

3.

Risks, Capacities, and Resilience



Risk

- the probability that something will occur;
- often expressed in terms of a combination of the likelihood of occurrence and the consequences of an event (ISO 31,000)

Risk

- Probability = likelihood, chance, prediction
- Probability ranges 0 to 1
- Chance = % something will happen
- Difficult to quantitate predictions, 1 in 10, 1 in 1,000, 1 in a million!!!!
- Qualitative: “high”, “moderate”, “medium”, “mild”, “slight”, “minimum”

~~Hazard~~

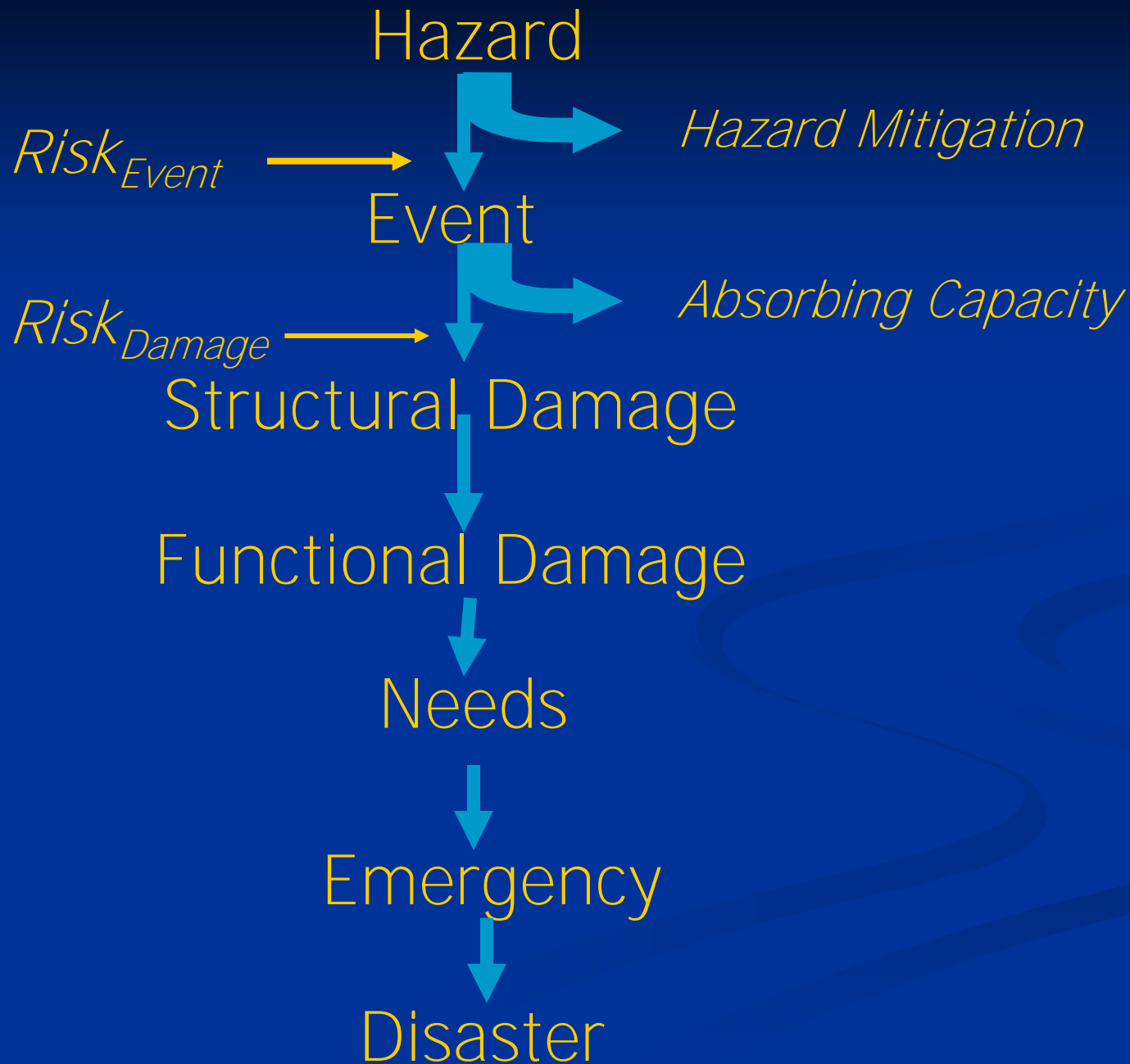


~~Event~~



Hazard Mitigation

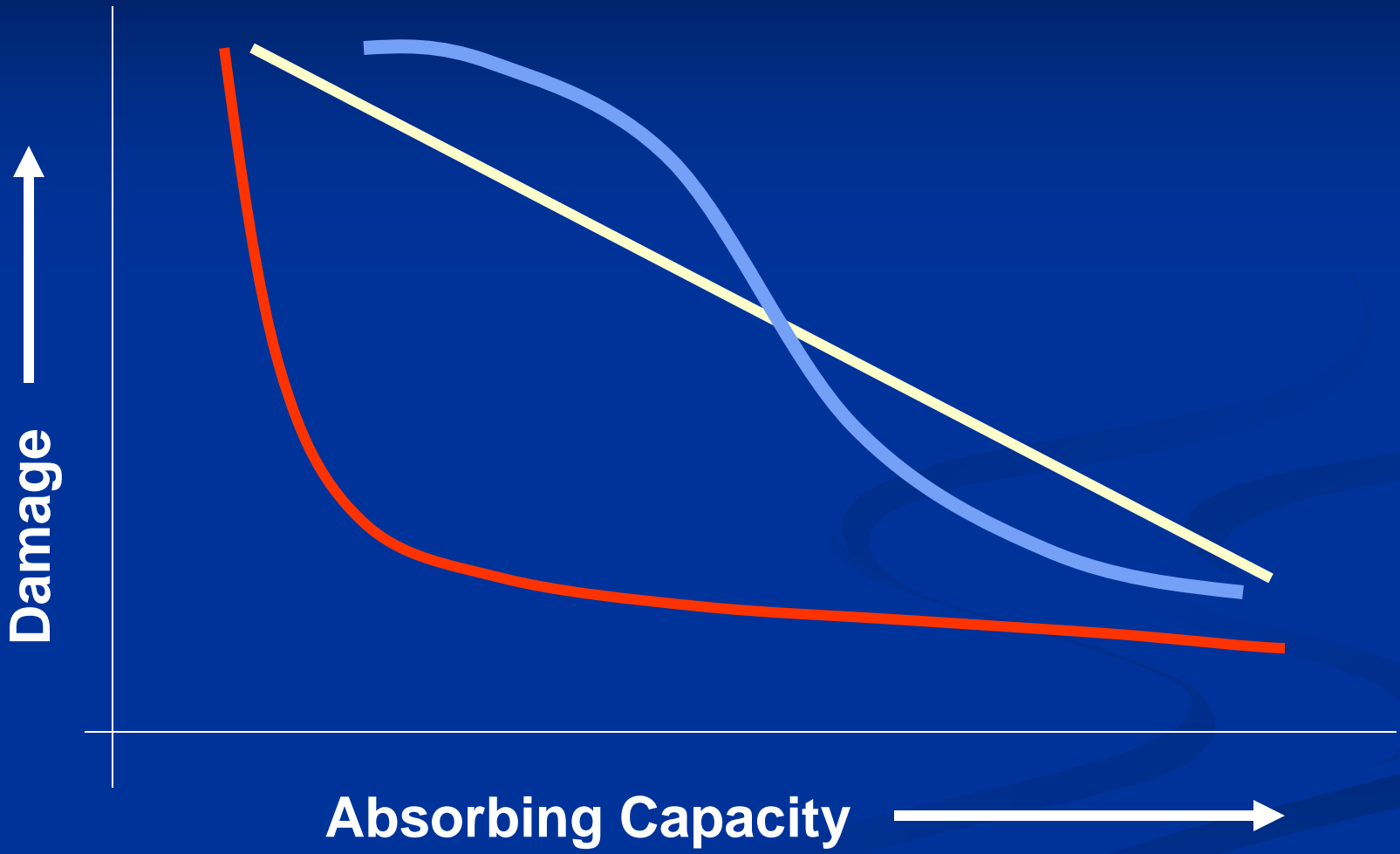
- the alleviation, abatement, or diminution of a hazard
 - Snow blasting
 - Encasement
 - Detoxification
 - Safer highways

