



Introduction to Emergency Management



Introduction to Emergency Management

Fifth Edition

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Dedication

The authors dedicate this book to Barbara Johnson in recognition of the tremendous positive impact she has had on the emergency management profession. Through her efforts, forward momentum in emergency management higher education has held straight and steady. Whether you are a practitioner, an academician, or a little of both, Barbara's tireless work has reached you.



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Foreword

In 1993, when I took over leadership of the Federal Emergency Management Agency (FEMA), emergency management was not a very well-known or respected discipline.

Many in the profession were hold-overs from the days of civil defense and most elected officials did not see the value of emergency management until they had a major disaster in their community; and even then the value was transitory. Throughout the 1990s, as the United States and the world experienced an unprecedented number of severe disasters, the critical role emergency management played in protecting the social and economic stability of our communities was evidenced. Emergency management began to grow beyond the response environment and focus on risk analysis, communications, risk prevention/mitigation, and social and economic recovery. This required a new skill base for emergency managers, and colleges and universities added courses and degrees in emergency management to their offerings. This resulted in a better educated, multidisciplinary, proactive approach to emergency management. Emergency managers were valued members of a community's leadership. Emergency management became an important profession. It allowed me as Director of FEMA, to work with our state, local, and private partners to build one of the most respected emergency management systems in the world.

As the tragic outcome of Hurricane Katrina so vividly demonstrated, a strong emergency management system is vital to the safety of all of our citizens. There is no time in our recent history when the need for and understanding of the discipline of emergency management has been more important. The current risk environment we live in, from potential bioterrorist threats, increasingly severe hurricanes and floods, and more frequent wildfires, has dramatically increased the skills and knowledge required to be an effective emergency manager in today's world.

Introduction to Emergency Management is the authoritative guide on today's discipline of emergency management. It takes the reader through the historical context of emergency management to the present day evolution into the world of homeland security.

The book focuses on the elements of an emergency management process while providing the policy underpinnings that support that process. It provides a comprehensive case study that examines the events and issues surrounding Hurricane Katrina. While focusing on the current changes happening to United States system for emergency management, it provides readers with a solid background in international practices and policies for disaster management/homeland security. The book gives the reader practical, real world experiences through documented case studies and provides extensive references and Internet sites for followup research.

My philosophy about emergency management has always been that we need to take a common-sense, practical approach to reducing the risks we face and protecting our citizens and our communities. We need to identify our risks, educate and communicate to our people about those risks, prepare as best we can for the risks, and then, together, form partnerships to take action to reduce those risks. This approach applies whether we are dealing with a flood, a tornado, a hazardous materials spill, a wildfire, a potential suicide bomb explosion, or a pandemic flu outbreak. The authors of this book were my Deputy Chief-of-Staff and my Chief-of-Staff, respectively, when I was Director of FEMA. Together we worked to apply this approach to making our citizens and communities more disaster resistant and safer throughout the world. As you read and learn from this book, I hope you will keep those ideals in mind.

—James Lee Witt, James Lee Witt Associates



Introduction

There is no country, no community, and no person immune to the impacts of disasters. Disasters, however, can be and have been prepared for, responded to, recovered from, and have had their consequences mitigated to an increasing degree. The profession (and academic discipline) that addresses this “management” of disasters is called Emergency Management. This book, *Introduction to Emergency Management*, is designed to provide the reader with a comprehensive foundation on the history, structure, organization, systems, and concerns that shape the management of disasters and other emergencies. Contained within are details and descriptions of contemporary emergency management practices and strategies, as well as descriptions of the key players involved in emergency management both within the United States and around the world. Our intent is to provide the reader with a working knowledge of how the functions of comprehensive emergency management operate and the influence they can have on everyday life.

This fifth edition represents a documentation of the current status of the discipline as it gravitates towards a state of equilibrium. The 2001 terrorist attacks set in motion a series of events that forever changed not only the way government jurisdictions at all levels (federal, state, and local) addressed the terrorism hazard, but also the way members of the public, non-governmental organizations, and businesses prepare for disaster events independent of and in concert with these agencies. Many felt that many of these actions were knee-jerk in nature and failed to preserve the positive lessons of previous years, especially those of the highly-regarded James Lee Witt years (1992 to 2000). In 2005, the failed response to Hurricane Katrina confirmed such fears, and had the effect of recalibrating our comprehensive approach to all-hazards risk assessment by reminding all emergency management practitioners that regardless of the public, policy, and media agendas, emergency management must be guided by scientific and statistical risk analysis.

Since the writing of the last edition of this textbook, FEMA has regained many of the programs and offices it lost as a result of the creation of the Department of Homeland Security and Secretary Chertoff’s Six Point Agenda. FEMA has regained its status as the agency responsible for the bulk of the nation’s emergency management policy, direction, and federal-level operations, yet it remains stifled under the umbrella of an organization dedicated to security-based concerns. Within DHS, FEMA is subject not only to indirect access to the president and a diminished decision-making authority, but it must also conform to the strategic focus of an agency whose fundamental mission is markedly different from its own.

In 2005, we saw a national system of emergency management once regarded as one of the most effective and emulated systems in the world proven incompetent in responding to an event that had been long predicted, planned for, and studied—Hurricane Katrina. Five years

later, FEMA is still struggling to rediscover its role, while the recovery along the Gulf Coast steadily progresses. This edition will examine how FEMA has evolved as a result of the legislation enacted in the aftermath of Hurricane Katrina, and how a change in administrations and political ideologies has helped to direct these changes.

While the book emphasizes the U.S. domestic system of emergency management, many of the experiences discussed, lessons learned, and emerging trends are replicable to emergency management systems around the world. Emergency management in the United States has experienced every form of disaster: natural, man-made, and intentional. The lessons learned from these experiences, the changes made in response to these events, and how the system continues to evolve because of climate change and other emerging threats, provides a solid landscape to examine what emergency management is or could be.

However, this book is not exclusively focused on FEMA. State and local emergency management organizations are the subjects of many of the included case studies, and their collaborative affiliations with FEMA are discussed at length throughout the text. One full chapter, in fact, is dedicated to how emergencies are managed at the international level when the capacity of whole countries or regions fall short of what is required to manage the disaster at hand. With greater frequency, events such as the 2004 Asian Earthquake and Tsunami, Cyclone Nargis in Burma in 2008, and the Sichuan Earthquake that same year, have highlighted the need for a more robust international emergency management system, and governments across the globe have focused more attention on the issue. A detailed case study of the response to the 2001 earthquake in Gujarat, India, is provided to illustrate these systems.

A brief summary of the contents and special features of this edition follows:

- Chapter 1, “The Historical Context of Emergency Management,” includes a brief discussion of the historical, organizational, and legislative evolution of emergency management in the United States by tracing the major changes triggered by disasters or other human or political events, including the creation of the Department of Homeland Security. This chapter includes an analysis of the organizational, legislative, and policy changes made in emergency management both pre and post-Hurricane Katrina.
- Chapter 2, “Natural and Technological Hazards and Risk Assessment,” identifies and defines the hazards confronting emergency management.
- Chapter 3, “The Disciplines of Emergency Management: Mitigation,” discusses what the function of mitigation is and what the strategies and programs applied by emergency management or other disciplines to reduce the impacts of disaster events are.
- Chapter 4, “The Disciplines of Emergency Management: Preparedness,” catalogues the broad range of programs and processes that comprise the preparedness function of modern emergency management.
- Chapter 5, “The Disciplines of Emergency Management: Communications,” breaks from the more traditional approach to emergency management and focuses on why communications with the public, with the media, and with partners is critical to emergency management of the 21st century.

- Chapter 6, “The Disciplines of Emergency Management: Response,” focuses on the essential functions and processes of responding to a disaster event.
- Chapter 7, “The Disciplines of Emergency Management: Recovery,” describes the broad range of government and voluntary programs available to assist individuals and communities in rebuilding in the aftermath of a disaster.
- Chapter 8, “International Disaster Management,” provides an overview of current activity in international emergency management through an examination of selected international organizations.
- Chapter 9, “Emergency Management and the Terrorist Threat,” describes how the events of September 11, 2001 have altered the traditional perceptions of emergency management.
- Chapter 10, “The Future of Emergency Management,” looks at the post-September 11 and post-Katrina environments and provides insights, speculations, recommendations and three options from the authors on where emergency management is or should be headed in the future.

Our goal in writing this book was to provide readers with an understanding of emergency management, insight into how events have shaped the discipline, and thoughts about the future direction of emergency management. The events of September 11, 2001 and the failures of Hurricane Katrina demonstrate the critical need for and value of emergency management. The evolving threats, the realities of global climate change, and our changing social, economic, and political environment demand new and innovative approaches and leadership. We hope this text will motivate each reader to accept the challenge.

Online Resources

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The Historical Context of Emergency Management

What You will Learn

- The early roots of emergency management
- The modern history of emergency management in the United States
- How FEMA came to exist and how it evolved during the 1980s, 1990s, and the early 21st century
- The sudden changes to modern emergency management that resulted from the 9/11 terrorist attacks and Hurricane Katrina
- Changes made by post-Hurricane Katrina legislation and a new administration in Washington, D.C.
- Obama Administration approach to emergency management
- Analysis of legislation to FEMA programs passed in the aftermath of Hurricane Sandy

Introduction

Emergency management has its roots in ancient history. Early hieroglyphics depict cave dwellers trying to deal with disasters. The Bible speaks of the many disasters that befell civilizations. In fact, the account of Moses parting the Red Sea could be interpreted as the first attempt at flood control. As long as there have been disasters, individuals and communities have tried to find ways to fix them, but organized attempts at disaster recovery did not occur until much later in modern history.

This chapter discusses the historical, organizational, and legislative history of modern emergency management in the United States. Some of the significant events and people that have shaped the emergency management discipline over the years are reviewed. Understanding the history and evolution of emergency management is important because at different times, the concepts of emergency management have been applied differently. The definition of *emergency management* can be extremely broad and all-encompassing. Unlike other, more structured disciplines, it has expanded and contracted in response to events, congressional desires, and leadership styles.

Recently, events and leadership, more than anything else, have brought about dramatic changes to emergency management in the United States. The terrorist attacks of September 11, 2001, led to massive organizational changes and programmatic shifts in emergency management. Many believe that these changes undermined the effective national system of

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emergency management that had evolved during the 1990s and led to the profound failure of all levels of emergency management in response to Hurricane Katrina in 2005.

A simple definition for emergency management is “a discipline that deals with risk and risk avoidance.” Risk represents a broad range of issues and includes an equally diverse set of players. The range of situations that could possibly involve emergency management or the emergency management system is extensive. This supports the premise that emergency management is integral to the security of everyone’s daily lives and should be integrated into daily decisions and not just called on during times of disasters.

Emergency management is an essential role of government. The Constitution gives the states the responsibility for public health and safety—hence the responsibility for public risks—with the federal government in a secondary role. The federal role is to help when the state, local, or individual entity is overwhelmed. This fundamental philosophy continues to guide the government function of emergency management.

Based on this strong foundation, the validity of emergency management as a government function has never been in question. Entities and organizations fulfilling the emergency management function existed at the state and local levels long before the federal government became involved. But as events occurred, as political philosophies changed, and as the nation developed, the federal role in emergency management steadily increased.

In the aftermath of the failed response to Hurricane Katrina, extensive discussion about emergency management, particularly the response and recovery functions, has taken place. An ever-increasing presence of nonprofit organizations delivering support to their particular constituencies after Katrina has given rise to interest on the part of the nonprofit community to take on increased responsibilities for disaster response. To date this has not materialized, but steps have been taken at the federal level to apply a top-down approach to emergency management functions, particularly relative to planning for disasters. While the Post-Katrina Emergency Management Reform Act detailed changes to how federal emergency management functioned, many of the changes included in this legislation were overlooked or were slow to be adopted by the leadership at the Federal Emergency Management Agency (FEMA) and the Department of Homeland Security (DHS). With the election of Barack Obama as president in 2008, both Congress and the emergency management community looked forward to positive changes and support for a struggling discipline. Positive changes were made in the nomination of Craig Fugate, a very qualified state emergency management director from Florida, who came in with a promise to improve FEMA’s response operations. With the support of Janet Napolitano, Secretary of the Department of Homeland Security, Administrator Fugate has refocused the agency on preparedness and response. To some this has come at the cost of greatly reducing the agency’s efforts to promote mitigation and to pass leadership of community recovery efforts to other federal agencies. Administrator Fugate has launched the concept of Whole Community as his personal program to change the dialogue from victims to survivors. Over the course of Fugate’s tenure, the agency has certainly been tested with major floods, the Joplin, Missouri tornadoes, Hurricane Sandy and the Boston Marathon bombing. This chapter will discuss how the agency has evolved since 2011 and take a snapshot of what the future potentially holds for the national emergency management system.

Early History: 1800–1950

In 1803, a congressional act was passed that provided financial assistance to a New Hampshire town that had been devastated by fire. This was the first example of the federal government becoming involved in a local disaster. It was not until Franklin Roosevelt's administration used government as a tool to stimulate the economy that the federal government began to make significant investments in emergency management functions.

During the 1930s, the Reconstruction Finance Corporation and the Bureau of Public Roads were both given the authority to make disaster loans available for repair and reconstruction of certain public facilities after disasters. The Tennessee Valley Authority was created during this time to produce hydroelectric power and, as a secondary purpose, to reduce flooding in the region.

A significant piece of emergency management legislation was passed during this time. The Flood Control Act of 1936 gave the U.S. Army Corps of Engineers increased authority to design and build flood-control projects. This act has had a significant and long-lasting impact on emergency management in this country. This act reflected the philosophy that humans could control nature, thereby eliminating the risk of floods. Although this program would promote economic and population growth patterns along the nation's rivers, history has proven that this attempt at emergency management was both shortsighted and costly.

The Cold War and the Rise of Civil Defense: The 1950s

The next notable time frame for the evolution of emergency management was during the 1950s. The era of the Cold War presented the principal disaster risk as the potential for nuclear war and nuclear fallout. Civil defense programs proliferated across communities during this time. Individuals and communities were encouraged to build bomb shelters to protect themselves and their families from nuclear attack from the Soviet Union.

Almost every community had a civil defense director and most states had someone who represented civil defense in their state government hierarchy. By profession, these individuals were usually retired military personnel, and their operations received little political or financial support from their state or local governments. Equally often, their civil defense responsibilities were in addition to other duties.

Federal support for these activities was vested in the Federal Civil Defense Administration (FCDA), an organization with little staff or financial resources whose main role was to provide technical assistance. In reality, the local and state civil defense directors were the first recognized face of emergency management in the United States.

A companion office to the FCDA, the Office of Defense Mobilization was established in the Department of Defense (DOD). The primary functions of this office were to allow for quick mobilization of materials and production and stockpiling of critical materials in the event of a war. It included a function called *emergency preparedness*. In 1958, these two offices were merged into the Office of Civil and Defense Mobilization.

The 1950s were a quiet time for large-scale natural disasters. Hurricane Hazel, a Category 4 hurricane, inflicted significant damage in Virginia and North Carolina in 1954; Hurricane Diane hit several mid-Atlantic and northeastern states in 1955; and Hurricane Audrey, the most damaging of the three storms, struck Louisiana and North Texas in 1957. Congressional response to these disasters followed a familiar pattern of ad hoc legislation to provide increased disaster assistance funds to the affected areas.

As the 1960s started, three major natural disaster events occurred. In a sparsely populated area of Montana, the Hebgen Lake earthquake, measuring 7.3 on the Richter scale, was proof that states other than California were at risk for severe earthquakes. Also in 1960, Hurricane Donna hit the west coast of Florida, and Hurricane Carla blew into Texas in 1961. The incoming Kennedy administration decided to make a change to the federal approach to such disasters. In 1961 it created the Office of Emergency Preparedness inside the White House to deal with natural disasters. Civil defense responsibilities remained in the Office of Civil Defense within the DOD.

Changes to Emergency Management: The 1960s

As the 1960s progressed, the United States would be struck by a series of major natural disasters. The Ash Wednesday storm in 1962 devastated more than 620 miles of shoreline on the East Coast, producing more than \$300 million in damages. In 1964, an earthquake measuring 9.2 on the Richter scale in Prince William Sound, Alaska, became front-page news throughout America and the world. This quake generated a tsunami that affected beaches as far down the Pacific Coast of California and killed 123 people. Hurricane Betsy in 1965 and Hurricane Camille in 1969 killed and injured hundreds of people and caused hundreds of millions of dollars in damage along the Gulf Coast.

As with previous disasters, the response was passage of ad hoc legislation for funds. However, the financial losses resulting from Hurricane Betsy's path across Florida and Louisiana raised the issue of disaster insurance against future floods and a potential method to reduce continued government assistance after such disasters. Congressional interest was prompted by the unavailability of flood protection insurance on the standard homeowner policy. If this type of insurance was available, it was cost-prohibitive. These discussions eventually led to the passage of the National Flood Insurance Act of 1968, which created the National Flood Insurance Program (NFIP).

Congressman Hale Boggs of Louisiana is appropriately credited with steering this unique legislation through Congress. Unlike previous emergency management/disaster legislation, this bill sought to do something about the risk *before* the disaster struck. It brought the concept of *community-based mitigation* into the practice of emergency management. In simple terms, when a community joined the NFIP, in exchange for making federally subsidized, low-cost flood insurance available to its citizens, the community had to pass an ordinance restricting future development in its floodplains. The federal government also agreed to help local communities by producing maps of their community's floodplains.

ADDITIONAL RESEARCH

In October 2006, a report entitled *Costs and Consequences of Flooding and the Impact of the National Flood Insurance Program* was issued, which provided an overview of what the NFIP had accomplished. It is available at www.fema.org.

The NFIP began as a voluntary program as part of a political compromise that Boggs reached with then Senator Tom Eagleton of Missouri. As a voluntary program, few communities joined. After Hurricane Camille struck the Louisiana, Alabama, and Mississippi coasts in 1969, the goals of the NFIP to protect people's financial investments and to reduce government disaster expenditures were not being met. Change would not occur until Hurricane Agnes devastated Florida in 1972.

George Bernstein, who was brought down from New York by President Nixon to run the Federal Insurance Administration (FIA) within the Department of Housing and Urban Development (HUD), proposed linking the mandatory purchase of flood insurance to all homeowner loans that were backed by federal mortgages. This change created an incentive for communities to join the NFIP because a significant portion of the home mortgage market was federally backed. This change became the Flood Insurance Act of 1972.

It is important to note how local and state governments chose to administer this flood risk program. Civil defense departments usually had the responsibility to deal with risks and disasters. Although the NFIP dealt with risk and risk avoidance, responsibilities for the NFIP were sent to local planning departments and state Departments of Natural Resources. This reaction is one illustration of the fragmented and piecemeal approach to emergency management that evolved during the 1960s and 1970s.

■ ■ Critical Thinking ■

Can you think of any positive or negative aspects of disaster-driven evolutionary changes in the United States' emergency management system? What about for changes that occur in the absence of initiating disaster events?

The Call for a National Focus on Emergency Management: The 1970s

In the 1970s, the responsibility for emergency management functions was evident in more than five federal departments and agencies, including the Department of Commerce (weather, warning, and fire protection), the General Services Administration (continuity of government, stockpiling, and federal preparedness), the Treasury Department (import investigation), the Nuclear Regulatory Commission (power plants), and HUD (flood insurance and disaster relief).

With the passage of the Disaster Relief Act of 1974, which was prompted by the previously mentioned hurricanes and the San Fernando earthquake of 1971, HUD possessed the most

significant authority for natural disaster response and recovery through the NFIP under the FIA and the Federal Disaster Assistance Administration (disaster response, temporary housing, and assistance). On the military side were the Defense Civil Preparedness Agency (nuclear attack) and the U.S. Army Corps of Engineers (flood control); however, taking into account the broad range of risks and potential disasters, more than 100 federal agencies were involved in some aspect of risk and disasters.

This pattern continued down to the state and, to a lesser extent, local levels. Parallel organizations and programs added to the confusion and the turf wars that especially occurred during disaster response efforts. The states and the governors grew increasingly frustrated over this fragmentation. In the absence of one clear federal lead agency in emergency management, a group of state civil defense directors led by Lacy Suiter of Tennessee and Erie Jones of Illinois launched an effort through the National Governors Association to consolidate federal emergency management activities into one agency.

With the election of a fellow state governor, President Jimmy Carter of Georgia, the effort gained steam. President Carter came to Washington committed to streamlining all government agencies and seeking more control over key administrative processes. The state directors lobbied the National Governors Association (NGA) and Congress for a consolidation of federal emergency management functions. When the Carter administration proposed such an action, it was met with a receptive audience in the Senate. Congress already had expressed concerns about the lack of a coherent federal policy and the inability of states to know whom to turn to in the event of an emergency.

The federal agencies involved, however, were not as excited about the prospect. A fundamental law of bureaucracy is a continued desire to expand control and authority, not to lose control. In a consolidation of this sort, there would be both losers and winners. There was a question of which federal department/agency should house the new consolidated structure. As the debate continued, the newly organized National Association of State Directors of Emergency Preparedness championed the creation of a new independent organization, an idea that was quickly supported by the Senate.

In the midst of these discussions, an accident occurred at the Three Mile Island nuclear power plant in Pennsylvania, which added impetus to the consolidation effort. This accident brought national media attention to the lack of adequate off-site preparedness around commercial nuclear power plants and the role of the federal government in responding to such an event.

On June 19, 1978, President Carter transmitted to Congress the Reorganization Plan Number 3 (3 CFR 1978, 5 U.S. Code 903). The intent of this plan was to consolidate emergency preparedness, mitigation, and response activities into one federal emergency management organization. The president stated that the plan would establish the Federal Emergency Management Agency (FEMA) and that the FEMA director would report directly to the president.

Reorganization Plan Number 3 transferred to FEMA the National Fire Prevention Control Administration (Department of Commerce), the Federal Insurance Administration (HUD), the Federal Broadcast System (Executive Office of the President), the Defense Civil Preparedness Agency (Department of Defense), the Federal Disaster Assistance Administration (HUD), and

the Federal Preparedness Agency (GSA). The following emergency preparedness and mitigation functions were also transferred to FEMA:

- Oversight of the Earthquake Hazards Reduction Program (Office of Science and Technology Policy)
- Coordination of dam safety (Office of Science and Technology Policy)
- Assistance to communities in the development of readiness plans for severe weather-related emergencies
- Coordination of natural and nuclear disaster warning systems
- Coordination of preparedness and planning to reduce the consequences of major terrorist incidents

Reorganization Plan Number 3 articulated the following fundamental organizational principles:

1. Federal authorities who were to anticipate, prepare for, and respond to major civil emergencies should be supervised by one official who is responsible to the president and given attention by other officials at the highest levels.
2. An effective civil defense system requires the most efficient use of all available resources.
3. Whenever possible, emergency responsibilities should be extensions of federal agencies.
4. Federal hazard mitigation activities should be closely linked with emergency preparedness and response functions.

Subsequent to congressional review and concurrence, the Federal Emergency Management Agency was officially established by Executive Order 12127 of March 31, 1979 (44 FR 19367, 3 CFR, Comp., p. 376). A second Executive Order, 12148, mandated the reassignment of agencies, programs, and personnel into the new entity, FEMA.

Creating the new organization made sense, but integrating the diverse programs, operations, policies, and people into a cohesive operation was a much bigger task than realized when the consolidation began. It would take extraordinary leadership and a common vision. The consolidation also created immediate political problems. By consolidating these programs and the legislation that created them, FEMA would have to answer to 23 committees and subcommittees in Congress with oversight of its programs. Unlike most other federal agencies, it would have no organic legislation to support its operations and no clear champions to look to during the congressional appropriations process.

In addition, President Carter had problems finding a director for this new organization. No large constituent group was identified with emergency management, and at the time the administration was facing major problems with Congress and the public because of the Iranian hostage crisis. President Carter finally reached into his own cabinet and asked John Macy, then head of the Office of Personnel Management (OPM), to become director of FEMA.

John Macy's task was to unify an organization that was not only physically separated—parts of the agency were located in five different buildings around Washington—but also philosophically separate. Programs focused on nuclear war preparations were combined with programs focused on a new consciousness of the environment and floodplain management. Macy

focused his efforts by emphasizing the similarities between natural hazards preparedness and civil defense by developing a new concept called the Integrated Emergency Management System (IEMS). This system was an all-hazards approach that included direction, control, and warning as functions common to all emergencies from small, isolated events to the ultimate emergency of nuclear attack. For all his good efforts, FEMA continued to operate as individual entities pursuing their own interests and answering to their own congressional bosses. It was a period of few major disasters, so virtually nobody noticed this problem of disjointedness.

Civil Defense Reappears as Nuclear Attack Planning: The 1980s

The early- and mid-1980s saw FEMA facing many challenges, but no significant natural disasters. The absence of the need for a coherent federal response to disasters, as was called for by Congress when it approved the establishment of FEMA, allowed FEMA to continue to exist as an organization of many parts.

In 1982, President Reagan appointed General Louis O. Giuffrida as director of FEMA. Giuffrida, a California friend of Ed Meese, who was one of the President's closest advisors, had a background in training and terrorism preparedness at the state government level. He proceeded to reorganize FEMA consistent with administration policies and his background. Top priority was placed on government preparedness for a nuclear attack. Resources within the agency were realigned, and additional budget authority was sought to enhance and elevate the national security responsibilities of the agency. With no real role for the states in these national security activities, the state directors who had lobbied for the creation of FEMA saw their authority and federal funding declining.

Giuffrida also angered one of the only other visible constituents of the agency—the fire services community. Giuffrida diminished the authority of the U.S. Fire Administration by making it part of FEMA's Directorate of Training and Education. The newly acquired campus at Emmitsburg, Maryland was intended to become the preeminent National Emergency Training Center (NETC).

During Giuffrida's tenure, FEMA faced several unusual challenges that stretched its authority, including asserting FEMA into the lead role for continuity of civilian government in the aftermath of a nuclear attack, managing the federal response to the contamination at Love Canal and Times Beach, Missouri, and the Cuban refugee crisis. Although Giuffrida managed to bring the agency physically together in a new headquarters building in Washington, D.C., severe morale problems persisted.

Dislike of Giuffrida's style and questions about FEMA's operations came to the attention of U.S. Representative Al Gore of Tennessee, who then served on the House Science and Technology Committee. As the congressional hearings proceeded, the Department of Justice and a grand jury began investigations of senior political officials at FEMA. These inquiries led to the resignation of Giuffrida and top aides in response to a variety of charges, including misuse of government funds, but the shake-up marked a milestone of sorts: FEMA and emergency management had made it into the comic strip "Doonesbury."

President Reagan then selected General Julius Becton to be director of FEMA. Becton, a retired military general and former director of the Office of Foreign Disaster Assistance in the State Department, is credited uniformly with restoring integrity to the operations and appropriations of the agency. From a policy standpoint, he continued to emphasize the programs of his predecessor, only in a less visible manner. Becton expanded the duties of FEMA when he was asked by the DOD to take over the program dealing with the off-site cleanup of chemical stockpiles on DOD bases. This program was fraught with problems, and bad feelings existed between the communities and the bases over the funds available to the communities for the cleanup. FEMA had minimal technical expertise to administer this program and was dependent on the DOD and the Army for the funding. This situation led to political problems for the agency and did not lead to significant advancements in local emergency management operations, as promised by the DOD.

At one point in his tenure, Becton ranked the programs in FEMA by level of importance. Of the more than 20 major programs, the earthquake, hurricane, and flood programs ranked near the bottom. This priority seemed logical based on the absence of any significant natural hazards, but this situation is noteworthy in the context that it continued the pattern of isolating resources for national security priorities without recognizing the potential of a major natural disaster.

This issue was raised by then Senator Al Gore in hearings on FEMA's responsibilities as lead agency for the National Earthquake Hazards Reduction Program (NEHRP). Senator Gore, reacting to a scientific report that up to 200,000 casualties could result from an earthquake on the New Madrid fault, believed that FEMA's priorities were misplaced. The legislation that created the NEHRP called on FEMA to develop a plan for how the federal government would respond to a catastrophic earthquake. This Federal Response Plan would later become the standard for all of the federal agencies' response operations. Senator Gore concluded that FEMA needed to spend more time working with its federal, state, and local partners on natural hazards planning.

An Agency in Trouble: 1989–1992

As Congress debated, and finally passed, major reform of federal disaster policy as part of the Stewart McKinney–Robert Stafford Act, FEMA's potential and its ability to support a national emergency management system remained in doubt. As the 1980s closed, FEMA was an agency in trouble. It suffered from severe morale problems, disparate leadership, and conflicts with its partners at the state and local levels over agency spending and priorities.

With a new administration in place, President George H.W. Bush named Wallace Stickney as director of FEMA. Stickney was from New Hampshire and was a friend of John Sununu, who was Bush's chief of staff. Stickney came to the director's position having been a staff person at the New England Regional Office of the Environmental Protection Agency and as a volunteer firefighter. His emergency management credentials were minimal, and his selection was poorly received by many of the state directors. At the same time, the political appointees who were named to FEMA's regional director positions—the first line of FEMA's response system—were equally lacking in emergency management experience. These appointments would prove to have dire consequences for both FEMA and the American public.

In 1989, two devastating natural disasters called the continued existence of FEMA into question. In September, Hurricane Hugo slammed into North Carolina and South Carolina after first hitting Puerto Rico and the Virgin Islands. It was the worst hurricane in a decade, with more than \$15 billion in damages and 85 deaths. FEMA was slow to respond, waiting for the process to work and for the governors to decide what to do. Less than a month later, the Bay Area of California was rocked by the Loma Prieta earthquake as the 1989 World Series got under way in Oakland Stadium. FEMA was not prepared to deal with the catastrophe.

A few years later, FEMA was not so lucky. In August 1992, Hurricane Andrew struck Florida and Louisiana, and Hurricane Iniki struck Hawaii only a few weeks later. Again, FEMA wasn't ready, but with Hurricane Andrew, it was not only FEMA that failed the people of Florida, but the process and the system as well. Starting with Hurricane Hugo, public concern over natural disasters was high. People wanted, and expected, their government to be there to help in their time of need. FEMA seemed incapable of carrying out the essential government function of emergency management.

In the aftermath of Hurricanes Andrew and Iniki, there were calls for abolishing FEMA. But the incoming Clinton administration realized how important an effective response and quick recovery were to communities and to voters and was determined to fix the emergency management system.

The Witt Revolution: 1993–2001

When President Clinton nominated James Lee Witt to be director of FEMA, Witt breathed new life into FEMA and brought a new style of leadership to the troubled agency. Witt was the first director of FEMA with emergency management experience. He was from the constituency who had played a major role in creating FEMA but had been forgotten—the state directors. With Witt, President Clinton had credibility and, more important, a skilled politician who knew the importance of building partnerships and serving customers.

Witt came in with a mandate to restore the trust of the American people that their government would be there for them during times of crisis. He initiated sweeping reforms inside and outside the agency. Inside FEMA, he reached out to all employees, implemented customer service training, and reorganized the agency to break down bottlenecks. He supported the application of new technologies to the delivery of disaster services and focused on mitigation and risk avoidance. Outside the agency, he strengthened the relationships with state and local emergency managers and built new ones with Congress, within the administration, and with the media. Open communications, both internally and externally, were the hallmarks of the Witt years at FEMA.

Witt's leadership and the changes he made were quickly tested as the nation experienced an unprecedented series of natural disasters. The Midwest floods in 1993 resulted in major disaster declarations in nine states. FEMA's successful response to these floods brought the opportunity to change the focus of postdisaster recovery by initiating the largest voluntary buyout and relocation program to date in an effort to move people out of the floodplain and out of harm's way.

ADDITIONAL RESEARCH

“The Great USA Flood of 1993” (http://www.nwrfc.noaa.gov/floods/papers/oh_2/great.htm)

Abstract. The 1993 Midwest flood was one of the most significant and damaging natural disasters ever to hit the United States. Damages totaled \$15 billion, 50 people died, hundreds of levees failed, and thousands of people were evacuated, some for months. The flood was unusual in the magnitude of the crests, the number of record crests, the large area impacted, and the length of the time the flood was an issue.

The paper discusses some details of the flood, the forecasting procedures utilized by the National Weather Service and the precipitation events which caused the flood.

The Northridge, California, earthquake quickly followed the Midwest floods in 1993. Northridge tested all of the new streamlined approaches and technology advancements for delivery of services and created some more. Throughout the next several years, FEMA and its state and local partners would face every possible natural hazard, including killer tornadoes, ice storms, hurricanes, floods, wildfires, and drought.

When President Clinton made Witt a member of his cabinet, the value and importance of emergency management was recognized. Witt used this promotion as an opportunity to lobby the nation’s governors to include their state emergency management directors in their cabinets.

The Oklahoma City bombing in April 1995 represented a new phase in the evolution of emergency management. This event, following the first bombing of the World Trade Center in New York City in 1993, raised the issue of America’s preparedness for terrorism events. Because emergency management responsibilities are defined by risks and the consequences of those risks, responding to terrorist threats was included. The Oklahoma City bombing tested this thesis and set the stage for interagency disagreements over which agency would be in charge of terrorism.

While this debate continued, FEMA took an important step in its commitment to disaster mitigation by launching a national initiative to promote a new community-based approach called Project Impact: Building Disaster-Resistant Communities. This project was designed to mainstream emergency management and mitigation practices into every community in America. It went back to the roots of emergency management. It asked a community to identify risks and establish a plan to reduce those risks. It asked communities to establish partnerships that included all of the stakeholders in the community, including, for the first time, the business sector.

ADDITIONAL RESEARCH

“Project Impact Initiative to Create Disaster-Resistant Communities Demonstrates Worth in Kansas Years Later” (www.emergencymgmt.com/disaster/ProjectImpact-Initiative-to.html). This article documents how preventive measures, taken by communities in Kansas as part of the Project Impact program, saved lives years later when devastating tornadoes struck across Kansas.



FIGURE 1-1 Gilchrist, Texas, August 16, 2009. These stilt homes were the only structures still standing in the town of Gilchrist after Hurricane Ike destroyed it. FEMA is still working with local, state, and federal agencies to rebuild the town. *Photo by Patsy Lynch/FEMA.*

By building a disaster-resistant community, the community would promote sustainable economic development, protect and enhance its natural resources, and ensure a better quality of life for its citizens. [Figure 1-1](#) shows the effects of mitigation during Hurricane Ike. As the decade came to an end, FEMA was still recognized as the preeminent emergency management system in the world. It was adopted in other countries, and Witt became an ambassador for emergency management overseas.

Terrorism: 2001

With the election of President George W. Bush, a new FEMA director, Joe Allbaugh, was named to head the agency. As a former chief of staff to Bush when he was governor of Texas and Bush's campaign manager in the 2000 presidential race, Allbaugh had a close personal relationship with the president. As demonstrated by Witt and Clinton, this was viewed as a positive for the agency. His lack of emergency management background was not an issue during his confirmation hearings.

Allbaugh got off to a rocky start when the administration decided to eliminate funding for the popular Project Impact. Immediately after this decision was announced, the 6.8 magnitude Nisqually earthquake shook Seattle, Washington. Seattle happened to be one of the most successful Project Impact communities. The mayor of Seattle appeared on national television and gave Project Impact credit for the minimal damage from the quake. When then Vice President Dick Cheney was asked why the program was being eliminated, he responded that there had been doubts about its effectiveness. As FEMA's budget proceeded through the appropriations process, Congress put funding back into Project Impact.

As part of the major reorganization of the agency, Allbaugh recreated the Office of National Preparedness (ONP). This office was first established in the 1980s during the Giuffrida reign for

planning for World War III and had been eliminated by Witt in 1992. This action raised some concerns among FEMA's constituents and FEMA staff. However, this time the mission of the office was focused on terrorism.

As the events of September 11, 2001 unfolded, FEMA activated the Federal Response Plan, and response operations proceeded as expected in New York and Virginia. The strength of the U.S. Emergency Management System was proven; however, as hundreds of response personnel initiated their operations within just minutes of the onset of events.

The Department of Homeland Security: 2001–2005

Almost immediately after the terrorist attacks on the World Trade Center, the President created by executive order the Office of Homeland Security within the White House. The same day that announcement was made, Tom Ridge, the Governor of Pennsylvania, was sworn in to lead the office with the title Assistant to the President.

In March 2002, President Bush signed Homeland Security Presidential Directive-3 (HSPD-3), which stated the following:

The Nation requires a Homeland Security Advisory System to provide a comprehensive and effective means to disseminate information regarding the risk of terrorist acts to federal, state, and local authorities and to the American people. Such a system would provide warnings in the form of a set of graduated "threat conditions" that would increase as the risk of the threat increases. At each threat condition, federal departments and agencies would implement a corresponding set of "protective measures" to further reduce vulnerability or increase response capability during a period of heightened alert.

This system is intended to create a common vocabulary, context, and structure for an ongoing national discussion about the nature of the threats that confront the homeland and the appropriate measures that should be taken in response. It seeks to inform and facilitate decisions appropriate to different levels of government and to private citizens at home and at work.

What resulted was the widely recognizable five-color Homeland Security Advisory System code. On November 25, 2002, President Bush signed into law the Homeland Security Act of 2002 (HS Act) (Public Law 107-296) and announced that Tom Ridge would be appointed Secretary of a new Department of Homeland Security (DHS) to be created through this legislation. This act, which authorized the greatest federal government reorganization since President Harry Truman joined the various branches of the armed forces under the Department of Defense, was charged with a threefold mission of protecting the United States from further terrorist attacks, reducing the nation's vulnerability to terrorism, and minimizing the damage from potential terrorist attacks and natural disasters.

The sweeping reorganization into the new department, which officially opened its doors on January 24, 2003, joined together more than 179,000 federal employees from 22 existing federal

agencies under a single, cabinet-level organization. The creation of DHS was the culmination of an evolutionary legislative process that began largely in response to criticism that increased federal intelligence interagency cooperation could have prevented the September 11 terrorist attacks. The White House and Congress both had recognized that a Homeland Security czar would require both a staff and a large budget in order to succeed, and thus began deliberations to create a new cabinet-level department that would fuse many of the security-related agencies dispersed throughout the federal government.

For several months during the second half of 2002, Congress jockeyed between different versions of the Homeland Security bill in an effort to establish legislation that was passable yet effective. Efforts to incorporate many of the intelligence-gathering and investigative law enforcement agencies—the National Security Agency (NSA), the Federal Bureau of Investigation (FBI), and the Central Intelligence Agency (CIA)—into the legislation failed.

Despite these delays and setbacks, after the 2002 midterm elections, the Republican seats gained in both the House and Senate gave the president the leverage he needed to pass the bill without further deliberation (H.R., 299-121 on November 13, 2002; Senate, 90-9 on November 19, 2002). Although the passage of this act represented a significant milestone, the implementation phase presented a tremendous challenge—a concern expressed by several leaders from the agencies that were to be absorbed. On November 25, 2002, President Bush submitted his Reorganization Plan (as required by the legislation), which mapped out the schedule, methodology, and budget for the monumental task.

Although a handful of these agencies remained intact after the consolidation, most were fully incorporated into one of four new directorates—Border and Transportation Security (BTS), Information Analysis and Infrastructure Protection (IAIP), Emergency Preparedness and Response (EP&R), and Science and Technology (S&T). A fifth directorate, Management, incorporated parts of the existing administrative and support offices within the merged agencies. Secretary Ridge was given exactly one year to develop a comprehensive structural framework for DHS and to name new leadership for all five directorates and other offices created under the legislation.

In addition to the creation of the Department of Homeland Security, the HS Act made several changes to other federal agencies and their programs and created several new programs. On March 1, 2003, Joe Allbaugh, in a memo to FEMA staff, announced that he was resigning as FEMA director. Michael Brown, formerly general counsel to FEMA and acting deputy director, was named as the acting director of FEMA within the DHS Emergency Preparedness and Response directorate. Mike Brown came to FEMA because of his long, personal friendship with Allbaugh. His academic training was in law, and prior to coming to FEMA he had been the executive director of the Arabian Horse Association based in Colorado.

With the DHS establishment moving forward, in 2004 FEMA was faced with four major hurricanes that assaulted Florida. Because of that election year's overall political nature and with Florida being regarded as key in deciding the outcome of the presidential election (as well as the fact that the President's brother Jeb was the Governor of Florida), a great deal of effort was expended to ensure that the federal response to the hurricanes was efficient and effective. However, everyone was well aware that Florida had one of the most effective state emergency management systems in the country and that it was actually "calling the shots."

ADDITIONAL RESEARCH

DHS Office of the Inspector General, 2005. Audit of FEMA's Individuals and Households Program in Miami-Dade County, Florida, for Hurricane Frances.

One of the many issues that arose in the aftermath of the hurricanes was the allegation of widespread fraud in the handling of people receiving aid from FEMA even when they had suffered no damages to or loss of their homes. The DHS inspector general, an independent oversight group that investigates government waste, fraud, and abuse of federal programs, investigated the allegations, and this report summarizes their findings.

http://www.oig.dhs.gov/assets/Mgmt/OIG_05-20_May05.pdf

On November 30, 2004, Ridge announced his resignation. On February 16, 2005, Michael Chertoff was unanimously confirmed by the Senate to lead the Department of Homeland Security. On July 13, 2005, Michael Chertoff released a six-point agenda that would be used to guide a reorganization of the department aimed at streamlining its efforts. According to the six-point agenda, the following changes were to be made:

- Increase overall preparedness, particularly for catastrophic events.
- Create better transportation security systems to move people and cargo more securely and efficiently.
- Strengthen border security and interior enforcement and reform immigration processes.
- Enhance information sharing (with partners).
- Improve financial management, human resource development, procurement, and information technology within the department.
- Realign the department's organization to maximize mission performance.

