Catastrophic Disasters:
Confronting Novel Preparedness Challenges

Arnold M. Howitt, Ph.D.
**Executive Director,
The Roy and Lila Ash Center for
Democratic Governance and Innovation
and
Faculty Co-Director,
Program on Crisis Leadership
Harvard Kennedy School**

July 23, 2012

Presentation Outline

- The Threat of "Landscape-Scale" Disasters
- A Continuum of Emergency Types
    - Routine Emergencies
    - Sudden and Emergent Crises
    - Catastrophes
- What is Excellent Response for Each Type?
- Becoming Effective in TWO Modes of Emergency Response

**The ideas presented today are the product of a close collaboration with my Harvard colleague,
Prof. Herman B. "Dutch" Leonard**

HARVARD Kennedy School
Program on Crisis Leadership

The Great East Japan Earthquake – March 2011

BP Fire and Gulf of Mexico Oil Leak – 2010

The Threat of "Landscape-Scale" Disasters

Catastrophes that severely affect large geographic areas in many inter-locking societal dimensions – including life safety, community, economy, environment, politics, governance, and culture

Increasing Disaster Danger

- In the 21st century, landscape-scale disasters are becoming more frequent and a greater threat to humanity.
  - Larger, more concentrated populations are located in areas of substantial exposure to risk
  - Increasingly complex and interconnected human systems are highly vulnerable to disruption
  - Technology vulnerability magnifies the danger of natural disasters
  - Climate change threatens to increase the number of natural disasters – and intensify their impact

HARVARD Kennedy School
Program on Crisis Leadership

Recent Examples of Landscape-Scale Disasters

- The Great East Japan Earthquake, tsunami, and nuclear accident (2011)

- BP fire and oil spill in the US (2010)

- Pakistan floods (2010)

- Haiti's Earthquake (2010)

- South China blizzards (2008)

- China's Wenchuan earthquake (2008)

- Hurricane Katrina in the US (2005)

- Indian Ocean tsunami (2004)

HARVARD Kennedy School 7
Program on Crisis Leadership

Disaster prevention and mitigation are crucially important.

But catastrophes will sometimes happen despite our best efforts.

How can society better prepare itself to react to and manage these devastating events?

Let's start by thinking systematically about how they differ from emergencies that happen more regularly
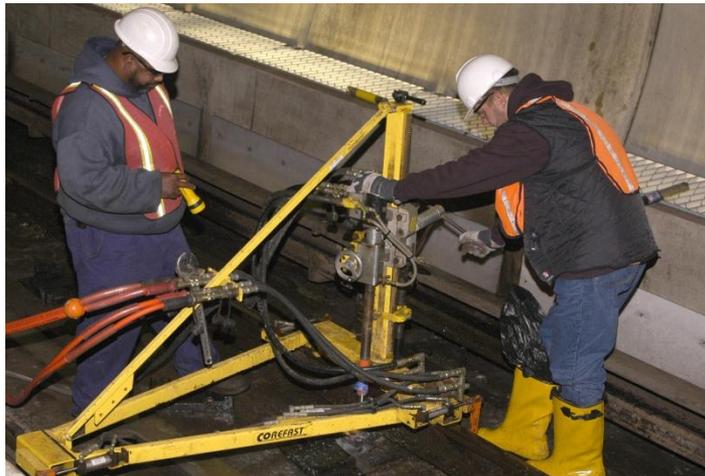
A Continuum:
Normal Operations to Emergencies

**NORMAL
OPERATIONS**

HARVARD Kennedy School
Program on Crisis Leadership

10

A Continuum:
Normal Operations to Emergencies

NORMAL OPERATIONS **MINOR OPERATING PROBLEMS**

HARVARD Kennedy School
Program on Crisis Leadership

Placing Emergencies in the Continuum

EMERGENCIES

NORMAL OPERATIONS

MINOR OPERATING PROBLEMS

ROUTINE EMERGENCIES

HARVARD Kennedy School
Program on Crisis Leadership

12

Routine Emergencies

Characteristics:

- Sudden, unplanned
- High stakes
- Urgent
- Outcomes will vary widely depending on decisions/actions
- **General types of routine emergencies can be anticipated**

Actions:

- *Before:* Develop contingency plans and organize
- *During:* Recognize emergency type and execute plans, adapting them to fit the precise circumstances

HARVARD Kennedy School
Program on Crisis Leadership

What Constitutes Excellence in Routine Emergencies?