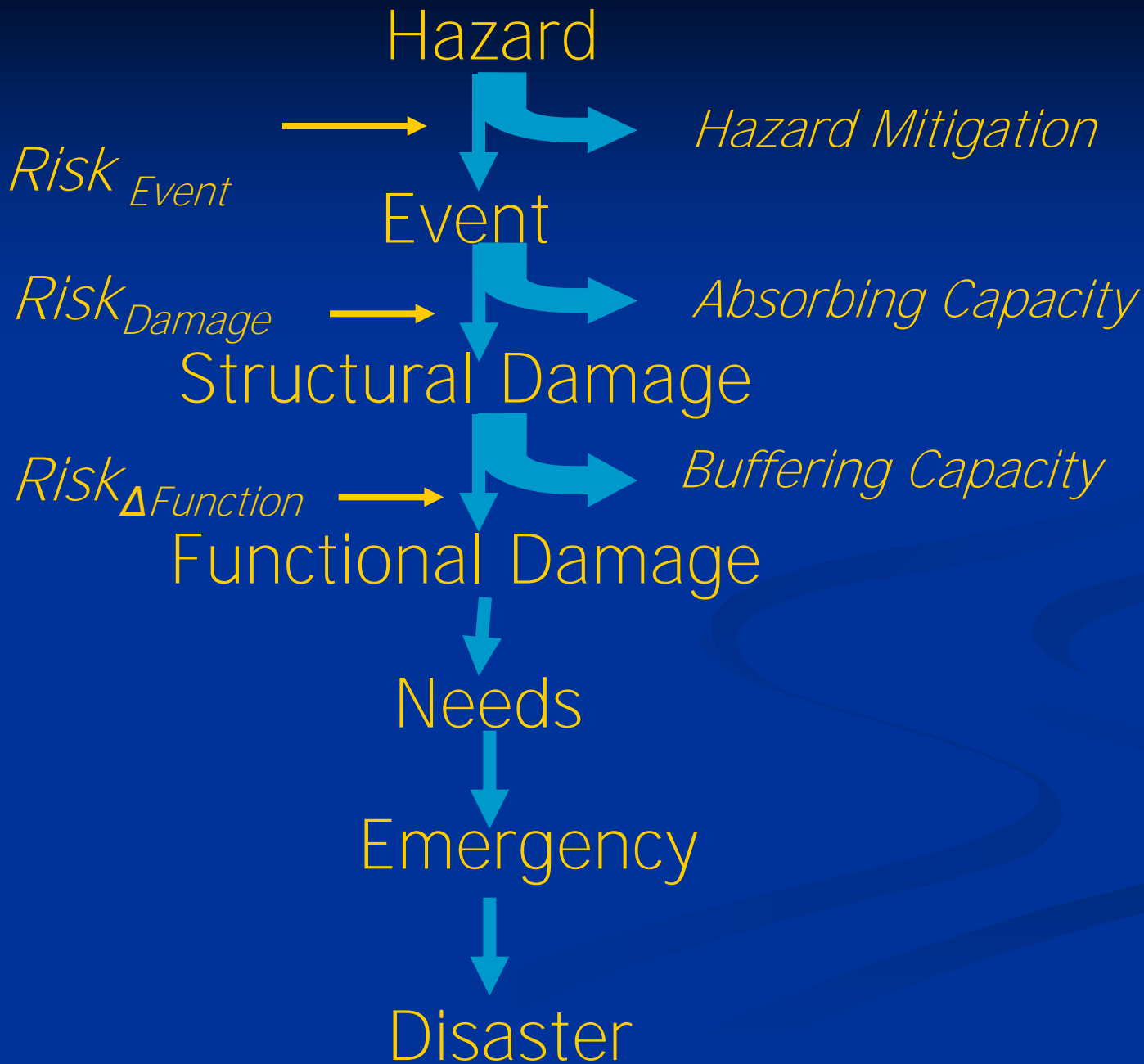


Absorbing Capacity

- The ability to mitigate the amount of structural damage that results from an event`
 - Levees
 - Building codes
 - Reforestation
 - Boarding windows
 - Bomb shelters
 - Bullet proof vests
 - Air bags
 - Exposure
 - Evacuation
 - Relocation
 - Isolation/quarantine