As part of the proposed reorganization, virtually all of the remaining preparedness capabilities in FEMA, including the U.S. Fire Administration, were moved to the new Office of Preparedness. The exception was the Emergency Management Institute (EMI). Although the EMI training function was always considered part of preparedness, the senior-level FEMA officials argued that its courses supported response and recovery. A new FEMA office was to focus exclusively on response and recovery.

Under the initial DHS organization (Figure 1-2), the Emergency Preparedness and Response directorate contained most of the pre-DHS FEMA functions and staff. Under the Chertoff reorganization, EP&R was eliminated and the director of FEMA, who was formerly the undersecretary for EP&R, would become an office director. The reorganization was somewhat unclear regarding who would be in charge in a disaster, since the responsibility for the new National Incident Management System (NIMS) was actually vested in the director of Operations Coordination.

Under the Chertoff reorganization, the structure of federal emergency management and disaster assistance functions was returned to pre-FEMA status. The responsibilities and capabilities for mitigation, preparedness, response, and recovery would now be spread out among

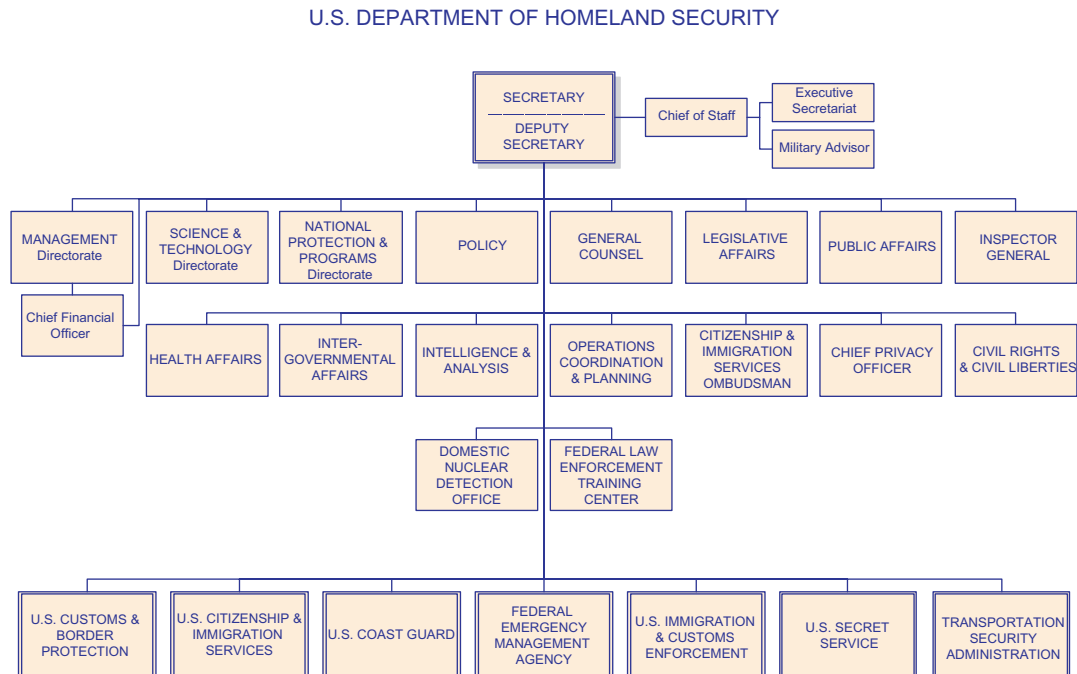


FIGURE 1-2 DHS organizational chart.

several entities within the Department of Homeland Security. Policy decisions were exercised to focus most of the human and financial resources on catastrophic threats of bioterrorism and terrorism.

The situation at the time was very similar to the one that existed prior to the creation of FEMA in 1979. Federal emergency management and disaster assistance capabilities were located in numerous federal departments and agencies scattered across the federal government and in the White House. This time, however, instead of being scattered across the federal government, they were scattered within the fledgling Department of Homeland Security. Before this reorganization, FEMA programs were constantly being tasked and taxed to provide financial and human resources to support higher-priority programs in DHS. By taking apart the core programs of FEMA, it became even easier to reassign its resources and diminish its mission within DHS.

The Hurricane Katrina Debacle: 2005

As Secretary Chertoff proceeded with his reorganization, scientists like Max Mayfield (the director of the National Hurricane Center) predicted another active hurricane season. As always, the greatest fear was that a major storm would hit the Gulf Coast, particularly low-lying New Orleans.

Under James Lee Witt, a Category 5 hurricane impacting New Orleans was considered one of the three possible worst-case disaster scenarios. In fact, since the 1980s, FEMA funds had been used to contract multiple evacuation studies of the New Orleans area. In 1995, a national exercise of the Federal Response Plan entitled “Response 95” used a New Orleans hurricane scenario. This particular exercise was never completed because on the first day of play, a major flood event impacted the Gulf Coast (including the site of the exercise play, New Orleans) and abruptly ended the exercise.

Another disaster exercise termed “Hurricane Pam” was convened and completed in July 2004 with appropriate follow-up requirements to correct the problems and deficiencies discovered during the previous exercise. Unfortunately, the funding to support these corrective actions, which had been adequately budgeted by FEMA, became part of a funding reallocation requested of FEMA by DHS management to support other DHS priorities.

The “Senate Report on Katrina” best describes what occurred during those fateful hours and days in late August. The specific danger Katrina posed to the Gulf Coast became clear on the afternoon of Friday, August 26, when forecasters at the National Hurricane Center and the National Weather Service saw that the storm was turning west. Phone calls were immediately made to Louisiana emergency management officials, and in their 5 p.m. EDT Katrina forecast and accompanying briefings, the meteorologists alerted both Louisiana and Mississippi that the track of the storm was expected to shift significantly to the west of its original track to the Florida panhandle. The National Hurricane Center warned that Katrina could be a Category 4 or even 5 by landfall. By the next morning, Weather Service officials confirmed that New Orleans was squarely at risk.

Over the weekend, the drumbeat of warnings continued. FEMA held video teleconferences on both days, discussing the potential dangers of Katrina and especially the risks to New Orleans. Max Mayfield of the Hurricane Center called the governors of the affected states, something he had only done once before in his 33-year career, and President Bush took the unusual step of declaring a disaster in advance of an emergency event for the states in the projected impact zone.

Hurricane Katrina made landfall in Buras, Louisiana, on Monday, August 25, 2005. At the time it was reported as a Category 4 storm when it made landfall. The National Hurricane Center would later downgrade it to a Category 3 storm. In any event, it was considered an extremely dangerous storm by weather forecasters and the National Hurricane Center. It impacted a broad geographic area stretching from Alabama to coastal Mississippi and southeast Louisiana, an estimated 90,000 square miles. In May 2006, the death toll from the storm was 1856, with another 705 individuals listed as missing (Figure 1-3).

The storm impacted over 1.5 million people and displaced more than 800,000 citizens. The U.S. Coast Guard rescued over 24,273 people, and FEMA search and rescue teams rescued nearly 6600 persons. Federal government disaster relief expenses were expected to exceed \$100 billion, and the insurance losses were expected to exceed \$35 billion. The National Flood Insurance Program paid more than \$16.1 million to more than 205,000 people who filed claims related to Katrina. Forty-four states and the District of Columbia received emergency declarations to cover their expenses for sheltering millions of evacuees who had to be transported out of the Gulf.



FIGURE 1-3 New Orleans, Louisiana, on September 18, 2005. This shows the damages to homes and property in the lower Ninth Ward due to Hurricane Katrina. The markings on these houses were made by the search and rescue teams who looked for survivors after the storm. Searchers wrote the date the house was searched, the time, which search party was involved, any survivors found, and any animals that were still in the house. *From Andrea Booher/FEMA.*

By any account, Hurricane Katrina was a massive storm, deadly and destructive. It served to expose severe cracks in the nation's emergency management system and its ability to respond to a catastrophic event. Government after-action reports, which are done after most disasters and media accounts, have judged the response a failure, and the recovery phase is considered to show the same level of incompetence. Changes that had been made to Louisiana's coastal landscape, particularly the loss of wetlands and increased channelization, made New Orleans and the Louisiana coast more vulnerable to hurricanes. Design and construction decisions on the levee system and inadequate maintenance of that system contributed to the impacts of Katrina.

The storm challenged the capacities and capabilities of emergency management operations at all levels of government. The lack of planning for the Superdome as the designated shelter of last resort for New Orleans and the subsequent problems that occurred in that facility provided the most visible demonstration of the failed capacities. Many of the problems of the immediate response exposed the impacts of priority focus on terrorism and homeland security in recent years and may have contributed to the decrease in these capacities and capabilities.

Elected officials at all levels of government stumbled badly as they tried to provide leadership in the face of this disaster. The business community, voluntary agencies, and nongovernmental organizations (NGOs) stepped up to provide extraordinary services to storm victims. The general public, corporations, unions, and foundations donated billions of dollars for disaster relief.

Despite the understanding of the Gulf Coast's particular vulnerability to hurricane devastation, officials braced for Katrina with full awareness of critical deficiencies in their plans and

gaping holes in their resources. While Katrina’s destructive force could not be denied, state and local officials did not marshal enough of the resources at their disposal. Adding to these shortfalls, years of inadequate funding of federal, state, and local emergency functions left them incapable of fully carrying out their missions to protect the public and care for victims.

ADDITIONAL RESEARCH

In the aftermath of Katrina, both houses of Congress held extensive hearings on what went wrong. The Senate report, “The Senate Committee on Homeland Security and Governmental Affairs. 2006. Hurricane Katrina: A Nation Still Unprepared,” provides insight into the results of the hearings and deliberations.

www.gpo.gov/fdys/pkg/CRPT-109srpt322/pdf/CRPT-109srpt322.pdf

More than 1800 people died from Hurricane Katrina, and tens of thousands were displaced and suffered for days in places like the Superdome, on freeway ramps, and on tops of roofs while waiting to be rescued. Thousands lost their homes and were separated from loved ones. The dislocation, chaos, and desperation that lingered for months after the storm were direct results of the failure of government at all levels to plan, prepare for, and respond aggressively to the storm. Failure can be assessed at all levels, but when President Bush signed the federal declaration of disaster and announced it *before* Katrina even made landfall, the federal government, through DHS/FEMA, assumed the primary responsibility for the stewardship of the response to this storm’s aftermath. And by any objective evaluation of the response, it was a colossal failure.

The Steps Leading to the Katrina Debacle

In many respects, FEMA’s failures after Katrina were a predictable outgrowth of steps that were taken in the aftermath of September 11. FEMA lost its status as an independent agency—and its direct access to the president—when it was absorbed into the newly created Department of Homeland Security (DHS). The director of FEMA was no longer on the same level as the cabinet secretaries whom FEMA had to task and direct during disasters. At the state level, many states created their own offices of homeland security that subsumed emergency management or were competitive structures, further complicating emergency response organization.

FEMA personnel and funds, including money for preparedness and mitigation intended for state and local agencies, were redistributed to support other higher priorities within DHS. The result of these actions was that the agency was even further hollowed out. The federal response plan was restructured into the National Response Plan to accommodate the new DHS arrangements and the operational oversight role of the department’s secretary. A new level of bureaucracy was added with the creation of the principal federal officer (PFO) as the new coordinator in a disaster. Where previously the director of FEMA had maintained a clear line of authority and accountability, the existence of a new PFO created confusion over who would be in charge in a disaster. As a result, the necessary civilian and military assets were not deployed to facilitate the evacuations and provide supplies to the evacuation shelters before Katrina hit.

FEMA also failed to work with the governors on how to use the National Guard. Another factor in the post-Katrina fiasco was the dramatic post-9/11 change from a focus on “all-hazards” management—in which responders prepare for calamities according to plans that apply regardless of their precise nature—to a focus on terrorism that led to significantly weakened national capabilities. At all levels of government, approximately 75 percent of available resources for emergency management activities were applied to terrorism. Preparing, mitigating, or responding to natural disasters like floods, tornadoes, or hurricanes was subordinated to a narrow, if understandable, focus on terrorism. That reprioritization depleted the capabilities to respond to disasters at all levels of government.

Post-Katrina Changes

In the rush to examine and investigate what went wrong and to take corrective actions, both the House of Representatives and the Senate engaged in extensive hearings and investigations. The White House dispatched Frances Townsend, assistant to the president for Homeland Security, to conduct a thorough review of what went wrong and to generate corrective recommendations.

ADDITIONAL RESEARCH

The Bush administration’s report, “The Federal Response to Hurricane Katrina: Lessons Learned,” was released in February 2006. It was a weighty document and included 125 recommendations and 11 critical actions that needed to be completed by June 1, the start of the 2006 hurricane season. Most of its recommendations have still not been implemented, but it remains a unique assessment of the federal government’s role in disaster relief as far as the Bush administration was concerned.

These organizational and leadership issues were not easily swept under the rug. Senators Clinton and Mikulski introduced legislation to restore FEMA to its independent status and make the director’s position a cabinet post. This legislation went nowhere. Powerful forces on the Senate Committee on Homeland Security blocked these efforts, particularly Senator Joe Lieberman, who had been instrumental in the DHS’s creation and clearly did not want his creation tampered with. Lieberman was joined by Republican Committee Chair Susan Collins, who would not even consider moving FEMA out.

The 109th Congress, in response to hearings and reports, passed legislation that revised federal emergency management policies that vested more power in the president, reorganized FEMA, and enhanced and clarified the mission, functions, and authorities of both the agency and its parent organization, DHS.

Six statutes enacted by the 109th Congress are notable in that they contain changes that apply to future federal emergency management actions. These public laws include the following:

- The Post-Katrina Emergency Management Reform Act of 2006
- The Security and Accountability for Every Port Act of 2005, known as the SAFE Port Act
- The Pets Evacuation and Transportation Standards Act of 2006

- The Federal Judiciary Emergency Special Sessions Act of 2005
- The Student Grant Hurricane and Disaster Relief Act
- The John Warner National Defense Authorization Act for Fiscal Year 2007

Most of these statutes contain relatively few actual changes to federal authorities related to emergencies and disasters. The Post-Katrina Emergency Management Reform Act of 2006 (commonly known as PKEMRA), however, contains many changes that have long-term consequences for FEMA and other federal entities. That statute reorganizes FEMA, expands its statutory authority, and imposes new conditions and requirements on the operations of the agency. In addition to the public laws just listed, Congress enacted supplemental appropriations, one-time waivers of requirements, and temporary extensions solely associated with Hurricanes Katrina, Rita, and Wilma.

ADDITIONAL RESEARCH

The Congressional Research Service's publication "Federal Emergency Management Policy Changes after Hurricane Katrina—A Summary of Statutory Provisions" is an excellent report that identifies the requirements and changes for FEMA, DHS, and federal emergency management policies and programs under PKEMRA.

<http://www.fas.org/sgp/crs/homesecc/RL33729.pdf>

In summary, PKEMRA requires that DHS reconsolidate all of the emergency management functions (including preparedness) into FEMA, elevates the status of FEMA within the department, protects the FEMA assets from reassignment within DHS, and gives FEMA enhanced organizational autonomy. In addition, the act provides for FEMA to maintain ten regional offices. It adds to FEMA a National Advisory Council, Regional Advisory Councils, a disability coordinator, a small state and rural advocate, and regional strike teams. They provide autonomy for the FEMA administrator (formerly director) to communicate directly with Congress.

After Mike Brown resigned (or was terminated), David Paulison became FEMA administrator. Paulison had served as U.S. Fire Administrator and had a long and distinguished career in the fire service in Florida. His elevation to the top position was well received by the fire service constituencies, who had long felt that they had not received their due within FEMA and the emergency management community. Harve Johnson, a former admiral in the Coast Guard, was appointed deputy administrator.

The new leadership came with the firm mandate to prevent another Katrina. To do so, FEMA leadership took a very different approach to the emergency management partnership with both state and locals. FEMA instituted the "new FEMA"—a top-down approach in which federal requirements for response planning and operations were imposed on state and local emergency management operations as a condition of receiving federal resources.

The Integrated Planning System that was created included different planning parameters than those used by state and local emergency planners in their certifications. State and local

compliance with the National Information Management System (NIMS) was made a condition for continued funding. The old system in which the federal government supplemented state and local efforts and worked in partnership was replaced by a system where in a major disaster the federal government took charge and supplanted state and local authorities. To support this change, FEMA was able to substantially increase its staff in both its headquarters and the regions, and many of the new senior managers who were hired came from organizations such as the Coast Guard and the military, where federal supremacy and authority were the normal operational parameters.

At the direction of DHS leadership, at the federal level, FEMA concentrated on remaking the National Response Plan into a National Response Framework (NRF) that blurred the lines of responsibility among the federal partners in responding to disasters. Under the new NRF, DHS/FEMA assumed many more responsibilities such as acting as the lead federal agency for Mass Care, an Emergency Support Function (ESF) previously led by the American Red Cross (ARC). On the other hand, DHS/FEMA used the PKEMRA requirements to deflect problem areas such as post disaster housings.

PKEMRA called for a new strategy for disaster housing, and FEMA engaged other federal agencies, specifically the Department of Housing and Urban Development (HUD), in development of this strategy and taking on a major role in providing post-disaster housing. This change in responsibility was piloted during the Texas disasters of 2008 to mixed results. A more complete discussion of this follows in later chapters of the text. Although the new FEMA was never really tested, problems persisted. Major portions of the Katrina recovery continued to languish, especially in New Orleans; the morale in FEMA was at an all-time low; and a federal, state, and local partnership on emergency management still did not exist.

■ ■ Critical Thinking ■ ■

What do you think could have been done in the years preceding Hurricane Katrina to better prepare the states to deal with this kind of event? Do you think that this event was so large that only a federal response could have managed it? Explain your answer.

The Obama Administration's Approach to Emergency Management

Emergency management issues did not play a prominent role in the presidential election of 2008. The issue of the failed response to Katrina and the slow recovery were certainly a part of the campaign dialogue, and both presidential nominees visited New Orleans and vowed to speed up the recovery. Barack Obama's election represented a change from the past, including a change for emergency management. Although Obama's administration discussed removing FEMA from DHS and returning it to its former position as an independent agency, this was not to be. Janet Napolitano, Secretary of DHS, strongly believed that FEMA was an essential part of DHS. She was committed to finding the right administrator for FEMA and chose W. Craig



FIGURE 1-4 Washington, D.C., September 29, 2009—FEMA Administrator, W. Craig Fugate, addresses the audience at the American Red Cross Headquarters prior to DHS Secretary, Janet Napolitano’s speech on the nation’s responsibility for preparedness and the resilience of the American people. *Barry Bahler/DHS.*

Fugate, former state director of Emergency Management from Florida ([Figure 1-4](#)). Fugate brought excellent credentials and extensive operational experience to the position. Florida was one of the premier state emergency management organizations in the United States, and although Fugate had been a strong proponent of moving FEMA out of DHS, he accepted the position and was easily confirmed by the Senate.

At his confirmation hearing and in subsequent speeches, Fugate has said that he wants to make a culture of preparedness—especially personal preparedness—a hallmark of his FEMA tenure. As a result, he has changed the vocabulary of disasters, referring to individuals impacted by disasters as “survivors” instead of “victims.”

His team, illustrated by the current FEMA organizational chart ([Figure 1-5](#)), includes several veterans of the 1990s Witt years, and he strongly supports rebuilding the partnership with state and local emergency management organizations. His ability to rebuild FEMA into a strong, well-managed, and responsive organization, however, was not immediately tested. The 2009 hurricane season was one of the calmest in decades, and the H1N1 flu outbreak was addressed, so Fugate’s agency had not yet responded to a major disaster. The Agency reorganization included a consolidation of the response-and-recovery functions under a single directorate led by Bill Carwile, an ex-federal coordinating officer with substantial response experience.

As Fugate settled into the position his intentions to concentrate on building an effective response organization and promoting individual and community preparedness became more evident. Although a strong supporter of mitigation while in Florida, Fugate has expressed concerns about the feasibility about the NFIP, whose floodplain management requirements in exchange for subsidized insurance coverage remain a primary implementing program for community mitigation. He inherited an NFIP program that was in a very poor financial

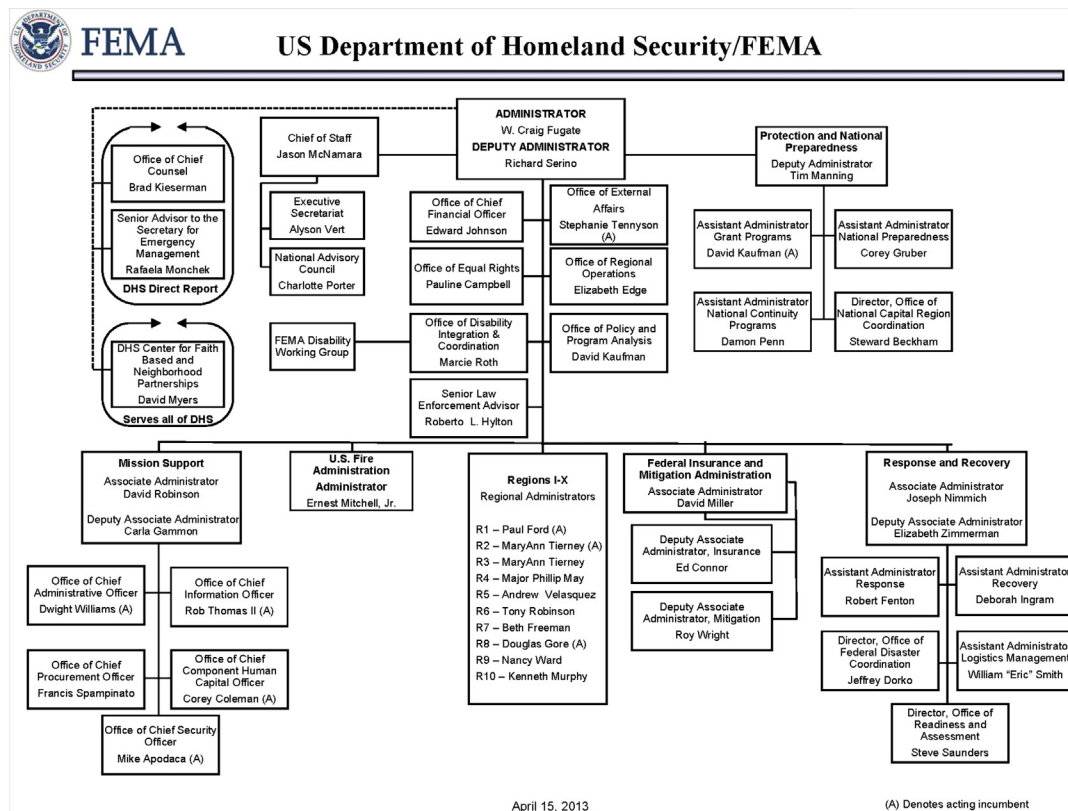


FIGURE 1-5 FEMA organizational chart under Craig Fugate's administration. *Source: FEMA. 2013. FEMA Organizational Chart. <https://app.box.com/s/114jlgzr3pxqxcbnfnh>.*

condition as a result of claims from Hurricanes Katrina, Rita, and a series of floods that required the National Flood Insurance Fund to borrow significant funds from the U.S. Treasury to meet its claims obligations. Since Congress has limited the ability of the NFIP to raise rates that would make the program actuarially sound, it will take approximately 10 years to repay its loans and be financially sound again.

As Administrator Fugate and his team sought to re-energize the Agency, they have chosen to strategically focus on the following areas:

- Improving the response operations
- Incorporating all elements of social media—Facebook, Twitter, blogs, etc. —to communicate with the public before, during, and after disasters
- Promoting their signature program concept of a Whole Community approach to emergency management.
- Limiting FEMA's leadership role in Long Term recovery and mitigation

Each of these issues will be discussed at length in the following chapters of the textbook. However, it is worth looking at the Whole Community approach as it reveals a fundamental

change in previous approaches to emergency management which transfers considerable responsibility for community safety decisions.

In the FEMA document entitled “A Whole Community Approach to Emergency Management: Principles, Themes, and Pathways for Action (FDOC 104-008-1/December 2011)” (<http://www.fema.gov/library/viewRecord.do?id=4941>), FEMA released its concept for applying a Whole Community approach to emergency management. In this document, the Whole Community approach is defined as:

As a concept, Whole Community is a means by which residents, emergency management practitioners, organizational and community leaders, and government officials can collectively understand and assess the needs of their respective communities and determine the best ways to organize and strengthen their assets, capacities, and interests. By doing so, a more effective path to societal security and resilience is built. In a sense, Whole Community is a philosophical approach on how to think about conducting emergency management.

There are many different kinds of communities, including communities of place, interest, belief, and circumstance, which can exist both geographically and virtually (e.g., online forums). A Whole Community approach attempts to engage the full capacity of the private and nonprofit sectors, including businesses, faith-based and disability organizations, and the general public, in conjunction with the participation of local, tribal, state, territorial, and Federal governmental partners.

This engagement means different things to different groups. In an all-hazards environment, individuals and institutions will make different decisions on how to prepare for and respond to threats and hazards; therefore, a community's level of preparedness will vary. The challenge for those engaged in emergency management is to understand how to work with the diversity of groups and organizations and the policies and practices that emerge from them in an effort to improve the ability of local residents to prevent, protect against, mitigate, respond to, and recover from any type of threat or hazard effectively.

Whole Community is a Philosophical Approach in How to Conduct the Business of Emergency Management

Benefits include:

- Shared understanding of community needs and capabilities
- Greater empowerment and integration of resources from across the community
- Stronger social infrastructure
- Establishment of relationships that facilitate more effective prevention, protection, mitigation, response, and recovery activities
- Increased individual and collective preparedness
- Greater resiliency at both the community and national levels

One other aspect of the Whole Community concept is to recognize the unique, functional needs of several sections of the population. In support of this, FEMA had produced a video that describes their outreach approach to various organizations.

After a slow start in terms of major disasters, the Agency has certainly been tested in recent years. The Joplin tornadoes, wildfires, and finally Hurricane Sandy have put FEMA back under the spotlight.

By all accounts, FEMA fared well in Joplin. FEMA had been conducting disaster response and recovery in Missouri in the months prior to the Joplin tornado. Severe winter storms in January and February 2011 led President Barack Obama to issue a major disaster declaration (FEMA-DR-1961) for 59 counties throughout the state on March 23, 2011. FEMA Administrator Craig Fugate appointed Libby Turner as FCO, and a JFO was established in Columbia, Missouri. Several weeks later, spring storms brought damaging tornadoes and flooding to Missouri, principally in the southern tier. On May 9, 2011, President Obama issued a major disaster declaration (FEMA-DR-1980) for five counties. Administrator Fugate appointed Turner as the FCO for DR-1980, with the JFO continuing to operate from its offices in Columbia.

On the evening of May 22, 2011, shortly after the tornado, FEMA Headquarters, Region VII Administrator Freeman and FCO Turner had a series of telephone calls to discuss how FEMA could support response operations in Joplin. The State of Missouri had the option to request that the Joplin event be added to DR-1980 or it could have requested that the president issue a new disaster declaration. Administrator Fugate issued an amendment to DR-1980 on May 23, 2011, which provided Individual Assistance, debris removal, and emergency protective measures funding to individuals in Jasper and Newton counties. The Joplin tornado response offers an opportunity to identify Whole Community contributions and solutions to a catastrophic incident. The State of Missouri had not suffered from a disaster of this magnitude or anything approaching it for at least a decade. Similarly, the city of Joplin had suffered from severe weather, but nothing approaching this magnitude. The Joplin tornado, as the single most deadly tornado in the United States in over half a century, overwhelmed the capabilities of the city of Joplin and Jasper County. However, as the following preliminary findings demonstrate, the Whole Community responded to Joplin and Jasper County in their hour of need. This only transpired because of the preparedness partnerships that had been developed among federal, state, local, private sector, voluntary, and non-profit entities.

ADDITIONAL RESEARCH

Joplin: One Year Later, the White House

www.whitehouse.gov/joplin

In October of 2012, a major hurricane took aim on the East Coast. Unlike the Joplin tornadoes, Hurricane Sandy was a different type of storm dealing with different circumstances, impacting a larger geographic area from the Carolinas up through the entire East Coast with major population centers affected and very different cultures from the Midwest. In general, FEMA received high praise for its response, which is not surprising as that is what the Agency had focused on since 2008. With the exception of areas in Staten Island, NY and some areas of Brooklyn, NY, FEMA has done an excellent job with the initial response, supported by



FIGURE 1-6 Breezy Point, N.Y., November 1, 2012—A large American flag flies in the midst of more than 100 residences burned in the Breezy Point community of the Rockaways adjacent to New York City. A gas leak that occurred during the height of Hurricane Sandy erupted into a firestorm that was difficult for fire fighters to control. *Walt Jennings/FEMA.*

very strong state and local emergency response personnel at the state and local level in New York, New Jersey, and Connecticut. Hard hit areas in North Carolina and other less politically active states have not felt the same level of support. When Mitt Romney, the 2012 Republican Presidential candidate made the mistake of criticizing the Obama Administration for the Sandy response, he was given a redressing by Republican Governor Chris Christie of New Jersey, who praised the Obama Administration's efforts. But as of the writing of this book, the hard part is just beginning. Temporary housing solutions for millions of displaced residents is a major issue in New York and New Jersey. Insurance claims are slow in coming and major infrastructure issues will need to be addressed (Figure 1-6).

Of major significance, President Obama assigned Secretary Shaun Donovan, Secretary of Housing and Urban Development (HUD) to be in charge of Sandy Recovery—not Administrator Fugate nor Secretary Napolitano. This is a clear indication that FEMA may be out of the recovery business except to foot the bill through its Disaster Relief Fund programs. In fact, the first monies released to the communities to rebuild were funding through HUD's Community Development Block Grant Program (CDBG). CDBG funding is one of the few Federal monies that is allowed to be used to meet Federal matching requirements. At the same time, arguments in Congress over a Disaster Relief supplemental that would cover the billions of dollars anticipated for Sandy repair were being bogged down in discussions of the federal deficit, whether the supplemental had to be to offset by other federal budget dollars (which had never happened before) and political maneuverings. In the end, the strength and loudness of the New York and New Jersey delegations persevered and a non-offset supplemental was approved.

Sandy was the first large-scale disaster to completely apply the new National Disaster Recovery Framework (NDRF) and has resulted in a host of issues that will need to be addressed. While the NDRF is built on a solid groundwork of agency cooperation, there is

Table 1-1 Congressional Research Service Analysis of Stafford Act Amendment

This report analyzes the provisions of the Sandy Recovery Improvement Act of 2013. In general, these provisions amend the Stafford Act with a stated goal of improving the efficiency and quality of disaster assistance provided by FEMA. Briefly, the amendments to the Stafford Act include:

Establishing a new set of alternative procedures for administering the Public Assistance Program, which provides assistance for debris removal and the repair and restoration of eligible facilities (Section 1102 of the Sandy Recovery Improvement Act of 2013);

Authorizing FEMA to enter into agreements with private owners of multi-family rental properties to expand post-disaster housing resources (Section 1103);

Revising the administration of the Hazard Mitigation Grant Program, to include a possible advancement of 25 percent of grant funds (Section 1104);

Directing the establishment of alternative dispute resolution procedures (including binding arbitration), building on FEMA's current appeals process, to resolve federal and state disagreements on costs and eligibility questions (Section 1105);

Directing the creation of a joint process for environmental and historical review for disaster recovery projects with the goal of increasing the speed of the process (Section 1106);

Directing FEMA to study, and report to Congress, whether it is appropriate to increase the dollar size of "small projects" eligible for simplified procedures (Section 1107);

Including child care as an eligible expense under the "other needs assistance" provided in certain disasters (Section 1108(a));

Specifically authorizing the reimbursement of the base wages of government employees providing emergency work under certain circumstances (Section 1108(b));

Directing FEMA to update the factors considered when assessing the need for Individual Assistance in the declaration process (Section 1109);

Authorizing the chief executive of a tribal government to directly request disaster or emergency declarations from the President, much as a governor can for a state (Section 1110); and

Directing FEMA to create a comprehensive national strategy for reducing the cost of future disasters (Section 1111).

Prospectively, the changes in law apply to disasters declared on or after the date of enactment, January 29, 2013.

nothing that requires agencies to comply or even cooperate with, and the coordination of assets has not been forthcoming. This could be a result of the economic situation agencies are facing because of the Congressionally mandated sequester of an across-the-board 5 percent reduction on federal funds. However, the NDRF, unlike previous plans where agencies signed on the dotted line to commit their resources (to later be reimbursed by FEMA through the DRF), has no such commitment in the framework. The ambitious goals of the NDRF will get a true testing as local communities and states face long-term recovery decisions. Another major issue, which will be tested, is how these communities will rebuild. Without an advocate for long-term mitigation strategies to be incorporated into the rebuilding—a position FEMA once held—pressures are already building to use structural solutions along the New Jersey shore to rebuild beaches that will erode even more quickly in the future and impact communities

for years to come. FEMA's abdication on promoting mitigation issues that will reduce future impacts has left a void that the Army Corps of Engineers may be only too happy to fill. Many of these issues will be discussed in greater detail in later chapters.

Post Sandy legislation has been copious. [Table 1-1](#) provides an analysis done by the Congressional Research Service (CRS) that focus on changes to the Stafford Act that would expedite delivery of aid to states and communities through the DRF as well as simplifying procedures for historical preservation and environmental reviews. A complete copy of the report can be accessed at www.crs.gov, Report number 7-5700, Analysis of the Sandy Recovery Improvement Act of 2013.

One final area of history to note: FEMA played virtually no role in the aftermath of the Boston Marathon bombings in 2013. This is in dramatic contrast to the role FEMA played in the World Trade Center bombing in 1993, the Oklahoma City bombing, and the 2011 World Trade Center event. In each case, it was understandably and primarily a crime scene event. However, FEMA assisted in communications, search and rescue, individual assistance and most importantly, providing a reassuring presence that the government was there to help the victims and their families. This was visibly missing from the Boston events. The concept of emergency management as an all-hazards agency whose mission is to help people in their time of need clearly no longer exists.

By all appearances, leadership at FEMA and DHS are slowly achieving their goal of being a preparedness and response organization, leaving the difficult decisions of recovery and building back better to some other federal entity—right now it looks most likely to be HUD. This is an interesting turn, since many of these programs were taken out of HUD because they couldn't execute them and didn't have the connections at the state level to make them work. However, in the aftermath of Hurricane Sandy, which was the first time FEMA and its federal partners actually applied the NDRF, President Obama chose to name Secretary of HUD, Shaun Donovan as the individual in charge of the Long Term Recovery from Hurricane Sandy for the Northeast Coast. This may be the pattern that we will see in the future, i.e., the person in charge of long-term recovery may be the Cabinet Secretary closest to the President or with a special relationship to the area of the disaster. While this may be logical, it can also be confusing to the state directors of emergency management as they will not have the same established working relationship with most of the Cabinet as they traditionally have with the Administrator of FEMA.

Having experienced this decision in the past, we certainly hope that history does not repeat itself. Further discussion of the future of emergency management will be found in the last chapter of this textbook.

In the last chapter, we will explore historical context and what recent actions and policies may suggest for the future of emergency management. The chapter will discuss possible trends that may make emergency management a more viable, proactive discipline as opposed to the reactive discipline that changes only in response to major events or disasters. Finally, as we have done in previous editions of this book, we will speculate on what the future may hold for the discipline based on the authors' combined experience of over 100 years of working in emergency management.

Important Terms

Civil defense
Department of Homeland Security
Emergency management
Federal Emergency Management Agency
National Disaster Recovery Framework

Self-Check Questions

1. What are some of the first examples of emergency management?
2. According to the Constitution, does the federal government have a primary or secondary role in managing public risks?
3. What is the significance of the Flood Control Act of 1936?
4. How did the Cold War era contribute to the evolution of modern emergency management?
5. What disaster led to the creation of the National Flood Insurance Program?
6. Describe the events of the 1970s that led to the creation of FEMA.
7. Why was FEMA an agency in trouble at the close of the 1980s?
8. How did James Lee Witt improve FEMA?
9. What changes did the creation of the Department of Homeland Security bring about for the federal emergency management capacity?
10. List the steps involved in the creation of the Department of Homeland Security.
11. Why was the response to Hurricane Katrina so ineffective?
12. How did the poor response to the Hurricane Katrina disaster change emergency management in the United States?
13. What area of emergency management did DHS/FEMA seek to emphasize in 2009?
14. What impact has Hurricane Sandy had on FEMA's responsibilities and changes to the DRF?

Out-of-Class Exercises

Based on your knowledge of how emergency management has evolved at the community and state level, recommend the most appropriate organizations at each level to have responsibility for mitigation. Pick a community and consider how you would apply the Whole Community concept to that community. Do you think we still need a FEMA or can these responsibilities be devolved to the state?

Natural and Technological Hazards and Risk Assessment

What You will Learn

- The range of natural hazards that affect the United States
- Scales and systems used to measure the magnitude of hazards and disasters
- Technological hazards and their causes and effects
- The terrorist threat, including weapons of mass destruction
- How hazard risks are assessed
- Social and economic risk factors and how they influence a community's risk profile

Introduction

A *hazard* is defined as a “source of danger that may or may not lead to an emergency or disaster” (National Governors Association, 1982), and it is named after the emergency/disaster that could be so precipitated. Each hazard carries an associated *risk*, which is represented by the likelihood of the hazard leading to an actual disaster event and the consequences of that event should it occur. The product of realized hazard risk is an event or an emergency, which is typically characterized as a situation exhibiting negative consequences that require the efforts of one or more of the emergency services (fire, police, EMS, public health, or others) to manage. When the response requirements of an event or an emergency exceed the capabilities of those established emergency services in one or more critical areas (e.g., shelter, fire suppression, mass care), for a particular local government or even for a region, the event is classified as a *disaster*. And ultimately, when the response requirements in one or more critical areas of assistance are unable to be met at all levels of government responding, the incident is classified as a catastrophe (catastrophes are measured only at the national level or greater) (Figure 2-1).

Hazard identification is the foundation of all emergency and risk management activities. When hazards interface with the human or built environments, it is risk that is the result. For each risk, there exists an associated likelihood that an actual event will occur, and a measure of expected consequences that would likely result. Knowledge about the risk posed by identified hazards guides the processes of preparedness planning and mitigation. And it is the realization of risk, such as what occurs when an earthquake, tornado, flood, or other hazard event is experienced, that emergency response and recovery capabilities and resources are called upon. In modern emergency management, all activities are predicated on the accurate and effective identification and assessment of hazards and risks.



FIGURE 2-1 Long Beach, N.Y., Nov. 8, 2012—Aerial views of Hurricane Sandy damage to homes on Long Beach, New York. Following the hurricane, a nor'easter struck the area causing more power outages and additional flooding. FEMA is working with state and local officials to assist residents who were affected by Hurricane Sandy. *Andrea Booher/FEMA.*

This chapter discusses the full range of existing hazards, both natural and technological, and the methods by which associated hazard risk may be assessed. For each hazard, a brief description of the hazard and its effects is provided, as well as information on hazard detection and classification.

Natural Hazards

Natural hazards are those that exist in the natural environment as a result of hydrological, meteorological, seismic, geologic, volcanic, mass-movement, or other natural processes, and that pose a threat to human populations and communities. The risk associated with natural hazards is often intensified in scope and scale by human activities, including development and modification of the landscape and atmosphere. For example, the construction of communities in the floodplain or on barrier islands almost always increases risk associated with hurricane-force winds, flooding, and storm surge. When structures are constructed on or around seismic faults, the likelihood that they will be destroyed in a future earthquake event is greatly increased. Through better understanding of natural hazards, and the processes by which they affect the human and built environments, societies can more appropriately plan for these stressors and reduce vulnerability (Chapter 3 examines how humans can better live with hazards).

Floods

A flood is an overabundance of water that engulfs land and other property that is normally dry. Floods may be caused by a number of factors, including heavy rainfall, melting snow, an obstruction of a natural waterway (e.g., by beavers, ice, debris, or landslides), and other generative factors. Floods usually occur from large-scale weather systems generating prolonged rainfall



FIGURE 2-2 Quechee, Vt., September 11, 2011—The Quechee bridge is a main thoroughfare and an integral part of the town. Residents cried as they watched their beloved bridge battered by flash flood waters caused by tropical storm Irene. *Photo by Wendell A. Davis Jr/FEMA.*

or onshore winds, but they may also result from locally intense thunderstorms and even dam failures. Floods are capable of undermining buildings and bridges, eroding shorelines and riverbanks, tearing out trees, washing out access routes, and causing loss of life and injuries. Flash floods usually result from intense storms dropping large amounts of rain within a brief period, occur with little or no warning, and can reach full peak in only a few minutes (Figure 2-2).

Floods are the most frequent and widespread disaster in many countries around the world, including the United States, due to the prevalence of human development in the floodplain. The close relationship between societies and water is primarily the result of commerce (the transportation of goods has most commonly been conducted by water), agriculture, fishing, and access to drinking water. The adverse implication of this relationship has been a global increase in exposure to flood events. FEMA estimates that approximately 8 to 10 million households are at risk from flooding in the United States alone, which sustain an average of \$2 billion to \$3 billion in losses each year. Flood losses paid by FEMA's National Flood Insurance Program in the 1990s totaled in the billions of dollars (Table 2-1).

Floods are typically measured according to their elevation above standard water levels (of rivers or coastal water levels). This elevation is translated into the annualized likelihood of reaching such heights. For example, a flood depth that has a 1 percent chance of being reached or could be expected to occur once across a 100-year period would be considered a "100-year flood event." Typically, structures that are contained within areas likely to experience flooding in a 100-year flood event are considered to be within the floodplain. A common misconception is that a 100-year flood happens only once per century, but it is not uncommon for multiple floods of such magnitude to occur even within a single decade in a single locale. Governments in many countries maintain river and stream gauges to monitor floodwater elevations and to provide information on rising water for use in sandbagging and dike construction. Such information also allows for early warning and evacuation to occur.

