

12TH MEETING OF HIGH-LEVEL EXPERTS AND LEADERS PANEL ON WATER AND DISASTERS (HELP) - Learning from Historical Lessons and Good Practices -



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Title:
Resiliency – “A Continuum of Opportunities”



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U.S. ARMY



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RESILIENCE



Elasticity; hence, capability of a strained body to recover its size and shape after deformation

Webster's New Collegiate Dictionary, 2^{ed}, 1953

Ability to bounce or spring back into shape, position, etc. after being pressed or stretched; elasticity

Webster's New World Dictionary, 1968

An ability to recover from or adjust easily to misfortune or change

Webster's 9th New Collegiate Dictionary, 1986

Ability to recover readily from illness, depression, adversity, or the like; buoyancy

Dictionary.com, 2018



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FEDERAL GUIDANCE



Presidential Policy Directive (PPD) 8 – National Preparedness

... strengthening the security and resilience of the US through systematic preparation for the threats that pose the greatest risk to the security of the Nation, including acts of terrorism, cyber attacks, pandemics, and catastrophic natural disasters.

Definitions

(c) The term "resilience" refers to the

ability to adapt to changing conditions and withstand and rapidly recover from disruption due to emergencies.



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FEDERAL GUIDANCE (CONT)



Presidential Policy Directive (PPD) 21

– Critical Infrastructure Security and Resilience

... seek to reduce vulnerabilities, minimize consequences, identify and disrupt threats, and hasten response and recovery efforts related to critical infrastructure.

Definitions

The term "resilience" means the;

ability to prepare for and adapt to changing conditions and withstand and recover rapidly from disruptions.

Resilience includes the ability to withstand and recover from deliberate attacks, accidents, or naturally occurring threats or incidents.



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RESILIENCE RESPONSE CONTINUUM



**Hazard
Avoidance**

**Implement
Solutions**

**Emergency
Response
Activities**

**Recovery
Operations**



**Non-Engineered
Solutions**

**Engineered
Solutions**



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IMPLEMENT SOLUTIONS

MULTIPLE LINES OF DEFENSE OR RESILIENCE

- Multiple lines of defense and combinations of measures improve resilience and drive down risk
- Resilience includes adapting, which may require shifting between measures over time as conditions change