Preparedness:

- Robust set of contingency plans
- Clarity of goals and priorities
- People:
  - Training
  - Skills
  - Exercises/Practice
  - Real operational experience

Response: Recognize & Act

- High situational awareness; responders know what to look for
- Confidence in purposes and capabilities
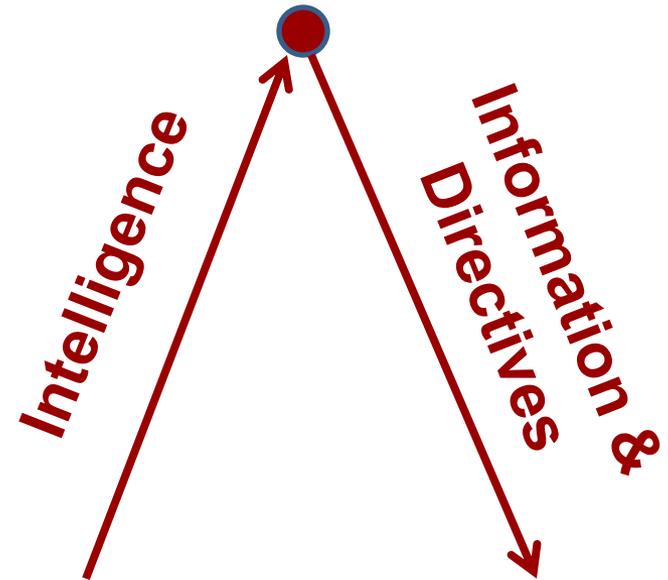- Executable checklist of SOPs to match/adapt to the situation

HARVARD Kennedy School
Program on Crisis Leadership

14

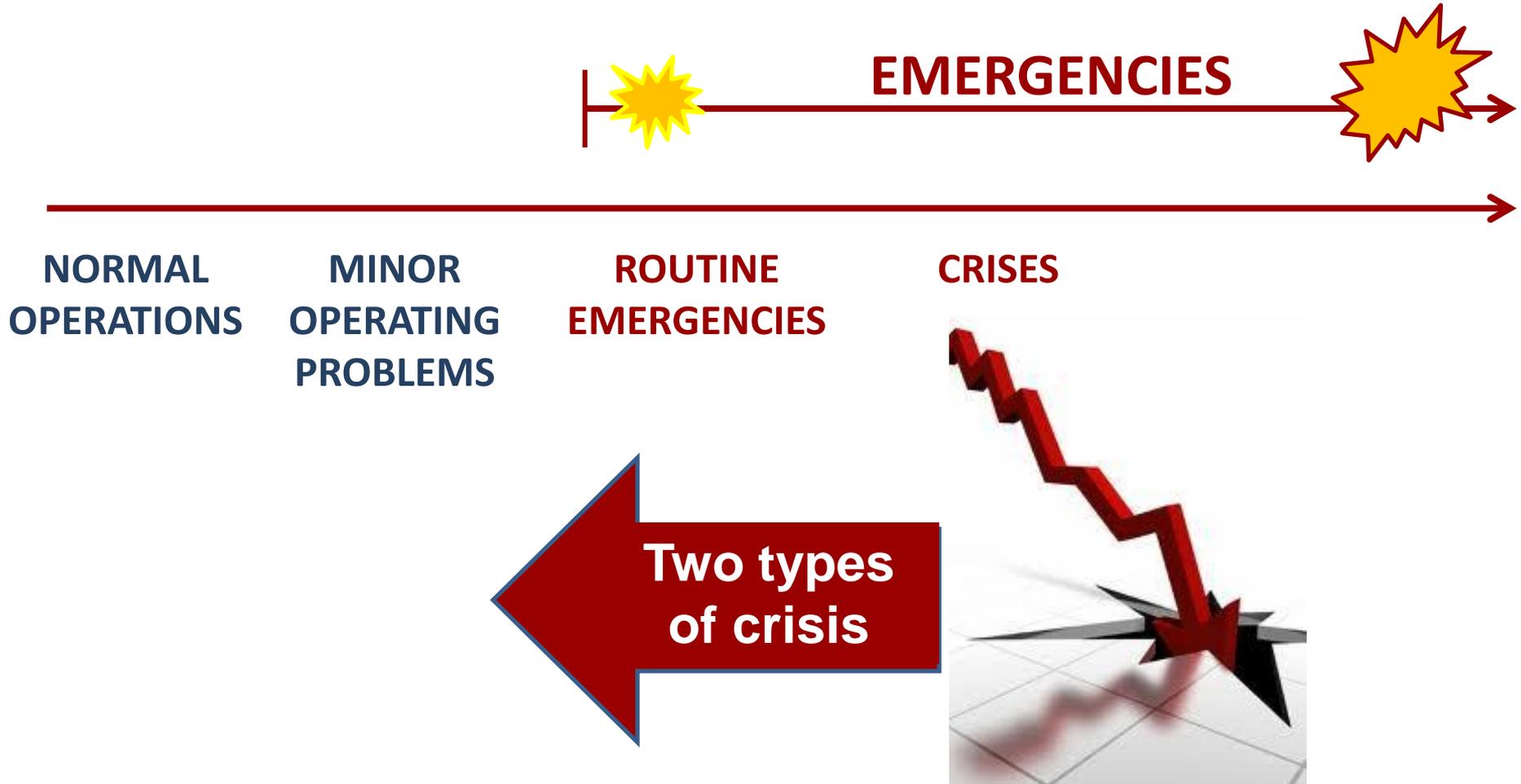# What Constitutes Excellence in Routine Emergencies?