Table 2-1 Top Ten U.S. Flood Disasters, 1900–2013 (by Total Cost of National Flood Insurance Program Losses Paid)

Event	Date	Number of Paid Losses	Amount of Paid Losses
Hurricane Katrina	August 2005	167,699	\$16,266,477,732
Hurricane Sandy	October 2012	115,000*	\$9,700,000,000*
Hurricane Ike	September 2008	46,418	\$2,663,589,174
Hurricane Ivan	September 2004	27,658	\$1,590,436,206
Hurricane Irene	August 2011	43,844	\$1,301,682,155
Tropical Storm Allison	June 2001	30,663	\$1,103,877,235
Louisiana Flood	May 1995	31,343	\$585,071,593
Hurricane Isabel	September 2003	19,869	\$493,433,448
Hurricane Rita	September 2005	9,518	\$472,885,523
Hurricane Floyd	September 1999	20,437	\$462,252,753

Source: FEMA. 2013. *Significant Flood Events: 1978–January 2013*. National Flood Insurance Program. <http://www.fema.gov/policy-claim-statistics-flood-insurance/policy-claim-statistics-flood-insurance/policy-claim-13-9>.

*Statistics for Hurricane Sandy are still pending as of the publication of this text. The figures listed herein refer to the January 4, 2013 passage by the House of Representatives of a bill to cover the hurricane-related flood insurance claims submitted to date. (Source: Associated Press. 2013. *House Approves \$9.7 Billion Flood Insurance Package for Superstorm Sandy Victims*. Yahoo News. January 4. <http://news.yahoo.com/house-approves-9-7-billion-flood-insurance-package-173011804.html>.)

ADDITIONAL RESEARCH

The following reports provide supplemental information about annualized flood losses in the United States:

- *Compilation of Weather-Related Fatalities* (The National Weather Service): <http://www.nws.noaa.gov/os/hazstats.shtml>
- *Flood Damage in the United States, 1926–2003—A Reanalysis of National Weather Service Estimates* (Pielke, Roger A., Mary W. Downton, and J. Zoe Barnard Miller, 2002): http://www.flooddamagedata.org/full_report.html
- FloodSmart.Gov Flood Facts (National Flood Insurance Program): http://www.floodsmart.gov/floodsmart/pages/flood_facts.jsp

Earthquakes

An earthquake is a sudden, rapid shaking of the earth's crust caused by the breaking and shifting of tectonic plates beneath the earth's surface. This shaking can cause the collapse of buildings and bridges; cause disruptions in gas, electric, and phone service; and trigger landslides, avalanches, flash floods, fires, and huge, destructive ocean waves (tsunamis). Structures constructed on unconsolidated landfill, old waterways, or other unstable soils are generally at greatest risk unless seismic mitigation has been utilized. Seismicity is not seasonal or climate dependent and can therefore occur at any time of the year (Figure 2-3).



FIGURE 2-3 Atascadero, California, January 25, 2004. This home slid 2 feet off its foundation due to the 6.5 San Simeon earthquake. *Photo by Dane Golden/FEMA News Photo.*

Each year, knowledge about the location and behavior of the earth's seismic zones increases thanks to improvements in seismic detection and monitoring. Over 1 billion people worldwide live in seismic zones. Earthquake damage can be extensive, especially when buildings have been constructed without incorporation of seismic-resistant materials and designs. Earthquakes can cause secondary fire hazards when gas lines are severed and storage sites containing flammable materials are compromised. These fires can spread rapidly among damaged buildings because water systems may be damaged and fire services are either unable to access the fire or are overwhelmed by other response requirements. Fire was a leading cause of thousands of deaths in 1995 when an earthquake struck Kobe, Japan, because debris from damaged and destroyed buildings blocked many access points for firefighters and equipment.

Earthquakes are sudden, little- to no-notice events despite scientists' and soothsayers' best efforts to predict when they will occur. Seismic-sensing technology is effective at measuring and tracking seismic activity, but it has yet to accurately predict a major seismic event with any degree of accuracy beyond a minute or two. Early-detection systems have been useful in helping to reduce damage to infrastructure by automatically shutting down systems such as transportation systems and nuclear reactors, for instance.

Each year hundreds of earthquakes occur in the United States, although the vast majority are barely perceptible. As earthquake strength increases, the likelihood of occurrence decreases. Major events, which are greater than 6.5 to 7 on the Richter scale, occur in the United States only once every decade or so, but such events have been among the most devastating in the nation's experience. The Northridge earthquake that struck California in 1994, for instance, is the second most expensive natural disaster to ever occur in the United States as ranked by FEMA relief costs, resulting in almost \$7 billion in federal funding (and second only to Hurricane Katrina).

The strength and effects of earthquakes are commonly described by the Richter and Modified Mercalli Intensity (MMI) scales. The Richter scale, designed by Charles Richter

in 1935, assigns a single number to quantify the strength and effect of an earthquake across the entire area affected according to the strength of ground waves at its point of origin (as measured by a seismograph). Richter magnitudes are logarithmic and have no upper limit. The MMI also measures the effects of earthquakes, but rather than applying a single value to the event, it allows for site-specific evaluation according to the effects observed at each location. The MMI (Table 2-2) rates event intensity using Roman numerals I through XII. Determinations are generally made using reports by people who felt the event and observations of damages sustained by structures.

Table 2-2 Modified Mercalli Intensity Scale

MMI Intensity	Damages Sustained and Sensations Experienced	Richter Scale Equivalent
I-IV (Instrumental to Moderate)	No damage sustained. Sensation ranges from imperceptible to that of a heavy truck striking the building. Standing motor cars may rock.	≤4.3
V (Rather Strong)	Felt by nearly everyone; many awakened. Some dishes, windows broken. Unstable objects overturned. Pendulum clocks may stop.	4.4-4.8
VI (Strong)	Felt by all; many frightened. Some heavy furniture moved; a few instances of fallen plaster. Damage slight.	4.9-5.4
VII (Very Strong)	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable damage in poorly built or badly designed structures; some chimneys broken.	5.5-6.1
VIII (Destructive)	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse. Damage great in poorly built structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned.	6.2-6.5
IX (Ruinous)	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations.	6.6-6.9
X (Disastrous)	Most masonry and frame structures/foundations destroyed. Some well-built wooden structures and bridges destroyed. Serious damage to dams, dikes, embankments. Sand and mud shifting on beaches and flat land	7.0-7.3
XI (Very Disastrous)	Few or no masonry structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Widespread earth slumps and landslides. Rails bent greatly.	7.4-8.1
XII (Catastrophic)	Damage nearly total. Large rock masses displaced. Lines of sight and level are distorted. Objects are thrown into the air.	8.1 or greater

Source: USGS, 2009. Magnitude/Intensity Comparison. Earthquake Hazards Program. http://earthquake.usgs.gov/learn/topics/mag_vs_int.php

■ ■ Critical Thinking ■

It is possible to assign Modified Mercalli Intensity values to historical earthquakes, but Richter magnitudes cannot be retroactively assigned. Why do you think this is true? Which of these scales is more useful in terms of disaster planning? Why?

Hurricanes

Hurricanes are cyclonic storms that begin as tropical waves and grow in intensity and size. Tropical waves continue to progress in size and intensity to tropical depressions and tropical storms as determined by their maximum sustained wind speed. The warm-core tropical depression becomes a tropical storm when the maximum sustained surface wind speeds range from 39 miles per hour to 73 miles per hour (mph). Tropical cyclonic storms are defined by their low barometric pressure, closed-circulation winds originating over tropical waters, and an absence of wind shear. Cyclonic storm winds rotate counterclockwise in the Northern Hemisphere and clockwise in the Southern Hemisphere.

A hurricane is a cyclonic tropical storm with sustained winds measuring 74 mph or more. Hurricane winds extend outward in a spiral pattern as much as 400 miles around a relatively calm center of up to 30 miles in diameter known as the “eye.” Hurricanes are fed by warm ocean waters. As these storms make landfall, they often push a wall of ocean water known as a “storm surge” over coastal zones. Once over land, hurricanes cause further destruction by means of torrential rains and high winds. A single hurricane can last for several weeks over open waters and can run a path across the entire length of the eastern seaboard.

Hurricane season runs annually from June 1 through November 30. August and September are peak months during the hurricane season. Hurricanes are commonly described using the Saffir-Simpson scale ([Table 2-3](#)).

Hurricanes are capable of causing great damage and destruction over vast areas. Hurricane Floyd in 1999 first threatened the states of Florida and Georgia, made landfall in North Carolina, and damaged sections of South Carolina, North Carolina, Virginia, Maryland, Delaware, New Jersey, New York, Connecticut, Massachusetts, and Maine. The damage was so extensive in each of these states that they all qualified for federal disaster assistance. Single hurricanes can affect several countries, as was the case with Hurricane Mitch, which brought death and destruction to Nicaragua, Guatemala, El Salvador, and Honduras.

The costliest disaster in U.S. history in pure dollar figures (approximately \$80 billion; Reuters, 2009) and one of the deadliest in terms of lives lost and injuries sustained (1836 killed) was Hurricane Katrina ([Table 2-4](#)). Katrina reached Category 5 status with sustained winds of more than 175 mph—making it the fourth strongest hurricane recorded at the time—before making landfall as a Category 3 hurricane along the Gulf of Mexico coast. With strong winds and a storm surge reaching 28 feet, Katrina devastated coastal communities in Alabama, Florida, Mississippi, and Louisiana. Flooding and near total destruction was sustained in almost 80 percent of New Orleans and much of Biloxi/Gulfport, Mississippi. The storm went on to cause further destruction in several other states as it made its way north toward Canada.

Table 2-3 The Saffir–Simpson Scale

Category	Conditions	Effects
1	Wind Speed: 74–95 mph Storm Surge: 4–5 feet above normal	Primary damage to unanchored mobile homes, shrubbery, and trees. Some coastal flooding and minor pier damage. Little damage to building structures.
2	Wind Speed: 96–110 mph Storm Surge: 6–8 feet above normal	Considerable damage to mobile homes, piers, and vegetation. Coastal and low-lying area escape routes flood 2–4 hours before arrival of hurricane center. Buildings sustain roofing material, door, and window damage. Small craft in unprotected mooring break moorings.
3	Wind Speed: 111–130 mph Storm Surge: 9–12 feet above normal	Mobile homes destroyed. Some structural damage to small homes and utility buildings. Flooding near coast destroys smaller structures; larger structures damaged by floating debris. Terrain continuously lower than 5 feet above sea level (ASL) may be flooded up to 6 miles inland.
4	Wind Speed: 131–155 mph Storm Surge: 13–18 feet above normal	Extensive curtain wall failures, with some complete roof structure failure on small residences. Major erosion of beaches. Major damage to lower floors of structures near the shore. Terrain continuously lower than 10 feet ASL may flood (and require mass evacuations) up to 6 miles inland.
5	Wind Speed: Over 155 mph Storm Surge: Over 18 feet above normal	Complete roof failure on many homes and industrial buildings. Some complete building failures. Major damage to lower floors of all structures located less than 15 feet ASL and within 500 yards of the shoreline. Massive evacuation of low-ground, residential areas may be required.

Source: NOAA. 2013. Saffir-Simpson Hurricane Wind Scale. National Hurricane Center. <http://www.nhc.noaa.gov/aboutsshws.php>.

Table 2-4 Top Ten Most Expensive U.S. Hurricanes, 1900–2013 (Ranked by non-NFIP insurance claims).

Hurricane	Year	Category	Damage (in millions)
Hurricane Katrina—FL, AL, GA, LA, MS, TN	2005	3	\$46,591
Hurricane Andrew—FL, LA	1992	5	\$22,939
Hurricane Sandy—NC, VA, DC, MD, PA, OH, CT, NY, MA	2012	1	\$20,000*
Hurricane Ike—AR, IL, IN, KY, LA, MO, OH, PA, TX	2008	4	\$13,050
Hurricane Wilma—FL	2005	5	\$11,676
Hurricane Charley—FL, NC, SC	2004	4	\$8,755
Hurricane Ivan—AL, DE, FL, GA, LA, MD, MS, NJ, NC, NY, NC, OH, PA, TN, VA, WV	2004	3	\$8,328
Hurricane Hugo—GA, NC, PR, SC, VA, USVI	1989	4	\$6,835
Hurricane Rita—AR, AL, FL, LA, MS, TN, TX	2005	5	\$6,379
Hurricane Francis—FL, GA, NC, NY, SC	2004	4	\$5,382

Sources: CNBC. 2012. 10 Most Expensive Hurricanes in U.S. History. <http://www.cnbc.com/id/26426796/page/1>; Insurance Information Institute. 2013. Hurricanes. III Website. http://www.iii.org/facts_statistics/hurricanes.html.

*Estimates at the time of publication place Sandy-related non-NFIP insurance claims at approximately \$20 billion. This number could rise, however, making Sandy the second most expensive hurricane.

More recent hurricanes, including Hurricanes Irene in 2011 and Sandy in 2012, served as reminders that even storms of weaker intensity can wreak considerable destruction from storm surge and flooding effects, and can devastate urban and rural areas alike. Hurricane Sandy, the largest recorded hurricane spanning 1.8 million square miles, was only a Category 1 storm when it made landfall and soon after decreased to tropical storm intensity. Despite its weaker strength, Sandy is the third, and may possibly rise to the second, most expensive hurricane in U. S. history.

CASE STUDY: THE IMPACT OF THE STORM

Hurricane Katrina impacted different areas in different ways. Along the Mississippi Gulf Coast, Katrina generated a 25- to 30-foot tidal surge that swept away structures and vehicles in its path. Hotels and casinos located on the Gulf were severely damaged, and in some cases entire communities disappeared. In New Orleans, the principle impact was the flooding caused by the breaches in the levees that left almost 80 percent of the city underwater for up to 6 weeks.

However, some sections of the city—notably those areas closest to the river such as the French Quarter—experienced very little if any flooding. Tidal surge was only a factor in the Lower Ninth Ward section of the city, which together with St. Bernard Parish, experienced the tidal surge that traveled up the Mississippi River Gulf outlet. Wind and rain caused considerable damage to homes and businesses throughout the region.

Critical infrastructures such as water, power, communications, schools, hospitals, and child care centers were severely damaged and disrupted in all impacted areas. Government facilities and private industry suffered massive losses. The White House report on Katrina, “The Federal Response to Hurricane Katrina: Lessons Learned,” estimated damage to housing at \$67 billion, business property suffered \$20 billion in damages, and government property suffered an estimated \$3 billion in damages (Townsend, 2006). Insured losses from Katrina are estimated to be the greatest ever in U.S. history.

Over 1.3 million people evacuated before Katrina even made landfall, and an estimated 800,000 people were displaced for an extended period of time. One year after the hurricane, over one half of the 452,170 people that resided within the city limits remained evacuated, reducing its population to 223,388. The 2010 Census found that only 343,829 people claimed the city as their home, which meant a full 25 percent of the population had not returned in the 5 years following the event. Since this time, an inflow in recovery dollars, drastic improvements in employment prospects, and the availability of services have made the city one of the fastest growing in the country with rates of returning residents placing growth at about 5 percent per year (Bass, 2012).

THE HURRICANE KATRINA TIMELINE

The following is a timeline of events starting with the initial formation of Hurricane Katrina as Tropical Depression 12 through the first days following Katrina making landfall on August 29, 2005. This timeline was compiled from several sources including FEMA, The Brookings Institution, and CNN. The U.S. Senate prepared an after-action report entitled “Hurricane Katrina: A Nation Still Unprepared.”

- *Tuesday, August 23:* Tropical Depression 12 forms about 200 miles southeast of the Bahamas; what was to become Hurricane Katrina is first recognized as a potential hazard.
- *Thursday, August 25:* Tropical Storm Katrina becomes Hurricane Katrina. A Category 1 hurricane with sustained winds in excess of 74 mph moves across South Florida and into the Gulf of Mexico. Katrina is now over the warm waters of the Gulf, where it begins to strengthen, and early tracks by the National Hurricane Center show Katrina making landfall “between Mobile, Alabama, and Grand Isle, Florida.”
- *Friday, August 26:* The hurricane track shifts twice during the day; first projected to make landfall on the Mississippi-Alabama border and later in the day projected to make landfall on the Louisiana-Mississippi border. The governors of both Louisiana and Mississippi declare a state of emergency and activate their state National Guards.
- *Saturday, August 27:* Katrina, now a Category 4 or 5 storm, is expected to hit New Orleans, and Governor Blanco requests a declaration of a federal state of emergency for Louisiana, which President Bush approves that same day. New Orleans Mayor Nagin declares a state of emergency, and evacuations begin in Louisiana and Mississippi.
- *Sunday, August 28:* Mayor Nagin issues a mandatory evacuation order. The Superdome opens as a shelter of last resort, and by the end of the day 10,000 people and 150 National Guardsmen are in the Dome; evacuation all along the Gulf Coast continues.
- *Monday, August 29:* Katrina, now a Category 4 hurricane with 145 mph winds makes landfall in lower Plaquemines Parish, Louisiana, between 6:00 and 7:00 a.m. CST. Major disaster declarations are signed by President Bush, levees in New Orleans are breached, and floodwaters begin to fill sections of the city. The Coast Guard begins rescue operations in New Orleans.
- *Tuesday, August 30:* Floodwaters cover up to 80 percent of the city. An estimated 50,000 to 100,000 people are trapped in the city, including the Superdome and Convention Center. Governor Blanco issues an order to evacuate the Superdome. The Coast Guard rescue continues, and widespread looting is reported.
- *Wednesday, August 31:* Governor Blanco and President Bush discuss military assistance and decide who should be in charge of the National Guard. The Houston Astrodome prepares to receive evacuees from Katrina.
- *Thursday, September 1:* 45,000 people are now housed in the Superdome and the Convention Center; bus evacuation of populations in New Orleans begins. DHS secretary Chertoff and FEMA director Brown indicate they were unaware of any problems at the Convention Center.
- *Friday, September 2:* President Bush makes his first visit to the disaster area, meeting with both governors and Nagin. The number of National Guard troops deployed is increased, and Congress approves \$10.5 billion in immediate relief.
- *Saturday, September 3:* 40,000 National Guardsmen are now deployed to the Gulf Coast. President Bush orders 7200 active duty military to the Gulf, and the evacuations of the Superdome and the Convention Center are completed.
- *Monday, September 5:* The gap in the levee is closed, but more levee repairs are required. The Bush-Clinton Fund is announced, and President Bush dispatches 4700 additional active military troops.
- *Tuesday, September 6:* The Corps of Engineers begin pumping water out of New Orleans, and Mayor Nagin authorizes troops and police to remove individuals from the city.
- *Thursday, September 8:* Congress approves President Bush’s request for \$52 billion in additional aid.

In recent years, significant advances have been made in hurricane tracking technology and computer models. The National Hurricane Center in Miami, Florida, now tracks tropical waves from the moment they form off the coast of West Africa through their development as a tropical depression. Once the tropical depression grows to the strength of a tropical storm, the Hurricane Center assigns the storm a name. After the sustained wind speed exceeds 74 mph, the storm officially becomes a hurricane. The National Hurricane Center uses aircraft to observe and collect meteorological data on the hurricane and to track its movements across the Atlantic Ocean. It also uses several sophisticated computer models to predict the storm's path. These predictions are provided to local and state emergency officials to help them make evacuation decisions and to pre-deploy response and recovery resources.

Historically, high winds and flooding caused by a storm surge have been the principal contributors to the loss of life and injuries and the property and infrastructure damage caused by hurricanes. A 14-foot storm surge caused by Hurricane Sandy in 2012 caused significant flooding in downtown Manhattan and along the densely-populated New Jersey coast, bringing transportation in the area to a standstill and wiping out whole neighborhoods. Inland flooding caused by hurricane rainfall has also resulted in large losses of life and severe property damage, especially in zones of hilly or mountainous topography—as occurred in Vermont during Hurricane Irene. Damage to the environment is another important factor related to hurricane-force winds and flooding. For instance, storm surges cause severe beach erosion, most notably on fragile barrier islands. Inland flooding from Hurricane Floyd inundated waste ponds on hog farms in North Carolina, washing the hog waste into the Cape Fear River and ultimately into the ocean. The storm surge created by Hurricane Katrina has had a profound impact on the environment—in some cases completely erasing or altering coastal areas. Dauphin Island was literally pushed toward the land by the force of the surge, and the Chandeleur Islands were completely destroyed. Breton National Wildlife Refuge, one of 16 wildlife refuges damaged by the storm, lost over half of its area. Much of this land lost served as breeding grounds for marine mammals, reptiles, birds, and fish.

Storm Surges

Storm surges, defined as masses of water that are pushed toward the shore by meteorological forces, are the primary cause of the injuries, deaths, and structural damages associated with hurricanes, cyclones, nor'easters, and other coastal storms. When the advancing surge of water coincides with high tides, the resulting rise in sea level is further exacerbated. Storm surges may reach several dozen feet under the right conditions, most notably when they coincide with an astronomical high tide or when they interfere with river flow. In a surge, wind-driven turbulence becomes superimposed on the storm tide, thereby causing further damage to structures that are inundated through wave action (each cubic yard of water results in 1700 pounds of pressure on affected structures). The surge height at landfall is ultimately dictated by the expanse and intensity of the storm, the height of the tide at the time of landfall, and the slope of the sea floor approaching land. The longer and shallower the sea floor, the greater the storm surge will be.

Because much of the United States' densely populated Atlantic and Gulf Coast coastlines lie less than 10 feet above mean sea level, storm surge risk is extreme. Hurricane Katrina served as a reminder of the speed and intensity of the storm surge threat that persists in greater part due to increasing coastal development. After crossing southern Florida, Katrina followed a westward track across the Gulf of Mexico before turning northwest toward the Gulf Coast. The storm made its second landfall as a strong Category 4 hurricane in Plaquemines Parish, Louisiana, on August 29, 2005. When the storm made its third and final landfall along the Mississippi/Louisiana border, its hurricane-force winds extended up to 190 miles from the center of the storm, and tropical storm-force winds extended for approximately 440 miles. The strength and wide geographical area affected by the storm resulted in a surge greater than anything previously recorded along the Gulf Coast. A 30-foot storm surge, combined with very strong wave action and constant high winds, resulted in a magnitude of destruction never before experienced in the United States. The enormous pressure by the force of the storm surge on the levee system that protected New Orleans caused several breaches that flooded the city with as much as 20 feet of water in some areas. *USA Today* developed an animation showing how a hurricane causes a storm surge: <http://usatoday30.usatoday.com/graphics/weather/gra/gsurge/flash.htm>.

The National Hurricane Center operates a computerized model, called SLOSH (Sea, Lake, and Overland Surges from Hurricanes), to estimate storm surge heights and winds resulting from historical, hypothetical, or predicted hurricanes. When making calculations, SLOSH takes into account pressure, size, forward speed, track, and wind. The model's output is a color-coded map indicating storm surge heights for defined areas in feet above the model's reference level. These calculations are applied to a specific locale's shoreline, incorporating the unique bay and river configurations, water depths, bridges, roads, and other physical features. When SLOSH is used to estimate storm surge from predicted hurricanes, forecast data are entered every 6 hours over a 72-hour period and updated as new forecasts become available. SLOSH is accurate within a range of 20 percent plus or minus what is actually observed. The model accounts for astronomical tides, but it does not consider rainfall, riverflow, or wind-driven waves. However, this information can be combined with the model's output to create a more accurate analysis of at-risk areas.

The National Weather Service also runs a storm surge model for extratropical storms called ET-SURGE (also known as ETSS). This model is a variation of SLOSH that works with non-hurricane systems.

Tornadoes

A tornado is a rapidly rotating vortex or funnel of air extending groundward from a cumulonimbus cloud, exhibiting wind speeds of up to 300 mph. Approximately 1200 tornadoes are spawned by thunderstorms each year in the United States. Most tornadoes remain aloft, but the few that do touch the ground are devastating to everything in their path. The forces of a tornado's winds are capable of lifting and moving huge objects, destroying or moving whole buildings, and siphoning large volumes from bodies of water and ultimately depositing them

Table 2-5 Original Fujita-Pearson Tornado Scale

Category	Conditions	Effects
F-0	40–72 mph	Chimney damage, tree branches broken
F-1	73–112 mph	Mobile homes pushed off foundation or overturned
F-2	113–157 mph	Considerable damage, mobile homes demolished, trees uprooted
F-3	158–205 mph	Roofs and walls torn down, trains overturned, cars thrown
F-4	207–260 mph	Well-constructed walls leveled
F-5	261–318 mph	Homes lifted off foundation and carried considerable distances, autos thrown as far as 100 meters

Table 2-6 Enhanced Fujita-Pearson Tornado Scale

Category	Conditions	Effects
F-0	65–85 mph	Minor to light damage to structures and vegetation
F-1	85–110 mph	Moderate damage to structures and vegetation
F-2	111–135 mph	Heavy damage to structures and vegetation
F-3	136–165 mph	Severe damage to structures and vegetation
F-4	166–200 mph	Extreme damage to structures and vegetation
F-5	Over 200 mph	Complete destruction of structures and vegetation

elsewhere. Because tornadoes typically follow the path of least resistance, people living in valleys have the greatest exposure to damage.

Tornadoes have been measured using the Fujita-Pearson Tornado Scale since its creation in 1971 (Table 2-5). In 2006, research indicated that tornado damage was occurring from winds of much weaker intensity than previously thought, so the National Weather Service created an enhanced scale to measure them (Table 2-6). First used in January 2007, this scale expands upon the original system’s measure of damage to homes by adding 18 new damage indicators, including those that affect trees, mobile homes, and several other structures (giving a total of 28 indicators studied in the classification of a tornado). Under the enhanced Fujita-Pearson scale, a tornado that does not affect houses can still be classified.

Tornado damage occurs only when the funnel cloud touches down on land. In the United States, the states with the greatest tornado risk are Texas, Oklahoma, Arkansas, Missouri, and Kansas. Together these states occupy what is commonly known as “tornado alley.” In recent years, however, tornadoes have struck in cities that are not regularly frequented by tornadoes, including Miami, Nashville, and Washington, D.C. Tornadoes can also touch down in several places in succession, as occurred in Washington, D.C. in 2001. In that event, a single tornado first touched down in Alexandria, Virginia, just south of the city and then again in College Park, Maryland, just north of D.C. On May 22nd of 2011, an E-5 tornado with a width of approximately 1-mile touched down in Joplin, Missouri, wiping out a sizeable portion of the town. The short-lived event killed 158 people and injured over 1100, making it the most deadly tornado in over a half-century.



FIGURE 2-4 Moore, Okla., June 7, 2013—Vehicles tossed against homes by a tornado that touched down in the area. The Moore area was struck by an EF5 tornado on May 20, 2013. *Photo by Andrea Booher/FEMA.*

Tornado season generally falls between March and August, although tornadoes can occur at any time of the year. Tornadoes tend to occur in the afternoon and evening, with more than 80 percent of all tornadoes striking between noon and midnight. Building collapse and flying debris are the principal factors behind the deaths and injuries tornadoes cause. Early warning is key to surviving tornadoes, as warned citizens can protect themselves by moving to structures designed to withstand tornado-force winds. Doppler radar and other meteorological tools have drastically improved the ability to detect tornadoes and the amount of advance warning time available before a tornado strike. Improved communications and new technologies have also been critical to giving people advanced warning.

Buildings that are directly in the path of a tornado have little chance of surviving unless they are specifically designed to withstand not only the force of the winds but also that of the debris “missiles” that are thrown about (Figure 2-4). “Safe room” technology developed by FEMA and Texas A&M University, which retrofits a portion of a structure to withstand such winds through engineered resistant design and special resilient materials, offers those in the path of a tornado much greater survival likelihoods (Figure 2-5). Safe rooms are often the most cost-effective way to mitigate tornado risk in communities that are already heavily developed, since they can be built into an existing (or new) structure for a small cost (estimated between \$3000 to \$5000).

In order to greatly expand the mitigation benefits of safe rooms, similar technology is being developed for use in community mass-care shelters. New technologies in building design and construction are also being developed by FEMA and others to reduce the damage to buildings and structures not located directly in the path of a tornado. Many of the same wind-resistant construction techniques used effectively in high-risk hurricane areas have been found to be equally effective when applied to new and retrofitted structures located in tornado-prone areas.



FIGURE 2-5 Tulsa, Oklahoma, November 23, 2001. Disaster Ally in the Eastland Mall. Safe rooms can be designed with many different materials. Shown are concrete block walls, formed concrete walls, and a special ceiling framing. Photo by Kent Baxter/IFEMA News Photo.

Wildfires

Wildfires (often called “wildland fires”) are classified into three categories: *surface fires*, the most common type, which burn along the floor of a forest, moving slowly and killing or damaging trees; *ground fires*, which are usually started by lightning and burn on or just below the forest floor; and *crown fires*, which burn through the forest canopy high above the ground and therefore spread much more rapidly due to wind and direct contact with nearby trees. Wildland fires are an annual and increasing hazard due to the air pollution (primarily smoke and ash that travel for miles, causing further hazards to health and mechanical or electrical equipment), risk to firefighters, environmental effects, and property destruction they cause.

As residential areas expand into relatively untouched wildlands (called the “wildland-urban interface”), the threat to the human population increases dramatically. Protecting structures located in or near the wildland poses special problems and often stretches firefighting resources beyond capacity. Wildland fires also cause several secondary hazards. For instance, when heavy rains follow a major fire, landslides, mudflows, and floods can strike on or downhill from the newly unanchored soil. These fires can also severely scorch the land, destroying animal habitats and causing barren patches that may persist for decades, increasing the likelihood of long-term erosion.

Several terms are used to classify the source and behavior of wildland fires:

- *Wildland fires*. Fueled almost exclusively by natural vegetation, these fires typically occur in national forests and parks, where federal agencies are responsible for fire management and suppression.

- *Interface or intermix fires.* These fires occur in or near the wildland-urban interface, affecting both natural and built environments and posing a tactical challenge to firefighters concerned with the often conflicting goals of firefighter safety and property protection.
- *Firestorms.* Events of such extreme intensity that effective suppression is virtually impossible, firestorms occur during extreme weather and generally burn until conditions change or the available fuel is exhausted.
- *Prescribed fires and prescribed natural fires.* These are fires that are intentionally set or selected natural fires that are allowed to burn for the purpose of reducing available natural fuel.

Severe drought conditions and the buildup of large quantities of “fuel” (dead trees and flammable vegetation) on the forest floors have led to a steady increase in the prevalence of wildfires in the United States. Since the National Interagency Fire Center began tracking the number and acreage of fires in 1960, the average number of fires has fallen (presumably due to fire-prevention programs), while the annual acreage burned has risen. In other words, the fewer fires that are occurring are larger and more destructive on average. Before 2004, no year had seen more than 7 million acres burned, and few experienced greater than 4 or 5 million acres burned. Yet, from 2004 to 2007, each year exceeded 8 million, and both 2006 and 2007 exceeded 9 million acres burned. In 2008 the number fell to just over 5 million, and 2009 saw approximately 6 million burned. In 2010 the acreage was just 3.4 million, but in 2011 the area burned increased to over 8.7 million acres (NIFC, 2013).

Mass Movements

The general category of mass movements includes several different hazards caused by the horizontal or lateral movement of large quantities of physical matter. Mass movements cause damage and loss of life through several different processes, including the pushing, crushing, or burying of objects in their path, the damming of rivers and waterways, the subsequent movement of displaced bodies of water (typically in the form of a tsunami), destruction or obstruction of major transportation routes, and alteration of the natural environment in ways in which humans are negatively impacted. Mass-movement hazards are most prevalent in areas of rugged or varied topography, but they can occur even on level land, as in the case of subsidence. The following are the categories of mass-movement hazards:

- *Landslides.* Landslides occur when masses of relatively dry rock, soil, or debris move in an uncontrolled manner down a slope. Landslides may be very highly localized or massive in size, and they can move at a creeping pace or at very high speeds. Many areas have experienced landslides repeatedly since prehistoric times. Landslides are activated when the mechanisms by which the material was anchored become compromised (through a loss of vegetation or seismic activity, for example).
- *Mudflows.* Mudflows are water-saturated rivers of rock, earth, and other debris that are drawn downward by the forces of gravity. These phenomena develop when water rapidly accumulates in the material that is moved, like during heavy rainfall or rapid snowmelt.

Under these conditions, solid or loose earth can quickly change into a flowing river of mud, or “slurry.” These flows move rapidly down slopes or through channels, following the path of least resistance, and often strike with little or no warning. Mudflows have traveled several miles in many instances, growing in size as they pick up trees, cars, and other materials along the way.

- *Lateral spreads.* Lateral spreads occur when large quantities of accumulated earth or other materials spread downward and outward due to gradual hydrologic and gravitational forces. Spreads can affect rock, but they also occur in fine-grained, sensitive soils such as clays.
- *Liquefaction.* When saturated solid material becomes liquid-like in constitution due to seismic or hydrologic activity, it can exacerbate lateral spreading.
- *Rockfalls.* Rockfalls occur when masses of rock or other materials detach from a steep slope or cliff and descend by freefall, rolling, or bouncing. Topples consist of the forward rotation of rocks or other materials above a pivot point on a hill slope. Rockfalls can occur spontaneously when fissures in rock or other materials cause structural failure or due to seismic or other mechanical activity (including explosions or the movement of heavy machinery).
- *Avalanches.* An avalanche is a mass of ice or snow that moves downhill at a high velocity. Avalanches can shear trees, cover entire communities and highway routes, and level buildings in their path. Avalanches are triggered by a number of processes, including exceeding critical mass on a steep slope or disturbances caused by seismicity or human activity. As temperatures increase and snowpack becomes unstable, the risk of avalanches increases. The primary negative consequences associated with avalanches are loss of life (mostly to backcountry skiers, climbers, and snowmobilers) and obstruction of major transportation routes. Around 10,000 avalanches are reported each year in the United States. Since tracking began in 1790, an average of 144 people have become trapped in avalanches annually, and of these an average of 14 sustain injuries and 14 die. The average annual value of structural damage is \$500,000, though the secondary costs associated with disrupted commerce can be much greater.
- *Land subsidence.* Land subsidence is the loss of surface elevation caused by the removal of subsurface support. Subsidence can range from broad, regional lowering of large landmasses to severe localized collapses. The primary cause of this hazard is human activity, including underground mining, extraction of groundwater or petroleum, and the drainage of organic soils. The average annual damage associated with subsidence in the United States is estimated to be at least \$125 million.
- *Expansive soils.* Soils and soft rock that tend to swell or shrink when their moisture content changes are referred to as expansive soils. These changes are extremely detrimental to transportation routes (including highways, streets, and rail lines) and structures that are built above the affected soils. The most extensive damage affects highways and streets. Two rock types that are particularly prone to expansion and that are prevalent in the United States (primarily in the West) are aluminum silicates (e.g., ash, glass, and rocks of volcanic origin) and sedimentary rock (e.g., clay and shale).

Tsunamis

A tsunami is wave or series of waves that is generated by a mass displacement of sea or lake water. The most common generative factor behind tsunamis is undersea earthquakes that cause ocean floor displacement, but large tsunamis have been caused by volcanic eruptions and landslides as well. Tsunami waves travel outward as movements of kinetic energy (rather than traveling water) at very high speeds in all directions from the area of the disturbance, much like the ripples caused by a rock thrown into a pond. As the waves approach shallow coastal waters, wave speed quickly decreases and the water is drawn upward and onto land. Tsunamis can strike at heights of up to and over 100 feet and extend onto land for a mile or more (depending upon topography). The force of the water causes near total destruction of everything in its path.

The areas at the greatest risk from tsunamis are those lying less than 50 feet above sea level and within 1 mile of the shoreline. Successive crests (high water) and troughs (low water) can occur anywhere from 5 to 90 minutes apart. Tsunamis travel through deep water at approximately 450 mph, so the areas closest to the point of origin experience the greatest destruction and have the least amount of forewarning. Most tsunami-related deaths are the result of drowning, while the loss of services and related health problems associated with the incredible destruction of the infrastructure (including the loss of hospitals and clinics, water pollution, contaminated food and water stocks, and damaged transmission lines) adds to these statistics.

ADDITIONAL RESEARCH

The Woods Hole Oceanographic Institute has developed a highly illustrative website about the causes and dynamics of tsunamis. This website also provides significant information about mitigation techniques, historical tsunami events, warning systems, modeling, and much more. The site can be accessed at <http://www.whoi.edu/home/interactive/tsunami/>.

The *New York Times* has created a 'slider' graphic that allows users to see the impact of the 2011 Great East Japan Earthquake Tsunami on affected communities by alternating between before and after satellite imagery of the most heavily-impacted towns. This site can be accessed at: http://www.nytimes.com/interactive/2011/03/13/world/asia/satellite-photos-japan-before-and-after-tsunami.html?_r=0.

CASE STUDY: RECENT MAJOR TSUNAMI EVENTS

On December 26, 2004, following an earthquake off the coast of the Banda Aceh region of Indonesia that measured 8.9 on the Richter scale, a series of tsunamis devastated vast coastal regions in 11 countries as far away as East Africa. The earthquake was the most powerful to occur in 4 decades, and it generated waves reaching as high as 60 feet on coastal shorelines. The devastation from this event in terms of the geographical range and number of people affected within the brief time frame is virtually unprecedented in modern history.

Due to an almost complete lack of regional tsunami warning capabilities, little advanced notice of the presence or severity of these impending waves was possible for the affected populations, many

of whom included foreign tourists. As a result, most people had no opportunity to move to higher ground—an action that surely would have prevented the high number of injuries and fatalities that occurred. While the exact number of people killed will never be known, it is assumed to be greater than 150,000 and possibly more than 200,000. Over 500,000 injuries were reported, and ten times as many people were left homeless.

Almost 5 years after this terrible event, another quake struck in the nearby South Pacific region, causing large tsunamis in the islands of Samoa, American Samoa, and Tonga. These events were caused by an 8.0 magnitude earthquake near the Samoan Islands on September 29. While significant infrastructure had been put into place to detect tsunamis and warn the at-risk populations, communication failures prevented many people from being informed. Upon personally observing now-familiar telltale signs of a coming tsunami, including the earthquake itself, and changing off-tide water levels, many residents fled to higher ground. However, 189 people still lost their lives, most of whom lived in hardest-hit Samoa.

On March 11, 2011, a massive magnitude 9.0 earthquake struck off the coast of Japan near Tohoku. This quake, which ranks among the five most powerful earthquakes known, triggered tsunamis throughout Japan reaching heights as great as 133 feet. Tsunamis traveled throughout the Pacific, reaching as far as Chile which saw a 6-foot wave. Prior to this event, Japan was arguably the nation most prepared for the tsunami threat, having endured dozens of major tsunami events in its recorded history. However, planning underestimated the potential height and severity of tsunamis and defenses were quickly overtopped. In some areas, tsunami water traveled as far as 6 miles inland. In addition to causing a major nuclear accident, over 15,800 people were killed, more than 6100 were injured, and thousands remain missing. The ongoing recovery effort has proven monumental given the extent of debris that exists from over one million buildings either totally or partially collapsed. The World Bank estimates the economic impact from the event to be about \$235 billion, making it the most expensive natural disaster to have ever occurred.

Volcanic Eruptions

A volcano is a break in the earth's crust through which molten rock from beneath the earth's surface (magma) erupts. Over time, volcanoes will grow upward and outward, forming mountains, islands, or large, flat plateaus called "shields." Volcanic mountains differ from mountain chains formed through plate tectonics (movement of the earth's crustal plates) because they are built through the accumulation of materials (lava, ash flows, and airborne ash and dust) rather than being pushed up from below. When volcanic material exits the earth, it is called lava, and the nature of its exit determines the land formations that result. Thinner lava typically moves quickly away from the source and becomes a large shield (as in the case of the Hawaiian Islands), while thicker lava and other materials form steeper volcanic formations.

When pressure from gases and molten rock becomes strong enough to cause an explosion, violent eruptions may occur. Gases and rock shoot up through the opening and spill over or fill the air with lava fragments. Volcanoes cause injuries, death, and destruction through a number of processes, including direct burns, suffocation from ash and other materials, trauma from ejected rocks, floods and mudflows from quickly melted snow and ice, burial under burning

hot “pyroclastic” ash flows, and others. Airborne ash can affect people hundreds of miles away from the eruption and influence global climates for years afterward.

Volcanic ash contaminates water supplies, causes electrical storms, and can cause roofs to collapse under the weight of accumulated material. Eruptions may also trigger tsunamis, flash floods, earthquakes, and rockfalls. Sideways-directed volcanic explosions, known as “lateral blasts,” can shoot large pieces of rock at very high speeds for several miles. These explosions can kill by impact, burial, or heat. They have been known to knock down entire forests. Most deaths attributed to the Mount St. Helens volcano were a result of lateral blast and trees that were knocked down. Volcanic ash also has some positive implications because it can be used for construction or road building, as abrasive and cleaning agents, and as raw materials for many chemical and industrial uses. Ash-covered land is also rich in mineral nutrients and ideal for agricultural production.

Severe Winter Storms

Severe winter storms occur when extremely cold atmospheric conditions coincide with high airborne moisture content, resulting in rapid and heavy precipitation of snow and/or ice. When combined with high winds, the event is known as a blizzard. In the United States, these hazards originate from four distinct sources:

- In the Northwest, cyclonic weather systems originate in the North Pacific Ocean or the Aleutian Island region.
- In the Midwest and Upper Plains, Canadian and Arctic cold fronts push ice and snow deep into the heart of the nation—in some instances, traveling as far south as Florida.
- In the Northeast, lake-effect snowstorms develop when cold weather fronts pass over the relatively warm surfaces of the Great Lakes.
- The eastern and northeastern states are affected by extratropical cyclonic weather systems in the Atlantic Ocean and the Gulf of Mexico that produce snow, ice storms, and occasional blizzards.