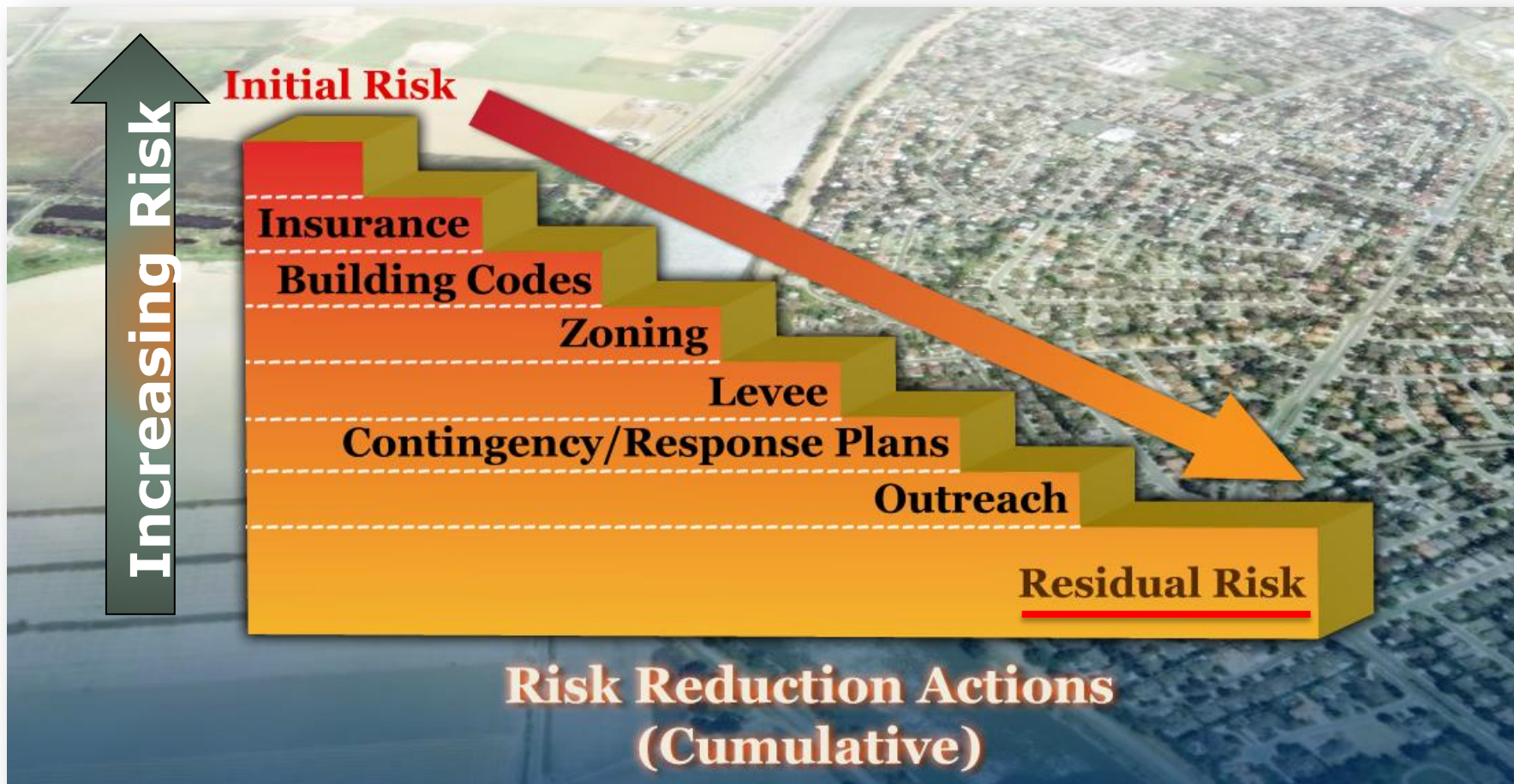


Graphic from ww.mlods.org



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IMPLEMENT SOLUTIONS SYSTEMS APPROACH



All stakeholders contribute to reducing risk!

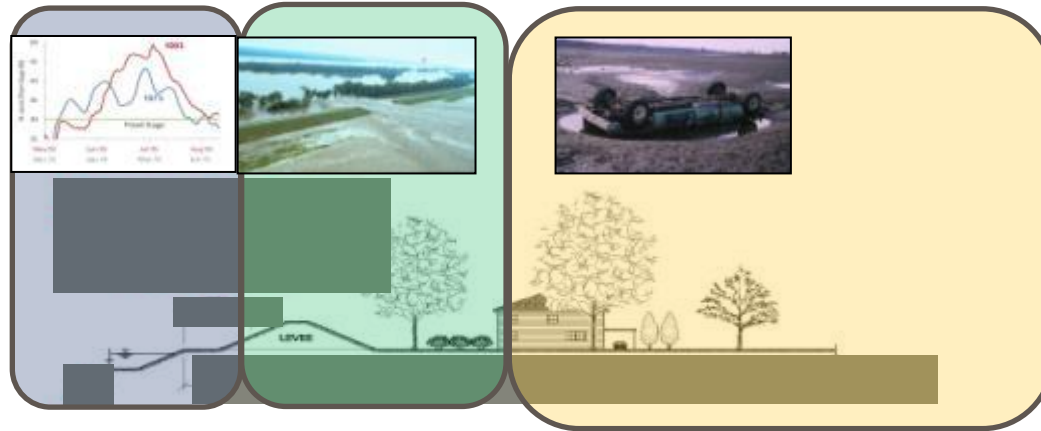


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IMPLEMENT SOLUTIONS

RISK CHARACTERIZATION BY FAILURE MODE



Risk = f(Hazard, Performance, Consequences)