Leadership:

- Expertise-driven
- Leaders chosen for skills, effectiveness in prior experiences
- High authority and compliance
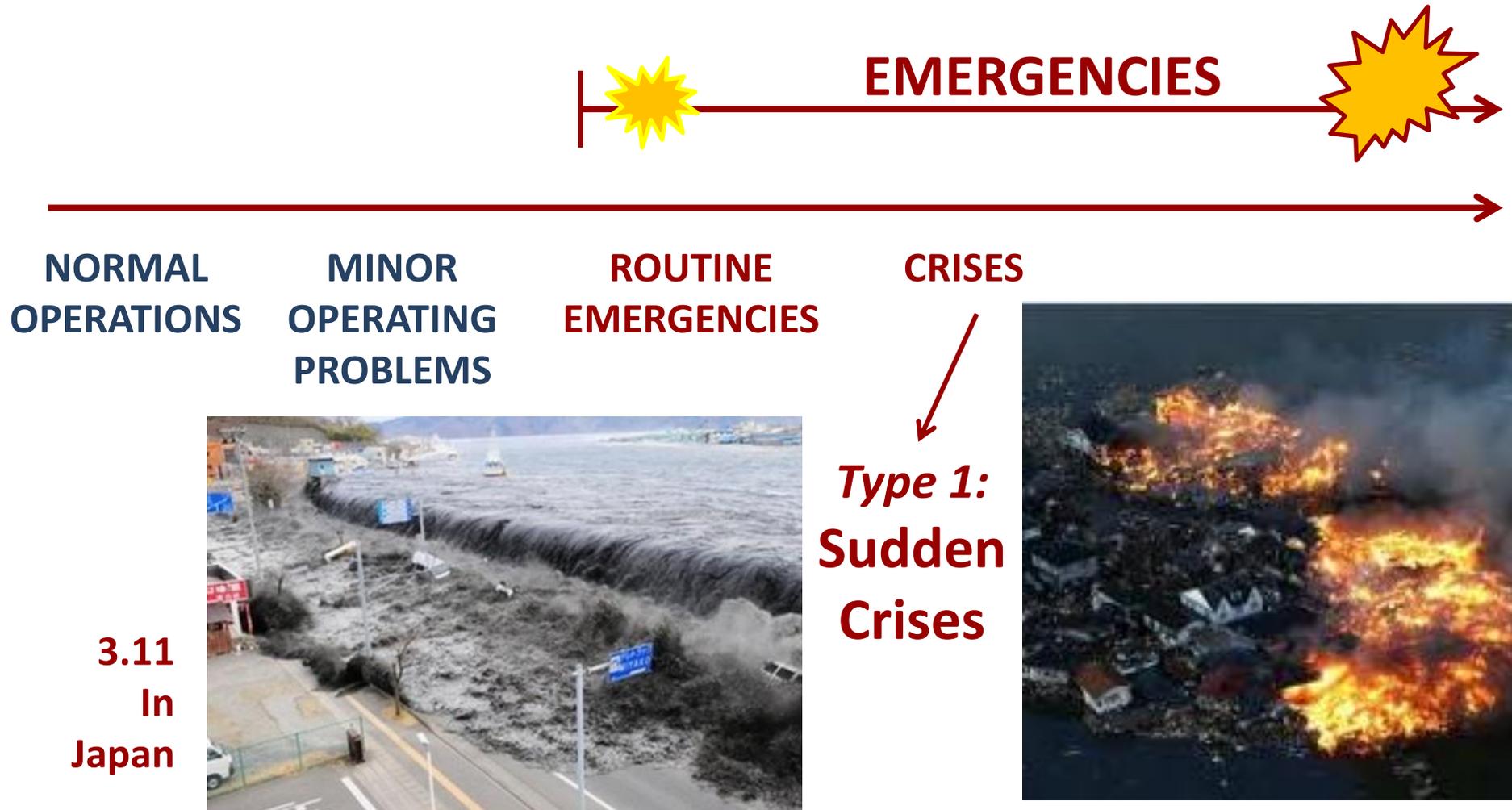- Centralized responsibility and accountability