On January 1, 2006, the federal government began to use a new scale, similar to the scales used to measure the magnitude and intensity of hurricanes and tornadoes, to measure severe winter storms. The Northeast Snowfall Impact Scale (NESIS) provides a numerical value to storms based on the geographical area affected, the amount of snow accumulation, and the number of people affected. The minimum threshold for a storm’s inclusion in the scale is 10 inches of snow falling over a wide area.

NESIS values range from 1 to 5 and include associated descriptors (from most to least severe) of Extreme, Crippling, Major, Significant, and Notable. The NESIS scale differs from other meteorological indices in that it considers population data. It uses the following formula:

$$\text{NESIS} = \sum_{n=4}^{n=30} \left[\frac{n}{10} \left(\frac{A_n}{A_{\text{mean}}} + \frac{P_n}{P_{\text{mean}}} \right) \right]$$

where *A* equals the area affected and *P* equals the population affected. [Table 2-7](#) shows the categories assigned to severe winter storms using this formula.

Table 2-7 NESIS Values

Category	NESIS Value	Description
1	1–2.499	Notable
2	2.5–3.99	Significant
3	4–5.99	Major
4	6–9.99	Crippling
5	10.01	Extreme

Source: NOAA, 2006. <http://www.ncdc.noaa.gov/snow-and-ice/rsi/nesis>

Drought

Drought is defined as a prolonged shortage of available water, primarily due to insufficient rain and other precipitation or because exceptionally high temperatures and low humidity cause a drying of agriculture and a loss of stored water resources. Drought hazards differ from other natural hazards in three ways: 1. A drought's onset and conclusion are difficult to determine because the effects accumulate slowly and may linger even after the apparent termination of an episode. 2. There is no precise or universally accepted determination of what conditions constitute official drought conditions or the degree of drought severity. 3. The drought's effects are less obvious and spread over a larger geographic area.

In very poor countries, drought is associated with famine, which is widespread starvation brought about by limited access to food resources. However, in the United States, where mechanisms are in place to move resources quickly from region to region, the threat of famine no longer exists. Drought does, however, impact food and other crops, and can severely hamper commerce on major rivers. A 2012 to 2013 drought which exceeded anything experienced in over a half-century almost completely halted barge and other commercial traffic on the Mississippi River impacting billions of dollars of cargo and thousands of jobs (Fears, 2013).

The Climate Prediction Center of the National Weather Service monitors nationwide drought conditions and provides visual reports on a weekly basis and seasonal reports on a monthly basis. A report of current drought conditions in the United States, referred to as the United States Drought Monitor, can be viewed at <http://www.cpc.ncep.noaa.gov/products/Drought/>.

Extreme Temperatures

Major diversions in average seasonal temperatures can cause injuries, fatalities, and major economic impacts when they are prolonged or coincide with other natural or technological events. Extreme heat, called a heat wave, occurs when temperatures of ten or more degrees above the average high temperature persist across a geographic region for several days or weeks. Humid or muggy conditions, which add to the discomfort of high temperatures, can occur when a "dome" of high atmospheric pressure traps hazy, damp air close to the ground. Excessively dry conditions that coincide with extreme heat can provoke wind and dust storms.

When little rain occurs in conjunction with extreme heat, droughts are likely to occur. Prolonged periods of heat have resulted in hundreds of thousands of deaths in single

instances, including 600 in the Chicago area in 1995 and almost 37,500 in Europe in 2003. In most years, more than 1500 people die from exposure to excessive heat in the United States, making it the number one weather-related killer of humans.

While there is no widely accepted standard for extreme cold temperatures, periods of colder than normal conditions exhibit a range of negative consequences, depending on where they occur and exactly how cold temperatures fall. Any time temperatures fall below freezing, there is the risk of death from hypothermia to humans and livestock, with the degree to which populations are accustomed to those temperatures a primary factor in resilience. Extreme cold can also lead to serious economic damages from frozen water pipes; the freezing of navigable rivers, which halts commerce and can cause ice dams; and the destruction of crops.

Coastal Erosion

Coastal erosion, which is the loss of land bordering a body of water, is measured as the rate of change in the position or horizontal displacement of a shoreline over a period of time. It is generally associated with storm surges, hurricanes, windstorms, and flooding hazards, and it can be exacerbated by human activities such as boat wakes, shoreline hardening, and dredging. El Niño, sea level rise, and other climate change factors are increasing the effect. The primary concern with coastal erosion is the economic damages that occur to properties constructed very close to the eroding coasts, which lose their natural protection from the water and waves.

Environmental impacts from erosion include the loss of animal habitats and aesthetic losses. Fishing industries that are dependent on coastal habitats can suffer great losses from changes caused by coastal erosion, and the loss of tourism can result in similar economic impacts. Coastal features like dunes and mangroves also provide a natural defense against several hazards, including tsunami waves and storm surges, so their loss may signal an increase in vulnerability from these hazards. Major disasters can damage or destroy these natural buffers, or simply cause direct erosion that equates to years of nondisaster-related erosion in a single event.

In California, 86 percent of the coastline is eroding at a rate that ranges from just a few inches to as much as 10 feet per year. While some homeowners have spent hundreds of thousands to strengthen their property from erosion, there are few permanent solutions and most at-risk properties must eventually be relocated or torn down. The problem is a perpetual one that is confounding development officials in many coastal towns that must determine the best ways to reduce future risk without changing the aesthetic nature of the coastline or causing undue stress on the natural environment (Olney, 2010).

Thunderstorms

Thunderstorms are meteorological events that bring heavy rains, strong winds, hail, lightning, and tornadoes. Thunderstorms are generated by atmospheric imbalance and turbulence caused by a combination of several conditions, including: unstable, warm air rising rapidly into the atmosphere; sufficient moisture to form clouds and rain; and upward lift of air currents caused by colliding weather fronts (cold and warm), sea breezes, or mountains.

A thunderstorm is classified as severe if its winds reach or exceed 58 mph, it produces a tornado, or it drops surface hail at least 1 inch in diameter. Thunderstorms may occur singly, in clusters, or in lines. Thus, it is possible for several thunderstorms to affect one location in the course of a few hours. These events are particularly devastating when a single thunderstorm affects one location for an extended period. Such conditions lead to oversaturation of the ground and subsequent flash flooding and slope erosion.

Lightning is a major secondary threat associated with thunderstorms. In the United States, between 75 and 100 Americans are hit and killed by lightning each year. Many air disasters have been linked to thunderstorms because of the unpredictable and turbulent wind conditions they cause and the threat of electronic or mechanical failure caused by lightning strikes. When humans or structures are hit by lightning, the effect is devastating to both.

Hail

Hail is frozen atmospheric water that falls to the earth. Moisture in clouds becomes frozen into crystals at high temperatures and begins to fall under its own weight. Typically, these crystals melt at lower temperatures, but in the right conditions they pick up more moisture as they fall and are then lifted to cold elevations, which causes refreezing. This cycle may continue until the individual hailstones reach several inches in diameter under the right conditions. Because of the strength of severe thunderstorms and tornadoes, both can cause this cyclic lifting, and therefore they are often accompanied by hail. Hailstorms occur more frequently during late spring and early summer when the jet stream migrates northward across the Great Plains. When they fall, they can damage crops, break windows, destroy cars and other exposed properties, collapse roofs, and cause other destruction totaling nearly \$1 billion each year in the United States.

■ ■ Critical Thinking ■

- Are you aware of the hazards faced by your community, including those that may only happen once every few decades (and therefore may not have occurred in your lifetime)?
- Have any of your community's natural hazards resulted in a major disaster requiring state or federal assistance?
- Do any natural hazards affect your community routinely? If so, what actions has the community taken to mitigate these recurrent hazards? Have these actions been successful in reducing the consequences or likelihood of the hazards?
- Are there any natural hazards that you or your community can ignore because your geographic location precludes you from risk? What are those hazards, and why can you ignore them?
- Is climate change causing any changes in your community's hazard profile? How, and to what effect?

Technological Hazards

Technological (or “man-made”) hazards are an inevitable product of technological innovation and human development. These hazards, which can occur after the failure of existing

technology, tend to be much less understood than their natural counterparts and are increasing in number as the scope of and dependence on technology expands. The most common technological hazards arise from various components of transportation, infrastructure, industry, and buildings/structures.

Structural Fires

Studies have shown that civilizations have been fighting structural fires using coordinated governmental resources since the first century AD (Coppola, 2006). Structural fires can be triggered or exacerbated by both natural processes, including lightning, high winds, earthquakes, volcanoes, and floods, or by human origins, including accidents and arson, for example. Lightning is the most significant natural contributor to fires affecting the built environment. Buildings with rooftop storage tanks for flammable liquids are particularly susceptible. Fire departments responded to almost 1,390,000 fires in the United States in 2011. These fires resulted in 3005 fatalities, 17,500 injuries, and \$11.7 billion in property loss. Of these, 49.3 percent were outside and “other” fires, 34.9 percent were structure fires, and 15.8 percent were vehicle fires.

Residential fires represented 26.6 percent of all fires and 76 percent of structure fires. Of all civilian fire fatalities, 84 percent occurred in the home, where a home is defined as a one- or two-family dwelling or an apartment. Intentionally set structure fires occurred 26,500 times and represented 5.5 percent of structural fires and \$601 million in structural property losses. More than 14,000 vehicle fires were deliberately set, causing an estimated \$88 million in property damage (Karter, 2012).

More statistics and information on fires in the United States can be found in the report *Fire Loss in the United States During 2011* at <http://www.nfpa.org/~media/Files/Research/NFPA%20reports/Overall%20Fire%20Statistics/osfireloss.ashx>.

Dam Failures

Dams are constructed for many purposes, the most common being flood control and irrigation. When dams retaining large quantities of water fail, there exists the potential for large-scale uncontrolled releases of stored water downstream. Dam failures pose the most extreme flood risk due to the sudden and severe impacts that can result. Dams most often fail as a result of maintenance neglect; overtopping (as in the case of a flood); poor design; or structural damage caused by a major event such as an earthquake, collision, or blast. Dams are both publicly and privately owned and maintained, so their monitoring can pose a challenge to offices of emergency management charged with assessing associated hazard risk. The United States boasts the second-greatest number of dams nationwide, exceeded only by China. In 2009, the American Society of Civil Engineers, which rates U.S. infrastructure, gave U.S. dams a grade of D given that the number of deficient dams exceeds 4000 (of over 85,000 that exist in the country), including almost 2000 of which that are considered to be “high-hazard dams”. ASCE estimates that for every one dam that is repaired or made more resilient, two more are declared deficient.

More information on the status of U.S. dam infrastructure can be found by viewing the ASCE report at: <http://www.infrastructurereportcard.org/a/#p/dams/overview>.

Hazardous Materials Incidents

Hazardous materials are chemical substances that if released or misused can pose a threat to the environment or personal health. Such chemicals are prevalent in many industries and products, including agriculture, medicine, research, and consumer product development. Hazardous materials may be explosive, flammable, corrosive, poisonous, radioactive, or otherwise toxic or dangerous. Releases typically occur as a result of transportation accidents or accidental releases at production and storage facilities. Depending on the nature of the chemical, the result of a release or spill can include death, serious injury, long-lasting health effects, and damage to buildings, homes, and other property.

While hazardous materials spills occur most commonly in homes, the quantities released are almost always too small to cause more than a highly localized hazard. It is the transportation or industrial use of such products that leads to major disaster events upon release. At present, hazardous materials are manufactured, used, or stored at an estimated 4.5 million facilities in the United States—from major industrial plants to local dry cleaning establishments or gardening supply stores.

More information about hazardous materials and related incidents in the United States can be found at the U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) website: <http://phmsa.dot.gov/hazmat>.

Nuclear Accidents

Radioactive materials have provided significant benefits since their discovery, including the generation of power, scientific treatments and experiments, new detection, and imaging technologies, among many others. However, because the radiation emitted from these materials can cause immediate and lasting tissue damage to humans and animals upon exposure, these materials must be handled and contained using specialized techniques, materials, and facilities. National and international law strictly dictates who may possess these materials, how they can be used, and how and where they must be disposed of.

Exposure to radiation can be the result of an accidental or intentionally caused spill, breach of the containment vessel, escape of gasses, or an explosion. Nuclear material remains radioactive until it has shed all of its ionizing particles, called radio nuclides. This process, called radioactive decay, is the primary source of health risk to life. When released quickly, dust or gasses may rise into the atmosphere in a characteristic "plume," which carries the contaminants far from the point of origin with atmospheric currents, depositing it as radioactive fallout along its course.

In the United States, the greatest threat of exposure to radioactive materials comes from an accident or sabotage at one of the nation's many nuclear power plants. As the distance to a nuclear power plant decreases, the risk of exposure increases, and the likelihood of surviving in the event of a large-scale release of materials decreases. Since 1980, utilities operating commercial nuclear power plants in the United States have been required to maintain on- and off-site emergency response plans as a condition of maintaining their operating licenses. On-site emergency response plans are approved by the Nuclear Regulatory Commission (NRC).

Off-site plans (which are closely coordinated with the utility's on-site emergency response plan) are evaluated by FEMA and provided to the NRC, who must consider the FEMA findings when issuing or maintaining a license.

A catastrophic failure of a nuclear reactor is called a meltdown, indicative of the failure of the reactor's containment due to the incredibly high heat caused by a runaway nuclear reaction. The worst nuclear accident to date was the result of a reactor core meltdown that occurred in at the Chernobyl Nuclear Power Plant in the Ukraine on April 26, 1986. So great was the radioactive plume and resultant fallout, which traveled as far as and landed primarily in neighboring Belarus, that more than 336,000 people had to be evacuated and permanently resettled. Over 20 years later, the area is still uninhabitable. Following the Great East Japan Earthquake in March of 2011, several nuclear reactors suffered failures or meltdowns, causing only the second nuclear disaster to register a Level 7 of a possible 7: "Major Accident" on the International Nuclear Event Scale (<http://www-ns.iaea.org/tech-areas/emergency/ines.asp>).

In the United States, the most dangerous radioactive event, which was ultimately contained (thereby preventing any realized threat to human life), was the partial core meltdown at the Three Mile Island Nuclear Generating Station in Pennsylvania on March 28, 1979. The accident happened when a system that cooled the nuclear reaction, and therefore controlled the temperature of the reactor core, failed to operate correctly. While some nuclear material was released, the effect on people exposed was similar to that of receiving one or two medical X-rays. The public reaction to this event, however, significantly changed the course of the nuclear power industry in the United States, as expansion abruptly ended.

ADDITIONAL RESEARCH

The Nuclear Regulatory Commission released a report on the Three Mile Island nuclear accident. This report provides a summary of the events that occurred on March 29, 1979, and describes the health effects of the resulting release. Most significantly, it provides insight into the changes that the event ultimately had on the industry and on society's perception of the safety of nuclear power. This report site may be accessed at <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/3mile-isle.html>.

For a full description of the events that occurred during and following the Great East Japan Earthquake at the Fukushima nuclear power plants, visit the World Nuclear Association site that summarizes research that has been conducted on the incident. This page can be accessed at: http://www.world-nuclear.org/info/fukushima_accident_inf129.html.

Terrorism

Terrorism is defined as the use of force or violence against individuals (civilians) or property for purposes of intimidation, coercion, or spreading fear in order to attain political, religious, or ideological goals. Radical or militant political and religious groups, which include or have included (for example) al Qaeda, the Khmer Rouge, the Revolutionary Armed Forces of Colombia (FARC), and Sendero Luminoso, typically lack the military means or public support to bring about societal change in favor of their representative views. These groups turn to the

use of terrorism as a low-cost way to raise awareness of their message and influence the attitudes and actions of those presumably at risk from subsequent attacks. Terrorism, like war, is an influential tool that has been used by civilizations since the dawn of recorded history, and it will likewise always exist as a threat that must be mitigated and likewise managed.

Terrorism has been prevalent in the United States since long before the September 11, 2001 attacks on New York and the Pentagon, but the vast majority of these events originated from individuals or domestic organizations, used simple explosives, and were small in scale and effect. Some of the most notorious terrorists and groups that were labeled as “terrorist organizations” are the McNamara Brothers (bombed the *LA Times* building in 1910), the so-called “Unabomber” (Theodore Kaczynski), Eric Rudolph (the “Centennial Olympic Park bomber”), Timothy McVeigh (the mastermind behind the Oklahoma City bombing), the Animal Liberation Front, the Ku Klux Klan, and the Army of God.

The Al Qaeda terrorists who performed the simultaneous terrorist attacks in Arlington, Virginia; New York City; and Shanksville, Pennsylvania, elevated the perception of terrorism as a hazard risk and placed terrorism as a topic high on the public, policy, and media agendas due to the highly graphic, violent, and devastating impact of the attacks (which killed almost 3000 people, caused billions of dollars in damages, and had immeasurable effects on the national and world economies). However, it is important that communities and governments remember the persistent threat that remains from domestic terrorist organizations and individuals, which have been successful in bringing about several attacks since 9/11, including the 2001 anthrax attacks, the Washington, D.C. sniper attacks in 2002, and many bombings and shootings at courthouses, abortion clinics, research centers, military recruitment centers, and others.

The primary method by which governments manage the terrorist threat is through both covert and overt intelligence gathering. Monitoring methods have expanded greatly with the advent of surveillance technologies, and statutory authorities have been expanded to allow for monitoring of phone calls, bank transactions, and other activities (to the dismay of civil rights groups who oppose such controls). Clearly, the ability of a government to monitor the terrorist risk is a delicate balance between knowing what its citizens are doing and allowing citizens the freedom of personal privacy.

Containment of the terrorist threat is another method of control, exhibited in the form of checkpoints (like in commercial airports worldwide), barriers at public and secure buildings, and security cameras and personnel placed in strategic locations. The U.S. government has developed agreements with many other national governments to coordinate transnational terrorism through the use of ports safety initiatives, traveler tracking, and monitoring of groups known to harbor terrorist intentions against the United States.

The Federal Bureau of Investigation (FBI) is the government agency in charge of tracking and preventing terrorist activities in the United States. The FBI categorizes terrorism according to two subgroups: (1) domestic terrorism, which involves groups or individuals whose terrorism activities are directed at elements of government or population without foreign direction; and (2) international terrorism, which involves groups or individuals whose terrorism activities are foreign-based and/or directed by countries or groups outside the United States or whose activities transcend national boundaries.

CBRN Incidents

One class of weapons has the potential to bring about an extraordinary degree of deaths, injuries, and property destruction. Several names have been given to this group of weapons, including weapons of mass destruction (WMD), NBC (nuclear, biological, and chemical) weapons, and ABC (atomic, biological, and chemical) weapons, but the conventional acronym used in contemporary practice is CBRN (pronounced “see-burn”), representing the acronym formed by the first letters of the chemical, biological, radiological, and nuclear devices that the category includes. Although these weapons are considered weapons of mass destruction because of their potential for creating such widespread destruction, it should be noted that they can also be distributed in such a way as to harm or kill only one or a very few individuals.

CBRN weapons may be possessed and used by both terrorists and foreign national governments. The processes by which control and containment are conducted, however, differ greatly between the two. In the case of official governments, mitigation is generally performed through the use of diplomacy, international agreements, and sanctions. With terrorist groups, such measures have little or no effect, so control must be performed through the use of raw materials regulation and monitoring, surveillance and other intelligence gathering, and, at times, military action (usually not until all other options have failed).

Chemical

Chemical weapons are naturally occurring or man-made liquids, gasses, or solids (typically in the form of dust) that exhibit toxic effects on humans, animals, plants, or property upon exposure. Chemical agents are most commonly created for the sole purpose of killing, injuring, or incapacitating people. Chemical agents must be delivered onto or around intended victims to be effective, and there are a number of ways to do this. For instance, chemical agents may be aerosolized, dropped, splashed, poured into water supplies or foods, released by bombs, or sprayed from containers or vehicles (including aircraft, boats, or vehicles).

One of the greatest challenges facing emergency management and response officials is the detection of chemical agents that have been delivered via covert means. Chemical weapons can be invisible, odorless, and tasteless, and they may have an immediate identifiable effect (a few seconds to a few minutes) or have a delayed effect. The presence of a chemical agent is often easy to detect because of several telltale signs, including a sudden difficulty breathing; nausea; a burning sensation in the skin, eyes, or lungs; disorientation or loss of consciousness; or seizures.

In the case of common chemicals, such as chlorine gas, personnel familiar with the chemical's characteristics can often identify what chemical was released by smell or sight and the presence of certain effects as just listed (as well as the presence of specific containers or delivery mechanisms). However, with most chemical agents, identification of the specific chemical once detection has occurred is only possible using advanced technology. Because different chemicals have unique processes by which they are neutralized or their effects treated, identification is key to response and remediation.

These are the six primary categories of chemical agents, distinguished by their effect on humans:

- Pulmonary, or “choking,” agents
- Blood agents
- Vesicants or blister agents
- Nerve agents
- Incapacitating agents
- Irritants (typically used for riot control but capable of spreading panic when used by terrorists)

Biological

Biological agents are either live organisms or the toxins produced by live organisms, either naturally occurring or genetically engineered, that can kill or incapacitate people, livestock, and crops. Biological agents are grouped into three primary categories: bacteria, viruses, and toxins.

As with chemical agents, biological agents can be delivered covertly or overtly. However, most biological agents do not have immediate effects, and it may be days or weeks before the presence of an attack involving a biological agent is recognized. This is especially true with bacteria and viruses, which have an initial period of incubation following infection where no symptoms are present in victims. Toxins, on the other hand, typically exhibit the same rate of effect as seen with chemical agents.

Recognition of a biological attack is typically made by the public health service, which monitors illnesses and deaths nationwide, and which would likely catch a rapid upsurge in strange or unidentifiable sources of similar illnesses and deaths. Other methods of detection include threat identification, the discovery of the agent or delivery and production materials, and intelligence gathering.

Biological agents are difficult to grow and maintain. Although many of these agents decay rapidly when exposed to sunlight and other environmental factors, others (such as anthrax spores) are resilient and can survive for decades or longer even in harsh conditions. Biological agents are particularly dangerous when they involve transmissible illnesses, such as smallpox, because the effect can quickly spread beyond the initial group of people exposed by contagion between affected and unaffected individuals.

Human-to-human transmission has been the primary source of infection in past epidemics that involved pathogens capable of use as a biological weapon, including smallpox, plague, and the Lassa virus. When biological agents target plants or animals, they can devastate economic sectors (including agriculture and livestock) and instill fear equal to that of agents that affect humans and can have crossover effects on humans. For instance, in 1918, the German army spread anthrax and other diseases by distributing infected livestock and animal feed.

As with chemical weapons, the primary defense lies with rapid and accurate recognition and identification. Each agent has a highly specific treatment and decontamination method

associated with it. Biological agents are grouped into three categories: Category A agents are those that have great potential for causing a public health catastrophe and are capable of being disseminated over a large geographic area. Examples of category A agents are anthrax, smallpox, plague, botulism, tularemia, and viral hemorrhagic fevers. Category B agents are those that have low mortality rates but may be disseminated over a large geographic area with relative ease. Category B agents include salmonella, ricin, Q fever, typhus, and glanders. Category C agents are common pathogens that have the potential for being engineered for terrorism or weapon purposes. Examples of category C agents are hantavirus and tuberculosis.

Radiological

Radiological agents are those that cause harm by exposing victims to the damaging energy emitted by unstable radioactive materials. Radiological agents require very little technological innovation to use, since the materials dispersed are naturally hazardous. However, the materials are rare in nature and highly controlled and are therefore difficult to obtain. The most common sources of radiological materials are research laboratories, medical institutions, and hazardous waste containment facilities.

The greatest threat from a radiological agent would occur if a terrorist group dispersed radiological material using either an explosive device (commonly called a “dirty bomb”) or another nonexplosive method, including spraying or aerosolization, which is called a “radiological dispersion device,” or RDD. It is well known that the greatest physical risk from a dirty bomb would be from the blast rather than the radiological materials themselves. However, the fear and panic that would result from the detection of radioactive materials on the victims and in the debris generated could have far-reaching economic impacts in the immediate area of the attack and throughout the country—or even the world.

An alternative to a dirty bomb or RDD that is of great concern to the U.S. government is the possibility that terrorists may attack a nuclear facility for the purpose of dispersing radiological materials and likewise instilling mass hysteria. While most nuclear facilities were designed to withstand great impacts and large explosions (including several constructed to withstand a direct hit by a commercial airliner), the possibility of sabotage on safety and cooling systems or the use of an explosive strong enough to breach containment exists. Additionally, the radioactive waste produced at these facilities is usually stored on-site. While this material is of little use for power generation, it would be extremely valuable to a terrorist who wanted to cause harm.

Nuclear

Nuclear agents are those that cause great harm through the activation of a fission or fusion chain reaction that is possible only through the most advanced weapons technology and using only the most refined nuclear materials (and in quantities necessary to sustain a blast effect). A nuclear blast is an explosion that emits intense light, heat, and damaging pressure and disperses radioactive debris over a widespread area, leading to the contamination of air, water, and ground surfaces for miles around. While the likelihood of a terrorist organization developing an operational nuclear weapon is almost nil, there is always the possibility that rogue states

known to support terrorist organizations or states unable to monitor and protect their nuclear weapons caches could become a source of such weaponry for terrorist groups with great financial means.

The effect of successful terrorist use of a nuclear weapon would surely be the death of thousands and the destruction of billions of dollars in property, especially if it was detonated in a major urban center. The detonation of atomic weapons in Hiroshima and Nagasaki give insight into the power of a nuclear weapon, given that those two relatively small bombs resulted in the death of over 220,000 people and almost total destruction of the city centers in these two metropolises.

Additional Information about CBRN

For more information on weapons of mass destruction, visit the following websites:

- Federal Bureau of Investigation: <http://www.fbi.gov/about-us/investigate/terrorism/wmd>
- Central Intelligence Agency: https://www.cia.gov/library/reports/general-reports-1/terrorist_cbrn/terrorist_CBRN.htm
- Ready.Gov: <http://www.ready.gov/terrorism>

■ ■ Critical Thinking ■

- What technological hazards affect your community? What are the sources of those hazards?
- Society accepts certain technological hazards because they enjoy the benefits associated with the action or process that causes the hazard. For instance, nuclear power plants produce inexpensive electricity with very little emissions. However, in the event of an accident, a major disaster could result. What benefits does your community enjoy despite the existence of associated technological hazards, and what are those hazards?

Hazards Risk Management

The process by which individuals, communities, and countries deal with the hazard risks they face is known as hazards risk management. Risk management is a primary function of government, and many different methodologies have been developed in the United States and throughout the world to manage hazards risk. Even within the United States, different government agencies may perform hazards risk management using different methods, as is the case with FEMA and the Department of Defense, for instance. However, almost all hazards risk management methodologies operate according to a four-step process:

1. Identify the hazards.
2. Assess the risks for each hazard identified.
3. Analyze the hazards risks in relation to one another.
4. Treat the hazards risk according to prioritization.

It is the differences in terminology, technologies, application of stakeholder input, and other issues that differentiate these various methods that have emerged.

Hazard identification, as the name suggests, is the process through which all hazards that have or could affect an area of focus are identified and described. This is done through a number of methods, including historical study, brainstorming, scientific analysis, and subject matter expertise. For more common hazards, such as snowstorms or tornadoes, the presence of the hazard will be obvious. However, for new or changing hazards, such as many technological hazards and intentional hazards (including terrorism), only the knowledge or opinion of experts can provide insight into the presence and range of these rare, yet real, hazards. Hazard identification results in a list of hazards that is exhaustive if done properly, irrespective of known likelihood or severity. To be comprehensive, a hazards risk management effort must look not at each hazard individually and irrespective of the others but rather at the entire hazards portfolio as interconnected and as each hazard having an influence on the effects and risks of the others.

Hazard description, or profiling as it is also called, is a component of hazard identification wherein the particular way each hazard exists within the studied area is defined. To describe a hazard, the following characteristics are often investigated:

- General orientation overview of the hazard
- The location of the hazard within and surrounding the area of study and the spatial extent of its effects
- The duration of an event caused by the hazard
- Seasonal or other time-based patterns followed by the hazard
- Speed of onset of an actual hazard event
- Availability of warnings for the hazard

Hazard risk assessment is the process through which the threat posed by each identified hazard is investigated. Risk is calculated according to two equal factors: Hazard likelihood and hazard consequence. Together, these factors inform us of how concerned we should be about the existence of a hazard and what we can do to prevent or treat the hazard. Generally, high-likelihood/high-consequence hazards are of greatest concern, while low-likelihood/low-consequence hazards are of least concern, and all of the others fall in between. However, the relationships between hazards and their associated risks are incorporated into the risk assessment and analysis processes in order to allow communities or countries to employ a comprehensive risk management program that results in the greatest reduction in lives lost and property damaged.

There are various approaches to developing a risk assessment methodology, ranging from qualitative to quantitative, as well as several computer-based models for natural hazard risk assessment that have been developed for individual hazards such as earthquakes, floods, hurricanes, and landslides. The validity and utility of any risk assessment outcome is defined by the quality and availability of data. Emergency managers must rely on a range of sources to develop accurate determinations of likelihood and consequence, despite the fact that these factors are constantly changing as a result of increased development, access to new

information, changes in climates and community characteristics, and many other factors that can complicate the equations. Furthermore, it can be impossible to extrapolate exact numerical values that are representative of these two factors for each, or even any, of the hazards that have been identified.

As mentioned previously, there are many different methodologies that have been developed to overcome the difficulties that exist in the assessment of hazards risk. In the United States, Australia, and New Zealand, for instance, various qualitative assessment systems have been developed to measure likelihood and consequence values. Rather than relying on specific mathematical calculations to determine exact values, qualitative systems limit the possible values to a smaller defined range (typically five to seven values) into which each hazard is more easily placed. For example, it may be difficult to calculate the rate of return for an ice storm to the specific year (e.g., one event every 35 years), but it is much more possible to determine whether that storm will occur once or more every year or once every 2 to 10 years. Qualitative systems are not exact, but they facilitate a process that might otherwise be too difficult or time-consuming and therefore disregarded.

Another risk assessment method is the Composite Exposure Indicator (CEI) approach, which is based on the effects of a single or multiple hazards on a series of indicator variables focused primarily on infrastructure, such as roads, pipelines, hospitals, public water supply, and so on. This system, which relies on databases maintained by FEMA and other sources, is a measure of exposure of 14 variables that produces a number that is then correlated to the population affected.

Hazard risk analysis is performed in order to determine the relative seriousness of hazard risks that have been identified and assessed. Using the processes just listed to identify the hazards that threaten the community or country, to characterize them, and to determine their likelihoods and consequences, emergency managers will have gathered all of the information necessary to determine how these risks compare to one another. For this reason, by the time the risk evaluation process begins, each hazard must have been identified, described, mapped, and analyzed according to its likelihood of occurrence and its consequences should a disaster occur.

Hazard risk analysis is so important because while all communities face a range of natural, technological, and intentional hazards—each of which requires a different degree of mitigation and risk reduction—most communities have a range of competing budgetary pressures and are therefore unable to fully mitigate all hazard risks. The goal, as a result, is to lower the number of deaths, injuries, and damage to property and the environment associated with hazards to an acceptable degree, so they must ensure that their time and other resources are dedicated to the actions and activities that give them the greatest results overall.

Risk analysis is most commonly conducted through the use of a risk matrix. To create a risk matrix, emergency managers create a graph that represents risk likelihood and consequence on the *x*- and *y*-axes, with the highest of both falling in the upper right quadrant and the lowest in the bottom left. If a quantitative system has been used, the defined values selected for each of the two risk factors are transferred onto this matrix. Otherwise, if quantitative representations of likelihood and consequences have been used, the minimum and maximum of

all hazards analyzed represent the high and low limits of the two graph axes. Then, all of the hazards are plotted onto this matrix together, thereby providing a visual illustration of a community or country's hazard risks in relation to one another. Using the results of the risk matrix, a prioritized ranking of risks is created. This list becomes the basis of the final step, which is the treatment of identified hazard risks.

The value of the risk analysis process in prioritizing risks is significantly improved when performed in conjunction with supplemental methodologies. For instance, a vulnerability analysis can help to determine what is causing risks, why certain risks rank above others, and what can be done to increase resilience or decrease vulnerability through the various risk treatments identified in the fourth and final step.

Risk vulnerability looks at four factors, including social vulnerability, environmental vulnerability, physical vulnerability, and economic vulnerability. Risks can also be prioritized according to the acceptability of the population at risk. For instance, despite the fact that more people are exposed to a particular risk or that it causes more fatalities or damages each year, it might still be more palatable to the exposed population than another much less dangerous or damaging risk due to the benefits that would be lost if the risk was partially or fully mitigated. For example, transportation accidents have caused more fatalities in the United States and worldwide than nuclear power accidents. Yet, most people are much more willing to accept the risk of transportation accidents than nuclear accidents because the loss of automobiles would have a much more personal and profound impact.

The SMAUG methodology is only one of the systems developed to gauge these issues and to help risk managers analyze previously-assessed risks further by considering a number of social and political factors. SMAUG is an acronym that stands for the five factors according to which hazard risks are analyzed by risk managers using the system:

- Seriousness, or the relative impact on the community in terms of deaths, injuries, and damages;
- Manageability, which refers to the ability of, or availability of options for, the community to manage the risk;
- Acceptability, which investigates the willingness of the affected population to tolerate the existence of a particular hazard risk;
- Urgency, which looks at how critical it is to safety and security that the risk immediately be addressed ; and
- Growth, which refers to how quickly the hazard risk is increasing over time.
- In recent years, SMAUG has been expanded to include two new factors:
- Frequency, which is typically addressed through the risk assessment process; and
- Awareness, which refers to the level to which different community stakeholders are informed about the hazard, and how closely their knowledge about the hazard reflects its true risk.

The acceptability factor from the original SMAUG acronym was outrage, but still refers to the political and social acceptance of the hazard risk. The new acronym for this method is FSMAUGO.

Hazard risk treatment is the process by which either the likelihood of a disaster risk is reduced or eliminated or measures are taken to reduce the impacts of those hazard events that do actually occur. Hazard risks are treated through hazard mitigation and disaster preparedness (the topics of Chapters 3 and 4, respectively). The selection of risk treatment options takes the risk assessment methodology beyond process to decision making and action. At this point, risk reduction options have been analyzed not only for their cost effectiveness but also for their acceptability by society and their long-term positive and negative impacts. The treatment process then becomes a technical and political one by which funds are finally dedicated, laws are changed or enacted and likewise enforced, and solutions are implemented.

Further Research

FEMA developed and released a series of “Mitigation How-To Guides” between 2002 and 2008 that explained and guided the hazard risk management process from inception to implementation for local community leaders. This nine-part series, available on the FEMA website, explains municipal hazards risk management from building support for planning through using the Hazard Mitigation Plan to design and implement risk reduction projects. The guides can be found at: <http://www.fema.gov/hazard-mitigation-planning-resources#1>. In 2011, the Department of Homeland Security released the Homeland Security Risk Management Doctrine titled *Risk Management Fundamentals*. This document was released in an attempt to standardize risk management throughout the department and to ensure that risk management was considered in relevant decisions and actions. This document can be found at: <http://www.dhs.gov/xlibrary/assets/rma-risk-management-fundamentals.pdf>.

Risk Management Technology

The nation’s ability to track and manage hazards risks has significantly improved in the last 15 years. Through vast technological advancement, emergency managers are now much more capable of plotting hazards spatially, targeting the areas of greatest risk, and identifying and implementing appropriate risk-reduction solutions.

Imaging and sensing technology, including satellite imagery and aircraft-based systems (such as radar, LIDAR, and FLIR), have given risk managers a much better visual representation of risk. These systems, and their associated information management and display systems, allow for spatial and temporal (time-based) representation of risk across whole communities and down to a level of granularity that allows consideration of risk on an individual property or structure. In doing so, the process of risk identification and the spatial plotting of hazard risk across risk zones has become much more tangible and, likewise, accurate.

Risk modeling systems, which include software such as the FEMA-developed HAZUS-MH (Hazards United States—MultiHazard) program and expert-based systems such as the products produced by the National Infrastructure Simulation and Analysis Center (NISAC—www.sandia.gov/nisac) and the U.S. Army Corps of Engineers (portal.usace.army.mil/sites/ENGLink/DisasterImpactModels/default.aspx), allow not only predisaster estimation of

impacts and response requirements but also early disaster estimation of likely damages and needs (before actual assessment data can be collected). The connectivity of the Internet has allowed greater sharing of information and ideas across regions where similar problems are encountered and mitigated, and risk estimation models to thus be generated.

The wide availability of GIS-based mapping software makes the plotting of risks and resources using layers of information that would have required much more significant resources to obtain only decades ago much easier today. Even commonly used web-based programs such as Google Earth have increased the ability of emergency managers with few resources to better understand the nature of the risk their communities face, including the plotting of floodplains and the proximity of various structures to known hazards. The research and scientific agencies of the federal government and the university community continue to develop new approaches to measuring, mapping, and predicting natural hazards. Since the September 11, 2001, attacks, federal- and university-based funding dedicated to the advancement of emergency management technology has reached into the billions and is helping to develop even more methods to detect, understand, and treat natural, technological, and, most notably, terrorist hazards.

Social and Economic Risk Factors

It has long been recognized that a strong correlation exists between disasters and poverty. Because of several factors, including the inability to afford preparedness and mitigation measures, the lower rental and purchase costs associated with high-risk land and a general lack of knowledge concerning risk and its sources, the poor are more vulnerable to disasters and therefore find themselves repeatedly subject to them. While this is much more apparent in the developing countries, where the bulk of annual disaster deaths occur, risk factors based on poverty and social conditions also exist within countries.

In the United States, little has been done to address the social and economic factors of risk that make one group more vulnerable than another. Risk assessments have generally considered populations to be homogeneous for risk-planning purposes, thereby neglecting to address individual problems of certain social and economic groups that may not benefit as much, or at all, from the plans and capacities that are developed. Social advocacy groups have been working for years to raise awareness of the increased disaster vulnerability of “special populations” (which include, among others, the disabled, the elderly, the poor, children, and immigrants) with mixed success. However, Hurricane Katrina brought the reality of the socioeconomic vulnerability divide into every living room in the country via the mass media. Numerous social and political groups contend that it was poverty that caused Katrina’s high number of victims and that the poor shouldered an undue portion of the region’s risk, while the wealthy escaped relatively unharmed (a claim that was later refuted). Others called it a race disaster, claiming that the government neglected to bring about a more significant immediate response because a majority of the victims were African American. Regardless of the validity of these claims, it is clear that the majority of the people who failed to leave New Orleans did so because they had poor or no access to transportation, they were afraid to leave their meager possessions behind,

or they had few to no resources with which to get shelter away from the risk zone. And in the aftermath of this disaster, it has become painfully apparent that these same social and economic risk factors further hamper the poorer victims as they attempt recovery.

ADDITIONAL RESEARCH

A study conducted by Columbia University 1 year after Hurricane Katrina found that the poorest victims continued to suffer from significant income loss, higher than normal incidence of chronic illnesses, and a proportionally higher rate of mental health problems in children. This report, “The Recovery Divide: Poverty and the Widening Income Gap Among Mississippi Children and Families Affected by Hurricane Katrina,” can be accessed at http://www.ncdp.mailman.columbia.edu/files/recovery_divide.pdf.

The social makeup of a population is based on a diverse set of factors that include education, culture, local government, social interaction, values, laws, beliefs, and other aspects of society. Within most communities, the hazard vulnerability of different groups varies due to a range of sociocultural factors that help or prevent individuals in those groups from taking mitigative or preparative actions to protect themselves. The behavior of epidemics among different groups, and the people of different countries, can be heavily influenced by social factors specific to each group or country that result in much closer interactions or greater “social distancing.” Certain religious, cultural, or traditional practices and beliefs can also help or hinder disaster management practices.

Religious beliefs that label disasters the “will of God” are less likely to influence positive mitigation and preparedness behavior than those that promote the responsibility of individuals and governments to protect life from dangers that exist in the environment. And though it may not be evident to the people practicing such behaviors, their mitigative or preparatory actions may be the product of a previous social adjustment to a hazard. Disaster managers must be able to recognize when social interactions are either helping or hindering people in reducing their vulnerability to hazards, and they must recognize what aspect of that social process is causing the alteration.

Financial status also deeply affects a population’s and individuals’ abilities to protect themselves from the consequences of disaster. Financial well-being, however, does not indicate that an individual or society *will* protect themselves; rather, it is just a measure of their ability to do so. Other factors may be learned from this economic profile. Trends and tendencies associated with wealth, or the lack thereof, can be deduced. For instance, the poor are often marginalized and forced to live on more dangerous land. Their housing is more likely to be constructed of materials that are unable to withstand environmental pressures. They are more likely to have zero tolerance to delays in basic necessities that often follow disasters.

When considering the definition of a disaster and the concept of vulnerability, it is easy to understand why the poor are more vulnerable. Because an event only becomes a disaster when the capacity to respond to the event is exceeded, requiring external assistance to manage the consequences, the poor—who survive on the brink of disaster each day—are much quicker to exhaust their resources when unforeseen events arise.

■ ■ Critical Thinking ■

- Select a hazard that affects you or your community. Describe the characteristics of the hazard (how it would affect you or the community, including strong winds, ground shaking, etc.). Assess the risk associated with this hazard for you or your community, including the frequency of the hazard affecting you and the consequences if a disaster were to occur.
- What aspects of a community's geographic profile influence the hazards they face (e.g., proximity to a coast, slope of terrain)? What human practices influence these hazards (e.g., damming of rivers, filling in wetlands)? What natural processes influence these hazards (e.g., annual rainfall, temperature)?