Absorbing Capacity

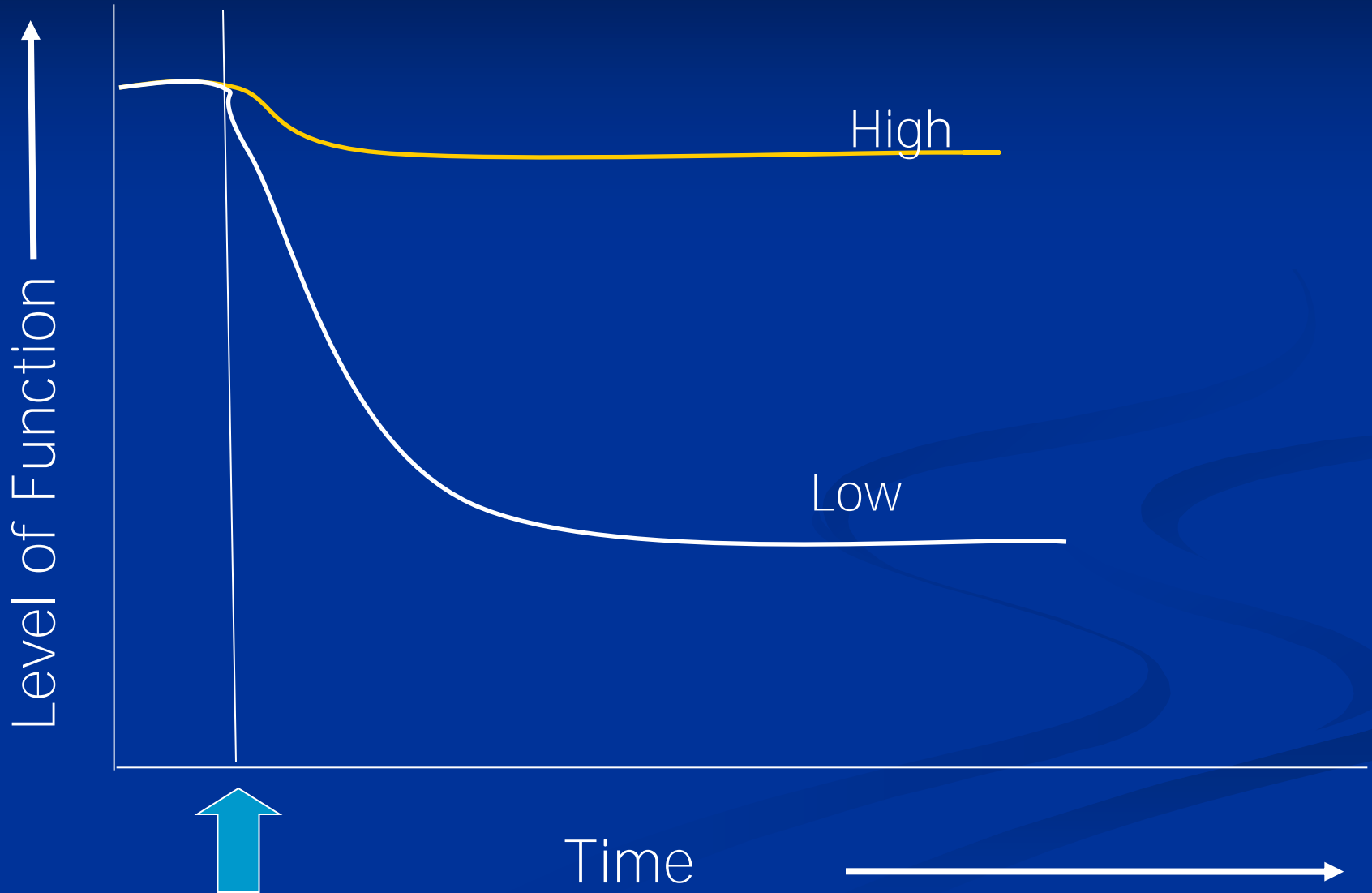


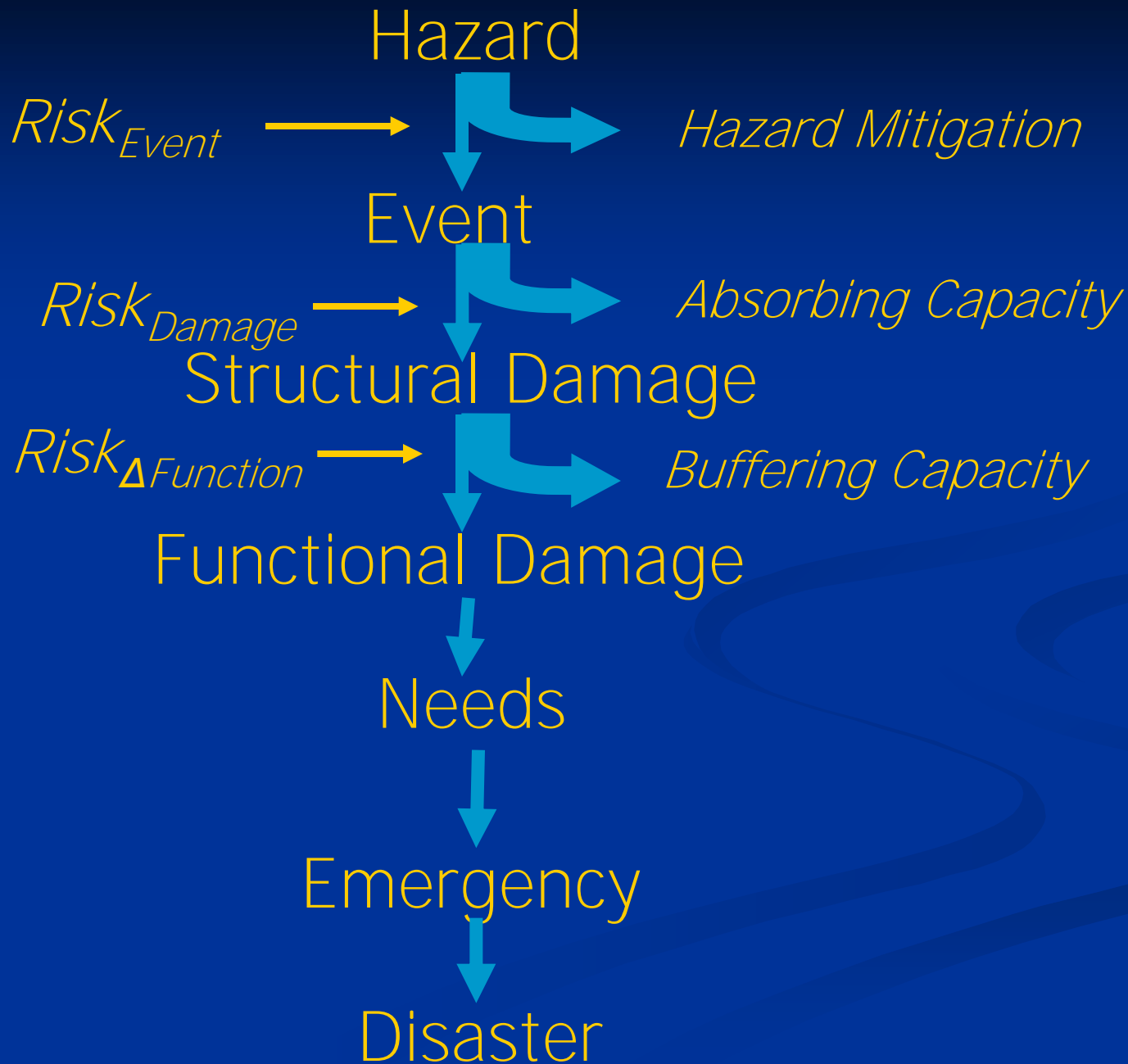


Buffering Capacity

- The ability to buffer or cope with the damage sustained from an event without a decrease or loss of function
- The ability to maintain essential functions despite a change in available resources
 - Backup Generators
 - Alternate sources of fuel
 - Shelters
 - Cross-trained personnel
 - Wells/rain water