Hierarchical Decision-making and Command

Intelligence

Information & Directives

HARVARD Kennedy School
Program on Crisis Leadership

15

Crises on the Continuum

EMERGENCIES

NORMAL OPERATIONS

MINOR OPERATING PROBLEMS

ROUTINE EMERGENCIES

CRISES

Two types of crisis

HARVARD Kennedy School
Program on Crisis Leadership

Type 1: Sudden Crises

EMERGENCIES

NORMAL OPERATIONS

MINOR OPERATING PROBLEMS

ROUTINE EMERGENCIES

CRISES

Type 1: **Sudden Crises**

3.11 In Japan

HARVARD Kennedy School
Program on Crisis Leadership

Type 2: Emergent Crises

EMERGENCIES

NORMAL OPERATIONS **MINOR OPERATING PROBLEMS** **ROUTINE EMERGENCIES** **CRISES**

Three Mile Island Nuclear Plant in USA

Type 2: **Emergent Crises**

SARS
What You Need to Know
The New Age of Epidemics

HARVARD Kennedy School
Program on Crisis Leadership

Sudden vs. Emergent Crisis

HARVARD Kennedy School
Program on Crisis Leadership
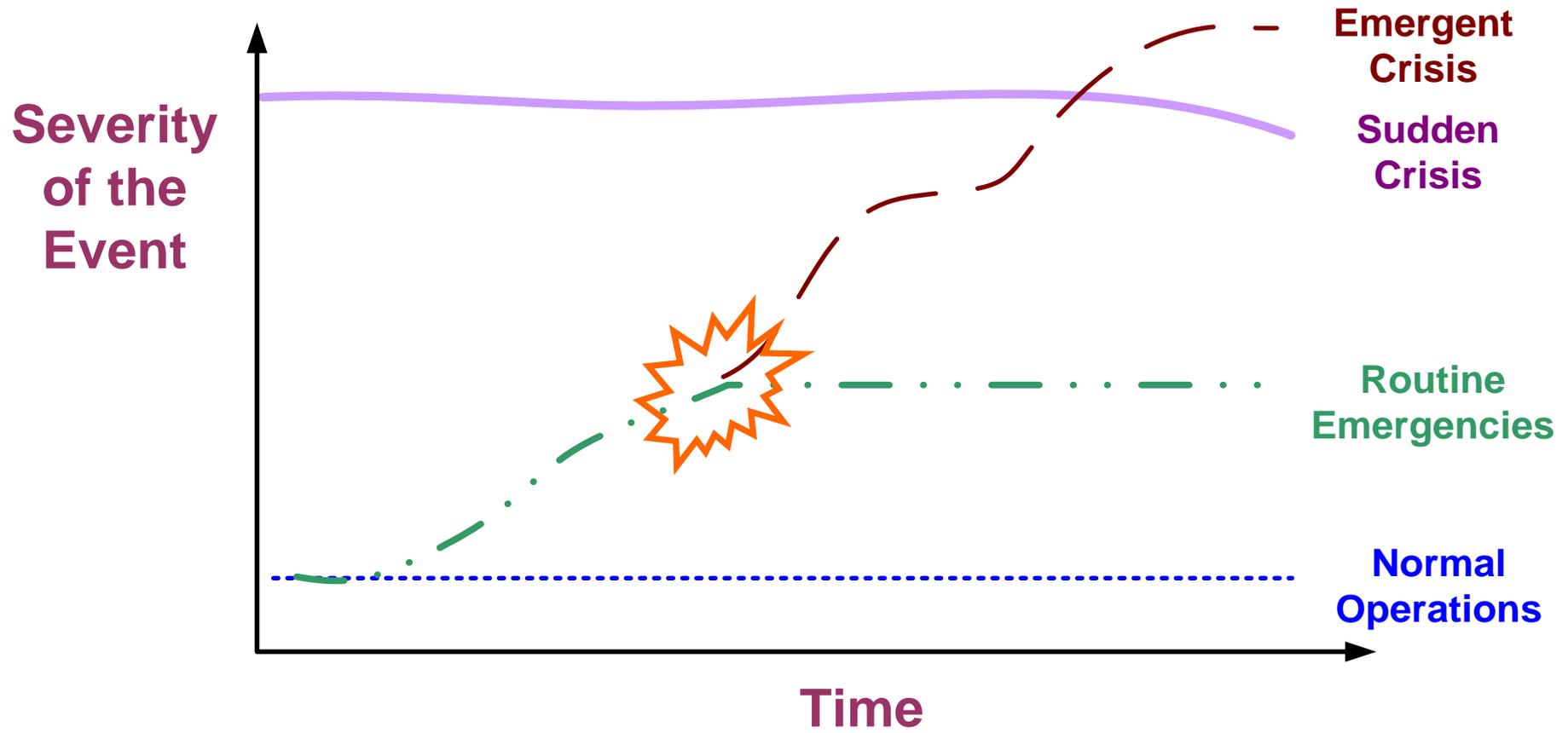
Crises