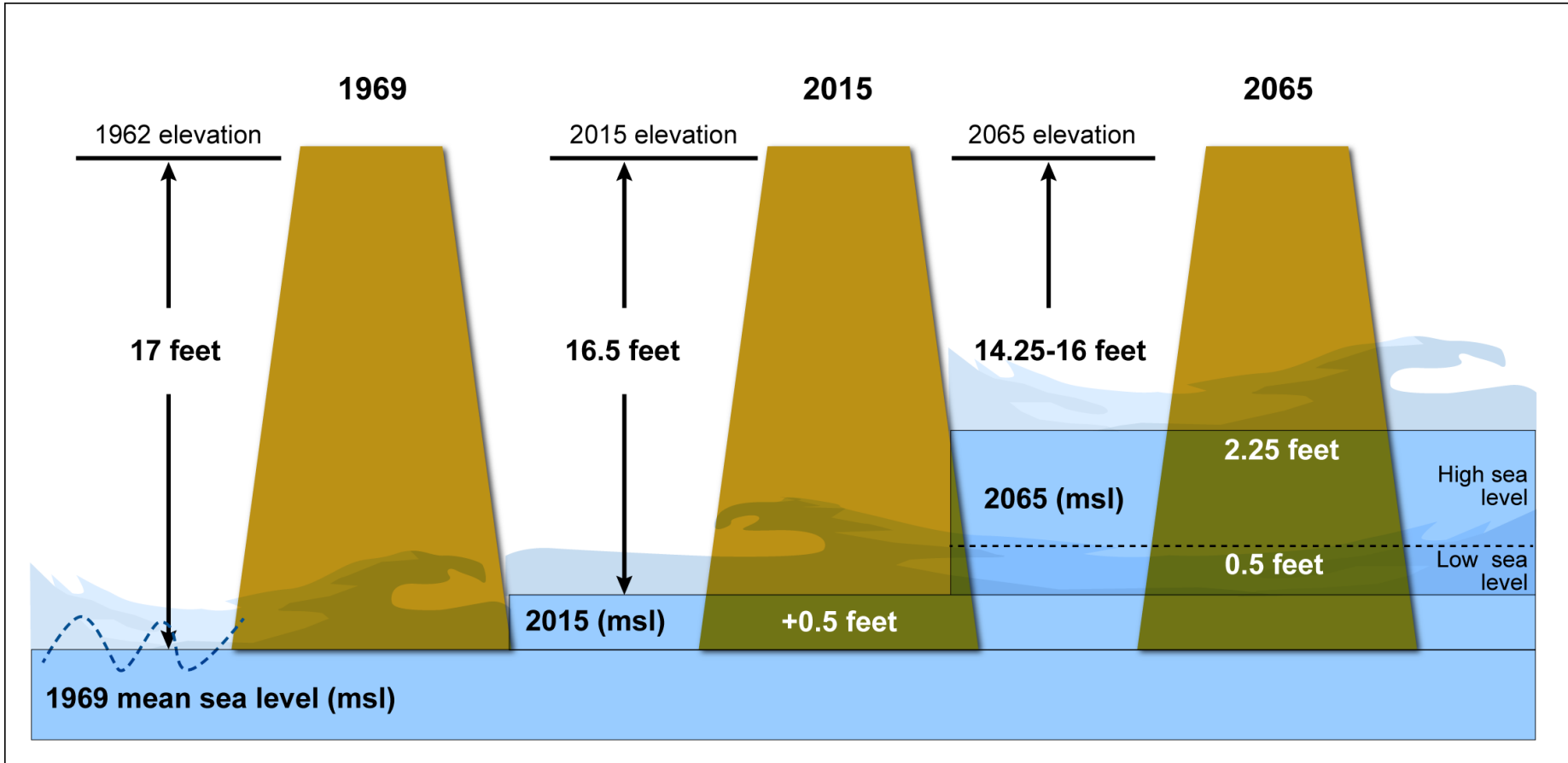


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IMPLEMENT SOLUTIONS



RISK CHARACTERIZATION BY LOADING CHANGE



Source: GAO representation of U.S. Army Corps of Engineers data. | GAO-15-660



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EMBED SUSTAINABILITY & RESILIENCE