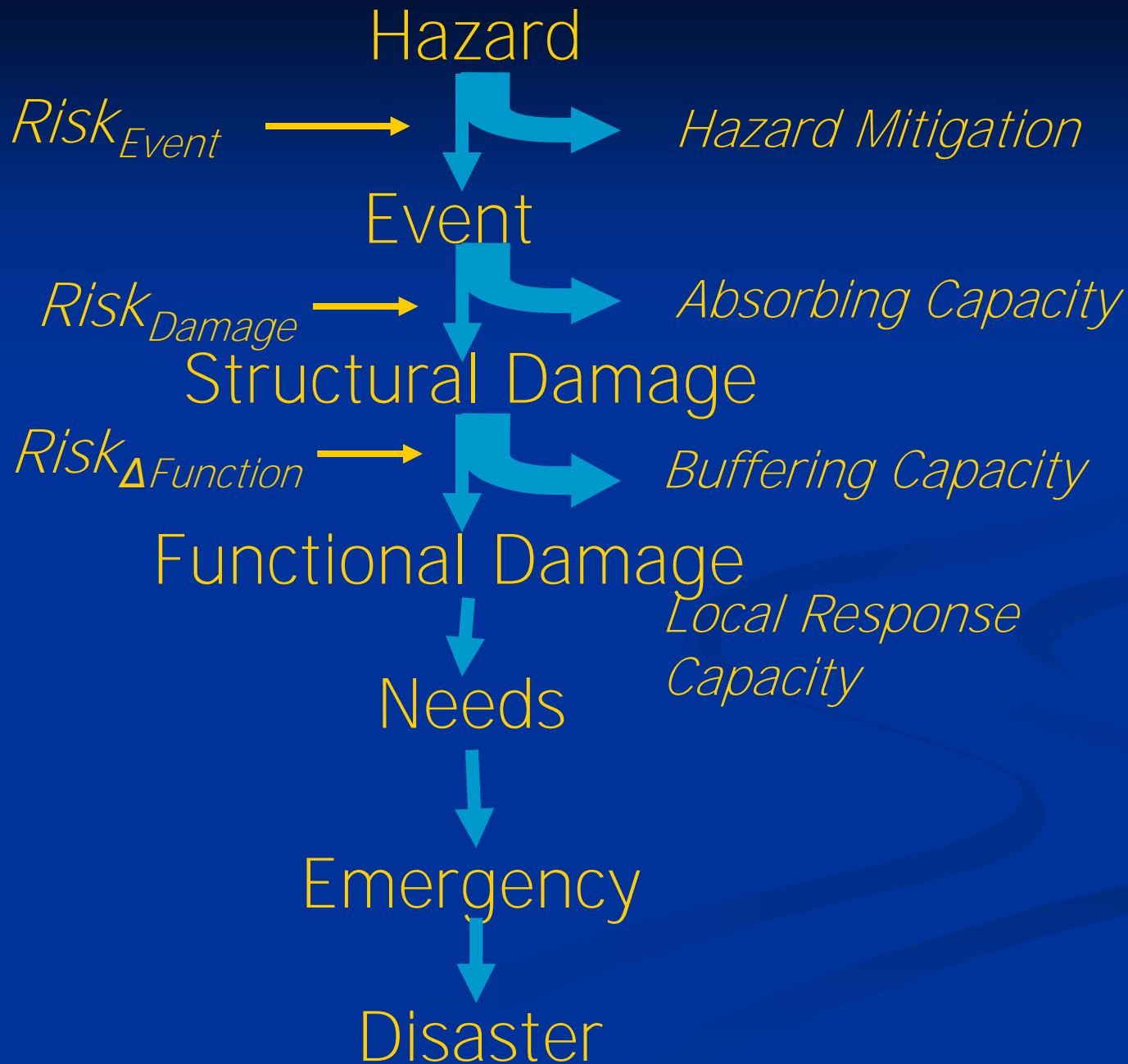
Buffering Capacity





Needs

the difference between functional requirements and available supplies

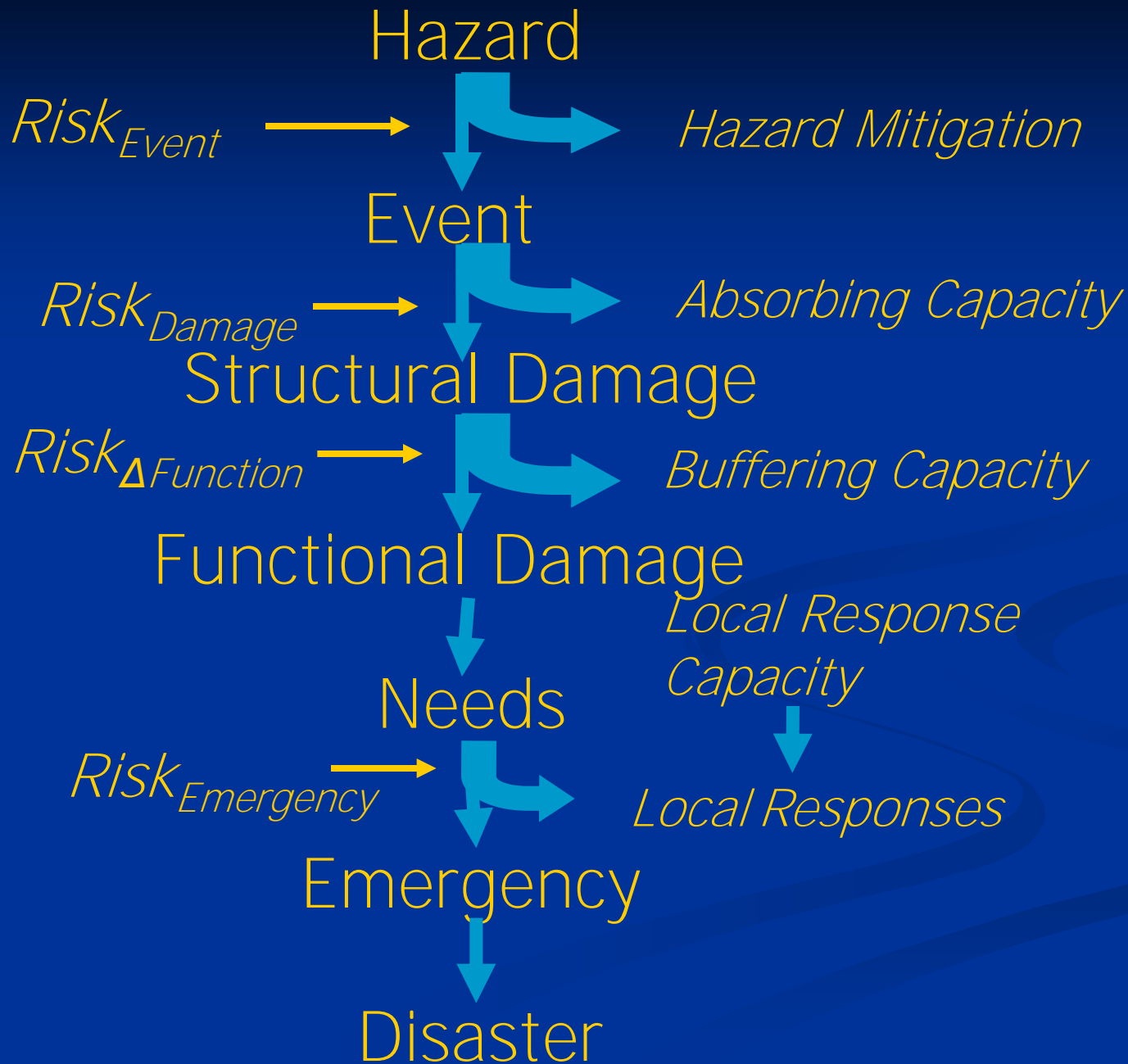


Response Capacity

- the capacity to respond or intervene to meet the needs and prevent further deterioration of function(s) of a society impacted by an event
 - Supplemental staff
 - EMS
 - Surge capacity
 - Stockpiles

Local Response Capacity

- capacity of the systems within an impacted area to respond to or intervene to meet the needs of the impacted population within that area.