Conclusion

In the hazards risk management process, hazard identification is the foundational factor in determining what preparative and preventive measures will be taken by a community. In other words, a community needs to know and understand their risks if they are to effectively manage them.

Through the monitoring of hazards, emergencies, and disaster throughout the world, and research conducted into the mechanism by which natural, technological, and intentional hazards operate, a greater understanding of risk is being achieved. Societies are increasingly capable of managing the consequences of even low-incidence, high-catastrophe events for which they have little or no experience—such as tsunamis or weapons of mass destruction. And for more common hazards, risk management is becoming a central aspect not only of emergency management but of development as a whole, and is accepted by a wide range of government agencies as critical to the sustainability and effectiveness of all programs and projects. Information is power, and armed with better information about hazards and their associated risk, societies will have the power to act effectively in reducing or even eliminating many of the different threats that jeopardize their way of life.

Of course, all of these tools provide nothing without the acceptance of responsibility among those tasked with managing risk and leading the drive towards a more resilient society. The provision of hazard information and management tools to states and communities is but one necessary step in the risk-reduction process. Success in risk management hinges upon the political buy-in and subsequent support of decision makers who must support not only the risk management effort itself, but also the recommendations that result. Oftentimes, the actions required are not popular among one or more groups and resistance or conflict is encountered. Emergency management is typically the organization best suited for providing the impetus for incorporating these considerations, popular or otherwise, into the planning and governing of our communities in the pursuit of safer, sustainable living.

It must be stressed that hazards will persist. Some, particularly technological hazards, may be reduced by our efforts, but our ability to control or eliminate natural hazards is questionable. Recent efforts to undo some of the former channelization and flood control projects undertaken by the U.S. Army Corps of Engineers, once thought to be an effective measure to eliminate flood risk, are vivid examples of our inability to control nature. However, there is still

a strong argument for an increased emphasis on improved science in hazard identification and increased financial support for hazards mapping, both of which have been effective components in community hazards risk management efforts.

As our knowledge about hazards continues to expand, the economic and social logic of applying long-term solutions for reducing the risks posed by these hazards through mitigation and preparedness will gain momentum. The cost-to-benefit ratios of mitigation and preparedness efforts will become more attractive to local political bodies, and, eventually, disaster losses will begin to fall substantially. However, each and all of these local successes will be wholly dependent on the leadership potential and motivational abilities of an emergency management professional, who will be the driving force behind any such positive momentum that exists.

Important Terms

Avalanche
 Blizzard
 CBRN weapons
 Coastal erosion
 Dam failure
 Disaster
 Earthquake
 Expansive soil
 Extreme cold
 Extreme heat
 Flood
 FSMAUGO
 Hail
 Hazard
 Hazardous materials
 Hazards risk management
 Hurricane
 Landslide
 Lateral spread
 Mass movement
 Mudflow (or debris flow)
 Natural hazard
 Risk
 Rockfall
 Safe room
 Severe winter storm
 Storm surge
 Technological hazard
 Terrorism

Thunderstorm
Tornado
Tropical cyclone
Tropical storm
Tsunami
Volcano
Wildland fire (or wildfire)

Self-Check Questions

1. How is a hazard different from a disaster?
2. What is the most frequent and widespread disaster-causing hazard?
3. What scale is commonly used to describe the effects of earthquakes?
4. How are earthquakes measured?
5. Describe the process by which hurricanes form.
6. What scale is used to describe the intensity of hurricanes?
7. What are the various ways that hurricanes cause damages to a community?
8. What is a SLOSH model used to measure?
9. Why was the Fujita-Pearson Tornado Scale updated in 2006, and what changes were made?
10. What are the three categories of wildland fires?
11. How are severe weather storms measured?
12. What single disaster type caused nine of the top ten natural disasters ranked by FEMA relief costs?
13. What is the source of most hazardous materials incidents?
14. List and describe four categories of weapons of mass destruction.
15. What six steps are common to most risk assessment methodologies?
16. Name several of the social factors emergency managers must consider when assessing a community's risk.
17. What are some of the factors that make up a community's economic profile? How do these factors influence that community's disaster risk?
18. What is the purpose of the FSMAUGO methodology

Out-of-Class Exercises

Visit FEMA's disaster declaration archive at <http://www.fema.gov/disasters>. View the disaster declarations for your state. Beginning with 1998 and moving forward to the present time, view the disaster declarations to determine what disasters affected your county. What hazards affected your county during this time? How many times did each occur? If possible, determine what assistance the federal government provided in response to the disaster.

The Disciplines of Emergency Management: Mitigation

What You will Learn

- The variety of mitigation tools available to planners
- Impediments to mitigation and other associated problems
- Federal and nonfederal mitigation programs
- Mitigation methods in practice through specific case studies
- Introduction to the new National Mitigation Framework
- Innovative mitigation approaches from Hurricane Sandy

Introduction

Disasters are a reality of living in the natural world. Despite humans' attempts to control nature that began with the early Egyptians and continue to today's massive flood-control efforts, natural hazards are something we constantly face. Over the last decade, the social and economic costs of disasters to the United States and throughout the world have grown significantly.

The causes of this growth are myriad. Climatological changes such as El Niño, global warming, and a rise in sea level are some of the factors. When you add the effects of societal actions, such as increased development, deforestation and clear-cutting, the migration of populations to coastal areas, and the filling in of floodplains, you have total calamity. If we just look at 2012, the numbers are amazing, including:

- National drought which began in the spring of 2012 caused 123 deaths and over \$40 billion in damages and costs,
- Tornadoes in Southeast/Ohio Valley, Texas, Midwest cost almost \$6 billion, caused 48 deaths,
- Severe weather in the Southern Plains, Midwest and Northeast severe weather and Rockies/Southwest severe weather cost over \$5 billion,
- Derecho in the East, Northeast, Plains, cost \$4 billion and caused 28 deaths,
- Hurricane Isaac along the Gulf Coast cost \$2.3 billion and 42 deaths,
- Western wildfires burned up to 9.1 million acres and \$1 to \$2 billion in damages; and
- Hurricane Sandy currently is estimated to cost \$82 billion and caused 132 deaths

Source: National Climatic Data Center

While 2012 was the second most costly year for natural disasters, 2011 was not far behind with 12 major disasters, the most on record for a single year with an estimated cost of \$52 billion. Yet as we see this incredible increase in costs and the loss of lives, we see funding for mitigation being significantly reduced at the federal, state, and local levels.

Mitigation, the means for reducing these impacts, is defined as a sustained action to reduce or eliminate the risks to people and property from such hazards and their effects. In our discussion of mitigation, we focus on natural hazards mitigation efforts and programs in the United States. We will examine some of the techniques for mitigation of technological hazards, but the body of knowledge and applications in this area are still evolving. Many of the successful natural hazards techniques such as building codes, however, can be applied to technological hazards.

The function of mitigation differs from the other emergency management disciplines because it looks at long-term solutions to reducing risk as opposed to preparedness for hazards, the immediate response to a hazard, or the short-term recovery from a hazard event. Mitigation is usually not considered part of the emergency phase of a disaster as in response or as part of emergency planning as in preparedness. The definition lines do get a little blurred regarding recovery. Applying mitigation strategies should be a part of the recovery from disaster (see Chapter 7), but even in this context, these are actions that will reduce the impact, or risks, over time.

The recovery function of emergency management still represents one of the best opportunities for mitigation, and until recently, this phase in a disaster plan provided the most substantial funding for mitigation activities. For a brief time, the trend had shifted toward greater federal spending on pre-disaster mitigation, but because of economic, federal budgetary and political pressures, mitigation has once again become an afterthought, a trend which is discussed later in this chapter.

Another thing that sets mitigation apart from the other disciplines of emergency management is the participation and support of a broad spectrum of players outside of the traditional emergency management circle. Mitigation involves land-use planners; construction and building officials, both public and private; business owners; insurance companies; community leaders; and politicians. The skills and tools for accomplishing mitigation (i.e., planning expertise, political acumen, marketing and public relations, and consensus building) are different from the operational, first-responder skills that more often characterize emergency management professionals. In fact, historically, emergency management professionals have been reluctant to take a lead role in promoting mitigation. To paraphrase a state director of emergency management, "I will never lose my job for failing to do mitigation, but I could lose my job if I mess up a response."

With the exception of the fire community, whose members were early leaders in the effort to mitigate fire risks through support for building codes, code enforcement, and public education, the emergency management community has remained focused on their preparedness planning and response obligations. Throughout the decade of 2000, leadership at the federal level has supported these priorities through their funding, especially after the events of September 11, where terrorism planning and preparedness were top priorities. Even in



FIGURE 3-1 Stratford, Connecticut., December 6, 2012—These summer cottages are examples of homes not severely damaged by Hurricane Sandy due in large part to being elevated on pilings. FEMA is in the area with mitigation specialists who are knowledgeable about the value of pilings to support coastal homes. *Photo by Marilee Caliendo/FEMA.*

the aftermath of Hurricane Katrina, mitigation was not viewed as a programmatic imperative. Some exceptions, such as new federal mitigation programs supported to reduce exposure under the National Flood Insurance Program (NFIP) and more interest at the local level to apply mitigation post disaster, were evidenced. The rise in local initiatives is important because that is where mitigation can be the most effective in reducing future losses (Figure 3-1). However, the lack of leadership at the federal level is troubling, since state and local emergency managers traditionally reflect federal priorities in their actions.

This chapter discusses the tools of mitigation, the impediments to mitigation, federal programs that support mitigation, and several case studies that demonstrate how these tools have been applied to successfully reduce various risks.

Mitigation Tools

Over the years, the United States has made great strides in reducing the number of deaths that occur in natural disasters. Through building codes, warning systems, and public education, the number of deaths and casualties from natural disasters in the last century has significantly declined. Economic effects and property damages, however, have escalated. Many people believe that these costs are preventable and that the tools required to dramatically reduce these costs are now available (Figure 3-2).

Technological disasters, such as the Oklahoma City bombing and the terrorist attacks of September 11, 2001, are not as easy to analyze. There is much speculation about how improved intelligence and security could reduce the human effects of these disasters. From a property perspective, many people believe that some reduction in impacts could be achieved through application of traditional mitigation techniques such as improved building



FIGURE 3-2 Pass Christian, Mississippi, October 4, 2005. Aerial photo of the only surviving home in the area that was completely destroyed by Hurricane Katrina. Foundations are all that remain of most of the neighboring homes. The surviving home was built using many FEMA standards. *John Fleck/FEMA.*



FIGURE 3-3 Malibu, California, November 16, 2007. The irrigation sprinkler system at Pepperdine University campus is an example of how fire prevention and mitigation practices can save homes and vegetation. *Susie Shapira/FEMA*

construction for blast effects. Other technological disasters such as the Valdez oil spill, the Three Mile Island emergency, and so on could have been prevented through better inspections, training, education, and exercises. These measures reflect good preparedness activities more than mitigation. In any case, further research and analyses are needed to answer the questions posed by the effects of terrorist events and similar technological hazards.

Most practitioners agree that the primary intent of mitigation is to ensure that fewer communities and individuals become victims of disasters. The goal of mitigation is to create economically secure, socially stable, better built, and more environmentally sound communities that are out of harm's way (Figure 3-3). In today's vernacular we would call these creating more sustainable communities.

The following mitigation tools are known to reduce risk:

- Hazard identification and mapping
- Design and construction applications
- Land-use planning
- Financial incentives
- Insurance
- Structural controls

Hazard Identification and Mapping

The hazard identification mitigation tool is fairly obvious. You can't mitigate a hazard if you don't know what it is or whom it affects. The most essential part of any mitigation strategy or plan is an analysis of what the hazards are in a particular area. The resources for hazard identification are numerous. The federal government has extensive programs that map virtually every hazard, and these products are available to communities. FEMA's NFIP provides detailed flood maps and studies, and the U.S. Geological Survey (USGS) provides extensive earthquake and landslide studies and maps. Many state agencies have refined the products for hazard identification. For example, special soil stability studies and geological investigations, which are required in some parts of California, further refine this analysis.

Geographic information systems (GIS) have become ubiquitous and are staples for all local planning organizations. What is often missing from the available tools is the ability to superimpose the human and built environment onto the hazards, thereby providing a quantified level of risk. FEMA's HAZUS methodology, which was developed in the 1990s, has become a user-oriented tool for both state and local emergency managers to assess potential losses from floods, hurricanes, and earthquakes. Potential losses estimated in HAZUS include physical damage, economic loss, and societal impacts. This tool is also available to the private sector.

The newest addition to the mapping tool kit is a program called Risk MAP that aims to reduce the losses of life and property through effective local mitigation activities driven by quality flood hazard data, risk assessments, and mitigation planning. On March 16, 2009, the U.S. Congress approved FEMA's Risk Mapping, Assessment, and Planning (Risk MAP) Multi-Year Plan for Fiscal Years 2011–2014.

ADDITIONAL RESEARCH

FEMA's Multi-Year Plan outlines the goals, objectives, and strategies for Risk MAP and identifies the roles and responsibilities of stakeholders. It is available at <http://www.fema.gov/risk-mapping-assessment-planning>.

Design and Construction Applications

The design and construction process provides one of the most cost-effective means of addressing risk. This process is governed by building codes, architecture and design criteria, and soils

and landscaping considerations. Code criteria that support risk reduction usually apply only to new construction, substantial renovation, or renovation to change the type or use of the building. Enactment of building codes is the responsibility of the states, and most state codes are derivatives of one of the three model codes, which reflect geographical differences across the United States. Some states delegate code adoption responsibility to more local governmental authorities. Because of the cost, codes that require rehabilitation of existing potentially hazardous structures have been rarely implemented. The Los Angeles seismic retrofit ordinance is a rare example. The case study of the new design codes to decrease the impacts of wildfires in California, which have become an increasing threat, illustrates the importance of building codes to mitigation.

CASE STUDY: NEW DEVELOPMENTS' CONSTRUCTION STANDARDS REQUIRE WILDFIRE MITIGATION

Rancho Santa Fe, California. More than 2460 multimillion-dollar houses that were constructed with the strictest construction standards possible, including expansive defensible space around and within the home development areas, survived extremely well when the Witch Fire stormed through the area in October 2007.

The blaze burned up to plants on defensible spaces and stopped. Embers blown into areas of the estates bounced off tile roofs with boxed-in eaves, stucco walls, patios, and other areas and then died out without leaving more than incidental damage mostly scorched plants. Although a half-dozen charred embers the size of footballs were found in the Cielo estates, according to Ken Crosby, one of the realtors for the estate areas, "Nothing was burned."

Five Rancho Santa Fe developments, completed just three-plus years before the Witch Fire, basically set construction standards on the "shelter-in-place" concept developed in Australia. The standards for construction and mitigation, including mandated interior fire sprinklers, extensive defensible space, and use of fire-resistant vegetation, are the "toughest in the country," according to Cliff Hunter, fire marshal for the Rancho Santa Fe Fire Protection District, which provides fire protection for the five developments.

The strict development standards also make these homes in the shelter-in-place communities' safer places to stay if the residents are unable to evacuate. Fire officials, however, advise people to evacuate rather than stay and try to fight the fires and to not get a false sense of security because their homes are considered to be a safe refuge.

The estate homes were constructed with materials and techniques intended to make the structures as resistant as possible to the effects of wild land fires. Only slow-to-ignite plants are planted near the homes. The standards are strictly maintained by the Rancho Santa Fe Fire Protection District's fire marshal.

The Sargentis' home is on the eastern edge of The Crosby, with a wide swath of defensible space adjoining the backyard. During the fire, smoke and ash entered their home through the drier vent, and the garage filled with smoke. The Sargentis explained that they had attended a program that explained how the shelter-in-place program worked. They learned that the concept had not been tested in the United States and that they should "get out early" if they chose to evacuate, as well as what to do if they stayed in their home.

When they learned that the fire was headed their way, they immediately left—well before the automatic alert that was sent to their house at 9 a.m. that Monday morning. Steve Sargenti said he “knew the house was intact,” and when the family returned, they found their house untouched, other than the smoke inside. Embers that had landed on the concrete tile roof had burned out, and the courtyard in front of the house “was a repository” for spent embers, Steve said.

Source: FEMA.gov. <http://www.fema.gov/mitigationbp/>.

Performance-based design and construction are becoming more critical, especially when building in earthquake-prone areas. This concept incorporates not just life safety requirements but continued use of the building in the aftermath of any disaster. In lieu of updated building codes, performance-based design can play a significant role in ensuring the viability of our built environment in the aftermath of a disaster.

The federal government has made a significant investment in developing technical guidance for improving the building and construction of structures in hazard areas, particularly earthquake-, wind-, and flood-prone areas. The International Code Council's (ICC) attempts to establish a single building code that would be adopted by local and state jurisdictions are moving forward and have experienced some success. The ICC is not promoting a National Code, as such, but there has been some discussion of developing a National Code to support mitigation efforts. Because the constitutional responsibility for public health and safety resides with the states, a National Code developed by the federal government is not politically feasible or practical.

Land-Use Planning

Mitigation programs are most successful when they are undertaken at the local level, where most decisions about development are made. The strategies for land-use planning offer many options for effecting mitigation, including acquisition, easements, storm water management, annexation, environmental review, and floodplain management plans. It also encompasses a myriad of zoning options such as density controls, special uses permits, historic preservation, coastal zone management, and subdivision controls.

Land-use planning was one of the earliest tools used to encourage mitigation. In 1968, Congress passed the National Flood Insurance Act that established the NFIP. This act required local governments to pass a floodplain management ordinance in return for federally backed, low-cost flood insurance being made available to the community. This act started one of the largest federal mapping efforts because the government promised local governments that they would provide them with the technical tools to determine where the floodplains were in their communities so they could steer development away from these areas. A more complete discussion of the NFIP can be found later in this chapter.

Moving structures out of harm's way through property acquisition is clearly the most effective land-use planning tool, but it is also the most costly. Following the Midwest floods of

1993, FEMA worked with Congress to make property acquisition more feasible by providing a substantial increase in funding for acquisition after a disaster. This is one of the mitigation programs that has flourished, with numerous communities working with their citizens to voluntarily agree to be moved out of harm's way in light of significant or repetitive flooding.

Land-use planning and ordinances can promote risk reduction in many other ways. The North Carolina coastal setback ordinance seeks to preserve the fragile and eroding coastlines of its barrier islands. The Alquist-Priola Act in California limits development near known earthquake faults.

One of the best discussions and guidance on land-use impacts in the floodplains can be found in a document prepared by the Association of State Flood Plain Managers (ASFPM). The document is entitled, "No-Adverse Impact Guidance for Flood Plain Management," and is available at <http://www.floods.org/index.asp>.

ADDITIONAL RESEARCH

In 2009, under a grant from the Mississippi Department of Marine Resources and with funding from the NOAA, the Gulf of Mexico Alliance published "Resilient Coastal Development through Land Use Planning: Tools and Management Techniques in the Gulf of Mexico." In creating the Governors' Action Plan II, Gulf Coast leaders recognized the importance of sustainable coastal development and its impact on the long-term health and resilience of our coastal communities. Specifically, this report (the report of the Gulf Coast Alliance) identifies ways to strengthen and enhance community resilience through land-use planning, recognizing that there are no one-size-fits-all solutions. This report begins by providing an overview of land-use planning and its key elements—comprehensive planning, zoning, and building regulation. From there, land-use management options for improving resilience are highlighted along with corresponding resources. Next, the report provides a discussion of incentives for improving the resilience of local land-use planning. The report concludes with guidance for conducting an audit to initiate next steps.

Source: <http://www.gulfofmexicoalliance.org/projects/files/79ResilientLandUse.pdf>.

CASE STUDY: A SMALL VILLAGE WITH BIG CONCERNS

Riverton, Illinois. The Sangamon River forms the west boundary of the Village of Riverton, a quaint community that 2997 residents call home. But the Village of Riverton has had a long flood history. To lessen the impact of floods on its residents, the village joined forces with other communities in Sangamon County to devise a plan. Acquisition was definitely the mitigation measure of choice, and council members have encouraged the creation of green space in the floodplain area. According to Linda Viola, office manager and grant administrator for the Village of Riverton, "This was the second time these homes were hit. The first time was in 1994. We knew that something needed to be done."

Riverton is 550 feet above sea level. The village has a total area of 2.1 square miles: 2 square miles of land and 0.04 square miles of water (1.93 percent). Heavy rainfall causes the creek, which runs through the middle of Riverton, to frequently overtop its banks.

The Acquisition Project was initiated in July 2002 and completed in August 2006. Riverton received a grant totaling \$272,867.66 from FEMA through its Hazard Mitigation Grant Program (HMGP). HMGP pays 75 percent of approved projects that will prevent or reduce damage from storms and other natural hazards. These grants are made available for both public and private projects.

“We filled out all the grant information, and we notified the homeowners. They also knew that they had a choice,” said Viola. “They could choose to participate or not. Participation is voluntary. We completed the project without any major problems. When you buy someone’s home, they always think that it’s worth more. There were some who disagreed with the appraisal. The properties were appraised a second time. The homeowner has a right to request a second appraisal.”

Buyouts of flood-prone homes located near the Sangamon River began in July 2004. The average value was \$75,000, and the total project cost was \$376,048.66. The village acquired six homes that were then demolished, resulting in open space within the floodplain.

A June 2008 flood event tested the success of the acquisition project as waters from the Sangamon River crept upon the 140,506-acre tract of land. If those six homes had not been removed, they would have been flooded with 2 to 3 feet of water.

A local alderman contacted Ron Davis, the state hazard mitigation officer, who acknowledged, “It was great this year when the waters came up, [and we were] able to sit back and relax and not have to mobilize our forces to fight the flood.” Said Viola, “Those [acquired] homes were in the floodplain. Flooding would continue to occur. I don’t know how the people could have lived with the flood and continued to rebuild in the same area knowing that it would happen again. We found a way to help them.”

Source: FEMA. <http://www.fema.gov/mitigationbp/>.

Financial Incentives

The financial incentives tool is an emerging area for promoting mitigation. Among the approaches being used by localities to reduce risks are creating special tax assessments, passing tax increases or bonds to pay for mitigation, offering relocation assistance, and targeting federal community development or renewal grant funds for mitigation.

The economic effects of repetitive flooding led the citizens of Napa, California, and Tulsa, Oklahoma, to pass small tax increases to pay for flood-mitigation activities. In both cases, the tax had a minimal effect on the community citizens but had a major effect in reducing the potential economic losses from future floods. Berkeley, California, has passed more than ten different bond issues to support seismic retrofit of public buildings, schools, and private residences.

Funding from the Community Development Block Grant (CDBG), a HUD program, has been used extensively to support local efforts at property acquisition and relocation. These funds have been used to meet the nonfederal match on other federal funding, which has often been a stumbling block to local mitigation. Other federal programs of the Small Business Administration (SBA) and the Economic Development Administration (EDA) provide financial incentives for mitigation.

Other emerging areas of financial tools include special assessment districts, impact fees, and transfer of development rights. All of these tools provide either incentives or penalties to developers as a means of promoting good risk-reduction development practices.

One of the newest approaches being applied today falls into the category of Neighborhood Development Floating Zones. This is a model ordinance designed to help local governments foster green community development by applying the Leadership in Energy and Environmental Design (LEED) rating system. By establishing a floating zone, this gives the private sector more flexibility to look at cost-effective options that can be agreed upon between local governments and the private sector to follow green development processes and mitigation options when a more extensive (and possibly) cumbersome and lengthy zoning process might be required.

When municipalities are faced with issues such as increasing costs or a decrease in federal and state funding, one of the methods used to close the gap is the implementation of impact fees. Impact fees are assessed to generate revenue to meet local infrastructure and public facility demands arising as the result of new development. Municipalities will assess impact fees upon the construction of new developments, which include apartments, single-family homes, and commercial developments. Impact fees are typically paid at the time the building permit or certificate of occupancy is issued, and are based generally upon the characteristics of the specific parcel (square footage, number of bedrooms, number of living units, a percentage of the project's fair market value, etc.). By making the fees parcel-specific, a closer correlation between impacts and assessments is provided. Impact fees can be used to fund a variety of services and facilities, and are not limited to infrastructure within the development.

FEMA has provided the following guidance on the application of impact fees: "While more than half the states allow the assessment of impact fees, they are often subject to various regulations. In cases where there is a lack of specific state statutory authority, the focus will shift to whether the impact fee is a regulatory fee derived from the community's land use authority and used specifically to regulate land use, or whether it constitutes an unauthorized tax that is being used to raise general revenues. With certain limitations, impact fees may be used in Alabama, Florida, Louisiana, and Texas. However, Mississippi does not currently allow the use of impact fees. An example of using impact fees to support local resilience can be seen in Texas, where impact fees may be used to fund storm water management and flood control improvements associated with new development"

CASE STUDY: NAPA RIVER FLOOD PROTECTION PROJECT

Napa, California. In the flood-prone valley of the Napa River lies the world-class traveler's destination of Napa, California. Over the span of 36 years (1961 to 1997), a total of 19 floods caused more than \$542 million in residential property damage alone. That total does not include economic losses in the tourism industry, environmental damage, or the loss of human lives.

During a 1986 flood, 20 inches of rain fell in a 48-hour period, resulting in three deaths, the destruction of 250 homes, damage to 2500 homes, and the evacuation of 5000 residents. Flood events in March 1995 and January 1997 were similarly destructive. The City of Napa subsequently embarked on an ambitious effort to mitigate flood losses in the community.

The Napa River – Napa Creek Flood Protection Project was voted into reality by the passage of Napa County Measure A in March 1998. This half-cent local sales tax levy passed by the citizens of Napa County provided a funding mechanism for the local share of the project cost and helped solidify the partnership between the Napa County Flood Control and Water Conservation District (NCFCWCD) and the U.S. Army Corps of Engineers.

Measure A funds flood protection, drainage improvements, dam safety, and watershed management projects for each community in Napa County and in the unincorporated area of the county. The project was still ongoing in 2006 and components include the following: The acquisition and removal of more than 50 mobile homes, 16 residences, and 28 commercial buildings from flood-prone areas; the creation of more than 400 acres of emergent marsh and 150 acres of seasonal wetlands; the removal, reconstruction, and elevation of several bridges; the elevation of railroad tracks; home and utilities elevations; the creation of structural flood control elements such as widened stream beds, flood walls, levees, and culverts; and the construction of three detention basins with accompanying pump stations. According to NCFCWCD, “When all these project components are in place, the City of Napa will have a system to keep homes and businesses dry in the future.”

December 2005 was the first test of Napa County’s new flood mitigation efforts when nearly 10 inches fell in a 24-hour period. Local officials were ready for the flood and had already placed sandbags and warned residents. Within 4 days of the flood the city had placed debris containers around town, which greatly facilitated cleanup and repair. At the time of the December 2005 floods, officials estimated that the project was only 40 percent completed. Nevertheless, significant economic losses were avoided. A sense of confidence in the economic vitality of the City of Napa is evidenced by an all-time high in construction activity for the residential and commercial sectors, the opening of four new downtown restaurants, the proposal for three new hotels, and an increase in commercial assessment in the downtown area. In addition to mitigating flood losses, the community has placed a revitalized, healthy river as the centerpiece of Napa. Many people now take advantage of the resources the river has to offer, including fishing, boating, walking along river trails, bird watching, and scenic dining. For up-to-date information on flood mitigation activities in Napa County, please visit the Napa County Flood Control and Water Conservation District website.

Source: FEMA. <http://www.fema.gov/mitigationbp/>.

Wildfires are becoming an ever increasing risk impacting so many more communities than in previous decades as development pressures have increased the geographic areas that are threatened by an urban/wildfire interface risk. The National Fire Protection Association (NFPA) has been working on this issue through its research Foundation. Their publication entitled, “Addressing Community Wildfire Risk: A Review and Assessment of Regulatory and Planning Tools,” provides excellent guidance on what options exist for communities to address this increasing problem. This publication is available at <http://www.nfpa.org/assets/files/research%20foundation/rfwuiregulatoryassessment.pdf>.

Insurance

Some people would argue with the inclusion of insurance as a mitigation tool. Their reasoning is that insurance by itself really only provides for a transfer of the risk from the individual or community to the insurance company. Although this is true, the NFIP is the prime example of how, if properly designed, the insurance mechanism can be a tool for mitigation. The NFIP is considered to be one of the most successful mitigation programs ever created.

The NFIP was created by Congress in response to the damages from multiple severe hurricanes and inland flooding and the rising costs of disaster assistance after these floods. At that time, flood insurance was not readily available or affordable through the private insurance market. Because many of the people being affected by this flooding were low-income residents, Congress agreed to subsidize the cost of the insurance so the premiums would be affordable. The idea was to reduce the costs to the government of disaster assistance through insurance. The designers of this program, with great insight, thought the government should get something for their subsidy. So in exchange for the low-cost insurance, they required that communities pass an ordinance directing future development away from the floodplain.

The NFIP was designed as a voluntary program and, as such, did not prosper during its early years, even though flooding disaster continued. Then in 1973, after Hurricane Agnes, the legislation was modified significantly. The purchase of federal flood insurance became mandatory on all federally backed loans. In other words, anyone buying a property with a Veterans Administration (VA) or Federal Housing Administration (FHA) loan had to purchase the insurance. Citizen pressure to buy the insurance caused communities to pass ordinances and join the NFIP. The NFIP helped the communities by providing them with a variety of flood hazard maps to define their flood boundaries and set insurance rates.

The 1993 Midwest floods triggered another major reform to the NFIP. This act strengthened the compliance procedures. It told communities that if they didn't join the program, they would be eligible for disaster assistance only one time. Any further request would be denied. As a positive incentive, the act established a Flood Mitigation Assistance (FMA) fund for flood planning, flood mitigation grants, and additional policy coverage for meeting the tougher compliance requirements such as building elevation.

Over the years, the NFIP has created other incentive programs such as the Community Rating System. This program offers reduced insurance premiums to communities that go beyond the minimum floodplain ordinance requirements. The NFIP represents one of the best public/private partnerships. Through the Write Your Own program, private insurers are given incentives to market and sell flood insurance.

Today more than 20,000 communities in the NFIP have mitigation programs in place. Other attempts have been made to duplicate this program for wind and earthquake hazards, but these have not received the support necessary to pass in Congress. If another major earthquake occurs, the issue of creating a federally supported earthquake or all-hazards insurance will resurface.

Major disasters commonly instigate changes within the national and international private insurance industries, as firms attempt to adjust operations such that they are able to continue

profitable operations according to newly acquired hazard information. Industry changes resulting from the 9/11 terrorist events, which focused solely on damages caused by a perceived “long-shot” subsequent terrorism incident, focused on the availability of specialized terrorism insurance (and affected mainly a business clientele). However, Hurricane Katrina, which ranked as the costliest U.S. disaster, with approximately \$40 billion to \$55 billion in insured losses, has resulted in new changes whose impacts are just beginning to be understood and that are expected to profoundly affect the ever-growing coastal populations who depend on insurance coverage for financial security.

The insurance industry was lambasted during the recovery from Hurricane Katrina when it was reported that victims often faced long delays in receiving their insurance checks or, even worse, were informed that their insurance coverage did not apply to the type of damage that was caused by the hurricane (many victims found themselves without coverage when it was determined that their damages were not caused by wind, which was covered in their policies, but rather by the excluded storm surge hazard). Class action lawsuits gave many of these Gulf Coast victims some recourse, but they have in turn caused the insurance industry to reconsider whether risk assessments of coastal areas are still valid if insurers are being mandated to pay damages on events their original calculations did not consider. As a result, the insurance industry has steadily withdrawn their coverage from many of these Gulf Coast areas and in coastal areas as far away as Connecticut, Rhode Island, and Massachusetts, claiming that new conditions brought about by the lawsuits would require them to raise premiums to unaffordable levels. State Farm Insurance, the nation’s largest residential insurer and one of the largest companies operating on the Gulf Coast (which paid over \$1 billion in claims in Mississippi alone following Katrina), has refused to renew policies that cover homes within 1000 feet of the water. Allstate Insurance Company has canceled or refused renewed coverage in a dozen coastal states.

Hurricanes Katrina and Rita and a series of major floods had a devastating impact on the National Flood Insurance Fund. The inability of the NFIP to set rates that were actuarially sound combined with the grandfathering in of hundreds of coastal communities and several years of major storms left the program significantly in the red and borrowing heavily from the U.S. Treasury to meet claims payments. After Katrina, it was at a point where FEMA was simply able to pay the interest on the U.S. Treasury loans as the principle continued to climb. As a result of a series of hurricanes and major floods (Ike, Irene, Kansas, Cedar Rapids, etc.), Congress began an extensive re-examination of the NFIP. This resulted in dramatic changes to the way the NFIP is to function in the future.

In 2012, the U.S. Congress passed the Flood Insurance Reform Act of 2012 which calls on FEMA and other agencies to make a number of changes to the way the NFIP is run. As the law is implemented, some of these changes have already occurred, and others will be implemented in the coming months (Congress has delayed implementation of certain provisions of the legislation until 2014). Key provisions of the legislation will require the NFIP to raise rates to reflect true flood risk, make the program more financially stable, and change how Flood Insurance Rate Map (FIRM) updates impact policyholders. The changes will mean premium rate increases for some, but not all, policyholders over time.

BIGGERT-WATERS FLOOD INSURANCE REFORM ACT OF 2012

IMPACT OF NATIONAL FLOOD INSURANCE PROGRAM (NFIP) CHANGES

Note: This Fact Sheet deals specifically with Sections 205 and 207 of the Act.

In 2012, the U.S. Congress passed the Biggert-Waters Flood Insurance Reform Act of 2012 which calls on the Federal Emergency Management Agency (FEMA) and other agencies to make a number of changes to the way the NFIP is run. Some of these changes have already been put in place, and others will be implemented in the coming months (Congress has delayed implementation of certain provisions of the legislation until 2014). Key provisions of the legislation will require the NFIP to raise rates to reflect true flood risk, make the program more financially stable, and change how Flood Insurance Rate Map (FIRM) updates impact policyholders. The changes will mean premium rate increases for some, but not all, policyholders over time.

What this means:

The new law encourages Program financial stability by eliminating some artificially low rates and discounts. Most flood insurance rates will now move to reflect full risk, and flood insurance rates will rise on some policies.

Actions such as buying a property, allowing a policy to lapse, or purchasing a new policy can trigger rate changes. You should talk to your insurance agent about how changes may affect your property and flood insurance policy. There are investments you and your community can make to reduce the impact of rate changes. And FEMA can help communities lower flood risk and flood insurance premiums.

What is Changing Now?

Most rates for most properties will more accurately reflect risk. Subsidized rates for non-primary/secondary residences are being phased out now. Subsidized rates for certain other classes of properties will be eliminated over time, beginning in late 2013. There are several actions which can trigger a rate change, and not everyone will be affected. It's important to know the distinctions and actions to avoid, or to take, to lessen the impacts.

Not everyone will be affected immediately by the new law—**only 20 percent of NFIP policies receive subsidies**. Talk to your agent about how rate changes could affect your policy. Your agent can help you understand if your policy is impacted by the changes.

- Owners of subsidized policies on **nonprimary/secondary** residences in a Special Flood Hazard Area (SFHA) will see a 25 percent increase annually until rates reflect a true risk—began January 1, 2013.
- Owners of subsidized policies on **property that has experienced severe or repeated flooding** will see a 25 percent rate increase annually until rates reflect a true risk—beginning October 1, 2013.
- Owners of subsidized policies on **business/nonresidential properties in a Special Flood Hazard Area** will see a 25 percent rate increase annually until rates reflect a true flood risk—beginning October 1, 2013.

(Each property's risk is different. Some policyholders may reach their true risk rate after a couple years of increases, while other policyholder increases may go beyond 5 years to get to the full risk rate required by the new law. Rate tables on true risk will not be available until June 2013.)

Primary residences in SFHAs will be able to keep their subsidized rates unless or until:

- The property is sold;
- The policy lapses;
- You suffer severe, repeated, flood losses; or
- A new policy is purchased.

Source: April, 2013. FEMA. <http://www.fema.gov/library/viewRecord.do?id=7187>.

Structural Controls

Structural controls are controversial as a mitigation tool. Structural controls usually have been used to protect existing development. In doing so, they can have both positive and negative effects on the areas they are not protecting. In addition, as the name implies, they are used to control the hazard, not reduce it. Invariably, as was seen so graphically in the Midwest floods, the structures lose control and nature wins; however, in some circumstances, structural controls are the only alternative.

The most common form of structural control is the levee (Figure 3-4). The U.S. Army Corps of Engineers has designed and built levees as flood-control structures across the United States. Levees are part of the aging infrastructure of America. As mitigation tools, they have obvious limitations. They can be overtopped or breached, as in the 1993 Midwest floods; they can give residents a false sense of safety that often promotes increased development; and they can



FIGURE 3-4 Valley City, North Dakota, April 13, 2009. Members of the U.S. Army Corps of Engineers inspect the site of a levee where severe seepage threatens the integrity of the levee in downtown Valley City, North Dakota. The Corps is working with city officials and the National Guard to ensure the safety of the levees in the town. *Photo by Patsy Lynch/FEMA.*

exacerbate the hazard in other locations. After the 1993 floods, a major rethinking of dependency on levees has occurred. Efforts are being made to acquire structures built behind the levees, new design criteria are being considered, and other more wetland-friendly policies are being adopted. For a city like New Orleans, however, which is built below sea level and where relocation is impractical, levees can be used effectively to protect flood-prone areas.

Other structural controls are intended to protect coastal areas. Seawalls, bulkheads, breakwaters, groins, and jetties are intended to stabilize the beach or reduce the impacts of wave action. These structures are equally controversial because they protect in one place and increase the damage in another. New Jersey's shoreline is a prime example of the failure of seawalls as a solution to shoreline erosion problems. Cape May, New Jersey, where cars used to be raced on the beach, lost all of its beachfront. An ongoing beach replenishment project is the only thing that has brought some of it back.

Hurricane Sandy, which had major impacts along the New Jersey Shore, has reignited the controversies surrounding the use of federal funds for coastline stabilization, beach replenishment, seawalls, and structural controls as a means of effective mitigation. FEMA programs will, in certain circumstances, support beach replenishment under FEMA's public assistance program when the beach is critical to the economic vitality of a community and is accessible to the public.

Congressman Frank Pallone announced in May 2013 that the U.S. Army Corps of Engineers has agreed to undertake the "largest beach replenishment project in the history of the country". The project will stretch from Sea Bright, New Jersey to Manasquan, New Jersey and the estimated cost is \$102 million. The project will be completely paid for with federal Sandy relief money. The State of New York has said that funding coming from FEMA will be used to do dune restoration along areas of Staten Island, Brooklyn, and Queens, New York.

■ ■ Critical Thinking ■

- What mitigation measures are best suited to address the hazards you face as an individual?
- What mitigation measures are best suited to address the hazards faced by your community?
- Do you think the Federal government should pay for beach replenishment?

Impediments to Mitigation

If so many tools can be applied, why haven't risk-reduction and risk-mitigation programs been more widely applied? Some of the reasons are denial of the risk, political will, costs and a lack of funding, and taking on the issue. Despite the best technical knowledge, historic occurrence, public education, and media attention, many individuals don't want to recognize that they or their communities are vulnerable. Recognition requires action, and it could have economic consequences as businesses decide to locate elsewhere if they find the community is at risk. Some people are willing to try to beat the odds, but if a disaster strikes, they know the government will help them out. Gradually, however, such attitudes are changing. Potential liability

issues are making communities more aware, media attention to disasters has brought public pressure, and the government has provided both incentives for, and penalties for not, taking action.

As previously mentioned, mitigation provides a long-term benefit. The U.S. political system tends to focus on short-term rewards. Developers are large players in the political process and often are concerned that mitigation means additional costs. Mitigation strategies and actions require political vision and will. When Tip O’Neill was Speaker of the U.S. House of Representatives, he said, “All politics is local.” Well, so is mitigation. Local elected officials are the individuals who have to promote, market, and endorse adopting risk reduction as a goal. For many elected officials, the development pressures are too much, funding is lacking, and other priorities dominate their agendas; however, with the increasing attention to the economic, social, and political costs of *not* dealing with their risks, more elected officials are recognizing that they can’t afford to not take action.

Mitigation costs money. Most mitigation of new structures or development can be passed on to the builder or buyer without much notice. Programs to retrofit existing structures or acquisition and relocation projects are expensive and almost always beyond the capacity of the local government. Funding for mitigation comes primarily from federal programs that need to be matched with state or local dollars. As state and local budgets constrict, their ability to match is reduced. Strong arguments can be made that it is in the best financial interest of the federal government to support mitigation. These arguments and a series of large disasters resulted in substantial increases in federal funding, including new monies for predisaster mitigation, but the fact remains that mitigation needs far outweigh mitigation funding.

Many mitigation actions involve privately owned property. A major legal issue surrounding this is the “taking” issue. The Fifth Amendment to the U.S. Constitution prohibits the taking of property without just compensation. What constitutes a taking, under what circumstances, and what is just compensation has been the focus of numerous legal cases. Several have dealt with the use of property in the floodplain and the use of oceanfront property on a barrier island. The decisions have been mixed, and taking will continue to be an issue in implementing mitigation programs and policies. In 2009, the U.S. Supreme Court agreed to hear a case brought by homeowners in Florida dealing with property lines and ownership on properties where beach replenishment was undertaken with public funds. As of the writing of this text, no decision on the case had been issued by the Court.

ADDITIONAL RESEARCH

“No Adverse Impact and the Courts: Protecting the Property Rights of All” is a report that was issued in November 2007 by the Association of State Flood Plain Managers (ASFPM). It discusses the general law of the nation and selected legal issues associated with a “no adverse impact” floodplain management approach.

