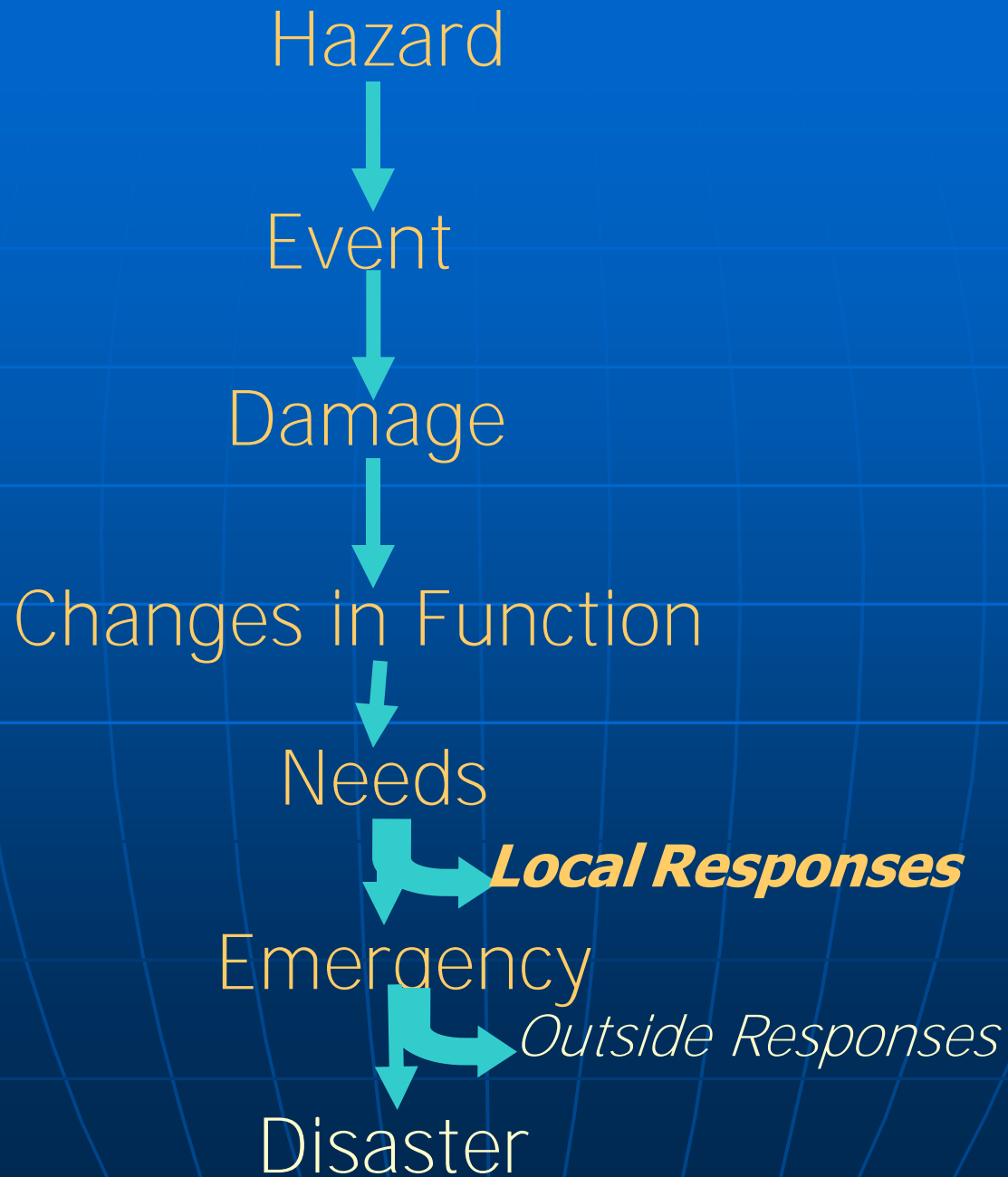
Functional Damage (Loss of Function)

- Damage that results in a change in/loss of function of living creatures, or the systems essential to societal function(s)
 - Damaged bridge leads to loss of means of transportation
 - Collapsed hospital leads to loss of healthcare services
 - Contaminated wells lead to loss of potable water



NEEDS

The differences between the requirements and available resources that occur as a result of functional damage