Emergency

- A situation in which 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)



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 the local response capacity

Outside Response Capacity

- capacity of the system(s) outside of an area directly impacted by an event to respond to or intervene to meet the needs of the impacted population



Resilience

- ability of a system, community, or society exposed to hazards to resist, absorb, accommodate to, and recover from the effects of a hazard in a timely and efficient manner

Resilience =

Absorbing Capacity

+

Buffering Capacity

+

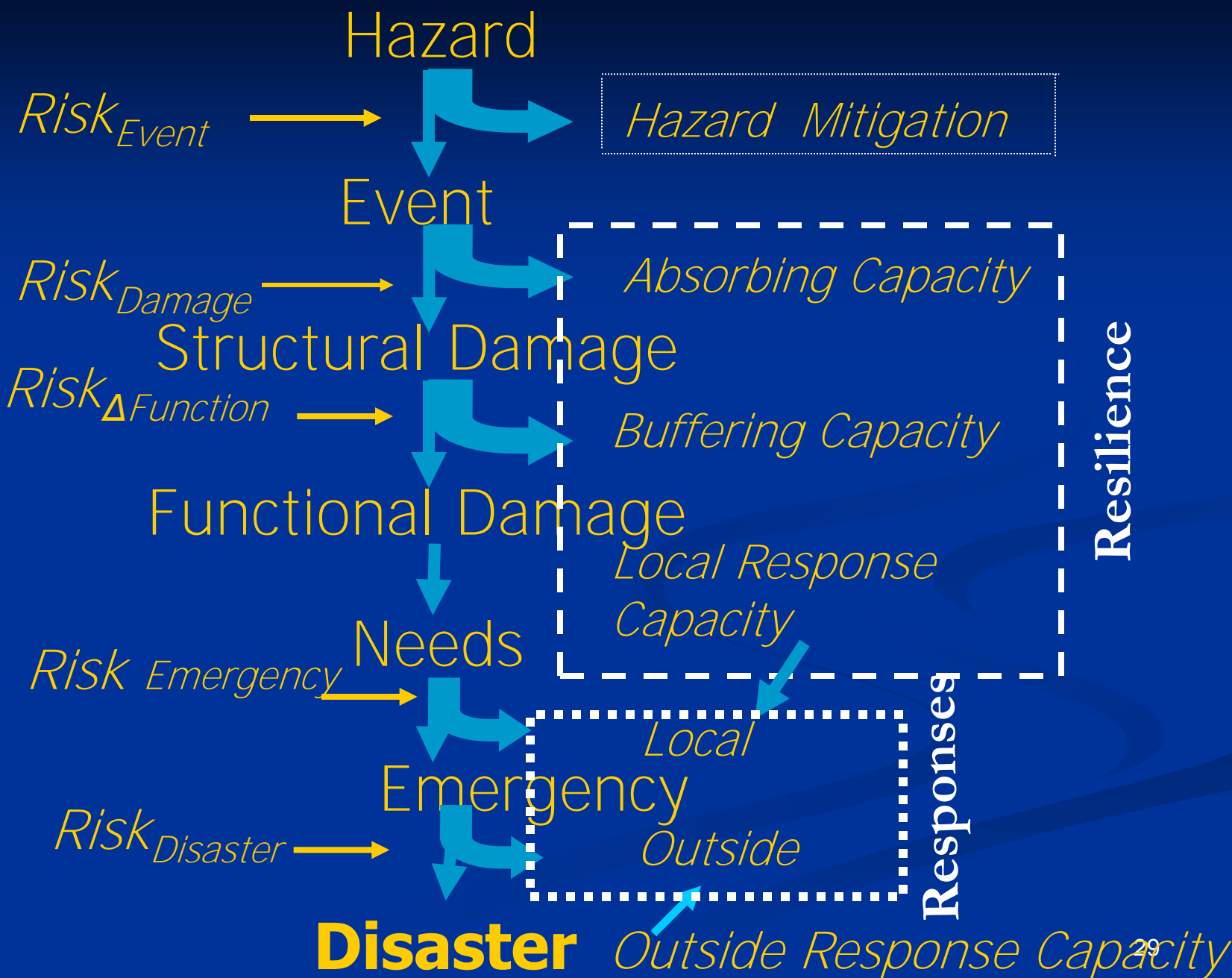
Local Response Capacity

Examples of Resilience

- Construction of safe rooms (tornado/ severe wind shelters) for public and private structures
- Generators and related equipment (*i.e.*, generator hook-ups) for critical facilities
- Warning and alert notification systems