Characteristics:

- Sudden, unplanned
- High stakes
- Urgent
- Outcomes will vary depending on decisions/actions
- **Significant elements of NOVELTY**
- **Great uncertainty, low situational awareness**

- **Fear/high stress**
- **Lack of control**
- **Beyond usual operational capacities**
- **Predetermined actions may be insufficient or counter-productive**
- **Goals and priorities may not be clear**
- **Potential for political conflict**

HARVARD Kennedy School
Program on Crisis Leadership

The Nature of "Novelty"

- Novelty arises in several ways:
  - **"New under the sun"** – an unprecedented challenge, something never before encountered by responders.
  - **Extraordinary scale**: An emergency far larger than what we have prepared to handle.
  - **A combination of emergencies** not expected to occur together.
- Novelty is a *subjective* concept: new for the jurisdiction, organizations, or responders experiencing it – but not necessarily for the world.

HARVARD Kennedy School
Program on Crisis Leadership

21

Critical Challenges of Novelty

- **Recognizing novelty/developing situational awareness**
  - Novelty is difficult to see if you don't know what to look for
    - Aum Shinrikyo sarin attack in 1995
  - Novelty conflicts with our current understanding and is thus easy to explain away
  - Many people know a little, so the problem is aggregating, analyzing, and sense-making

HARVARD Kennedy School
Program on Crisis Leadership

Critical Challenges of Novelty (2)

- **Designing an effective response**
  - What do we do when no one knows what to do?
  - No one is an expert on all aspects of the problem
  - Situation demands improvisation, invention, innovation
  - Requires collaboration, not command
  - No one has trained or practiced

HARVARD Kennedy School
Program on Crisis Leadership

23

The demands of effective leadership and response in "crises" differ substantially from what is required for "routine emergencies"

What Constitutes Excellence in Crisis Response?

Context of Response:

- No comprehensive plan
- No executable checklist of SOPs
- No one is an expert on all aspects of the situation
- Situational awareness is very poor
- Need to sort out goals and priorities

Actions:

- **Before:** Develop skills in problem diagnosis, improvisation, communication, and collaboration
- ***During: Learn & Adapt***
  - Understand
  - Design: Improvise, innovate
  - Execute

HARVARD Kennedy School
Program on Crisis Leadership

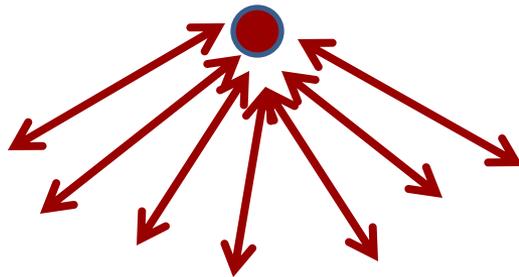# What Constitutes Excellence in Crisis Response? (2)