Source: http://www.vtwaterquality.org/rivers/docs/nfip/rv_ASFPM_legal.pdf



FIGURE 3-5 Albany, New York. This church is being moved half a mile to higher ground as part of the Stryker Road relocation project in Schoharie County, New York. The Hazard Mitigation Grant and Public Assistance Programs helped fund the project. *Schoharie County Planning and Development Agency photos.*

Federal Mitigation Programs

FEMA is responsible for most of the programs of the federal government that support mitigation and in this section we examine some of them. As noted earlier, the Small Business Administration (SBA), Economic Development Administration (EDA), and HUD have policies that support mitigation. The Partnership for Advancing Technology in Housing (PATH) program at HUD supports incorporating mitigation into public housing. The Environmental Protection Agency (EPA) has several programs in floodplain management, and in 2002 it initiated a new pilot program for national watersheds. The National Earthquake Hazards Reduction Program (NEHRP) includes several other federal agencies, but the predominant federal agency involved in disaster mitigation is FEMA. FEMA's programs include the NFIP, the Hazard Mitigation Grant Program (HMGP) (Figure 3-5), the Pre-Disaster Mitigation Program (PDM), the Flood Mitigation Assistance Program (FMA), the Repetitive Flood Claims Program (RFC), the Severe Repetitive Loss (SRL) National Earthquake Hazard Reduction Program (NEHRP), the National Hurricane Program, and the Fire Prevention and Assistance Grant Program.

In 2000, Congress passed the Disaster Mitigation Act of 2000 (DMA2000) which amended the Robert T. Stafford Disaster Relief and Emergency Assistance Act in an effort to encourage mitigation planning at the state and local levels, requiring that states maintain mitigation plans as a prerequisite for certain federal mitigation funding and disaster assistance programs. The program also provided incentives to states that could show increased coordination and integration of mitigation activities by establishing two different levels of state plan certification—standard and enhanced. States that demonstrated what was considered “an increased commitment to comprehensive mitigation planning” through the development of an approved

Enhanced State Plan could increase the amount of funding they received through the HMGP. DMA2000 also established a new requirement for local mitigation plans and authorized up to 7 percent of HMGP funds available to a state to be used for development of state, tribal, and local mitigation plans.

The Hazard Mitigation Grant Program

The HMGP is the largest source of funding for state and local mitigation activities. This program provides grants to state and local governments to implement long-term hazard mitigation programs after a major disaster has been declared by the president. HMGP projects must reduce the risks, and the benefits of the project must exceed the costs. Here are some examples of activities supported by the HMGP:

- Acquisition of property on a voluntary basis and commitment to open use of the property
- Retrofitting of structures and lifelines
- Elevation of structures
- Vegetation management programs
- Building code enforcement
- Localized flood-control projects
- Public education and awareness

This program was enacted by Congress in 1988 as part of the Robert T. Stafford Act, which was a major reworking of federal disaster policy. Besides creating the HMGP, it established a cost sharing of disaster assistance by the states. At the time, the formula for state HMGP funding was 15 percent of the public assistance costs, and it had a 50 percent federal/50 percent state cost share.

From 1988 to 1993, many states did not take advantage of the HMGP funding because it was difficult to meet the matching requirements, even though the 15 percent cap was often not very much. After the devastation of the 1993 Midwest floods, Representative Harold Volkmer from Missouri championed a change to the legislation that would significantly increase the states' ability to mitigate. Congress amended the legislation to allow for a 75 percent federal/25 percent state match and dramatically increased the amount of funding to 15 percent of the total disaster costs. The rationale for these changes was to work aggressively to move people and structures out of the floodplain. The HMGP has allowed states to hire staff to work on mitigation and requires the development of a State Hazard Mitigation Plan as a condition of funding. This program brought about a change in the emergency management community at the state and local levels. With adequate funding, states and localities began to hire staff designated to work on mitigation.

The HMGP has its detractors, and in 2002 the Office of Management and Budget (OMB) proposed that this program be eliminated in favor of a new pre-disaster competitive grant program. However, Congress did not agree, and the HMGP program remains and provides the most significant funding for mitigation at the federal level.

The Pre-Disaster Mitigation Program

Through the Disaster Mitigation Act of 2000, Congress approved the creation of a national Pre-Disaster Mitigation Program (PDM) to provide mitigation funding not dependent on a disaster declaration. The genesis of PDM was an initiative of the Clinton administration called Project Impact: Building Disaster-Resistant Communities. Project Impact grew out of the devastating disasters of the 1990s. Many of the communities hit by these disasters took months and even years to recover emotionally and financially. James Lee Witt, then director of FEMA, questioned the wisdom of spending more than \$2.5 billion per year on disaster relief and not a penny to reduce disasters *before* they happen. The mitigation tools and techniques were available, so why not work to prevent individuals and communities from becoming victims of disasters? With a small amount of seed money, FEMA launched Project Impact in 1997 in seven pilot communities.

The concept behind the initiative was simple: The mitigation activities had to be designed and tailored to the hazards in that community, and all sectors of the community had to become involved in order for it to be effective and sustainable. Project Impact brought the business community under the emergency management umbrella. Communities were asked to achieve the following four goals:

- Build a community partnership.
- Assess the risks.
- Prioritize risk-reduction actions.
- Build support by communicating your actions.

By 2001, more than 200 communities were participating in Project Impact and Congress had appropriated \$25 million to the initiative. Seattle, Washington, was one of the original pilot communities. In 2002, when a 6.8 earthquake struck Seattle, the mayor attributed the success of their Project Impact activities for the minimal damages and prompt recovery.

CASE STUDY: THE NISQUALLY EARTHQUAKE AND PROJECT IMPACT

On February 28, 2001, a magnitude 6.8 earthquake occurred 32 miles below the Nisqually wetland north of Olympia, the Washington state capital. Ironically, the quake occurred as the Seattle Project Impact Steering Committee was preparing to celebrate the initiative's third anniversary with several hundred of its partners. Had the quake occurred 1 hour later, all of the region's emergency managers would have been gathered at the Phinney Ridge Neighborhood Center in Seattle. Instead, committee members and a few early birds guided children from the center's two daycare programs to safety.

Members of the response and recovery community were not fully tested by the earthquake, largely because it was deep, and drought conditions in the Puget Sound region reduced the number of landslides and amount of liquefaction that would normally be caused by a quake of that magnitude. There was only one significant aftershock and a few secondary impacts (one fire and several major landslides). However, the quake did interrupt business operations and damaged numerous building components, such as chimneys, facades, water pipes, and equipment.

Many historic, commercial, and manufacturing facilities were damaged, including key government structures such as the state legislative building and the regional airport control tower. Additional damage was uncovered while engineering teams performed inspections, although structural losses (i.e., damage to components essential to a building's structural integrity) will undoubtedly be a fraction of nonstructural losses (i.e., damage to nonessential building structural elements, such as architectural features and heating and electrical systems, and losses due to lost productivity, etc.).

What effect did FEMA's Project Impact have, if any, in reducing the damage from this earthquake? In short, the program transformed the way residents deal with disasters and established an organizational structure that takes advantage of this change.

Project Impact has the broad goal of reducing risks by changing the way communities think about and deal with disasters. More importantly, it asks communities to be farsighted, to assess hazards rather than just respond to them, to protect themselves, and to become disaster-resistant. The program is based on three simple principles:

- Preventive actions must be decided at the local level and must be responsive to local hazards.
- Private sector participation is vital.
- Long-term efforts and investments in prevention are essential.

The Seattle/Tacoma metropolitan area, which includes King, Pierce, and Kitsap counties, has been heavily involved in Project Impact, and Seattle was a pilot participant in the program. It is useful to examine Project Impact's effectiveness by assessing how well its goals were met in the context of the Nisqually earthquake.

Change the way we think about and deal with disasters.

Perhaps the most significant (and most difficult to measure) effect the initiative had is in demystifying and personalizing earthquake risk reduction for thousands of individuals, small businesses, and corporate partners.

Preventive actions must be decided at the local level.

The Seattle and King, Pierce, and Kitsap County Project Impact programs were essentially collective actions taken by hundreds of partners. Seven programs can be linked directly to Project Impact, including efforts in home and school retrofitting, hazard mapping, transportation corridor vulnerability mitigation, office and home nonstructural retrofitting, and small business resumption planning. It is too early to assess the full impact of these programs, but here are some early conclusions.

- The most significant benefit of Project Impact might be the reduction (or minimalization) of structural damage in retrofitted buildings.
- Project Impact decommissioned very heavy and hazardous water tanks located in the attics of seven Seattle schools, and one of these schools was damaged significantly by the quake. Had the water tank been in use, the building would have suffered even more damage, and the ceilings above several classrooms most likely would have failed. The school program also included extensive nonstructural retrofitting. No losses were reported in participating schools, and even more important, evacuation was not impeded. Other schools were not so fortunate.

- Over 1000 homeowners attended home retrofitting workshops, and over 300 had retrofitted their homes before the quake. None of these retrofitted residences were damaged.
- Each of the four Project Impact jurisdictions had implemented long-range transportation corridor and hazard mapping programs. Information generated through these programs is greatly aiding the inspection process and helping to jump-start discussion on mitigation alternatives. In addition, these projects brought together public road managers who created “tool kits” for contingency routing that will be useful in other kinds of disasters. The quake elevated the priority of these initiatives, and funding is expected.

Private sector participation is vital.

- All four Project Impact jurisdictions and their private sector partners had developed aggressive business resumption programs. Over 100 large businesses and more than 500 small businesses were involved in Project Impact, and tens of thousands of earthquake safety products were in their offices. Business hazard reduction programs had been created by partners such as Washington Mutual, Bank of America, PEMCO, SAFECO, the Boeing Company, Bartell, the Russell Corporation, the King County Labor Council, and Home Depot, and many of the employees of these partners had implemented earthquake safety measures in their own homes as well.
- Project Impact communities and their partners ambitiously pursued risk-reduction outreach prior to the earthquake. Home Depot stores displayed home retrofitting techniques. Grocery and drug stores displayed earthquake safety products. Informational flyers accompanied utility bills, paychecks, and insurance renewal forms. A computer tie-down campaign attracted funding partners and garnered donations of computer tie-downs for area schools. The Project Impact logo was prominently displayed along with the message “Creating Disaster-Resistant Communities” during hundreds of newscasts.

Effects that were not directly related to specific programs.

- During and immediately following the earthquake, participating news organizations provided a consistent message about the earthquake hazard and described methods for preventing damage. Since its inception, Project Impact has worked regularly with the press, and the ABC and CBS local affiliates are formal Project Impact partners.
- Shortly after the quake, homeowners were able to obtain lists of area contractors trained in seismic retrofitting. This information is particularly useful immediately after a disaster, when unscrupulous contractors can prey on disaster victims.

Long-term efforts and investments in prevention are essential.

Research is currently under way to assess the more indirect long-term impacts of the Nisqually quake. FEMA and the University of Washington have established a clearinghouse to facilitate research, but an examination of efforts that are directly attributable to Project Impact indicated that Puget Sound residents accepted the responsibility for their hazard vulnerability and focused on protecting themselves. Here are three examples:

- “Secure It” was a Pierce and King County Project Impact program, but all four project participant areas noted increased availability of computer tie-downs and other office-related items that were difficult to obtain when the programs began. After the earthquake, many vendors saw a dramatic increase in orders for these products.

- Home retrofitting activities increased substantially. Roger Faris of the Phinney Ridge Neighborhood Center Home Improvement program indicated at the time that the program could not keep up with the demand for the Project Impact home retrofitting course. Before the quake, he scheduled one course per month with 20 to 30 attendees. After the quake, he held four per month and had 60 participants per class. Private contractors could not keep up with the substantially increased demand for retrofitting services. Homeowners had difficulty hiring the 60 contractors who had taken the University of Washington (a Project Impact partner) earthquake retrofitting course. Due to the increased interest among contractors, additional courses were scheduled.
- The Project Impact coordinator for the Seattle school district received the following letter from a school principal:

Just wanted to let you know the good news on how well the building did during the earthquake—and a big thanks for the retrofitting. We did not even have a single light cover come down, a computer fall over, a book come off a shelf. Now, how do we get more straps to do the new things we have installed since retrofitting was done here? Thank you. You made believers out of us!

Source: <http://www.colorado.edu/hazards/o/archives/2001/may01/may01a.html#nisqually>.

At the same time, FEMA initiated two targeted pre-disaster floodplain-management programs funded through National Flood Insurance Program premiums. Project Impact was discontinued by the Bush Administration but Congress initiated a smaller pre-disaster mitigation program in 2001 as described below.

Flood Map Assistance Program

The National Flood Insurance Program (NFIP) is a program in which the Federal government provides low cost insurance from floods to communities who agree to pass ordinances and take actions to prohibit future development in the floodway and limit development in their identified floodplains. The NFIP is supported through the collection of premiums, not through Congressional appropriations. The NFIP administers the National Flood Insurance Fund and funds the Flood Map Assistance Program (FMAP) to provide funding to assist states and communities in implementing measures to reduce or eliminate the long-term risk of flood damage to buildings, manufactured homes, and other structures insurable under the NFIP.

FMAP provides planning grants to states and communities to prepare Flood Mitigation Plans. NFIP-participating communities with approved Flood Mitigation Plans can apply for project grants. These grants are available to states and NFIP-participating communities to implement measures to reduce flood losses.

Ten percent of the project grant is made available to states for technical assistance. These funds may be used by the state to help administer the program. To be eligible for the FMAP planning and project grants, communities must be NFIP participants. Examples of the projects

that are eligible under this program include the elevation, acquisition, or relocation of NFIP-insured structures.

Severe Repetitive Loss Program

The Severe Repetitive Losses (SRL) Program is designed to provide funding to projects that mitigate the damage to residential properties insured under the NFIP. The program is designed to reduce or eliminate repeated claims under the NFIP through projects that will provide the greatest savings.

Community Assistance Program

The Community Assistance Program (CAP) provides funding to meet negotiated objectives for reducing flood hazards in NFIP communities. The program intends to identify, prevent, and resolve floodplain management issues in participating communities before they require compliance action by FEMA. Available CAP funding is provided on a 75 percent federal maximum and 25 percent minimum state cost-sharing basis through annual FEMA-State Performance Partnership Agreements.

Other Disaster Mitigation Programs: Current/Future Funding Outlook

The current and future funding outlook for these programs is not positive.

Funding for the PDM program shrank from \$50 million in 2004 to \$5 million in 2009. Under pressure to reduce the FEMA budget, DHS made a budget request to Congress in 2012 that did not include any appropriation for this program. Instead, they explained that it was their intent to move PDM activities to the FMAP programs to be supported by the NFIP Insurance Fund. The problem with this approach is that the FMAP program and all the other programs funded through the NFIP have needed to be drastically reduced or suspended in recent years because flood insurance claims have exceeded premiums collected. This started with claims from Hurricane Katrina and continued following a series of major floods that occurred in subsequent years, resulting in a virtual bankruptcy of the program (which has had to borrow from the federal treasury to meet its claims obligations). The claims from Hurricane Sandy will add to the financial burden. Changes to the legislation to allow FEMA to look toward actuarial rates may offer some relief but negotiating rate changes with state insurance organizations will consume a significant amount of time and political capital.

The National Earthquake Hazard Reduction Program

The National Earthquake Hazard Reduction Program (NEHRP) is a federal government effort established by Congress in 1977 (Public Law 95-124) as a long-term, nationwide program to reduce the risks to life and property in the United States resulting from earthquakes. This is accomplished through the establishment and maintenance of an effective earthquake hazards reduction program.

The NEHRP is a multiagency effort that works to improve understanding, characterization, and prediction of hazards and vulnerabilities; improve model building codes and land-use

practices; reduce risk through post-earthquake investigations and education; develop and improve design and construction techniques; improve mitigation capacity; and accelerate application of research results. The NEHRP provides funding to states to establish programs that promote public education and awareness, planning, loss estimation studies, and some minimal mitigation activities.

The specific roles of each of the agencies within NEHRP are as follows:

- FEMA is responsible for emergency response and management, estimation of loss potential, and implementation of mitigation actions.
- National Institutes of Science and Technology (NIST) conducts applied earthquake engineering research to provide the technical basis for building codes, standards, and practices, and provides the NEHRP lead agency function.
- The National Science Foundation (NSF) conducts basic research in seismology, earthquake engineering, and social, behavioral, and economic sciences, and it operates the Network for Earthquake Engineering Simulation (which includes the tsunami wave basin research facility and supporting tsunami research).
- The U.S. Geological Survey (USGS) operates the seismic networks, develops seismic hazard maps, coordinates post-earthquake investigations, and conducts applied earth sciences research (which includes tsunami research and risk assessment).
- NSF and USGS jointly support the Global Seismographic Network (GSN), the main facility for pinpointing earthquakes in real time.

Since its inception, NEHRP has been reviewed and reauthorized by Congress every 2 or 3 years. Congress recently completed a thorough 2-year review of NEHRP, resulting in enactment of the NEHRP Reauthorization Act of 2004 (P.L. 108-360), which President Bush signed into law on October 25, 2004. Public Law 108-360 designates NIST as the lead agency for NEHRP, transferring that responsibility from FEMA, which had filled that role since the program's inception.

The NEHRP Reauthorization Act of 2004 authorized \$900 million to be spent during the period from 2004 to 2009. The law also authorized the spending of \$72.5 million over a 3-year period for the creation of a National Windstorm Impact Reduction Program modeled according to NEHRP. Funds have never been appropriated for this new program, but supporters introduced the concept again in 2009 as part of the NEHRP reauthorization.

The National Hurricane Program

This FEMA program supports activities at the federal, state, and local levels that focus on the physical effects of hurricanes, improved response capabilities, and new mitigation techniques for the built environment. The program has done significant work in storm surge modeling and evacuation planning, design and construction of properties in hurricane-prone areas, and public education and awareness programs for schools and communities. The amount of funding that FEMA receives for this program is in the range of \$3 million annually, which is clearly not commensurate with the risk.

The Fire Prevention and Assistance Act

This program was created in 2001 to address the needs of the nation's paid and volunteer fire departments and to support prevention activities. Congress had long-standing concerns about the status of this first-responder community. New threats from potential biochemical terrorism, increasing wildfire requirements, and a stagnant search-and-rescue capability provided the rationale for funding this program. This multimillion-dollar grant program provides competitive grants to fire companies throughout the United States. In the wake of 9/11, the appropriations for this program tripled in 2002 and have continued at around the \$600 million level.

Other federal agencies such as the previously mentioned HUD, the U.S. Army Corps of Engineers (COE), the Small Business Administration (SBA), the Department of Agriculture (DOA), and the Economic Development Administration (EDA) will provide in the aftermath of a disaster varying levels of support for local mitigation projects.

■ ■ Critical Thinking ■

- Should mitigation funding from the federal government be tied to individual disasters like it is with the Hazard Mitigation Grant Program, or should it be independent of disasters altogether like with the Pre-Disaster Mitigation Program? Explain your answer.
- What are the advantages of having a hazard-specific grant program such as the National Earthquake Hazard Reduction Program (NEHRP)? Are there any disadvantages?

NEW FEMA INITIATIVES IN MITIGATION

National Mitigation Framework

In May 2013, FEMA released the National Mitigation Framework and the National Prevention Framework. The National Mitigation Framework is designed to establish an approach for coordinating how the nation addresses risk and manages mitigation capabilities. The Executive Summary describes the framework as describing “how the Nation will develop, employ and coordinate core mitigation capabilities to reduce the loss of life and property by lessening the impact of disasters”.

The Framework explains that by “working together, risks can be recognized and addressed through a culture of preparedness and mitigation that is built and sustained over time. This begins with a comprehensive understanding of risk that is translated into plans and actions through partnerships. Aiming toward the ultimate goal of sustainability and resilience, mitigation requires a process of continuous learning, adapting to change, and managing risk, measuring successes, and evaluating progress.”

The Framework identifies four guiding principles for mitigation includes Resilience and Sustainability, Leadership and Locally Focused Implementation, Engaged Partnerships and Inclusiveness, and Risk-conscious Culture. These principles lay the foundation for the Mitigation mission and the execution of its core capabilities.

“Effective mitigation begins with identifying the threats and hazards a community faces and determining the associated vulnerabilities and consequences. Sound assessment requires risk

information—based on credible science, technology, and intelligence—validated by experience. Understanding risks makes it possible to develop strategies and plans to manage them. Managing risks from threats and hazards requires decision making to accept, avoid, reduce, or transfer those risks. Avoiding and reducing risks are ways to reduce the long-term vulnerability of a community and build individual and community resilience.”

In describing the Framework, FEMA explains it is driven by risk, rather than the occurrence of incidents. By fostering comprehensive risk considerations, the Framework encourages behaviors and activities that will reduce the exposure and vulnerability of communities.

The Nation increases its resilience when it manages risks across this spectrum, from narrow-impact incidents to widespread, severe, and catastrophic disasters. Building and sustaining a mitigation-minded culture will make the nation more socially, ecologically, and economically resilient before, during, and after an incident. Resilience in communities and the nation depends on the whole community working together.

Source: The National Mitigation Framework can be accessed at <http://www.fema.gov/national-mitigation-framework>.

Hurricane Sandy Building Sciences Mitigation Assessment Teams

In the aftermath of Hurricane Sandy, FEMA reinvented their Mitigation Assessment Teams (MATs), which are responsible for going into the impacted areas and assessing how buildings performed during a storm and what mitigation actions could be incorporated into the rebuilding to minimize the impacts of future disasters. The Building Sciences branch has issued a series of Hurricane Sandy Recovery Advisories that provide advice on a wide variety of options to improve and address issues relative to rebuilding after Hurricane Sandy.

HURRICANE SANDY RECOVERY ADVISORIES:

- Improving connections in elevated coastal residential buildings
- Reducing flood effects in critical facilities
- Restoring mechanical, electric and plumbing systems in non-substantially damaged residential buildings
- Reducing interruptions to mid- and high-rise buildings from floods
- Protecting building fuel systems from flood damage
- Advisories are available at <http://www.fema.gov/library/viewRecord.do?id=6994>.

■ ■ Critical Thinking ■

- Should mitigation funding from the federal government be tied to individual disasters like it is with the Hazard Mitigation Grant Program, or should it be independent of disasters altogether like with the Pre-Disaster Mitigation Program? Explain your answer.
- What are the advantages of having a hazard-specific grant program such as the National Earthquake Hazard Reduction Program (NEHRP)? Are there any disadvantages?

Nonfederal Mitigation Grant Programs

The most significant mitigation funding in the United States comes from federally funded grant programs. However, all states have established State Hazard Mitigation Officers (SHMOs) to manage the programmatic and financial matching requirements of the federal programs. SHMOs are responsible for producing a statewide hazard mitigation plan, which is a requirement for receiving HMGP funding post-disaster, and the quality of the plan can become a factor in altering the cost-share formula after an event. Increasingly, states are playing a more active role in historic preservation and mitigation of historic, cultural, and environmentally sensitive areas.

Regional programs such as Rebuild Northwest Florida, administered by a public-private partnership in Florida, provide grant money to homeowners who wish to structurally mitigate their homes from storm damage. Rebuild approves grants from qualified homeowners that help them improve the strength of their houses through such mitigation measures as creating secondary water barriers, improving roofing and roof decks, bracing gable ends, applying tie-down (“hurricane”) straps, reinforcing wall-to-wall connections, and much more. Some non-governmental programs, whether private, nonprofit, or public, provide the monetary, material, and technical assistance that individuals, businesses, and communities require mitigating their hazard risks. The Institute for Business and Home Safety (IBHS), for example, creates guidance documents that illustrate various structural and nonstructural mitigation techniques. IBHS employees work with various entities, such as daycare centers, to help them reduce hazard vulnerabilities.

Two other entities are focusing on mitigation and related issues. The Association of State Flood Plain Managers (ASFPM) is a strong proponent of mitigation at all levels and has successfully lobbied Congress for increases in federal mitigation dollars. A goal of the National Hazard Mitigation Association (NHMA) is to promote mitigation nationwide and within the international community. The International Association of Emergency Managers (IAEM), which represents local emergency managers worldwide, has recently become more engaged in promoting mitigation among its membership.

Conclusion

Disasters occur in every state. The direct costs of these events are staggering, but the indirect effect to the economy and the social fabric of communities is even worse. Hurricane Sandy will be the second most costly disaster after Hurricane Katrina and yet rebuilding moves forward with mitigation being an afterthought because there is no clear leadership being exercised to support and promote mitigation. A study done for FEMA by the Multi-Hazard Mitigation Council (MMC) of the National Institute for Building Sciences (NIBS) found that for every \$1 invested in mitigation, \$4 would be saved in future losses. Depending on the type of disaster and locale, this number was as high as \$8. Mitigation works. The case studies included in this chapter are just a few examples of successful, sustained programs that are reducing risk and making communities safer. Mitigation programs exist at all levels of government, and but the lack of leadership at the federal level, where much of the funding for rebuilding is financed is

disappointing and will prove costly as future storms are inevitable. There is a growing interest in the private sector for taking mitigation actions to reduce their risk exposure. However, without incentives and encouragement from the federal sector, mitigation will not be applied in a uniform strategy that considers the impacts throughout the community, especially when we are looking at coastal mitigation and the potential negative impacts that structural controls have on communities downstream from the structures.

Important Terms

Building codes
Hazard identification
Land-use planning
Mitigation
National Mitigation Framework
Structural controls

Self-Check Questions

1. How does the function of mitigation differ from other emergency management disciplines?
2. Which other emergency management function offers the best opportunities for mitigation?
3. How have geographic information systems (GIS) aided the practice of mitigation?
4. Why have building codes that require rehabilitation of existing potentially hazardous structures rarely been implemented?
5. At what government level are mitigation programs most effective, and why?
6. What is the most effective as well as the most expensive land-use planning tool? Why is it so effective?
7. What political arguments can be used to support taking mitigation actions?
8. How has the Community Development Block Grant served to help communities perform local mitigation?
9. Why do some people consider insurance to not be a proper mitigation method?
10. Why are structural controls a controversial mitigation tool? How can structural mitigation negatively affect the areas they are presumably protecting?
11. What are some impediments faced by communities wishing to perform hazard mitigation?
12. Name the primary federal mitigation programs, and explain how they serve to reduce hazard risk.
13. Do nonfederal mitigation programs exist?

Out-of-Class Exercises

Get a copy of your community's hazard mitigation plan from your local office of emergency management. Create a mitigation plan for yourself that addresses the hazards identified in the community plan as they affect you on a personal level. Determine if there are any hazards that you face as an individual that are not covered by the plan, and describe what mitigation measures you can take or have taken to address those hazards.

- Contact your state's office of emergency management, and find out what mitigation programs are currently offered. Are they all federally funded or are there any programs funded by the state or another entity? Find out if your local government participates in any of these programs or if they offer any additional programs funded by other sources. Do you believe that your community is taking advantage of every mitigation program that it can, or do you feel more could be done with what is currently offered?
- The Institute for Business and Home Safety (IBHS) has developed a mitigation guide for daycare centers (<http://www.disastersafety.org/news/ibhs-helping-to-protect-kids-from-natural-disasters-3/>). Using this guide, assist a daycare center in your community to perform the mitigation techniques suggested in the guide.

The Disciplines of Emergency Management: Preparedness

What You will Learn

- Why preparedness is considered the building block of emergency management
- The difference between mitigation and preparedness
- How FEMA's Community and Family Preparedness Program educates the public about disasters
- FEMA's Whole Community concept and the National Disaster Prevention Framework
- Why evacuation planning is important
- Why special consideration must be made for certain populations when planning for emergencies and disasters
- How the Emergency Management Institute promotes community-level disaster preparedness
- The types of exercises and what each involves
- How training and equipment help first responders to prepare
- How businesses and nongovernmental organizations prepare for emergencies

Introduction

Preparedness in the field of emergency management can best be defined as a state of readiness to respond to a disaster, crisis, or any other type of emergency situation. Preparedness is not only a state of readiness, but it is also a theme throughout most aspects of emergency management. If you look back in U.S. history, you will see that our forbearers practiced the preparedness that emergency managers use today. The fallout shelters of the 1950s and the air raid wardens were promoting preparedness for a potential nuclear attack from the Soviet Union. An early 1970s study prepared by the National Governors Association talked about the importance of preparedness as the first step in emergency management. Since then, preparedness has advanced significantly and continues to do so even today. The federal government dedicates billions of dollars each year to emergency preparedness, and no emergency management organization can function without a strong preparedness capability. The capacity to respond and recover from emergency and disaster events is only developed through planning, training, and exercising—the heart of preparedness. It is the expansion of preparedness activities, including a movement into the areas of higher education that has led to an increased professionalism within the discipline. And as the role of all sectors of society in the management of

emergencies and disasters has come to light, preparedness activities have gradually expanded to include the private sector, NGOs, individuals, and others.

Today we recognize that all organizations, whether they are private, nongovernmental, or governmental, are susceptible to the consequences of disasters and must therefore ensure their preparedness. We also know that preparedness must focus not only on the protection of citizens, property, and essential government services in the aftermath of a disaster event but also on ensuring that the viability of the community—including its businesses and markets, social services, and character—can be sustained despite the hazard risks that exist. Emergency management agencies alone cannot ensure this, which is why the practice continues to expand.

This chapter discusses the preparedness cycle from a systems approach, preparedness programs, hazard preparedness, training programs, and exercise programs. The focus is on federal efforts—predominantly FEMA—and best practices are highlighted through several case studies.

A Systems Approach: The Preparedness Cycle

As an academic field as well as an applied practice in the public and private sector, emergency management is still in the early stages of its establishment. As such, it has thus far drawn heavily on existing external fields including emergency medicine, fire suppression, public health, business risk management, and law enforcement for many of its foundational elements and core competencies. However, these disciplines are steeped in their own traditions, methods, and cultures, and they were not developed with the same goals as those in the emergency management field. Without its own foundation joining academia and structured analytic methodologies with the practices and competencies required of emergency management professionals in all sectors, advancement outside of the government sector will fall behind. The management of major emergency events and disasters requires navigation through extreme complexity and often requires coordination among hundreds to thousands of individuals and dozens of agencies and organizations. It is out of this need that a systematic approach for the preparedness function of emergency management must take such a prominent position today, not only for emergency managers and the traditional emergency services but for all emergency management stakeholders (including individual private citizens).

[Figure 4-1](#), which was developed by the FEMA National Preparedness Directorate, shows the planning process, beginning with planning for the range of hazards that exist and working in a systematic approach toward a cyclical process to establish and improve preparedness. This cycle recognizes the importance of the four major components of any preparedness effort: planning, equipment, training, and exercise. This cycle also represents preparedness not only for government jurisdictions at all levels but also the preparedness actions taken by individuals, businesses, nongovernmental organizations, and other entities.

Step 1: Planning

In [Figure 4-1](#), the preparedness cycle begins with the creation of various plans through which disaster response and recovery become possible. Planning is an ambitious effort in and of

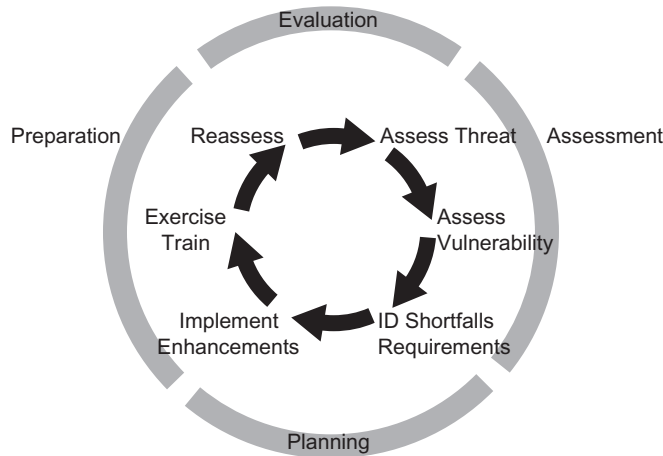


FIGURE 4-1 The preparedness planning cycle.

itself, and it requires significant effort to achieve the many tasks involved. Planning most often begins with the hazards risk assessment process described in Chapter 2, wherein all applicable hazards are identified and assessed for prioritization. While it is true that modern emergency management philosophy proclaims plans are most effective when they address all hazards risks, it is important to be aware that all-hazards preparedness is most effective when it takes into account, and therefore places a general focus on, those hazards that are actually likely to occur. Each community makes the best of the limited funds they have, so their full spectrum of equipment, resources, and trained staff need to focus on what actually might happen. This is why, for instance, communities in North Dakota might dedicate significant funds for the capabilities and resources to manage snow removal equipment, while communities in Florida spend the same effort and funding on conducting evacuation plans, even though both involve an “all-hazards” focus.

Planning also involves a scoping of community vulnerability. In the planning phase, vulnerability helps planners understand why disasters occur, where they are most likely to have the greatest impact, and, thus, what the appropriate response should be. Vulnerability assessment for a jurisdiction, business, organization, or individual also includes an assessment of current preparedness levels to determine the capabilities and resources that may be counted on and therefore planned for. This always includes the outside resources that may be called upon in times of need, such as mutual aid partners (e.g., town-to-town, business-to-business), emergency management assistance compacts (e.g., state-to-state assistance), inter-jurisdictional assistance (e.g., federal assistance, state-to-local assistance), contracts with private businesses and resource suppliers (e.g., debris removal companies, hazmat remediation businesses), and others. Statutory authorities—the foundation of emergency management actions—must be understood, since government practice and authority is always dictated by law, even (or especially) in times of emergency.

Emergency planning is what often fills the majority of time spent by emergency management officials and those individuals tasked with the management of emergencies at businesses or in organizations. Luckily, as stated in Chapter 2, most events that occur on a daily basis fall within what is considered “normal” and are therefore managed with little or no problem. The product of planning is, of course, the plan, which is often called the emergency operations plan or the emergency plan.

Step 2: Organization and Equipment

Preparedness is limited by several factors, two of which include actual possession or access to the equipment needed to manage response requirements and the organization of people and agencies through which the necessary response and recovery tasks will take place. Emergency management is technical in practice, and its various functions rely more and more on the use of equipment. There are several categories of equipment in the emergency management profession, including, for example, personnel protective equipment (PPE), which protects responders from the effects of the hazards; communications equipment, which allows responders to talk to one another both within and between different organizations; and special search and rescue equipment, which allows responders to enter compromised buildings, navigate hazardous waters, or detect signs of life.

Equipment is primarily dictated by the hazards that exist and the functions laid out in the emergency operations plan. The purchase and maintenance of emergency management equipment have always been a challenge for communities because of limited funds available. Clearly, though to a limited degree, the more equipment a jurisdiction can acquire in order to manage the consequences likely to befall that jurisdiction, the more prepared they will be to meet the needs of people and property when the time comes. However, as that ideal will likely never be reached, and so many competing demands exist in the community for those same funds, difficult decisions must be made. In recent years, however, a few solutions have emerged that help communities to better meet their equipment needs. These include a great expansion of federal funding for which equipment is eligible, expansion in mutual-assistance practices wherein equipment that is rarely used is shared among several communities, and the development of cheaper and more effective technologies, wherein equipment that was once considered “out of reach” is now more realistically accessible.

Step 3: Training

Training of emergency response officials is paramount to their ability to conduct the tasks required of them. Contemporary practice recognizes that it is not only the officials involved with the traditional emergency services who must participate in emergency management training but also the elected officials responsible for key disaster-specific decisions, the businesses and nongovernmental organizations operating in the community that will be called upon to provide products or services, and the individuals whose responsibility it is to decrease their own vulnerability and assist in the overall community response. This is a lofty goal but one that has expanded at a rate that rivals most other disciplines. Training is conducted both

at technical institutes, such as fire and police academies at the national, state, and local levels, and at the various universities, colleges, and community colleges around the country and the world. Training is also conducted by nongovernmental organizations, like the American Red Cross, by private companies that specialize in training for profit, and in the communities themselves, as is the case with the ever-popular Community Emergency Response Team (CERT) courses that are offered in all U.S. states and territories. And finally, the goal of enabling a trained public is one that continues to grow in importance in the writings and words of practitioners and scholars alike.

Step 4: Exercise

The adage that “practice makes perfect” is certainly true with emergency management. Training is even more so a critical component of preparedness efforts because the rare nature of emergency events means that few officials have experienced them firsthand and thus have little applicable experience to rely on when these events do occur. Through a regimen of training, including drills, tabletop exercises, functional exercises, and full-scale exercises, a much better understanding of the realities of response is achieved, as well as the identification of shortfalls or failures in planning, training, organization, or equipment.

Step 5: Evaluation and Improvement

The final step in the preparedness cycle takes the lessons learned and applies them to future iterations. Evaluation and improvement are generally the product of two sources. The first is that of exercise. By examining how the plans, equipment, and trained staff respond to imagined scenarios it is possible to identify where changes in planning, purchases of more or better equipment, and more comprehensive training should be applied. Evaluation and improvement is also the result of actual disaster experience. Disasters show us in bold fashion the full limits of an emergency management organization’s capabilities and identify the highest benefit to cost ratio for future spending and dedication of time and staff resources. Through the use of after action reporting (AAR), disaster experiences become lessons learned and the foundation of future planning cycles.

LESSONS LEARNED INFORMATION SHARING (*LLIS.GOV*)

Lessons Learned Information Sharing (*LLIS.gov*) is a Department of Homeland Security/Federal Emergency Management Agency program. *LLIS.gov* serves as the national, online network of lessons learned, best practices, and innovative ideas for the emergency management and homeland security communities. This information and collaboration resource helps emergency response providers and homeland security officials prevent, protect against, respond to, and recover from terrorist attacks, natural disasters, and other emergencies. *LLIS.gov* provides federal, state, local, tribal, and territorial responders and emergency managers with a wealth of information and front-line expertise on effective planning, training, and operational practices across homeland security functional areas.

LLIS.gov includes a library of exclusive documents and user-submitted materials related to all aspects of homeland security and emergency management. Lessons Learned, Good Stories, Notes from the Field, Trend Analysis and Practice Notes produced by *LLIS.gov* are researched in consultation with subject-matter experts or identified in after-action reports, but should not be considered peer-reviewed research.

Source: Lessons Learned Information Sharing, 2013. <https://www.llis.dhs.gov/>

Many of the topics described here are expanded upon in the remainder of this chapter. The cycle of preparedness is one that, as its cyclical nature dictates, is ongoing. Moreover, all steps are occurring at all times, in a constant state of evolution and improvement as information, budgets, staff, political will, and perceptions change.

Mitigation versus Preparedness

Despite their unique definitions and both being distinct emergency management functions, significant confusion often arises over what constitutes *mitigation* and *preparedness* (and to what extent these two functions overlap). At the federal level, mitigation and preparedness are highly defined, with FEMA maintaining two completely distinct directorates (mitigation and national preparedness) to manage these functions. However, at the state, local, organizational, and private levels, there is much less of a defined boundary between the two. The major distinction between these two functions at every level is best characterized by the mission of the actions themselves, which calls into play the definitions that have been provided for mitigation and preparedness. In most simple terms, *mitigation* attempts to eliminate hazard risk by reducing either the likelihood or the consequences of the risk associated with the particular hazard. Associated activities, devices, or actions try to prevent a hazard from ever manifesting into a disaster in the first place, or they try to make the disaster much less damaging to humans, property, or the environment if an emergency or disaster situation arises. Typically, these actions are taken prior to the instance of an emergency event. *Preparedness*, on the other hand, seeks to improve the abilities of agencies and individuals to respond to the consequences of a disaster event *once the disaster event has occurred*. Preparedness assumes the occurrence of an event, whereas mitigation attempts to prevent the event altogether.

Preparedness: The Emergency Operations Plan

The emergency operations plan (EOP) is the playbook by which emergency management response operations are conducted. However, the development of an EOP is not just a documentation of what will be done and by whom, but rather it is the process by which these factors are determined. The planning process, like the preparedness process, is a cyclical one dependent on each of the subsequent steps on the preparedness cycle, and each determines

how the other changes periodically. Planning must be dynamic to be effective to meet the changing character and needs of the jurisdiction or organization for which it is conducted.

Emergency plans literally come in all shapes and sizes and in all manner of quality. These plans, however, are designed by a standard paradigm. Through an evolutionary process of lesson sharing, doctrine, and guidance, select components now appear in almost all emergency plans. These components have formed because they are the most logical presentation through which the response and recovery needs of jurisdictions and agencies may be represented and therefore relied upon in times of need. These components include the following:

- *The Base Plan:* Contains the most comprehensive information about the community, its risks, its statutory authorities, and the general concept by which emergency operations are conducted (including the officials responsible and the tasks for which they will be held accountable). This section also includes the assumptions according to which the plans were created and the process by which the plans are updated and distributed.
- *Functional Annexes:* Describe in more detail the different types of assistance that the responsible agencies and officials will provide, assigning responsibility for more task-oriented information. The functional annexes tend to be more operational in nature than what is found in the base plan.
- *Hazard or Situational Annexes:* Hazard annexes recognize that despite the all-hazards nature of base plans, some of the factors are unique to specific hazards that must be described in detail and communicated to emergency management and related officials when the need arises. Using hazard annexes keeps situation-specific information out of the base plan, which can make the base plan more concise and more effective in the time-constrained period of disaster response.

The planning process and the emergency operations plan both depend heavily on all of the steps in the preparedness cycle. Planning both dictates and accounts for the equipment that must be purchased to treat the disaster consequences that are planned for and to carry out the tasks assigned. Planning also becomes the basis of training and exercise, and responders train to the capabilities laid out in the plan and rely upon the assumptions captured by the plan to determine those core competencies that are sought. The exercises that are conducted test the jurisdiction's or organization's ability to carry out what is prescribed in the plan.