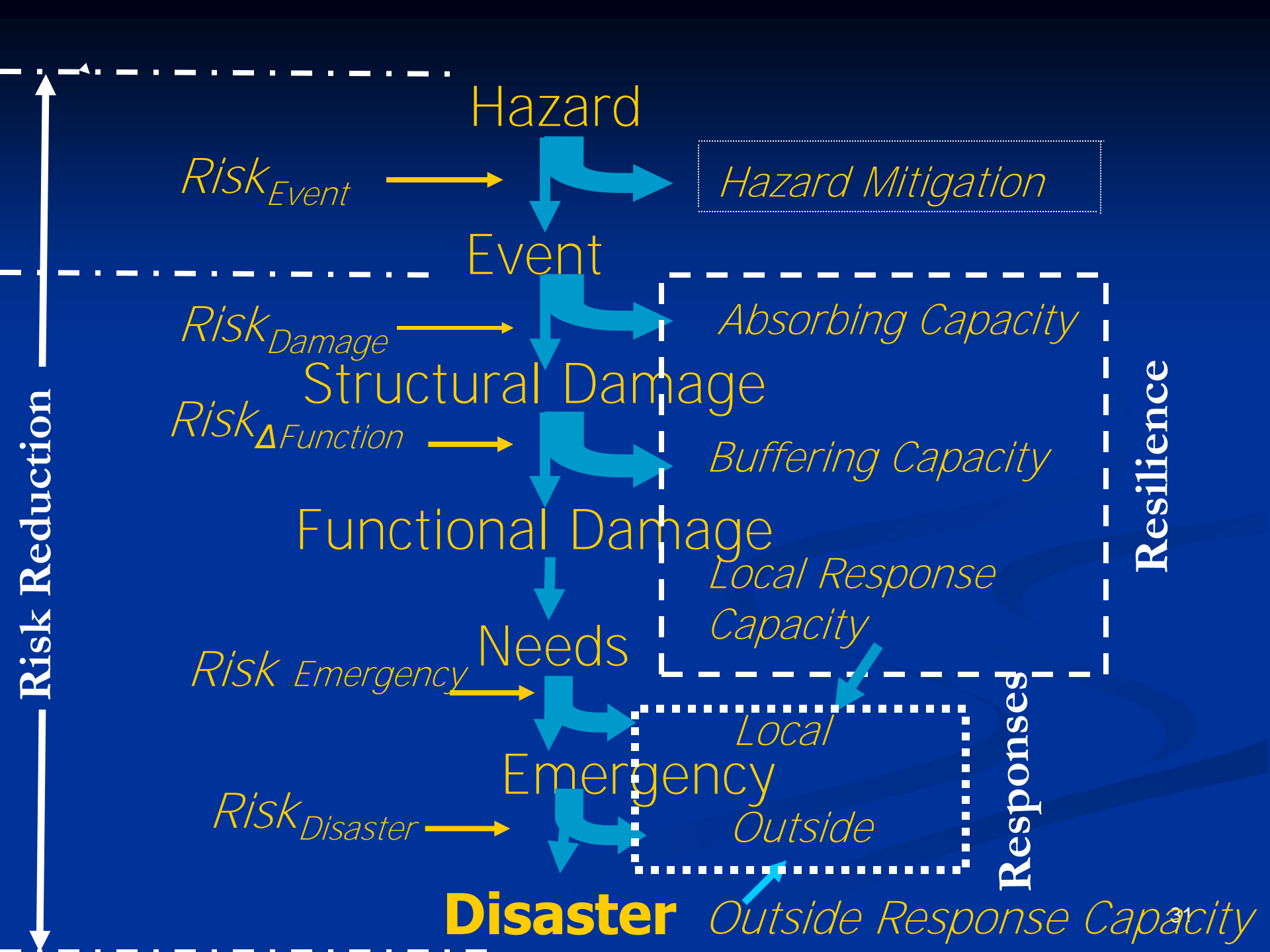
Examples of Resilience – continued

- Using fire-retardant materials in new construction
- Cross-training staff
- Preparations to increase surge capacity (alternate care sites, etc)



Responses

- interventions to meet a defined need
- may occur during all phases of a disaster (relief, recovery) as well as capacity building (preparedness)
- not a specific phase of a disaster