4 Principles of Resilience

Prepare - Absorb - Recover - Adapt



**Efficient use of
natural & financial
resources**



**Resilience to natural &
human-caused
hazards**

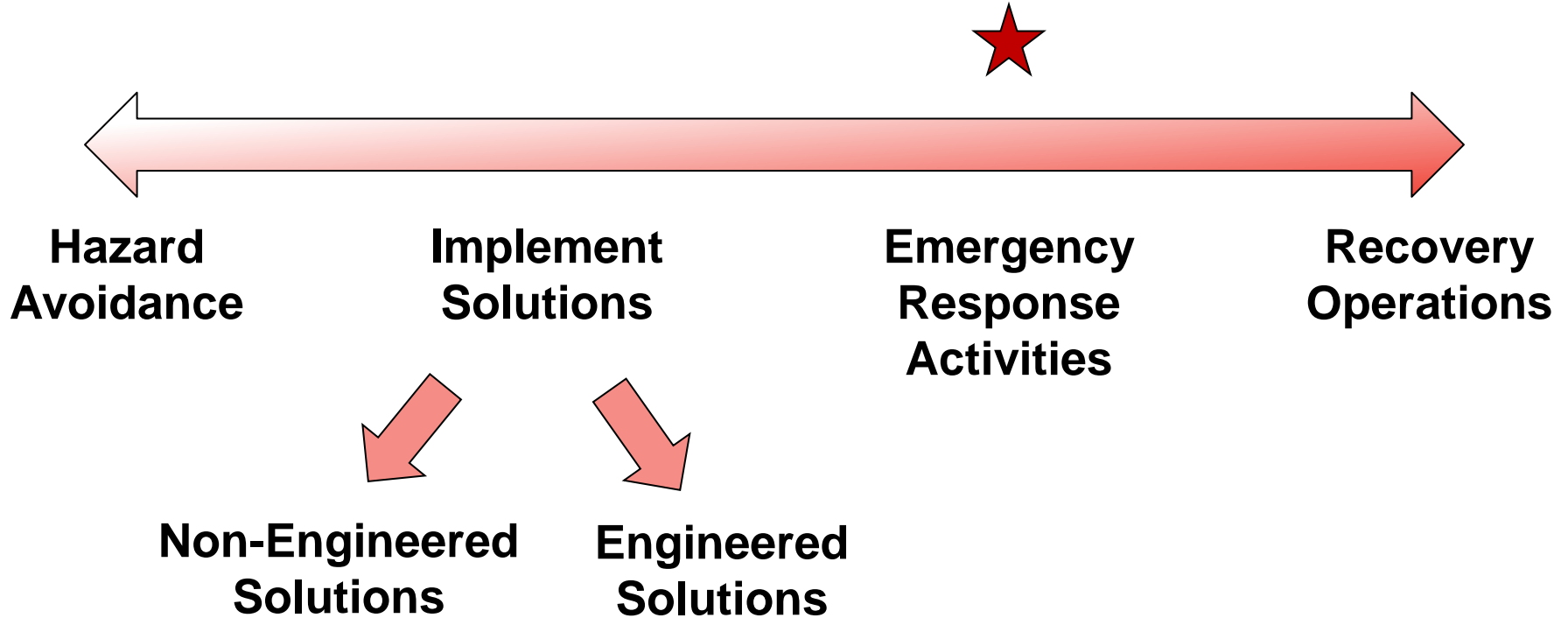


**Holistic master
planning**



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RESILIENCE RESPONSE CONTINUUM





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NATIONAL DISASTER RECOVERY FRAMEWORK



The NDRF is a **companion document to the National Response Framework (NRF)**

- Deals with immediate disaster response (“**Triage**”)
- Supported by on-going development of detailed operational, management, field guidance, and training tools for dealing specifically with the Recovery efforts (“**Physical Therapy**”) short, immediate, and long term.