Nationwide planning efforts are currently guided by the FEMA-produced *Comprehensive Planning Guide-101 (CPG-101)*. This federal document was created to provide general yet standardized guidelines on developing EOPs and the terminology used in planning efforts and emergency management in general. The purpose of this guide was to promote a common understanding of the fundamentals of planning and decision making, which in turn would foster a more coordinated response when multiple agencies responded in concert to large-scale, multijurisdictional events. Given the pressures on communities to adopt the National Incident Management System (NIMS) and the contingencies placed on federal grant programs, it is understandable that communities would require such guidance. *CPG-101* is not the first instance of the federal government providing guidelines. In fact, as long as 50 years ago, the *Federal Civil Defense Guide* was released for the same purpose. The *Civil Preparedness Guide*

1-8, *Guide for the Development of State and Local Emergency Operations Plans*, and *State and Local Guide (SLG) 101, Guide for All-Hazards Emergency Operations Planning* followed, and they were influential predecessors to *CPG-101*. *CPG-101* can be accessed at <http://www.fema.gov/library/viewRecord.do?=&id=5697>.

Many states guide EOP planning efforts through the release of standard planning guidelines. Some states even provide templates for EOP development, which allow for standardization of not only content but of structure as well. From a state-level coordination perspective this makes perfect sense because a unified command response will call upon some form of synchronization from the various agencies involved. Such templates ensure that responders are referring to the same functions and using the same terminology, among other needs. Virginia is one state that has such guidelines, which can be accessed at <http://www.vaemergency.gov/em-community/plans/local-templates>.

FEMA's Whole Community Concept

In December 2011, FEMA introduced its Whole Community concept that defined a new community-based approach to disaster preparedness. The goal is to engage all members of the community including individuals, government at all levels, organizations, businesses, community groups and others in preparing the community as a whole for the next disaster. FEMA released a document entitled, *A Whole Community Approach to Emergency Management: Principles, Themes and Pathways for Action*, that defined the concept, identified potential benefits and outlined action steps.

FEMA's website states, "We fully recognize that a government-centric approach to emergency management is not enough to meet the challenges posed by a catastrophic incident. Whole Community is an approach to emergency management that reinforces the fact that FEMA is only one part of our nation's emergency management team; that we must leverage all of the resources of our collective team in preparing for, protecting against, responding to, recovering from and mitigating against all hazards; and that collectively we must meet the needs of the entire community in each of these areas. This larger collective emergency management team includes, not only FEMA and its partners at the federal level, but also local, tribal, state and territorial partners; non-governmental organizations like faith-based and non-profit groups and private sector industry; to individuals, families and communities, who continue to be the nation's most important assets as first responders during a disaster. Both the composition of the community and the individual needs of community members, regardless of age, economics, or accessibility requirements, must be accounted for when planning and implementing disaster strategies.

"When the community is engaged in an authentic dialogue, it becomes empowered to identify its needs and the existing resources that may be used to address them. Collectively, we can determine the best ways to organize and strengthen community assets, capacities, and interests. This allows us, as a nation, to expand our reach and deliver services more efficiently and cost effectively to build, sustain, and improve our capability to prepare for, protect against, respond to, recover from, and mitigate all hazards." (FEMA, 2013)

FEMA'S WHOLE COMMUNITY CONCEPT

Introduction

This document presents a foundation for increasing individual preparedness and engaging with members of the community as vital partners in enhancing the resiliency and security of our nation through a Whole Community approach. It is intended to promote greater understanding of the approach and to provide a strategic framework to guide all members of the emergency management community as they determine how to integrate Whole Community concepts into their daily practices. This document is not intended to be all-encompassing or focused on any specific phase of emergency management or level of government, nor does it offer specific, prescriptive actions that require communities or emergency managers to adopt certain protocols. Rather, it provides an overview of core principles, key themes, and pathways for action that have been synthesized from a year-long national dialogue around practices already used in the field. While this is not a guide or a “how-to” document, it provides a starting point for those learning about the approach or looking for ways to expand existing practices and to begin more operational-based discussions on further implementation of Whole Community principles.

Whole Community Defined

As a concept, Whole Community is a means by which residents, emergency management practitioners, organizational and community leaders, and government officials can collectively understand and assess the needs of their respective communities and determine the best ways to organize and strengthen their assets, capacities, and interests. By doing so, a more effective path to societal security and resilience is built. In a sense, Whole Community is a philosophical approach on how to think about conducting emergency management.

There are many different kinds of communities, including communities of place, interest, belief, and circumstance, which can exist both geographically and virtually (e.g., online forums). A Whole Community approach attempts to engage the full capacity of the private and nonprofit sectors, including businesses, faith-based and disability organizations, and the general public, in conjunction with the participation of local, tribal, state, territorial, and federal governmental partners. This engagement means different things to different groups. In an all-hazards environment, individuals and institutions will make different decisions on how to prepare for and respond to threats and hazards; therefore, a community's level of preparedness will vary. The challenge for those engaged in emergency management is to understand how to work with the diversity of groups and organizations and the policies and practices that emerge from them in an effort to improve the ability of local residents to prevent, protect against, mitigate, respond to, and recover from any type of threat or hazard effectively.

Whole Community is a Philosophical Approach in How to Conduct the Business of Emergency Management

Benefits Include:

- Shared understanding of community needs and capabilities
- Greater empowerment and integration of resources from across the community
- Stronger social infrastructure

- Establishment of relationships that facilitate more effective prevention, protection, mitigation, response, and recovery activities
- Increased individual and collective preparedness
- Greater resiliency at both the community and national levels

Whole Community Approach to Emergency Management: Principles, Themes, and Pathways for Action

The benefits of Whole Community include a more informed, shared understanding of community risks, needs, and capabilities; an increase in resources through the empowerment of community members; and, in the end, more resilient communities. A more sophisticated understanding of a community's needs and capabilities also leads to a more efficient use of existing resources regardless of the size of the incident or community constraints. In times of resource and economic constraints, the pooling of efforts and resources across the whole community is a way to compensate for budgetary pressures, not only for government agencies but also for many private and nonprofit sector organizations. The task of cultivating and sustaining relationships to incorporate the whole community can be challenging; however, the investment yields many dividends. The process is as useful as the product. In building relationships and learning more about the complexity of a community, interdependencies that may be sources of hidden vulnerabilities are revealed. Steps taken to incorporate Whole Community concepts before an incident occurs will lighten the load during response and recovery efforts through the identification of partners with existing processes and resources who are available to be part of the emergency management team. The Whole Community approach produces more effective outcomes for all types and sizes of threats and hazards, thereby improving security and resiliency nationwide.

Whole Community Principles and Strategic Themes

Numerous factors contribute to the resilience of communities and effective emergency management outcomes. However, three principles that represent the foundation for establishing a Whole Community approach to emergency management emerged during the national dialogue.

Whole Community Principles:

- **Understand and meet the actual needs of the whole community.** Community engagement can lead to a deeper understanding of the unique and diverse needs of a population, including its demographics, values, norms, community structures, networks, and relationships. The more we know about our communities, the better we can understand their real-life safety and sustaining needs and their motivations to participate in emergency management-related activities prior to an event.
- **Engage and empower all parts of the community.** Engaging the whole community and empowering local action will better position stakeholders to plan for and meet the actual needs of a community and strengthen the local capacity to deal with the consequences of all threats and hazards. This requires all members of the community to be part of the emergency management team, which should include diverse community members, social and community service groups and institutions, faith-based and disability groups, academia, professional associations, and the private and nonprofit sectors, while including government agencies who may not traditionally have been directly involved in emergency management. When the community is engaged in an

authentic dialogue, it becomes empowered to identify its needs and the existing resources that may be used to address them.

- **Strengthen what works well in communities on a daily basis.** A Whole Community approach to building community resilience requires finding ways to support and strengthen the institutions, assets, and networks that already work well in communities and are working to address issues that are important to community members on a daily basis. Existing structures and relationships that are present in the daily lives of individuals, families, businesses, and organizations before an incident occurs can be leveraged and empowered to act effectively during and after a disaster strikes.

In addition to the three Whole Community principles, six strategic themes were identified through research, discussions, and examples provided by emergency management practitioners. These themes speak to the ways the Whole Community approach can be effectively employed in emergency management and, as such, represent pathways for action to implement the principles.

Whole Community Strategic Themes:

- Understand community complexity.
- Recognize community capabilities and needs.
- Foster relationships with community leaders.
- Build and maintain partnerships.
- Empower local action.
- Leverage and strengthen social infrastructure, networks, and assets.

Source: FEMA, 2011. A Whole Community Approach to Emergency Management: Principles, Themes and Pathways for Action. December, 2011. <http://www.fema.gov/whole-community>.

The National Prevention Framework

FEMA describes “The National Prevention Framework describes what the whole community—from community members to senior leaders in government—should do upon the discovery of intelligence or information regarding an imminent threat to the homeland in order to thwart an initial or follow-on terrorist attack. This Framework helps achieve the National Preparedness Goal of a secure and resilient Nation that is optimally prepared to prevent an imminent terrorist attack within the United States. The processes and policies described in this document will be conducted in accordance with existing laws and regulations” (FEMA 2013).

The Department of Homeland Security published a guidance document in May 2013 entitled, “National Prevention Framework,” includes sections detailing the scope of the framework, roles and responsibilities, core capabilities, coordinating structures and integration, relationship to other mission areas, and operational planning (FEMA, 2013).

Evacuation Planning

For many communities, one of their most important planning considerations is how they will evacuate citizens in the event of a major disaster. For disasters where advanced notice of a

hazard event is possible (e.g., hurricanes or tsunamis) or for situations where it is essential that all citizens be removed from the affected area as soon as possible after an event has occurred (e.g., terrorist attacks involving weapons of mass destruction), advanced planning is required in order to determine, among other things, activation procedures, the determination of adequate and effective routes, methods of transportation, destinations for those evacuated, security precautions for homes and belongings, adherence by citizens to evacuation orders, and facilitation of the evacuation itself.

While many communities have conducted some form of evacuation planning as part of their basic emergency operations plan, few have been able to conduct a full-scale test that gives them an accurate idea of how the plan will work in a real-life situation. The difficulties that were experienced by local emergency managers in the evacuations from Hurricanes Katrina and Rita in 2005 highlight both the need for evacuation planning and the shortfalls of existing plans. In the Katrina evacuation—the largest in U.S. history, resulting in the displacement of over 1.3 million people—failure to consider how the evacuation would affect people of lower economic standing resulted in thousands refusing to or being unable to leave. In Hurricane Rita, as determined by a University of Texas study, a strong majority of the deaths (90 of the 113) associated with that storm were a result of the poorly planned evacuation itself.

The City of New Orleans created the City-Assisted Evacuation Plan (CAEP) in the aftermath of Hurricane Katrina that “assists Orleans Parish residents and tourists who cannot self-evacuate during a mandatory city-wide evacuation by providing transportation from designated city evacuation pick-up points to a central transportation and medical triage facility for outbound evacuation to state or federal shelters. “Citizens meeting one or more of the following categories are eligible for City Assistance: Those whose medical needs prevent them from evacuating on their own; those who have no transportation or fuel to get out; those whose transportation is too small to accommodate their family or household, including pets.” Registration for the CAEP is encouraged and available at the city’s website (CAEP, 2013 <http://new.nola.gov/ready/evacuspots/>).

The U.S. Department of Transportation conducted a study of the evacuation plans in the Gulf Coast region where hurricanes are most likely to strike. The study looked at each of the five Gulf Coast states (Alabama, Florida, Mississippi, Louisiana, and Texas) and 58 of the counties and parishes in them to determine where the weaknesses lay in their evacuation plans and to learn from any best practices that existed. According to this study, seven key elements can be used to measure the comprehensive nature of a plan:

- Decision making and management
- Planning
- Public communication and preparedness
- Evacuation of people with special needs
- Operations
- Sheltering considerations
- Mass evacuation training and exercises

The study found that while most of the plans were effective in terms of creating standard operating procedures, conducting exercises and drafting after-action reports, updating plans, and defining evacuation direction and control, they were often weak in the following areas:

- Keeping evacuees informed during the evacuation
- Providing for evacuating individuals with various special needs
- Returning evacuees to their homes
- Using contraflow (reversed lane) operations
- Providing for the care and protection of animals

ADDITIONAL RESEARCH

Evacuation planning research has come to the forefront since the experiences in Texas and Louisiana exposed the challenges posed in any evacuation effort. Although many lessons were learned from the botched evacuation after Hurricane Katrina, it was obvious that little progress had been made before the evacuations during the lead-up to Hurricane Rita occurred. The following reports provide insight into the issues involved in evacuation planning and the difficulties in bringing about progress.

The Texas House Research Organization. Evacuation Planning in Texas: Before and After Hurricane Rita. <http://www.hro.house.state.tx.us/interim/int79-2.pdf>.

U.S. Department of Transportation. Report to Congress on Catastrophic Hurricane Plan Evaluation. <http://www.fhwa.dot.gov/reports/hurricanevacuation/>.

■ ■ Critical Thinking ■

Why is evacuation planning so difficult? What kinds of things can go wrong during an actual evacuation? What do you think can be done to minimize these potential setbacks?

Emergency Planning for Access and Functional Needs Populations

Traditionally, emergency planning has looked at a homogenous population thought of collectively as the “community.” However, communities are made up of distinct individuals and groups, each with unique conditions that define their lives, their interactions, and their abilities. Several of these individuals have access and functional needs that emergency planners must consider when drafting emergency operations plans and other emergency procedures in the community. In the absence of such consideration, any plans are likely to fail these individuals, as their provisions will be irrelevant or inappropriate. Each community must assess its own population to determine what access and functional needs exist and how those needs must be addressed in the emergency plan if it is to adequately protect all of the community’s citizens equally.

In considering access and functional needs populations, planners must work with individuals with access and functional needs such as those individuals with cognitive, physical, sight and hearing disabled, or are non-English speakers or representatives of groups who work with these populations such as senior citizen and children advocacy groups. By including these key stakeholders, the planners are better able to adjust existing policies or to create new policies that allow for the safety and security of these groups before, during, and after emergency events. Consideration of access and functional needs populations is something that must be addressed in all four phases of emergency management. The following are examples of considerations that must be made:

- Foreign language training and materials
- Registry of functional needs individuals' locations and emergency requirements and access to them
- Emergency equipment and forms of transportation
- Communications equipment or methods
- Alternate (nontraditional) warning media and procedures
- Protection and service measures at shelters and during evacuations
- Inclusion of certain prescription drugs and physical support devices in shelters and other emergency facilities
- Education measures targeting newcomers and transient populations
- Targeted transportation and holding facilities for incarcerated evacuees or victims
- Training for emergency responders in working with and caring for individuals with access and functional needs

During many, if not all, of the recent U.S. disasters, it was apparent that certain access and functional needs populations exhibited a greater degree of vulnerability and, as a result, experienced a proportionally greater impact than other groups affected by the same event. Two specific examples include the 1995 heat wave in Chicago, in which almost all of the 600 victims were elderly poor, and Hurricane Katrina, where most of the residents who failed to evacuate (and died as a result) were the urban poor. In the recovery phase of Katrina (as well as many other recent major disasters), it was the illegal immigrant population, who had never registered for services out of fear of deportation, who suffered to a greater degree. To an increasing degree, however, campaigns advocating for increased consideration of special needs populations in emergency planning, initiated primarily by activist groups representing the individual groups, have accelerated the acceptance by emergency planners of the planning need throughout the United States.

READY.GOV

Preparing Makes Sense for People with Disabilities and Other Access and Functional Needs

Each person's needs and abilities are unique, but every individual can take important steps to prepare for all kinds of emergencies and put plans in place. By evaluating your own personal needs and making an emergency plan, you can be better prepared for any situation.

A Commitment to Planning Today Will Help You Prepare for any Emergency Situation

- Consider how a disaster might affect your individual needs.
- Plan to make it on your own, at least for a period of time. It's possible that you will not have access to a medical facility or even a drugstore.
- Identify what kind of resources you use on a daily basis and what you might do if they are limited or not available.
- *Build a kit* with your unique consideration in mind. What do you need to maintain your health, safety and independence?

If you or someone close to you has a disability or other access or functional need, you may have to take additional steps to protect yourself and your family.

Find out about individual assistance that may be available in your community. Register in advance with the office of emergency services, the local fire department, other government agencies or non-profit groups. Tell them of your individual needs or those of a family member and find out what assistance, help, or services can be provided.

Who are Individuals with Access and Functional Needs?

- Those who are deaf or hard of hearing may need to make special arrangements to receive emergency warnings.
- Single working parents and those with limited English proficiency may need help planning for disasters and emergencies. Community, faith-based, and cultural groups may be able to help keep people informed.
- People without vehicles may need to make arrangements for transportation.
- People with special dietary needs should take precautions to have an adequate emergency food supply.

Source: Ready.gov, 2013, <http://www.ready.gov/individuals-access-functional-needs>.

■ ■ Critical Thinking ■

What specific measures should be taken by emergency planners before the next disaster strikes to be better prepared to assist individuals with access and functional needs including the disabled, children, and the elderly?

Preparedness Equipment

Emergency management organizations rely upon an incredibly diverse range of equipment categories with which they perform the response roles assigned to them. These categories of equipment, which include (among many others) personal protective equipment (PPE), firefighting apparatus, and communications systems, are described in detail throughout this book. Equipment is very important in the preparedness phase because it is during this phase that equipment needs are identified, equipment is purchased, and staff is trained in the use of the equipment.

The federal government, through FEMA, facilitates the acquisition of significant amounts of emergency management equipment at the state and local levels through a number of emergency management grant vehicles with an equipment focus. In order to inform communities about the specific categories and specifications of equipment that are eligible under these grants, FEMA created the authorized equipment list (AEL). The AEL is a virtual catalog of the many different types of equipment that responders are likely to require in the course of their response and recovery efforts. This list indicates a continued federal focus on the terrorism hazard, even though most of these grant programs maintain all-hazards eligibility.

Education and Training Programs

Education and training have always been integral to the emergency services. Firefighters receive their education at the fire academy, police officers get theirs at the police academy, and EMS officials get medical and emergency first aid training from both public and private sources. However, a revolution of sorts has occurred in the provision of education and training in the emergency management profession. Only a few decades ago, emergency management was an outgrowth of the emergency services and a position for which little or no training was provided (nor was it felt that additional training was needed).

The advent of emergency management training and education coincided with the creation of FEMA in 1979, which touched off the development of the practice as a profession. At that time, few officials (both within and outside the traditional emergency services) had any background in emergency management, and few people were dedicated to the function even within major city governments. At the nation's universities, few programs provided even minor degrees or certificates in the field, and only a handful of colleges offered such courses.

At first, it was FEMA that defined the profession as one that required specific academic courses and training. FEMA's Emergency Management Institute became the focus of these efforts. Working with practitioners at select colleges and universities that offered similar programs, FEMA defined the core competencies of emergency management professionals and developed a definition for an "emergency management curriculum."

It was the events of September 11, 2001, however, that truly transformed emergency management training and education. Since then, primarily due to an explosion in funding available and jobs created in the growing emergency management marketplace (both public and private), scores of colleges and universities have begun to offer traditional emergency management degrees, and hundreds of schools offer emergency management classes. Many private training facilities have opened to meet the expanding training needs of the profession, and traditional emergency services academies have expanded their curriculums to accommodate the growing number of courses required by full-time emergency management professionals.

The FEMA Emergency Management Institute and National Fire Academy

Since its inception in 1979, FEMA has emerged as a leader in providing direction for the education and training of emergency management professionals through both the development

and provision of actual training courses and the development of higher education courses and materials. The Emergency Management Institute (EMI) and the National Fire Academy (NFA), both in Emmitsburg, Maryland, serve the training and educational needs of hundreds of thousands of firefighters, fire officers, emergency managers, and others. These institutions offer training program courses whose primary objective is to enhance emergency management practice in the United States. At present, approximately 10,000 students are enrolled in EMI's resident courses. Nonresident courses, which are administered by the states through their emergency management agencies (under a cooperative agreement with FEMA), accommodate an additional 100,000 students each year. Emergency management exercises that are supported by EMI draw over 150,000 participants annually, and through the range of independent study program courses administered through the Institute's website, several hundred thousand other individuals receive training.

Three EMI programs of note are the Integrated Emergency Management Course (IEMC) curriculum, the Disaster-Resistant Jobs courses, and several Train-the-Trainer courses that are available in many different subject areas. The IEMC is a set of courses for public officials that cover all aspects of the community emergency management function. Community officials from Oklahoma City participated in the IEMC program just months before the Alfred P. Murrah building terrorist bombing in 1995, and they credit the lessons they learned through the program with helping them to respond quickly and effectively in the aftermath of that event. The Disaster-Resistant Jobs course was developed in cooperation with the Economic Development Administration (EDA) of the U.S. Department of Commerce and is designed to "help small and medium-sized communities protect the economy from the effects of catastrophic events." This course was developed in response to the devastating impact the 1997 floods had on the city of Grand Forks, North Dakota. The EDA and FEMA recognized that more economic development planning could be done to reduce the impacts of future disasters on local economies.

FEMA's EMI Higher Education Project works to establish and support emergency management curriculum in junior colleges, colleges, and universities. The project has developed a prototype curriculum for associate degrees in emergency management. Currently, for emergency management, FEMA lists 10 doctoral programs, 84 schools with master-level concentrations/tracks/specializations/emphasis areas/degrees, 84 schools with master-level concentrations/tracks/specializations/emphasis areas/degrees, and 48 schools offer associate degree programs, 41 schools offer bachelor degree programs. For homeland security, EMI lists 5 doctoral programs, 25 masters programs, 39 masters certificates, specialization or track, 21 bachelors programs, 33 bachelor-level homeland security concentrations and minors, 20 associates degree programs, and 52 certificate programs (FEMA, 2013, <http://www.training.fema.gov/emiweb/edu/collegelist/>).

The National Fire Academy (NFA) proclaims that "through its courses and programs, the National Fire Academy works to enhance the ability of fire and emergency services and allied professionals to deal more effectively with fire and related emergencies." The NFA was first created in 1975 to serve as the primary delivery mechanism for the fire training efforts of the congressionally mandated U.S. Fire Administration (USFA). Since that time, the NFA estimates it has trained more than 1.4 million students. Like EMI, the NFA delivers many of its courses in Emmitsburg, Maryland and across the country in cooperation with state and local fire training organizations and local colleges and universities.

The NFA's on-campus programs target middle- and top-level fire officers, fire service instructors, technical professionals, and representatives from allied professions. Any person with substantial involvement in fire prevention and control, emergency medical services, or fire-related emergency management activities is eligible to apply for NFA courses. The NFA also delivers courses using CD-ROMs, their simulation laboratory, and the Internet.

Public Preparedness Education

Perhaps the most difficult component of emergency management preparedness training is the one that focuses on the general public. Public preparedness education, also called risk communication, is a field that has seen vastly mixed success. One of the greatest emergency management public education efforts came out of the civil protection era when the government sought to protect its citizens from the assumed risk of aerial bombing from enemy governments. This campaign focused on the notorious "air raid drills" that instructed children on how to protect themselves by crouching under their desks. Since that time, there has been a flurry of mass communication in the emergency management and preparedness spectra, but very little has come close to achieving such widespread behavioral change. Public education efforts are not very successful for two reasons: First, most campaigns are conducted by emergency managers with understandably little training in the highly complex social marketing and public education disciplines. The field is just learning the value of a systematic or academic approach to the task, and improvements in efficacy can be expected as a result. Second, it is common knowledge that the public faces myriad risks on a daily basis beyond what is being communicated, and many of those daily hazards, as they are often called, take precedence over any major disaster that has little likelihood of ever occurring (as well as many other risk perception factors that prevented widespread success) to individuals. There are, of course, individual success stories, including the stop, cover, and roll fire safety drills and the stop, drop, and cover earthquake drills, but research has shown that most families still fail to take even the most basic preparations to protect themselves from major disasters even though a highly visible succession of disasters have befallen the nation.

ADDITIONAL RESEARCH

The nongovernmental organization Council for Excellence in Government developed a Public Readiness Index as part of a report it published on citizen disaster preparedness in the United States. This index rated people's preparedness on a 1 to 10 scale based on answers to ten questions. The questions ranged from whether people were aware of their community's disaster plan and how to find the emergency broadcasting channel on the radio to whether they'd prepared a home disaster kit and established a meeting place for family members. The average score on this index was 3.31. This report can be found at <http://www.ready.gov/research/citizen-preparedness-research>.

FEMA has expended much effort over the years to manage the public education reform. Before 9/11, FEMA's training efforts consisted primarily of publishing educational materials

for teachers, community centers, and other organizations. After the terrorist attacks, however, these efforts expanded greatly through the establishment of a well-publicized preparedness website developed by FEMA called Ready.gov. This website provided preparedness information on what FEMA considered the three important preparedness responsibilities of all citizens and businesses: get a kit, make a plan, and stay informed. Unfortunately, the site never caught on, and few people even looked at it.

FEMA also published the preparedness guide *Are You Ready?* This is a downloadable and printable step-by-step guide that discusses the risks people face today and how they can mitigate them. FEMA also published an instructor's guide so the book can be used for a class instead of just being read (which can be much less effective). A video titled *Getting Ready for Disaster* also accompanies the guide, providing another alternative channel for preparedness learning. Each of these resources can be found and accessed on the FEMA "Are You Ready" website at <http://www.ready.gov/are-you-ready-guide>.

Today, one of the greatest success stories in the public education domain is the growing network of Community Emergency Response Team (CERT) programs operating around the country. CERT was developed with the belief that after a major disaster, first responders are likely to be quickly overwhelmed and therefore unable to meet the demand for certain services. Factors such as the presence of mass numbers of casualties, failures in infrastructure (such as communication systems), and other confounding variables like road blockages will prevent equitable access to emergency assistance. In these situations, people will have to rely on one another for help to meet their immediate lifesaving and life-sustaining needs. By training members of the general public to perform many of these functions that are normally assumed by the emergency services, the scope of preparedness within the community increases greatly, and vulnerability to hazard risk is reduced. Therefore, CERT's goals are as follows:

1. Present citizens with the facts about what to expect following a major disaster in terms of immediate services.
2. Give the message about their responsibility for mitigation and preparedness.
3. Train them in needed lifesaving skills, with an emphasis on decision-making skills, rescuer safety, and doing the greatest good for the greatest number.
4. Organize teams so they are an extension of first-responder services, offering immediate help to victims until professional services arrive.

The Community Emergency Response Team (CERT) concept was developed and implemented by the Los Angeles City Fire Department (LAFD) in 1985. The Whittier Narrows earthquake in 1987 underscored the area-wide threat of a major disaster in California. Further, it confirmed the need for training civilians to meet their immediate needs. As a result, the LAFD created the Disaster Preparedness Division to train citizens and private and government employees.

The training program that the LAFD initiated was recognized for its ability to further the process through which citizens understand their responsibility in preparing for disaster. It also increased their ability to safely help themselves, their family, and their neighbors. FEMA



FIGURE 4-2 Oakland, California, August 13, 2012—FEMA Region IX Regional Response Coordination Center during an earthquake exercise. The Thunderbolt exercise was a “no notice” test for the staff of the Region IX office. Exercises like the Thunderbolt help FEMA to assess its response capabilities. *Photo by Mary Simms.*

recognizes the value of this program and helped to expand its reach nationwide. The EMI and the National Fire Academy adopted and expanded the CERT materials, believing them to be applicable to all hazards. Today, CERT training is conducted within easy reach of almost every community in the country.

CERT prepares unaffiliated citizens to respond to and cope with the aftermath of a disaster. CERT groups are provided with the skills and knowledge to provide immediate assistance to victims in their area, organize spontaneous volunteers who have not had any training, and collect disaster intelligence that will assist professional responders with prioritizing and allocating resources following a disaster. Since 1993, when FEMA made this training available nationally, communities in almost all states and territories have conducted CERT training. The CERT course is delivered in the community by a team of first responders who have the requisite knowledge and skills to instruct the sessions. The CERT training for community groups usually is delivered in two-and-a-half-hour sessions, one evening per week, over a seven-week period. CERT is maintained by the FEMA Community Preparedness Division, which also runs the Citizen Corps Program that oversees CERT (Figure 4-2).

Emergency Management Exercises

Exercises provide an opportunity to evaluate the efficiency and effectiveness of the plan and its components and to test the systems, facilities, and personnel involved in implementing the plan. Exercises are conducted at all levels of government, in the private sector, at educational facilities, and more. FEMA defines an exercise as “a controlled, scenario-driven, simulated experience designed to demonstrate and evaluate an organization’s capability to execute



FIGURE 4-3 Baton Rouge, Louisiana, May 17, 2006—Partners at all levels of government, as well as tribal entities, non-governmental organizations, and private industry, gather in Louisiana for hurricane-preparedness exercises conducted by the Department of Homeland Security (DHS). These exercises, developed with FEMA, focus on disaster-response functions, evacuations, sheltering and National Response Plan implementation. *Robert Kaufmann/FEMA.*

one or more assigned or implicit operational tasks or procedures as outlined in its contingency plan.” These are the common categories of emergency management exercises (Coppola, 2006):

- *Drill.* A controlled, supervised method by which a single disaster management operation or function is practiced or tested.
- *Tabletop exercise.* Designed to allow officials to practice components of or the full activation of the emergency response plan within the confines of a controlled, low-stress discussion scenario.
- *Functional exercise.* Tests and practices response capabilities by simulating an event to which responsible officials must respond. Unlike a drill, which tests one function or activity, the functional exercise tests a full range of associated activities that together fulfill a greater overall response purpose.
- *Full-scale exercise.* A scenario-based event that seeks to create an atmosphere closely mimicking an actual disaster. All players required to act during a real event, as outlined in the EOP, are involved in the full-scale exercise, working in real time and using all of the required equipment and procedures (Figure 4-3).

FEMA supports exercises at all jurisdictional levels through the Homeland Security Exercise and Evaluation Program (HSEEP; pronounced “hee-sep”). HSEEP was created to provide guidance and standardization to the exercise efforts of emergency management organizations and to develop a framework for evaluation. HSEEP has met both praise and complaint, since it is the most comprehensive tool of its kind, but many jurisdictions feel that it is just another way the federal government is trying to dictate actions at the local level. This, in part, is due to the fact that federally funded exercises must comply with HSEEP regulations and

standards to be covered under emergency management grant programs, which are the only option for funding such exercises for the majority of departments. HSEEP also ties together other emergency management doctrines that have not met uniform acceptance across all jurisdictions, including that of the National Incident Management System (NIMS) and the National Response Framework (NRF), which must be tested in the course of exercise conduct.

FEMA requires HSEEP compliance for grant eligibility. *Compliance* is defined as adherence to specific processes and practices for exercise program management and exercise design, development, conduct, evaluation, and improvement planning. Four specific performance requirements are established in the HSEEP policy and guidance documentation:

1. Conduct an annual training and exercise planning workshop, and maintain a multiyear training and exercise plan (TEP).
2. Plan and conduct exercises in accordance with the guidelines set forth in the HSEEP policy.
3. Develop and submit a properly formatted after-action report/improvement plan.
4. Track and implement corrective actions identified in the AAR/IP.

The penultimate emergency management exercise series is the DHS-supported National Level Exercise (NLE) program. The NLE program, formerly called TOPOFF (for Top Officials), is a full-scale exercise held once a year that tests the response to major disaster events spanning states, regions, and across international borders. Traditionally, NLE exercises have focused on terrorism hazards. However, in 2011, NLE for the first time focused on a natural hazard: a major earthquake on the New Madrid Fault Zone in central United States. NLE is maintained by the DHS National Exercise Program which provides the coordination and planning for federal, regional, and state exercise activities beyond what the states conduct themselves. NLE predates DHS because the first TOPOFF exercise was held in May 2000 to test a simultaneous biological attack in Colorado and a chemical attack in New Hampshire. Since that time, the following exercises have been conducted:

- TOPOFF 2: Conducted in May 2003, tested a simultaneous radiological attack in Washington State and a biological attack in Illinois.
- TOPOFF 3: Conducted in April 2005, tested a simultaneous chemical attack in Connecticut and a biological attack in New Jersey.
- TOPOFF 4: Conducted in October 2007, tested simultaneous radiological attacks in Oregon, Arizona, Guam, and Washington, D.C.
- NLE 2009: Conducted in July and August 2009, this exercise focused exclusively on the prevention of a terrorist attack around the country (but focused on Washington, D.C., Arkansas, Louisiana, New Mexico, Oklahoma, and Kansas).
- NLE 2010: Conducted in May 2010, focused on the detonation of a nuclear device.
- NLE 2014: Conducted between March and June 2012 included four exercises focused on information exchange, cyber incident management/virtual effects, NLE Capstone/cyber physical effects and continuity exercise/eagle horizon.

NATIONAL EXERCISE PROGRAM

The National Exercise Program (NEP) is the nation's exercise program. This national initiative is to test, assess, and improve the nation's preparedness and resiliency. By assessing preparedness against a set of common national preparedness priorities, the Principals' Objectives, the NEP improves preparedness and resiliency and affects policy, priorities, and fiscal decisions.

The NEP is truly national in scope with the goal of fostering coordination and building relationships across the nation before an incident occurs.

Each NEP cycle includes exercise types from drills to functional exercises and includes participants and exercise from all levels of government, non-governmental and private sector organizations, and the Whole Community.

The Principals' Objectives are high-level objectives based on national preparedness priorities across the homeland security enterprise. NEP exercises must align to at least one of the following Principals' Objectives:

- Exchange intelligence, information, data, or knowledge to enable timely and informed decision-making prior to and during an incident that threatens the security of the nation.
- Identify threats and hazards and share prompt, reliable, and actionable risk information with the public, including actions to be taken and assistance made available during the onset of any hazard that threatens the security of the nation.
- Establish and maintain a unified and coordinated operational structure and process, capable of identifying, prioritizing, and delivering resources across all hazards and lead-federal agency authorities, including catastrophic incidents where a Stafford Act declaration is not likely and domestic response to foreign nations overwhelmed by disaster.
- Establish and maintain plans, authorities, responsibilities, and coordination capabilities that support the recovery of local communities affected by catastrophic disasters.

Source: FEMA, 2013, <http://www.fema.gov/national-exercise-program#PrincipalsObjectives>

Evaluation and Improvement

It is through evaluation and assessment that those responsible for response and recovery are best able to refine preparedness capabilities. It is through the evaluation process that capabilities are kept on track and improved over time. There are several programs by which emergency management evaluation may be conducted. Here are a few of the more common ones:

- *EMAP*: Probably the most recognizable organizational preparedness evaluation effort, the Emergency Management Accreditation Program (EMAP) evaluates state, territorial, and local emergency management agencies according to the peer-reviewed Emergency Management Standard. EMAP is funded by FEMA but maintained by an independent nonprofit organization. Agencies that are interested in accreditation pay a fee for evaluation by independent reviewers.

- *SPR*: The State Preparedness Report (SPR) was developed to satisfy the requirements for state-level emergency management disaster preparedness defined by the Post-Katrina Emergency Management Reform Act of 2006 (PKEMRA). Under this initiative, states and territories submit an annual SPR as a means to report on the progress, capabilities, and accomplishments of their all-hazards preparedness program. This report is designed to enable states to communicate to Congress current accomplishments in meeting the preparedness priorities and capabilities defined by DHS and how they will continue to increase statewide preparedness. States develop their individual SPRs using a standard template, wherein they address the actions they have taken to address the eight National Priorities (as identified in the National Preparedness Guidelines):
 - a. Implement the NIMS and the NRF.
 - b. Expand regional collaboration.
 - c. Implement the National Infrastructure Protection Plan (NIPP).
 - d. Strengthen information sharing and collaboration capabilities.
 - e. Strengthen interoperable and operable communications capabilities.
 - f. Strengthen chemical, biological, radiological, nuclear, explosive (CBRNE) detection, response, and decontamination capabilities.
 - g. Strengthen medical surge and mass prophylaxis capabilities.
 - h. Strengthen planning and citizen capabilities.
- *TCL*: The Target Capabilities List (TCL) is a FEMA-administered program that identifies and defines capabilities that may be needed to respond to the various hazard risks facing the country. Under TCL, capabilities need not be maintained by each individual agency but rather must be something that the agency is able to draw upon from within its own ranks or from any mutual aid, Emergency Management Assistance Compact (EMAC), or other partners. Under TCL, jurisdictions are expected to develop and maintain capability at levels that reflect the differing risk and needs throughout the country. The TCL identifies 37 distinct capabilities developed in consultation with representatives from all levels of government, the private sector, and nongovernmental organizations. Users refer to the TCL to design plans, procedures, training, exercises, and evaluations that develop and assess capacity and proficiency to perform their assigned missions and tasks in major events. The TCL is intended to serve as a foundational reference document and planning guide to achieve national preparedness.
- *NIMSCAST*: The NIMS Compliance Assistance Support Tool (NIMSCAST), maintained by the FEMA National Preparedness Directorate, is a system that allows organizations in the emergency management community to self-report on their progress in implementing the National Incident Management System (NIMS).
- *DEC Communications Project*: The Disaster Emergency Communications (DEC) Communications Project is a FEMA-administered 28-state initiative that analyzes emergency communications. DEC's mission focus is the provision of communications capabilities when landlines and cellular networks are damaged or congested, particularly during the first 96 hours of a disaster, for situational awareness and command and control, state and local first responders, and emergency responders performing disaster missions.

At the conclusion of scheduled state assessments, an assessment team drafts a detailed report that encompasses communications requirements, proposed mitigation strategies, negotiated mission assignments, and acquisition strategies. The team also writes regional emergency communications plans and equipment specifications.

- *CAS*: The Comprehensive Assessment System (CAS) is a FEMA-administered emergency management assessment system that identifies issues and shortfalls across the spectrum of homeland security operations with respect to resource allocation and the performance of specific all-hazards capabilities at the federal, state, tribal, and local jurisdictional levels. Mandated by PKEMRA, CAS assesses compliance with the National Preparedness System, the National Incident Management System (NIMS), and other related plans; assesses resource needs; and assesses the performance of training, exercises, and operations. FEMA hopes that CAS will one day function as a central repository for national preparedness data.
- *CEM*: Individual emergency management preparedness capabilities may be evaluated through the Certified Emergency Manager (CEM) program maintained by the International Association of Emergency Managers (IAEM). This fee-based program ensures that individuals have received a requisite array of courses and experience that prepare them for the demands of an actual disaster response. Those passing certification are permitted to use the acronym *CEM* in their professional title.

Preparedness: A National Effort

Emergency and disaster preparedness is conducted at all levels of government, but it is through the FEMA National Preparedness (NP) Directorate that a national-level strategy for preparedness is developed, communicated, and supported. Following the failed response to Hurricane Katrina, Congress determined, through the Post-Katrina Emergency Management Report Act of 2006, that there was a need for a national direction on emergency preparedness to ensure that the national government, states, counties, parishes, cities, towns, and communities were equipped with the knowledge, funding, and guidance to ensure proper response and recovery from major disaster events at all government and organizational levels. As a result, the National Preparedness Directorate (NPD) was established on April 1, 2007 in order to oversee coordination and development of the strategies necessary to achieve these goals. NPD was established to provide preparedness policy and planning guidance and to help build disaster response capabilities. As a FEMA directorate, NPD has wide leverage to develop and institute preparedness programs that include training courses, national policy development and state/local policy guidance, and the planning and conduct of exercises, including the National Level Exercises (NLEs) described previously.

The requirements of a national-level preparedness effort are guided by the National Response Framework (NRF), which superseded the National Response Plan (NRP) in January 2008. The NRF was released to establish a comprehensive, national, all-hazards approach to domestic incident response and to provide clear guidance over the integration of community, state, tribal, and federal response efforts. In order to achieve the capability to conduct the necessary actions prescribed within this framework, FEMA has released a series of doctrines guiding preparedness at a strategic level. Homeland Security Presidential Directive-8 (HSPD-8)

directed the secretary of Homeland Security to develop a national domestic all-hazards preparedness goal. As part of that effort, in March 2005, DHS released the Interim National Preparedness Goal. This goal was later adapted into what is now the National Preparedness Guidelines. These guidelines have the following four elements:

1. The *National Preparedness Vision*, which provides a concise statement of the core preparedness goal for the nation
2. The *National Planning Scenarios*, which depict 15 high-consequence threat scenarios involving natural and (yet primarily) terrorist hazards according to which preparedness may be based. These scenarios have come under considerable scrutiny since their release, and their use has been extensively limited as a result.
3. The *Universal Task List (UTL)*, which includes approximately 1600 unique tasks identified as being key to preventing, protecting against, responding to, and recovering from the major events represented by the national planning scenarios.
4. The *Target Capabilities List (TCL)*, which was just described and that defines 37 specific capabilities that FEMA has determined to be essential to communities, the private sector, and all levels of government in order to respond effectively to disasters.

Preparedness Grant Programs

The FEMA National Preparedness Directorate currently administers a wide range of grant programs that target preparedness efforts at all government levels, though primarily those of states, territories, tribes, and local jurisdictions. These programs differ according to their goals, the agencies eligible to apply for them, and the activities and equipment eligible to be funded. Some of the grant programs that received funding in 2012 include the following.

Emergency Management Performance Grant Program (EMPG): \$339.5 million Available in 2012

The EMPG was created to assist state and local governments in enhancing and sustaining all-hazards emergency management capabilities. Eligible applicants include the states and territories. State administrative agencies or state emergency management agencies (EMAs) are eligible to apply directly to FEMA for EMPG funds on behalf of state and local emergency management agencies. This grant has a 50 percent federal and 50 percent state cost share, cash or in-kind match requirement. Grant information can be found at: <http://www.fema.gov/fy-2012-emergency-management-performance-grants-program>.

The Homeland Security Grant Program (HSGP)

The HSGP is comprised of four separate grant programs, each described here.