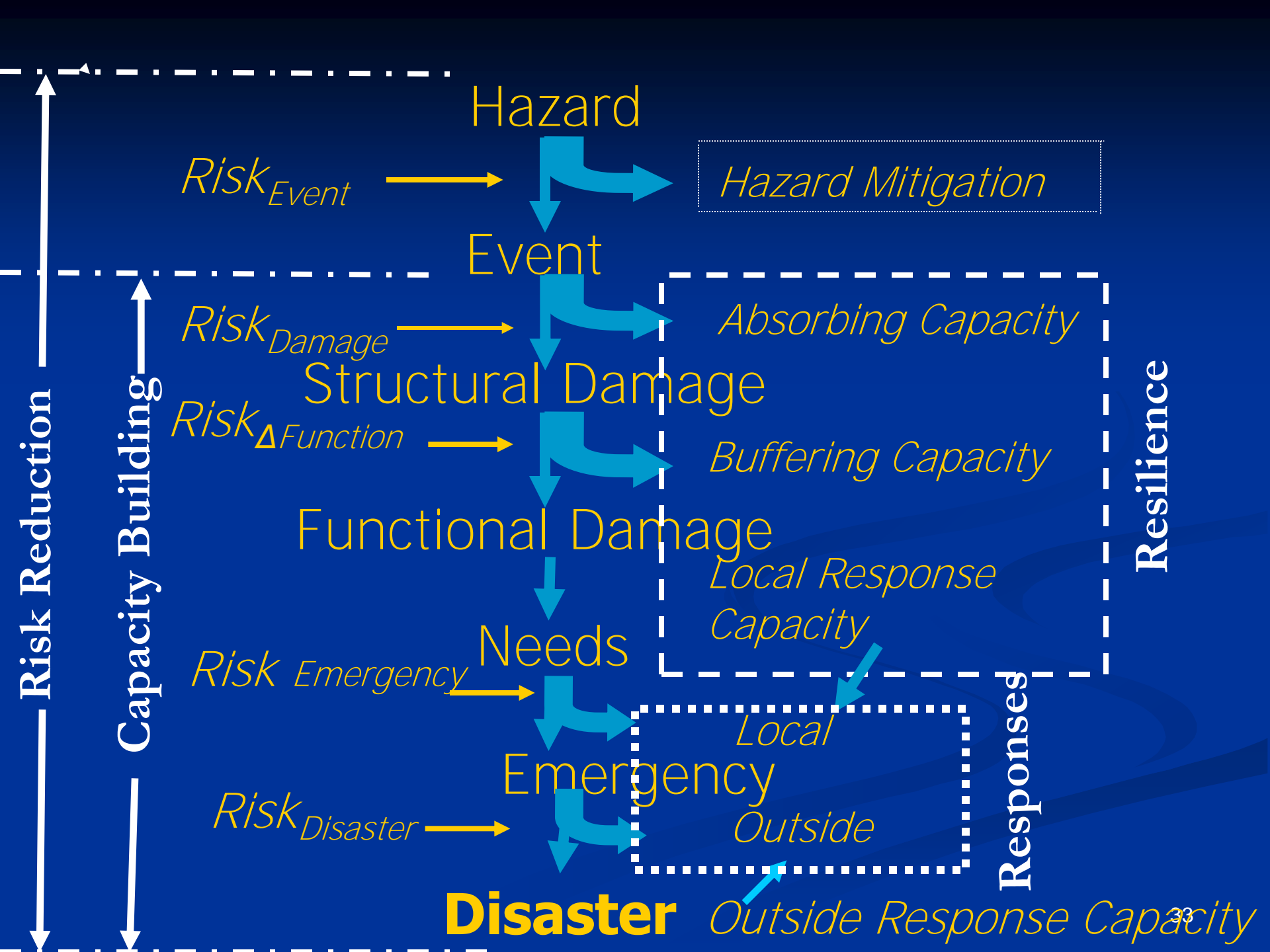
Probability = Risk

“Risk Reduction”

World Health Organization

International Strategy for Disaster Reduction (ISDR)

UN-Office for the Coordination of Humanitarian
Affairs (OCHA) and its Inter-Agency Standing
Committee (IASC)



Capacity Building

- Efforts to increase
 - Absorbing capacity and/or
 - Buffering Capacity and/or
 - Response Capacity
- ?Preparedness—prepared for?

Summary

- Multiple risks (probabilities) in the Disaster Cascade
- Probabilities are combined as products
- Resilience = AC + BC + RC