A **guide** to promote effective **Recovery**

- particularly incidents that are large-scale or catastrophic

NDRF applies to all Presidentially declared major disasters

- invokes the Stafford Act



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NDRF CORE RECOVERY PRINCIPLES



- 1) Individual and Family Empowerment**
- 2) Leadership and Local Primacy**
- 3) Pre-Disaster Recovery Planning**
- 4) Partnerships and Inclusiveness**
- 5) Public Information**
- 6) Unity of Effort**
- 7) Timeliness and Flexibility**
- 8) Resilience and Sustainability**
- 9) Psychological and Emotional Recovery**



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NEW CONCEPTS UNDER NDRF



- 1) **Federal Disaster Recovery Coordinator (FDRC)**
- 2) **State or Tribal Disaster Recovery Coordinator (SDRC or TDRC)**
- 3) **Local Disaster Recovery Manager (LDRM)**
- 4) **Recovery Support Functions (RSFs)**
 - **Community Planning and Capacity Building**
 - **Economic**
 - **Health and Social Services**
 - **Housing**
 - **Infrastructure Systems**
 - **Natural and Cultural Resources**



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INFRASTRUCTURE SYSTEMS UNDER THE NDRF



Recovery Support Function (RSF) Scope includes

- Infrastructure Sector and Subsectors defined through the **NIPP – National Infrastructure Protection Plan**
- 16 Sectors defined in PPD21 (Critical Infrastructure Security and Resilience)
 - Energy
 - Water/waste water
 - Dams
 - Manufacturing
 - Communications
 - Transportation
 - Agricultural
 - Financial Services
 - Chemical
 - Nuclear reactors
 - Emergency services
 - Gov't facilities
 - Commercial facilities
 - IT
 - Defense Industrial Base
 - Healthcare and Public Health



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INFRASTRUCTURE SYSTEMS RECOVERY SUPPORT FUNCTION



Agencies and their roles

COORDINATING AGENCY



PRIMARY AGENCIES



SUPPORTING AGENCIES





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INFRASTRUCTURE SPECIFIC AGENCY AND KEY RESOURCES SECTORS



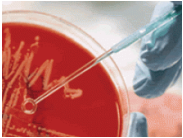
Department of Agriculture
Department of Health and Human Services
Agriculture and Food



Department of Defense
Defense and Industrial Base



Department of Energy
Energy



Department of Health and Human Services
Public Health and Healthcare



Department of Homeland Security
Critical Manufacturing Sector



Department of the Treasury
Banking and Finance



Environmental Protection Agency
Drinking Water and Water Treatment
Systems



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INFRASTRUCTURE SPECIFIC AGENCY AND KEY RESOURCES SECTORS



**Department of Homeland Security
Office of Infrastructure Protection**
Chemical



**Department of Homeland Security
Office of Cyber Security & Communications**
Information Technology



**Department of Homeland Security
Office of Infrastructure Protection**
Commercial Facilities



**Department of Homeland Security
Office of Cyber Security & Communications**
Communications



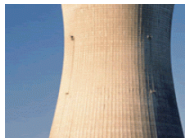
**Department of Homeland Security
Office of Infrastructure Protection**
Dams



**Department of Homeland Security
Transportation Security Administration/
U.S. Coast Guard**
Transportation Systems



**Department of Homeland Security
Office of Infrastructure Protection**
Emergency Services



**Department of Homeland Security
Office of Infrastructure Protection**
Nuclear Reactors, Materials and Waste



**Department of Homeland Security
Office of Infrastructure Protection**
Government Facilities



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RSF & CAPABILITIES



Goal of infrastructure systems recovery process is to

match the capacity of all infrastructure systems to a community's current and projected demand

on its built and virtual environment

RSF's pursue this course of action to the extent allowable by available resources and program authorities

End-state occurs when infrastructure systems recovery goals are met

OR

RSF member agencies' existing programs and authorities are exhausted and/or external funding is no longer available



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PRE-DISASTER: INFRASTRUCTURE RSF