- **Effective work to accomplish:**
  - Ethical – sorting out, reconciling values
  - Descriptive – establishing an operating picture
  - Creative – developing viable options
- Predictive – what will happen under alternate scenarios of action?
- Political – consensus building
- Decision-making
- Implementation of selected options

HARVARD Kennedy School
Program on Crisis Leadership

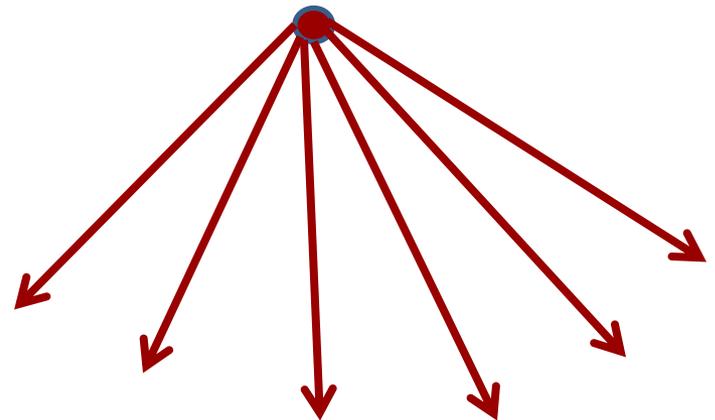# What Constitutes Excellence in Crisis Response? (3)

- Variable decision making and implementation structure, using principles of unified command

Flattened, consultative structure for diagnosis and decisions. Not all stakeholders are part of the same organizational system

More hierarchical for execution

HARVARD Kennedy School
Program on Crisis Leadership

27

A Continuum: Landscape-Scale Disasters

EMERGENCIES

NORMAL OPERATIONS

MINOR OPERATING PROBLEMS

ROUTINE EMERGENCIES

CRISES

CATASTROPHES or LANDSCAPE-SCALE DISASTERS

HARVARD Kennedy School
Program on Crisis Leadership

Catastrophic Crises

Characteristics:
- All of the features of crises, PLUS **ultra high-profile politics:**

- **Even more stakeholders in government and outside**

- **Multi-agency decision-making environment**

- **Great media attention**

Need capacity to operate:
- When novelty is abundant.
- When goals and priorities are ambiguous or contested.
- When new response approaches and methods are needed.
- When authority alone is insufficient and thus collaboration and persuasion are necessary.
- When response must be implemented without opportunity to practice

The Special Challenges of Emergent Crises

- Why are emergent crises problematic?
  - Difficult to spot. Where does the "break" in normal operating experience occur? How to distinguish normal variation from something "new"?
  - Organizations are already deployed and working on the problem from the "routine emergency" perspective. Training/experience reinforce this orientation.
  - The initial responders – sent because of their ability in routine emergencies – may ignore disconfirming information and be resistant to adapting or abandoning "tried and true" methods. Impacts of "cognitive bias."
  - Personal and career incentives may make it difficult for leaders to reverse course.

Response organizations thus need to operate effectively in two modes:

In "routine emergencies" (which represent at least 98% of what they do) and in the far less common "crises" and "catastrophes"

But can organizations optimized to respond to "routine emergencies" also effectively recognize and deal with the novelty of crisis situations?

A Bias Toward Preparing for Routine Emergencies

- Our thinking about operating in *all* emergency situations is captive to our *experience and success in dealing with routine emergencies*.

- Our techniques of preparedness are skewed in this direction, as exemplified by:
  - Risk assessment for known dangers
  - Contingency planning for identified risks
  - Scenario- and plan-based training/exercises
  - After-action reports and adjustments for "lessons learned" from past experience

HARVARD Kennedy School
Program on Crisis Leadership

Highly Valuable…But Insufficient

- Preparing for ***anticipatable*** emergencies for which society has not yet gotten ready is a tremendously worthwhile endeavor.

  - Example: SARS, the threat of bird flu, and concern about pandemic infectious diseases encouraged measures that greatly helped deal with H1N1.

- **But it is not enough.**

HARVARD Kennedy School
Program on Crisis Leadership

Are We Fully Preparing for Catastrophic Crises?

- Society may be under-preparing for the very kinds of threats that are becoming increasingly – and dangerously – common:

  – We don't sufficiently appreciate the need to operate differently in crisis situations.

  – We may miss or delay in recognizing the novelty of crisis circumstances

  – We therefore apply the approach, thinking, processes, and tactics of routine emergencies to crisis situations.

