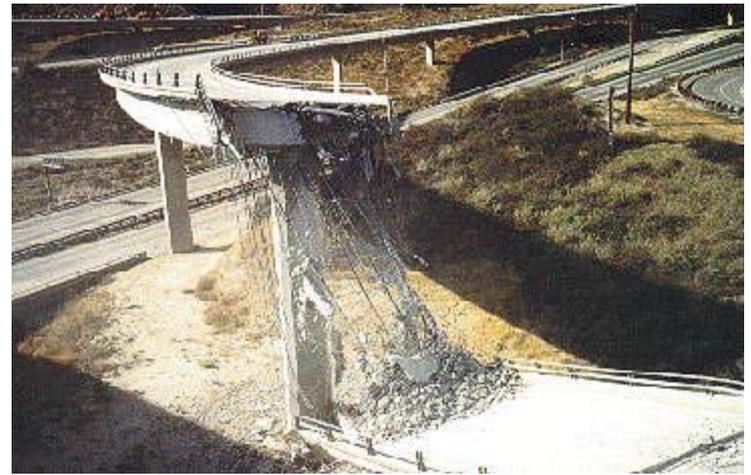




Hurricane Katrina



Northridge Earthquake

Disaster Resilience: Definitions, Concepts, and Measures

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Objectives of This Presentation

- **To briefly define and discuss the concept of disaster resilience**
- **To discuss research findings that have implications for the measurement and analysis of organizational disaster resilience**

Resilience: Some Definitions

The capacity of a system to absorb disturbance and reorganize while undergoing change (Resilience Alliance)

The ability of communities to withstand shocks to their social infrastructure (Adger, 2000)

“A process linking a set of adaptive capacities to a positive trajectory of functioning and adaptation after a disturbance” (Norris et al. 2008)

“the ability of social units (e.g., organizations, communities) to mitigate hazards, contain the effects of disasters when they occur, and carry out recovery activities in ways that minimize social disruption” (Bruneau et al., 2003)

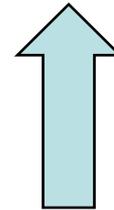
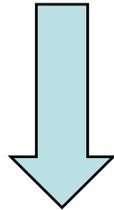
Commonalities Across Multiple Definitions and Disciplines

Resilience Consists of:

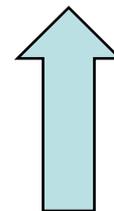
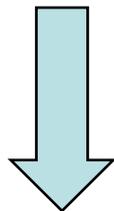
- **Relatively stable or inherent properties** that protect units of analysis from shock, trauma & disruption or reduce their impacts (e.g., biodiversity, economic diversification, psychological attributes, household wealth, resources)
- **Adaptive properties** that enable units of analysis to “bounce back” and recover from shock, trauma, disruption without experiencing negative effects over a long period (e.g., psychological coping, ability to obtain external resources, “work-arounds,” other adaptive strategies)

Units of Analysis in the Study of Resilience

- **Macro level: Societies, regions, communities**



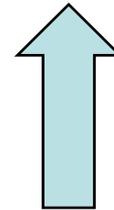
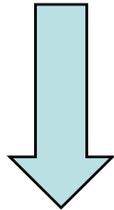
- **Meso level: Networks, neighborhoods, agencies, organizations**



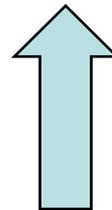
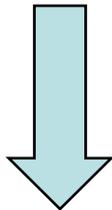
- **Micro level: Households, individuals**

Focus for This Presentation

- **Macro level: Societies, regions, communities**



- **Meso level: Networks, neighborhoods, agencies, organizations**



- **Micro level: Households, individuals**

Organizational Resilience: Maintaining Performance, Failing Gracefully, Responding Effectively

- **Research on organizational performance during crises and disasters has clear implications for the study of resilience**
- **Strong empirical grounding: disasters, catastrophic accidents, system failures, organizational performance, etc.**

Research Traditions



- **Normal accidents theory (Perrow)**
- **High-reliability organizations (Roberts, LaPorte, and Others)**



- **Organizational sense-Making (Weick)**
- **Disaster research**

General Principles

- **Sources of vulnerability consist of**
Characteristics of the physical systems on which organizations depend, or which they manage
Organizational factors, and
Organizational environments
- **Enhancing resilience requires effectively addressing each of these sources of vulnerability**

System Characteristics Affecting Vulnerability and Resilience

- **System Design**

Interactive complexity and tight coupling

Interdependence and capacity for cascading failures

Organizational and Network Characteristics Affecting Vulnerability and Resilience

- **Size and complexity**

 - Sheer number of entities

 - Overlapping jurisdictions: Public/private, authorities, geography, and issues of scale

- **Nature of interorganizational relationships: collaboration, cooperation, conflict, network interactions**

Organizational Contributors to Vulnerability and Resilience—Non-Crisis Times

- **Organizational processes that enhance resilience: Capacity of organizations to**

Assess physical and organizational systems, detect anomalous signals

Share information and collectively assess situations

Mobilize resources, undertake ameliorative action

Prepare organization to adapt appropriately during disasters

Organizational Contributors to Vulnerability and Resilience—Non-Crisis Times

- **Resilience-enhancing norms and practices:**

“Cultures of safety”

Reduction of production pressures

Practices that increase reliability, avert accidents:

preoccupation with failure, reluctance to simplify, sensitivity to operations, commitment to resilience, deference to expertise (Weick and Sutcliffe, 2007)

Organizational Contributors to Vulnerability and Resilience During Crises

- **Capacity to achieve a balance between agility and discipline (Harrald, 2006)**
- **Norms and practices that support collective sensemaking and distributed decision making**
- **Norms and practices that permit improvisation, innovation, creativity in the face of response challenges**

External/Environmental Contributors to Vulnerability and Resilience

- **Mandates, regulations, incentives that reduce vulnerability, enhance resilience potential**
- **Societal and stakeholder expectations regarding acceptable performance**
- **Other environmental factors: Turbulence vs. stability, uncertainty vs. predictability**

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