Develops **guidance and standard procedures** for rapid activation of RSF capabilities

Identifies **relevant statutory and/or regulatory programs**, potential capabilities and/or limiting factors pertaining to recovery support

Provides a forum for interagency coordination, information sharing, and exchange of best practices

Supports planning, preparedness, education, and training

Works with partners to identify critical facilities and ensure considerations are made to reduce risk pre- and post-disaster



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POST-DISASTER: INFRASTRUCTURE RSF



When activated by the FDRC - **deploy**

Supports the **recovery** of infrastructure systems, dependent on the nature and scope of the disaster

Participates in the **national-level coordination** of damage and community needs assessments

Deploys RSF resources, as required by the specific disaster situation

Helps **resolve conflicts**, including those across jurisdictional lines

Sets schedules and sequenced time structure for future infrastructure recovery projects

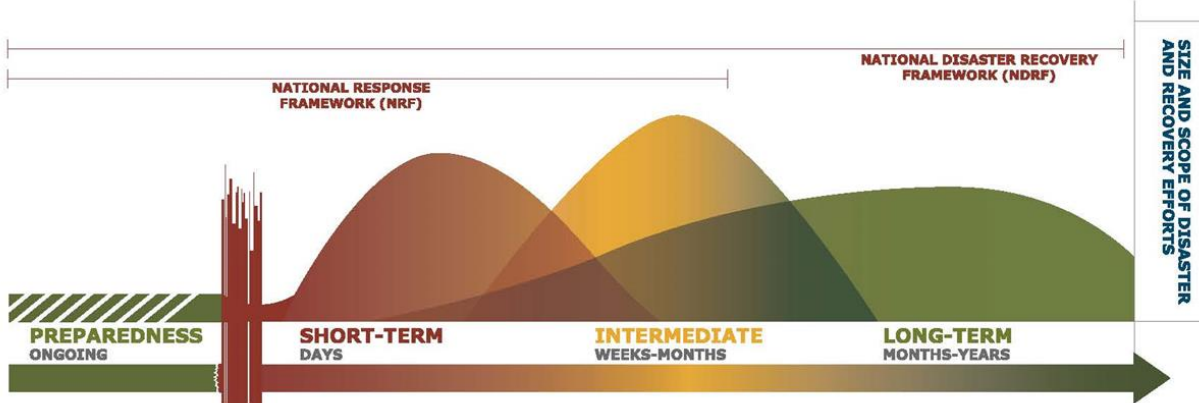
Works with RSF partners to **leverage available financial and technical assistance**, both from governmental and nongovernmental sources



RECOVERY CONTINUUM

FIGURE 1. RECOVERY CONTINUUM – DESCRIPTION OF ACTIVITIES BY PHASE

- PURPOSE OF THE FRAMEWORK
- 1
 - 2
 - 3
 - 4
 - 5
 - 6
 - 7
 - 8
 - 9
 - 10
 - 11
 - 12
 - 13



- PRE-DISASTER PREPAREDNESS Examples include:**
- Pre-disaster recovery planning
 - Mitigation planning and implementation
 - Community capacity- and resilience-building
 - Conducting disaster preparedness exercises
 - Partnership building
 - Articulating protocols in disaster plans for services to meet the emotional and health care needs of adults and children

This recovery continuum describes overlapping recovery activities by phase.

- SHORT-TERM RECOVERY Examples include:**
- **Mass Care/Sheltering**
 - Provide integrated mass care and emergency services
 - **Debris**
 - Clear primary transportation routes
 - **Business**
 - Establish temporary or interim infrastructure to support business reopenings
 - Reestablish cash flow
 - **Emotional/Psychological**
 - Identify adults and children who benefit from counseling or behavioral health services and begin treatment
 - **Public Health and Health Care**
 - Provide emergency and temporary medical care and establish appropriate surveillance protocols
 - **Mitigation Activities**
 - Assess and understand risks and vulnerabilities