HARVARD Kennedy School
Program on Crisis Leadership

How can we prepare for the "unknown unknowns" that shape crises?

What can we do to get ready for types of events that we cannot anticipate?

Preparing for Novelty

- Diversification of information sources and communication channels – local and remote – to establish situational awareness

- Personal and organizational efforts to look for novelty – e.g., incident action planning, Team B, social media

- *Capabilities*-based planning in addition to *threat*-based planning

HARVARD Kennedy School
Program on Crisis Leadership

Preparing for Novelty (2)

- Practice in "flattened" decision making systems – "inquiry" vs. "advocacy" in group processes

- Robust systems of coordination – e.g., IMS, unified command – that cut across organizations

- Cross-organizational, jurisdictional, and sectoral exercises

- Engagement of 2nd and 3rd circle of organizational stakeholders

HARVARD Kennedy School
Program on Crisis Leadership

Preparing for Novelty (3)

- Surge capacity for massive or long-lived events

- Integration of private and NGO sectors into crisis planning and exercising

- Clarification of roles of emergency professionals and political leaders.

- Constructive engagement of skills and competences of each

HARVARD Kennedy School
Program on Crisis Leadership

Disaster Consequences Are Stark….
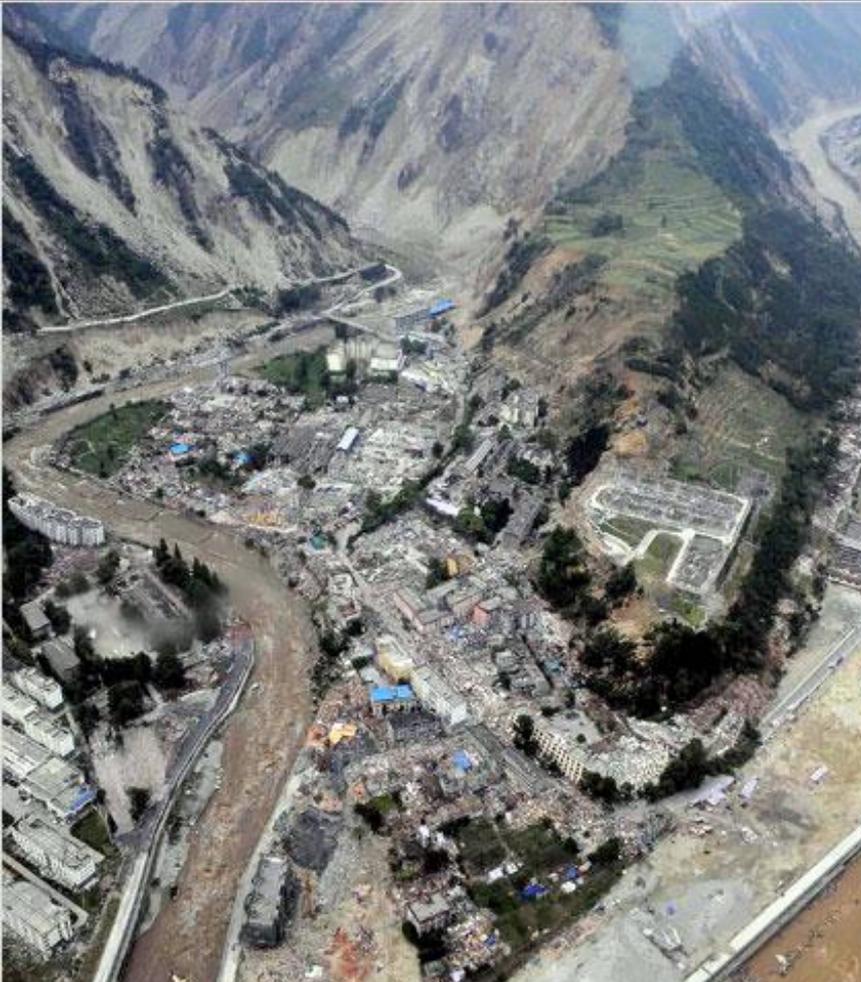
Wenchuan Earthquake in China (2008)

The Human Costs Can Be Very High ….

The Stakes Are High….

Preparedness Can Make a Difference….

Thank you!

Arnold M. Howitt, Ph.D

Executive Director, Ash Center for Democratic Governance and Innovation, and

*Faculty Co-Director,
Program on Crisis Leadership, at*

Harvard Kennedy School

Arnold_Howitt@Harvard.Edu