- Disaster occurs when outside assistance is required
- Risk Reduction achieved by increasing AC and/or BC and/or RC
- Capacity building achieved by increasing resilience

What is depicted below?

- A. Absorbing Capacity
- B. Buffering Capacity
- C. Response Capacity
- D. Disaster



A. Absorbing Capacity

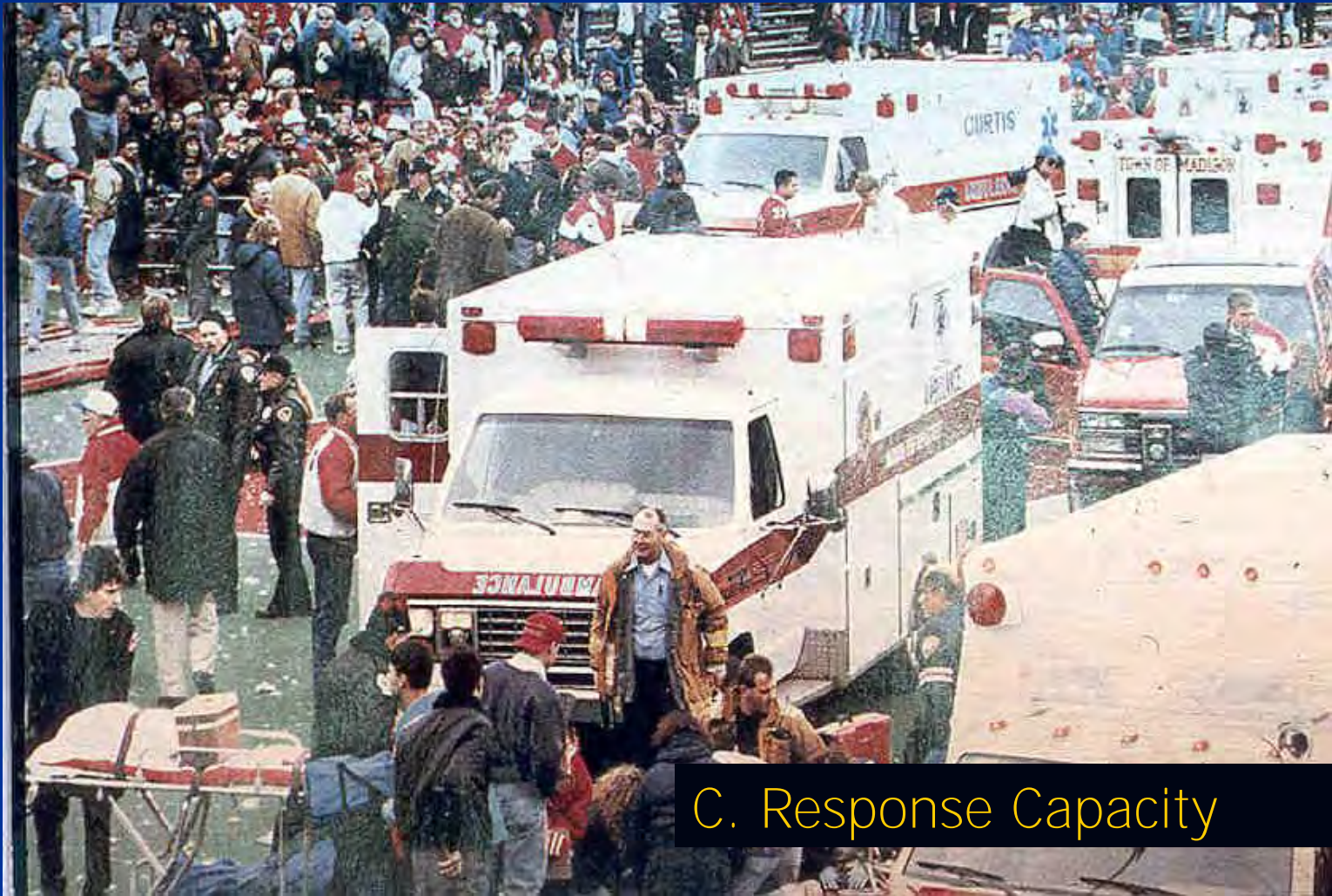
What is depicted below?

A. Absorbing Capacity

B. Buffering Capacity

C. Response Capacity

D. Disaster



C. Response Capacity

What is depicted below?

A. Absorbing Capacity

B. Buffering Capacity

C. Response Capacity

D. Disaster



B. Buffering Capacity