- INTERMEDIATE RECOVERY Examples include:**
- **Housing**
 - Provide accessible interim housing solutions
 - **Debris/Infrastructure**
 - Initiate debris removal
 - Plan immediate infrastructure repair and restoration
 - **Business**
 - Support reestablishment of businesses where appropriate
 - Support the establishment of business recovery one-stop centers
 - **Emotional/Psychological**
 - Engage support networks for ongoing care
 - **Public Health and Health Care**
 - Ensure continuity of care through temporary facilities
 - **Mitigation Activities**
 - Inform community members of opportunities to build back stronger

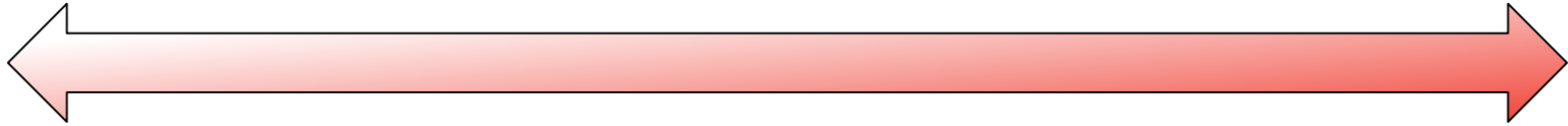
- LONG-TERM RECOVERY Examples include:**
- **Housing**
 - Develop permanent housing solutions
 - **Infrastructure**
 - Rebuild infrastructure to meet future community needs
 - **Business**
 - Implement economic revitalization strategies
 - Facilitate funding to business rebuilding
 - **Emotional/Psychological**
 - Follow-up for ongoing counseling, behavioral health, and case management services
 - **Public Health and Health Care**
 - Reestablishment of disrupted health care facilities
 - **Mitigation Activities**
 - Implement mitigation strategies

National Disaster Recovery Framework



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RESILIENCE RESPONSE CONTINUUM



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GUIDING PRINCIPLES FOR THE NATIONAL CRITICAL INFRASTRUCTURE)

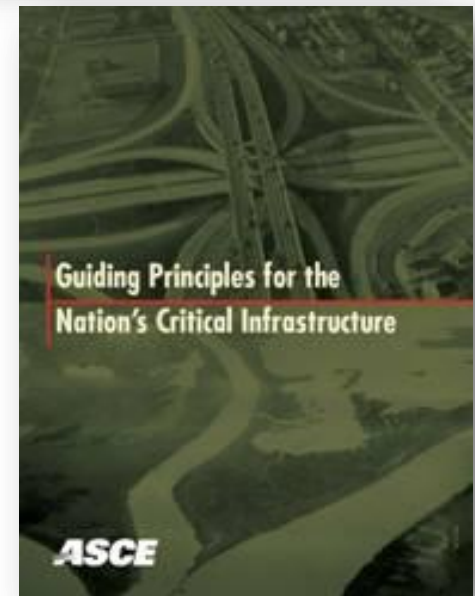
Overarching Principle

*Hold paramount the safety,
health, and welfare of the
public*



Guiding Principles

- 1) Quantify, communicate, and manage risk
- 2) Employ an integrated systems approach
- 3) Exercise sound leadership, stewardship in decision-making processes
- 4) Adapt critical infrastructure in response to dynamic conditions and practice



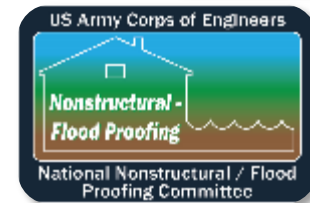


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RESILIENCE STRATEGIES



- **Strategy 1: Evolve Standards & Criteria**
 - Risk-informed design integrated across disciplines
 - Greater accounting for uncertainty
 - Ensuring adaptive capacity
- **Strategy 2: Support Community Resilience (CR)**
 - How each mission area can best support CR
 - Work collaboratively (federal, state, regional, community, and other partnerships)
- **Strategy 3 – Focus on Priority Areas**
 - Critical infrastructure
 - Tolerable risk



QUESTIONS?