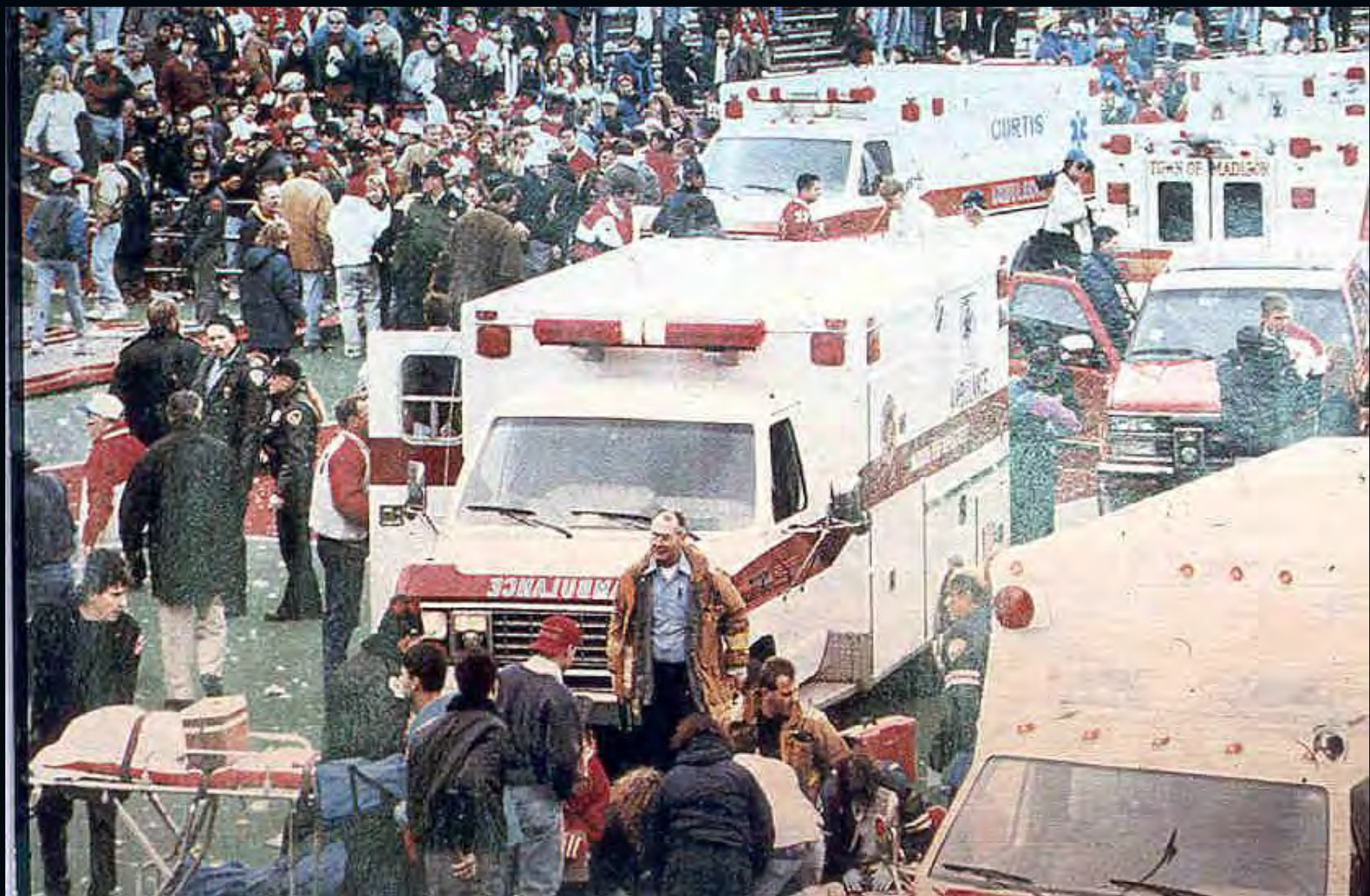
Emergency

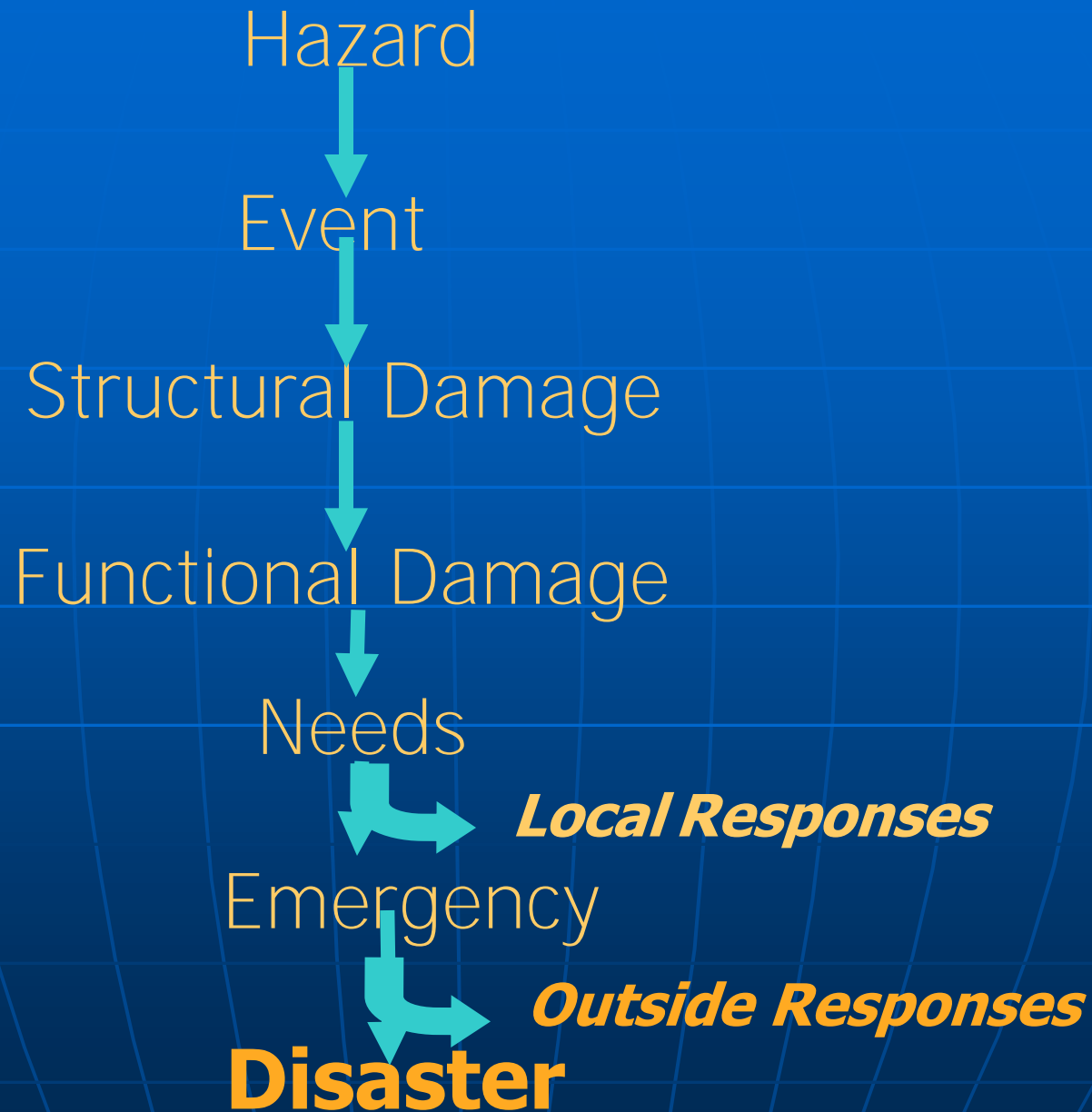
- An occurrence or set of circumstances demanding immediate action
- An emergency occurs when an individual or society must use its (local) response capacity to meet the need(s) created by the changes in or loss of function(s)

Local Response









Disaster

- A disruption of a society, or component of a society, of such magnitude that the needs exceed its ability to cope without outside help; a situation that overwhelms local response capacity

The Conceptual Framework Defines the Language of Disasters

- Distinguishes between
 - Hazard
 - Event
 - Structural Damage
 - Functional Damage
 - Emergency
 - Disaster

The Event IS NOT the Disaster!!!!!!

What is depicted below?

- A. Hazard
- B. Event
- C. Structural Damage
- D. Functional Damage
- E. Disaster



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What is depicted below?

- A. Hazard
- B. Event
- C. Damage
- D. Disaster



What is depicted below?

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