State Homeland Security Program (SHSP): \$294 million Available in 2012

The HSGP provides funds to build response capabilities at the state and local levels and to implement the goals and objectives included in state homeland security strategies and

initiatives in each state preparedness report (see SPR earlier in this chapter). States are required to ensure that at least 25 percent of SHSP-appropriated funds are dedicated toward law enforcement terrorism prevention-oriented planning, organization, training, exercise, and equipment activities, including those activities that support the development and operation of fusion centers. Only the state government can apply to FEMA for SHSP funds. Each state will receive a minimum 0.36 percent of the total funds, and the remainder is based on several risk factors (four territories—American Samoa, Guam, the Northern Mariana Islands, and the U.S. Virgin Islands—receive a minimum allocation of 0.08 percent of the total funds). <http://www.fema.gov/fy-2012-homeland-security-grant-program#1>.

Urban Area Security Initiative (UASI): \$490.376 million Available in 2012

The UASI program focuses on enhancing regional preparedness in major metropolitan areas in support of the National Preparedness Guidelines. The program assists selected jurisdictions in developing integrated regional systems for disaster mitigation, preparedness, response, and recovery. States are required to ensure that at least 25 percent of UASI-appropriated funds are dedicated toward law enforcement terrorism prevention-oriented planning, organization, training, exercise, and equipment activities, including those activities that support the development and operation of fusion centers. Only the state governments may apply for the UASI grant programs, though most of the money is passed directly to the urban areas. <http://www.fema.gov/fy-2012-homeland-security-grant-program#1>.

Operation Stonegarden (OPSG): \$46.6 million Available in 2012

OPSG was created to enhance cooperation and coordination among local, state, and federal law enforcement agencies to secure international borders with Mexico and Canada, as well as states and territories with international water borders. Prospective recipients for OPSG include local units of government at the county level and federally recognized tribal governments in the states bordering Canada (including Alaska), southern states bordering Mexico, and states and territories with international water borders. Grant information can be found at: <http://www.fema.gov/fy-2012-homeland-security-grant-program#1>.

FY 2012 Port Security Grant Program (PSGP): \$97 million Available in 2012

The PSGP seeks to protect critical port infrastructures from terrorism, particularly attacks using explosives and nonconventional threats that could cause major disruptions to commerce. PSGP funds are used to increase port preparedness, primarily to assist ports in enhancing maritime domain awareness; enhancing risk management capabilities to prevent, detect, respond to, and recover from attacks involving improvised explosive devices (IEDs), chemical, biological, radiological, nuclear, explosive (CBRNE), and other nonconventional weapons; as well as training and exercises and transportation worker identification credential (TWIC) implementation. Seven port areas have been selected as Group I (highest risk), and 48 port areas have been selected as Group II. Ports not identified in Group I or II are eligible to apply as a Group III or “all other port areas” applicant. Grant information can be found at: <http://www.fema.gov/fy-2012-homeland-security-grant-program#1>.

■ ■ Critical Thinking ■

Why do you think the ODP focuses its preparedness efforts on terrorism? Should preparedness activities funded by ODP be all-hazards? Why or why not?

Business Continuity Planning and Emergency Management

Business continuity planning (BCP) is the process by which businesses prepare for disasters by identifying the risks to their business processes, their facilities, their employees, and their information, and then take action to reduce that risk. BCP also includes identification and enactment of the processes by which businesses are able to continue to function (even if at a reduced capacity) during periods of disaster such that they are able to remain viable for the long term, and so the products and services they provide to the community and country remain available. BCP is the most effective way for businesses to prepare for emergencies because the process initiates a much greater understanding of how community risk affects the businesses and what will be required of the business (rather than being provided by traditional emergency responders or other entities). BCP, like all preparedness efforts, increases community-wide resilience, since the sooner the business sector is able to get back up and running, the sooner the community is able to recover.

Business disaster planning first began with the information age, and preparedness focused primarily on information storage and retrieval. Since that time, the concept of continuity has evolved in response to a changing environment. Major events have demanded that BCP encompass a growing number of concerns. The terrorist attacks of September 11 showed almost all businesses how a disaster can impact a country at a national level through the ripples of economic and psychological effects. Since 9/11, the following changes have occurred in the BCP sector:

1. Terrorism is given greater consideration as a threat by many businesses, regardless of the business focus or location.
2. BCP has expanded to include concern for the physical safety of employees.
3. BCP may involve the decentralization of business operations.
4. BCP may have to expand its sphere of concern to include the regional impacts of a disaster (including economic) to the area where a business is located.
5. The human relationships that a business depends on for its survival has become a more significant concern.
6. Businesses are striving for zero downtime during disasters by incorporating off-site operations capabilities.
7. Novel approaches are being taken with regards to critical data backup and retrieval.
8. Physical security has become a BCP concern.
9. There is an increased professionalization of the BCP industry, and more and more businesses are employing full-time emergency management and BCP staff.

The events of September 11 raised awareness of the fact that the survival of business depends on many external factors, such as critical infrastructure and transportation systems. The federal government also recognized the importance of BCP because so much of the nation's public infrastructure was privately owned and therefore independent of most government preparedness efforts. FEMA has begun to work more closely with businesses to bring about preparedness, since businesses are not only the recipients of disaster assistance but are also the providers of many of the products and services needed in the lead-up to and aftermath of disaster events and therefore must be brought into the preparedness and planning process.

The FEMA Private Sector Division in the Office of External Affairs leads up the development of this partnership and initiates various working groups that aim to bring about business sector preparedness and recovery planning activities. For instance, in the 2009 H1N1 pandemic influenza outbreak, the Private Sector Division developed an H1N1 preparedness guide for small businesses, which were particularly susceptible to business closure from the flu outbreak because they depend on such a limited workforce.

In November 2009, FEMA announced the Voluntary Private Sector Preparedness Accreditation and Certification Program (PS-Prep). This program was mandated by legislation that followed 9/11. The PS-Prep Program was created to enhance private sector preparedness by providing a mechanism by which private sector entities could become certified as adequately prepared for disasters. This process involves the development of preparedness standards, of course, that did not exist previously. Participation in the program is completely voluntary, and the government maintains no authority to require businesses to comply with any standard adopted under the program. The following standards were developed and/or adopted:

- ASIS International SPC.1-2009. *Organizational Resilience: Security Preparedness, and Continuity Management System*
- British Standards Institution 25999. *Business Continuity Management: Part 1 (2006) and Part 2 (2007)*
- National Fire Protection Association 1600: 2007. *Standard on Disaster/Emergency Management and Business Continuity Program*

The ANSI-ASQ National Accreditation Board (ANAB) was selected to develop and oversee the certification process, manage the accreditation, and accredit qualified third parties to carry out the certification in accordance with the accepted procedures of the program. Private sector organizations, including businesses and critical infrastructure and key resource entities, may apply for certification to the applicable requirements of preparedness standards that have been developed or adopted. Certification, in the context of this program, is confirmation that an accredited third-party certification organization has validated a private sector entity's preparedness to a standard. DHS will then maintain and make public a listing of any private sector entity certified as being in compliance with PS-Prep if that private sector entity consents to such a listing, which would presumably instill greater public confidence in that company.

Business continuity planning, however, is chiefly driven by the private sector itself. For instance, DRI International (DRII), a business continuity planning institute, provides

significant guidance on higher education programs on BCP, supports BCP research, and maintains a capacity to enable businesses to self-assess their preparedness capabilities. DRII, like FEMA, has a certification process through which businesses can prove that they have met a minimum level of preparedness for various hazard risks, thereby instilling confidence among investors and/or shareholders. Other organizations that provide a similar service include Disaster Recovery World, Nonprofit Risk, Business Continuity World, and the Public Entity Risk Institute.

Conclusion

Preparedness consists of four basic elements: preparing a plan, acquiring equipment, training to the plan, and exercising the plan. Preparedness planning at the community level is critical to reducing the effects of disaster events. FEMA sponsors numerous planning, training, and education activities designed to assist communities and states in developing effective preparedness plans and training personnel to implement these plans. Through its National Preparedness Directorate, FEMA helps provide national-level preparedness guidance and significant funding to support preparedness efforts.

Business continuity planning is a significant growth area for the emergency management community. The devastating impacts of September 11 have resulted in increased coordination and cooperation between business and emergency managers. The emergency management community has just begun to exploit this opportunity and more than ever before is encouraging businesses to become more active in supporting all phases of emergency management.

CASE STUDY: THE TSUNAMIREADY PROGRAM

TsunamiReady is an initiative that promotes tsunami hazard preparedness as an active collaboration among federal, state, and local emergency management agencies, the public, and the NWS tsunami warning system. This collaboration is dedicated to promoting better and more consistent tsunami awareness and mitigation efforts among communities at risk. Through the TsunamiReady program, NOAA's National Weather Service gives communities the skills and education needed to survive a tsunami before, during, and after the event. TsunamiReady was designed to help community leaders and emergency managers strengthen their local tsunami operations (NOAA, N/D).

The TsunamiReady program is based on the NWS StormReady model (which can be viewed at <http://www.stormready.noaa.gov/>). The primary goal of TsunamiReady is the improvement of public safety during tsunami emergencies. As just stated, TsunamiReady is designed for those coastal communities that are at known risk of the tsunami hazard (tsunami hazard risk maps can be seen at <http://www.pmel.noaa.gov/tsunami/time/>).

Traditionally, tsunami hazard planning along the U.S. West Coast and Alaska has been widely neglected because of the statistically low incidence of tsunamis. As a result of that perceived rarity, many individuals and communities have not worked to become as "tsunami-aware" as they could and should be. Among those communities that are considered to be prepared, that level of exhibited preparedness varies significantly (NWS, N/D).

However, as is true with the earthquakes and other rare events that generate tsunamis, avoidable casualties and property damage will only continue to rise unless these at-risk communities become better prepared for tsunamis. As previously mentioned, readiness involves two key components—awareness and mitigation. *Awareness* involves educating key decision makers, emergency managers, and the public about the nature (physical processes) and threat (frequency of occurrence, impact) of the tsunami hazard; *mitigation* involves taking steps *before* the tsunami occurs to lessen the impact (loss of life and property) of that event. As is true with earthquakes, there is no question that tsunamis will strike again.

The National Weather Service (NWS) TsunamiReady program was designed to meet both of the recognized elements of a useful readiness effort. It was designed to educate local emergency management officials and their public and to promote a well-designed tsunami emergency response plan for each community.

Program Objectives

TsunamiReady promotes tsunami hazard readiness as an active collaboration among federal, state, and local emergency management agencies; the public; and the NWS tsunami warning system. This collaboration supports better and more consistent tsunami awareness and mitigation efforts among communities at risk. The main goal is improvement of public safety during tsunami emergencies. To meet this goal, the following objectives must be met by the community:

- Create minimum standard guidelines for a community to follow for adequate tsunami readiness.
- Encourage consistency in educational materials and response among communities and states.
- Recognize communities that have adopted TsunamiReady guidelines.
- Increase public awareness and understanding of the tsunami hazard.
- Improve community preplanning for tsunami disasters.

Program Methodology

The processes and guidelines used in the TsunamiReady program were modeled to resemble those of the National Weather Service “StormReady” program. TsunamiReady established minimum guidelines for a community to be awarded the TsunamiReady recognition, thus promoting minimum standards based on expert knowledge rather than subjective considerations. Communities that accept the challenge to become TsunamiReady and are deemed to have met these requirements set by the NWS TsunamiReady program are designated as “TsunamiReady Communities.” Guidelines to achieve TsunamiReady recognition are given in [Table 4-1](#) and discussed in detail in the sections that follow. Four community categories (based on the population of the community and provided in the table’s headings) are used to measure tsunami readiness.

Guideline 1: Communications and Coordination Center

It is well known that the key to any effective hazards management program is effective communication. This could not be more valid when considering tsunami-related emergencies, since the arrival of the giant waves can occur within minutes of the initial precipitating event. These so-called “short-fused” events, therefore, require an immediate but careful, systematic, and appropriate response. To ensure such a proper response, TsunamiReady requires that communities establish the following:

24-Hour Warning Point It is the NWS and not the community that determines a tsunami threat exists. Therefore, in order to receive recognition under the TsunamiReady program, an applying

Table 4-1 Guidelines to Becoming a TsunamiReady Community

Guidelines	Population			
	<2,500	2,500–14,999	15,000–40,000	>40,000
1: Communications and Coordination				
24-hour warning point (WP)	X	X	X	X
Emergency Operations Center		X	X	X
2: Tsunami Warning Reception				
Number of ways for EOC/WP to receive NWS tsunami messages (if in range, one must be NWR with tone-alert; NWR-SAME is preferred)	3	4	4	4
3: Warning Dissemination				
Number of ways for EOC/WP to disseminate warnings to public	1	2	3	4
NWR tone-alert receivers in public facilities (where available)	X	X	X	X
For county/borough warning points, county/borough communication network ensuring information flow between communities	X	X	X	X
4: Community Preparedness				
Number of annual tsunami awareness programs	1	2	3	4
Designate/establish tsunami shelter/area in safe zone	X	X	X	X
Designate tsunami evacuation areas and evacuation routes, and install evacuation route signs	X	X	X	X
Provide written, locality-specific, tsunami hazard response material to public	X	X	X	X
In schools, encourage tsunami hazard curriculum, practice evacuations, and provide safety material to staff and students	X	X	X	X
5: Administrative				
Develop formal tsunami hazard operations plan	X	X	X	X
Yearly meeting/discussion by emergency manager with NWS	X	X	X	X
Visits by NWS official to community at least every other year	X	X	X	X

agency needs to establish a 24-hour warning point (WP) that can receive NWS tsunami information in addition to providing local reports and advice to constituents. Typically, the functions of this type of facility merely are incorporated into the existing daily operation of a law enforcement or fire department dispatching (ECC) point.

For cities or towns without a local dispatching point, a county agency could act in that capacity for them. In Alaska, where there may be communities that have populations of fewer than 2500 residents

and no county agency to act as a 24-hour warning point, the community is required to designate responsible members of the community who are able to receive warnings 24 hours per day and who have the authority to activate local warning systems. Specifically, the warning point is required to have the following:

- 24-hour operations
- Warning reception capability
- Warning dissemination capability
- Ability and authority to activate local warning system(s)

Emergency Operations Center Agencies serving jurisdictions larger than 2500 people are required to have the ability to activate an emergency operations center (EOC). It must be staffed during tsunami events to execute the warning point's tsunami warning functions. The following list summarizes the tsunami-related roles required of the EOC:

- Activate, based on predetermined guidelines related to NWS tsunami information and/or tsunami events.
- Staff with emergency management director or designee.
- Establish warning reception/dissemination capabilities equal to or better than the warning point.
- Maintain the ability to communicate with adjacent EOCs/warning points.
- Maintain the ability to communicate with local NWS office or Tsunami Warning Center.

Guideline 2: Tsunami Warning Reception

Warning points and EOCs each need multiple ways to receive NWS tsunami warnings. TsunamiReady guidelines to receive NWS warnings in an EOC/WP require a combination of the following, based on population:

- NOAA Weather Radio (NWR) receiver with tone alert. Specific Area Message Encoding (SAME) is preferred. Required for recognition only if within range of a transmitter.
- NOAA Weather Wire drop: satellite downlink data feed from NWS
- Emergency Managers Weather Information Network (EMWIN) receiver: satellite feed and/or VHF radio transmission of NWS products
- Statewide telecommunications system: automatic relay of NWS products on statewide emergency management or law enforcement system
- Statewide warning fan-out system: state-authorized system of passing messages throughout the warning area
- NOAA weather wire via Internet NOAAport Lite: provides alarmed warning messages through a dedicated Internet connection
- Direct link to NWS office, such as amateur or VHF radio
- E-mail from Tsunami Warning Center: direct e-mail from Warning Center to emergency manager
- Pager message from Tsunami Warning Center: page issued from Warning Center directly to EOC/WP
- Radio/TV via emergency alert system: local radio/TV or cable TV
- U.S. Coast Guard broadcasts: WP/EOC monitoring of USCG marine channels
- National Warning System (NAWAS) drop: FEMA-controlled civil defense hotline

Guideline 3: Warning Dissemination

Upon receipt of NWS warnings or other reliable information suggesting that a tsunami is imminent, local emergency officials must be able to communicate this threat information with as much of the population as possible. This is fundamental to making the preparedness program effective. As such, receiving TsunamiReady recognition requires that communities have one or more of the following means of ensuring timely warning dissemination to their citizens (based upon population, as described in [Table 4-1](#)):

- A community program that subsidizes the purchase of NWR. (NWR receiver with tone alert. SAME is preferred. Required for recognition only if within range of transmitter.)
- Outdoor warning sirens
- Television audio/video overrides
- Other locally controlled methods, such as local broadcast system or emergency vehicles
- Phone messaging (dial-down) systems

It is required that at least one NWR that is equipped with a tone alert receiver be located in each critical public access and government-owned building and must include a 24-hour warning point, EOC, the school superintendent's office, or equivalent. Critical public access buildings are defined by each community's tsunami warning plan. Locations that are recommended for inclusion by the NWS include all schools, public libraries, hospitals, fairgrounds, parks and recreational areas, public utilities, sports arenas, departments of transportation, and designated shelter areas. (SAME is preferred. This is required for recognition only if the community exists within range of a transmitter.)

For counties and boroughs only, a communications network that conveys information to all cities and towns within those administrative borders must be in place. This would include provision of a warning point for the smaller towns and fanning out of the message as required by state policy.

Guideline 4: Community Preparedness

Public education is vital in preparing citizens to respond properly to tsunami threats. An educated public is more likely to take the steps required to receive tsunami warnings, recognize potentially threatening tsunami events when they exist, and respond appropriately to those events. Therefore, communities that are seeking recognition in the TsunamiReady program must be able to do the following:

- Conduct or sponsor tsunami awareness programs in schools, hospitals, fairs, workshops, and community meetings (the actual number of talks that must be given each year is based on the community's population).
- Define tsunami evacuation areas and evacuation routes and install evacuation route signs.
- Designate a tsunami shelter/area outside the hazard zone.
- Provide written tsunami hazard information to the populace, including the following:
 - Hazard zone maps
 - Evacuation routes
 - Basic tsunami information
- These instructions can be distributed through mailings (utility bills, for example), in phone books, and posted at common meeting points located throughout the community, such as libraries, supermarkets, and public buildings.
- Local schools must meet the following guidelines:

- Encourage the inclusion of tsunami information in primary and secondary school curriculums. NWS will help to identify curriculum support material.
- Provide an opportunity biennially for a tsunami awareness presentation.
- Schools within the defined hazard zone must have tsunami evacuation drills at least biannually.
- Provide written safety material to all staff and students.
- Have an earthquake plan.

Guideline 5: Administrative

No program can be successful without formal planning and a proactive administration. The following administrative requirements are necessary for a community to be recognized in the TsunamiReady program:

- A tsunami warning plan must be in place and approved by the local governing body. This plan must address the following:
 - Warning point procedures
 - EOC activation guidelines and procedures
 - Warning point and EOC personnel specification
 - Hazard zone map with evacuation routes
 - Procedures for canceling an emergency for those less-than-destructive tsunamis
 - Guidelines and procedures for activation of sirens, cable TV override, and/or local system activation in accordance with state Emergency Alert System (EAS) plans, and warning fan-out procedures, if necessary
 - Annual exercises
- Yearly visits or discussions with a local NWS forecast office warning coordination meteorologist or Tsunami Warning Center personnel must be conducted. This can include a visit to the NWS office, a phone discussion, or e-mail communication.
- NWS officials will commit to visit accredited communities, at least every other year, to tour EOCs/warning points and meet with key officials.

Benefits of the TsunamiReady Program

The benefits of participating in the TsunamiReady community program include the following:

- The community is more prepared for the tsunami hazard.
- Regularly scheduled education forums increase public awareness of existing dangers.
- Contact with experts (emergency managers, researchers, NWS personnel) is increased and enhanced.
- Community readiness resource needs are identified.
- Positioning to receive state and federal funds is improved.
- Core infrastructure to support other community concerns is enhanced.
- The public is allowed the opportunity to see firsthand how their tax money is being spent in hazard programs.

Conclusion

Through the TsunamiReady program, NOAA's National Weather Service gives communities the skills and education needed to survive a tsunami before, during, and after the event. TsunamiReady helps community leaders and emergency managers strengthen their local tsunami operations. TsunamiReady communities are better prepared to save lives from the onslaught of a tsunami

through better planning, education, and awareness. Communities have fewer fatalities and property damage if they plan *before* a tsunami arrives. No community is tsunami-proof, but TsunamiReady can help communities save lives.

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Important Terms

Business continuity planning
 Continuity of Operations Plan (COOP)
 Drill
 Full-scale exercise
 Functional exercise
 Preparedness
 Tabletop exercise

Self-Check Questions

1. What kinds of organizations must consider disaster preparedness?
2. What is the difference between mitigation and preparedness?
3. What are the steps involved in the preparedness cycle?
4. According to *Ready.Gov*, what are the three basic steps people can take to prepare for any type of disaster?
5. What are the seven key elements that can be used to measure the comprehensive nature of an evacuation plan?
6. Name five special needs populations, and describe what makes their disaster planning needs unique.
7. Why is it important to involve representatives from all stakeholders in the disaster planning process?
8. What kinds of training opportunities are provided by the federal government? What agencies provide these courses, workshops, and other programs?
9. What are the four types of disaster exercises? What does each involve?
10. Name the ways that the National Preparedness Directorate guides national preparedness efforts.

Out-of-Class Exercises

1. Create an individual or family plan using the guidance provided in FEMA's *Are You Ready* publication (<http://www.fema.gov/areyouready/>). Did you find any shortfalls in this program? What did you learn by using the publication?
2. Contact your local office of emergency management and find out if there is an evacuation plan for your local community. What must occur for an evacuation to be ordered? Who has the authority to issue that order?
3. Determine what special needs populations exist in your community. Select one, and find out whether special preparedness and emergency planning considerations have been made to accommodate their unique needs.
4. Assist a local small business or nonprofit organization in identifying their hazards and mitigating their risks (often called a Business Continuity Plan, or Continuity of Operations Plan). Several resources are available to help you carry out this exercise, including the following:

Ready.Gov Business: <http://www.ready.gov/business/>

Institute for Business and Home Safety "Open for Business" guide: <http://www.disastersafety.org/open-for-business/>

Volunteer Florida Continuity of Operations Planning Guide: <http://www.floridadisaster.org/documents/COOP/COOP%20Implementation%20Guidance.pdf>

The Disciplines of Emergency Management: Communications

What You will Learn

- The mission and five assumptions of an effective disaster communications strategy
- Which audiences, or customers, receive disaster communications
- Disaster communications in a changing media world

Introduction

“Communicating with residents is one of the most important tasks that elected officials perform in the wake of a disaster. The public needs concise, accurate, timely information to know what to do, and to be reassured that local government is responding appropriately”

(Source: City of San Jose Memorandum, August 6, 2007).

The world of disaster communications has been completely transformed in the last 5 years. The explosion of the Internet and social media tools, technologies and public access through smartphones and tablets have changed the way news is gathered, shared, and used, and have blurred the lines between the reporter and audience, between disaster agencies, and the public.

Five years ago the question was whether or not emergency managers and communicators were going to use social media for disaster planning, response, and recovery. Since then there has been a steep decline in the audience for newspapers and newsweekly magazines as well as a decline of audiences for news on broadcast TV, cable TV and the radio.

The media—and the public—have rejected the old top-down information model. Now communication is from person to person and we are all news producers and consumers.

So now the question is not whether but HOW best to use Twitter, Facebook, YouTube, and Tumblr, now that these and other social media have proven their value as news wires and disseminators of public health and safety information as well as eyewitnesses to increasing situational awareness, informing rescuers, and guiding victims to food, water, fuel, and shelter.

FEMA and its state and local emergency management partners have embraced social media as an effective means for distributing timely and accurate information to the public via social media outlets like Facebook, Twitter, and others. Voluntary agencies, nongovernmental organizations, and the private sector have also embraced social media. Efforts are currently

underway among all of these agencies and organizations to monitor, review, and share the information flowing in social media before, during, and after a disaster in order to assess needs and make informed decisions on resource allocation.

In recent years, communications professionals in many fields have learned that communication efforts work best when there is a symbiosis of traditional and social media. Currently, employing both traditional and social media in efforts to inform the public has become standard operating procedure for emergency officials in both distributing information in response and recovery operations and promoting disaster preparedness and hazard mitigation programs and actions.

What has not changed in the past few years is the mission of disaster communications to provide timely and accurate information to the public nor the underlying assumptions that form the foundation of an effective crisis communications strategy and the principles that guide the development and implementation of crisis communications plans and operations.

This chapter does the following:

- Defines the mission of an effective disaster communications strategy
- Defines the customers and audiences of disaster communications
- Examines the various forms of media that emergency managers have historically relied on and the new forms of media that are changing how disaster news and information are shared with the public
- Details the seven elements that comprise an effective disaster communications capability in the future

The Mission

The mission of an effective disaster communications strategy is to provide timely and accurate information to the public in all four phases of emergency management:

- *Mitigation*—to promote implementation of strategies, technologies, and actions that will reduce the loss of lives and property in future disasters
- *Preparedness*—to communicate preparedness messages that encourage and educate the public in anticipation of disaster events
- *Response*—to provide to the public notification, warning, evacuation, and situation reports on an ongoing disaster
- *Recovery*—to provide individuals and communities affected by a disaster with information on how to register for and receive disaster relief

The foundation of an effective disaster communications strategy is built on five critical assumptions:

- Customer focus
- Leadership commitment
- Inclusion of communications in planning and operations

- Good information
- Media partnership

THE FIVE CRITICAL ASSUMPTIONS FOR A SUCCESSFUL COMMUNICATIONS STRATEGY

1. *Customer focus:* Understand what information your customers and your partners need, and build communications mechanisms that deliver this information in a timely and accurate fashion.
2. *Leadership commitment:* The leader of the emergency operations must be committed to effective communications and must participate fully in the communications process.
3. *Inclusion of communications in planning and operations:* Communications specialists must be involved in all emergency planning and operations to ensure that communicating timely and accurate information is considered when action decisions are being considered.
4. *Situational awareness:* Effective communications is based on the timely collection, analysis, and dissemination of information from the disaster area in accordance with basic principles of effective communications such as transparency and truthfulness.
5. *Media partnership:* The media (i.e., television, radio, Internet, newspapers, etc.) are the most effective means for communicating timely and accurate information to the public. A partnership with the media involves understanding the needs of the media and including trained staff who work directly with the media to get information to the public. And now that citizen journalists, media technologies such as cell phones, laptops, and digital cameras, and social media outlets such as YouTube, Twitter, and Facebook have become more vital and accepted sources of information and imaging from the front lines of a disaster, methods for incorporating this data and information must also be implemented.

Customer Focus

An essential element of any effective emergency management system is a focus on customers and customer service. This philosophy should guide communications with the public and with all partners in emergency management. A customer service approach includes placing the needs and interests of individuals and communities first, being responsive and informative, and managing expectations.

The customers for emergency management are diverse. They include internal customers, such as staff, other federal agencies, states, and other disaster partners. External customers include the general public, elected officials at all levels of government, community and business leaders, and the media. Each of these customers has specific information needs, and a good communications strategy considers and reflects their requirements.

Leadership Commitment

Good communications start with a commitment by the leadership of the emergency management organization to sharing and disseminating information both internally and externally. One of the lessons learned from Hurricane Katrina was “We need public officials to lead. Communicating confidence to citizens and delivering on promises are both critical in crises” (Kettl, 2005).

The leader of any disaster response and recovery effort must openly endorse and promote open lines of communications among the organization's staff, partners, and public in order to effectively communicate. This leader must model this behavior to clearly illustrate that communications is a valued function of the organization.

LEADERSHIP MODELING GOOD COMMUNICATIONS

In the 1990s, FEMA director James Lee Witt was a strong advocate for keeping FEMA staff informed of agency plans, priorities, and operations. Witt characterized a proactive approach in communicating with FEMA's constituents. His accessibility to the media was a significant departure from previous FEMA leadership. Witt exhibited his commitment to effective communications in many ways:

1. He held weekly staff meetings with FEMA's senior managers and required that his senior managers hold regular staff meetings with their employees.
2. He published an internal newsletter to employees entitled "Director's Weekly Update" that was distributed to all FEMA employees in hard copy and on the agency electronic bulletin board that updated employees on agency activities.
3. He made himself and his senior staff available to the media on a regular basis, especially during a disaster response, to answer questions and to provide information.
4. During a disaster response, he held media briefings daily and sometimes two to three times a day.
5. He held special meetings with victims and their families.
6. He led the daily briefings among FEMA partners during a disaster response.
7. He devoted considerable time to communicating with members of Congress, governors, mayors, and other elected officials during both disaster and nondisaster times, at times holding joint press briefings with these officials.
8. He met four to five times per year with the State Emergency Management Directors, FEMA's principal emergency management partners.
9. He gave speeches all over this country and around the world to promote better understanding of emergency management and disaster mitigation.

Including Communications in Planning and Operations

The most important part of leadership's commitment to communications is including communications in all planning and operations. This means that a communications specialist is included in the senior management team of any emergency management organization and operation. It means that communications issues are considered in the decision-making processes and that a communications element is included in all organizational activities, plans, and operations.

In the past, communicating with external customers, and in many cases internal customers, was not valued or considered critical to a successful emergency management operation. Technology has changed that equation. In today's world of 24-hour television and radio news, social media and the Internet, the demand for information is never-ending, especially in an emergency response situation. Emergency managers must be able to communicate critical information in a timely manner to their staff, partners, the public, and the media.

To do so, the information needs of the various customers and how best to communicate with these customers must be considered at the same time that planning and operational

decisions are being made. For example, a decision process on how to remove debris from a disaster area must include discussion of how to communicate information on the debris removal operation to community officials, the public, and traditional and social media.

Again the response to Hurricane Katrina clearly illustrates the downside of failing to include consideration of communications issues in conducting a response operation. The “Lessons Learned” report prepared by White House Homeland Security Advisor Francis Townsend noted, “The lack of communications and situational awareness had a debilitating effect on the federal response. The Department of Homeland Security should develop an integrated public communications plan to better inform, guide, and reassure the American public before, during, and after a catastrophe. The Department of Homeland Security (DHS) should enable this plan with operational capabilities to deploy coordinated public affairs teams during a crisis” (Townsend, 2006).

Situational Awareness

Situational awareness is key to an effective disaster response. Knowing the number of people killed and injured, the level of damage at the disaster site, the condition of homes and community infrastructure, and current response efforts provide decision makers with the situational awareness needed to identify need and appropriately apply available resources. The collection, analysis, and dissemination of information from the disaster site are the basis for an effective communications operation in a disaster response.

This is also true during the disaster recovery phase, especially early in the recovery phase when the demand for information from the public, and therefore the media, is at its highest. Developing effective communications strategies to promote community preparedness and/or mitigation programs requires detailed information about the nature of the risk that impacts the community and how the planned preparedness programs will help individuals and communities to be ready for the next disaster, and the mitigation programs will reduce the impacts of future disasters. A glaring lack of situational awareness was identified as a severe hindrance to the government response to Hurricane Katrina.

SITUATIONAL AWARENESS AND MEDIA STORIES

“Without sufficient working communications capability to get better situational awareness, the local, state, and federal officials directing the response in New Orleans had too little factual information to address—and, if need be, rebut—what the media were reporting. This allowed terrible situations—the evacuees’ fear and anxiety in the Superdome and Convention Center—to continue longer than they should have and, as noted, delayed response efforts by, for example, causing the National Guard to wait to assemble enough force to deal with security problems at the Convention Center that turned out to be overstated.”

Source: Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina, 2006, “A Failure of Initiative: Final Report of the Special Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina,” Government Printing Office, February 15, 2006, http://katrina.house.gov/full_katrina_report.htm.

■ ■ Critical Thinking ■

Why is the commitment of the executive and senior managers so important to having an effective communications capability? What parties must be involved in providing timely and accurate information to decision makers as they shape their communications priorities in a disaster?

FEMA's National Incident Management System (NIMS) includes a section on public information in its Incident Command System (ICS) component. One of the three top command staff reporting to the incident commander in ICS is the public information officer (Figure 5-1). FEMA's NIMS document (2008) states, "Public Information consists of the processes, procedures, and systems to communicate timely, accurate, and accessible information on the incident's cause, size, and current situation to the public, responders, and additional stakeholders (both directly affected and indirectly affected). Public information must be coordinated and integrated across jurisdictions and across agencies/organizations; among federal, state, tribal, and local governments; and with the private sector and NGOs. Well-developed public information, education strategies, and communications plans help to ensure that lifesaving measures, evacuation routes, threat and alert systems, and other public safety information is coordinated and communicated to numerous audiences in a timely, consistent manner. Public Information includes processes, procedures, and organizational structures required to gather, verify, coordinate, and disseminate information" (FEMA, 2008).

Media Partnership

The media plays a primary role in communicating with the public. No government emergency management organization could ever hope to develop a communications network comparable to those networks already established and maintained by television, radio, newspapers, online

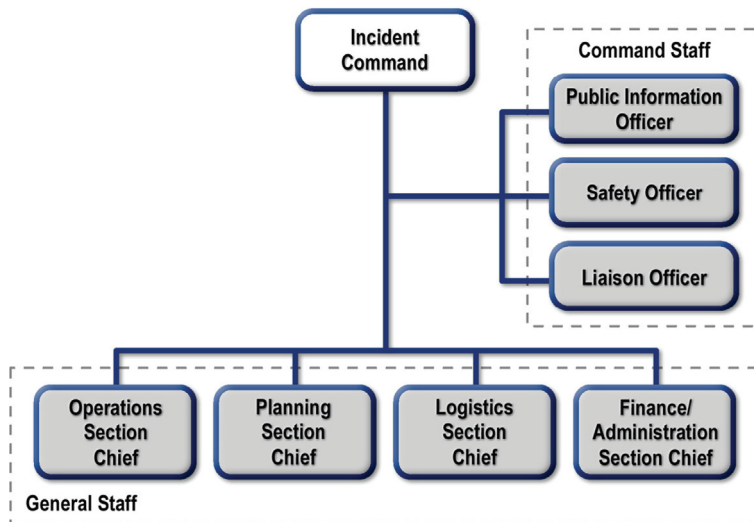


FIGURE 5-1 Incident Command System: the command staff and the general staff. FEMA. *National Incident Management System*. December 2008.

news outlets, and social media outlets across the country. To effectively provide timely disaster information to the public, emergency managers must establish a partnership with their local traditional and social media outlets.

The goal of a media partnership is to provide accurate and timely information to the public in both disaster and nondisaster situations. The partnership requires a commitment by both the emergency manager and the media to work together, and it requires a level of trust between both parties. Traditionally, the relationship between emergency managers and the media has been strained. There is often a conflict between the need of the emergency manager to respond quickly and the need of the media to obtain information on the response so it can report it just as quickly. This conflict sometimes results in inaccurate reporting and tension between the emergency manager and the media. The loser in this conflict is always the public, which relies on the media for its information.

It is important for emergency managers to understand the needs of the media and the value they bring to facilitating response operations. An effective media partnership provides the emergency manager with a communications network to reach the public with vital information and provides the media with access to the disaster site, access to emergency managers and their staff, and access to critical information for the public that informs and ensures the accuracy of their reporting.

■ ■ Critical Thinking ■

- As a private, nongovernmental organization, is the primary concern of the media their publicity ratings, or helping the public with disasters?
- Do the media have a responsibility to warn the public about disasters?
- Should members of the media be required to have training in emergency management? Why or why not?

Audiences/Customers

In order to effectively communicate disaster information, emergency managers must clearly identify their various audiences and customers. Included in many of these audiences are both partners and stakeholders. Basic emergency management audiences include the following:

- *General public.* The largest audience, of which there are many subgroups, such as the elderly, those with disabilities, minorities, low income, youths, and so on, are all potential customers
- *Disaster victims.* Those individuals affected by a specific disaster event
- *Business community.* Often ignored by emergency managers but critical to disaster recovery, preparedness, and mitigation activities
- *Media.* Traditional and social media outlets are audiences and partners critical to effectively communicating with the public
- *Elected officials.* Governors, mayors, county executives, state legislators, and members of Congress

- *Community officials.* City/county managers, public works, department heads
- *First responders.* Police, fire, and emergency medical services
- *Volunteer groups.* American Red Cross, Salvation Army, the National Voluntary Organizations Active in Disasters (NVOADs), and so on, which are critical to first response to an event

Communications with some of these customers, such as the first responders, is accomplished principally through radio and phone communications (see Chapter 6). Communicating with most of these other audiences is accomplished through briefings, meetings, provision of background materials, and, in some instances, one-on-one interviews. Communications strategies, plans, and operations should be developed to meet the information needs of each of these customers and staffed and funded accordingly.

Disaster Communications in a Changing Media World

The Internet and social media have radically and irreversibly transformed the communications landscape. The Internet has created a “new” news landscape and has forever changed the way and the speed in which news is produced and consumed. The old communications paradigm—of professionals broadcasting one message too many—is dead. Now communications is a conversation between the many, and we are all news producers and consumers, content creators, and curators.

The emergence of Internet-based social media platforms such as Twitter and Facebook as news providers and the fact that over half of all U.S. adults now have a mobile connection to the Web through either a smartphone or tablet, mean people can access, generate, influence or share news wherever they are and at anytime of the day (PEW Research Center’s Internet & American Life Project, 2013).

This communications earthquake is still sending out shock waves and the consequences have yet to play out. But changes have already occurred that have major implications for disaster communicators and their connections with the public. And before we can understand disaster communications in a changing media world, we need to understand the changing media world.

Traditional media—newspapers, radio, and now television—is on the decline; online and digital news consumption, meanwhile, continues to increase. A quick look at what’s going on in the print world is as follows:

- Estimates for newspaper newsroom cutbacks in 2012 put the industry down 30 percent since its peak in 2000 and below 40,000 full-time professional employees for the first time since 1978. Estimates are that number could go as low as 30,000.
- Cities in Michigan, Louisiana, Washington, and Alabama no longer have a daily newspaper.
- *Time* magazine, the only major print news weekly left standing, cut roughly 5 percent of its staff in early 2013 as a part of broader company layoffs.
- In African-American news media, the *Chicago Defender* has winnowed its editorial staff to just four while *The Afro* cut back the number of pages in its papers from a maximum of 32 in 2008 to 20 pages in 2012.

- A growing list of media outlets, such as *Forbes* magazine, use technology by a company called Narrative Science to produce content by way of algorithms—no human reporting is necessary (PEW Research Center’s Project for Excellence in Journalism, 2013).

On the television side:

- Across the three cable channels, coverage of live events during the day, which often require a crew and correspondent, fell 30 percent from 2007 to 2012 while interview segments, take fewer resources and can be scheduled in advance, were up by almost a third
- On CNN, the cable channel that has branded itself around in-depth reporting, produced story packages that were cut almost in half in length from 2007 to 2012.
- On local TV, sports, weather, and traffic now account on average of 40 percent of the content produced on the newscasts, while news story lengths shrink (PEW Research Center’s Project for Excellence in Journalism, 2013).

This adds up to a news industry that is undermanned and may be unprepared to cover and uncover stories or to verify the information given to them.

Our Viewing and Listening Habits—the Ways We Consume News—are in Transition Too

The Pew Research Center’s biennial survey on news consumption in the United States, in 2012 gives us a snapshot of what’s changed and what’s changing:

- Just 23 percent of Americans say they read a print newspaper yesterday, down by about half since 2000 (47 percent).
- The percentage saying they regularly watch local TV news has dipped below 50 percent for the first time (48 percent); and the percentage watching cable news channels has fallen five points since 2010 and 2008, from 39 percent to 34 percent currently.
 - The decline in regular local TV viewership among Americans under age 30 is even more dramatic—down 14 points since 2006, from 42 percent just 28 percent in 2012, according to Pew Research survey data.
- In 2012, 92 percent of Americans age 12 or older listened to the radio at least weekly, essentially the same as it was a decade earlier (94 percent).
- Gauging the percentage of Americans who get some form of audio-based NEWS—not just listening to the radio—is challenging because of the new forms of audio like satellite radio and online streaming. But according to Pew, one-third of adults report having listened to “news radio” yesterday. That’s down considerably from 43 percent in 2000 and 52 percent in 1990 (PEW Research Center for the People and the Press, 2012).

Online news consumption rose sharply the last 2 years, following the rapid spread of digital platforms. In fact, online was the only category of news that showed growth in the Pew survey:

- In 2012, about 39 percent of respondents got news online or from a mobile device “yesterday,” (the day before they participated in the survey) up from 34 percent in 2010.

- And when other online and digital news sources are included, the share of people who got news from one or more digital forms on an average day rises to 50 percent, just below the audience for television news (which combines cable, local, and network), but ahead of print newspapers and radio (29 percent and 33 percent, respectively)
- The second major trend in online news consumption is the rise of news on social networks—Facebook, Google + , and many others. Today, 19 percent of the public says they saw news or news headlines on social networking sites yesterday, up from 9 percent 2 years ago.
- The percentage regularly getting news or news headlines on these sites has nearly tripled, from 7 percent to 20 percent
- The most popular websites people went to most for news and information in 2012 were Yahoo!, mentioned by 26 percent of online news users, then Google or Google News at 19 percent, CNN at 14 percent, 13 percent cited local news sources, and 11 percent MSN (PEW Research Center for the People and the Press, 2012).
- Trends also occurring in the shifting online landscape:
- Mobile devices and social networking sites have replaced search engines as the driver of growth in finding news online. Search engines like Google, Bing, or Yahoo! continue to be the largest single tool in finding news online, but the substantial growth in their use between 2008 and 2010 has leveled off.
- As news consumption on cell phones and other mobile devices has increased, so has the use of news apps. In the current survey, a quarter of all Americans, including 45 percent of mobile Internet users, say they have downloaded a news app to their cell phone, tablet, or another mobile device. That's up from 16 percent in 2010 (PEW Research Center's Project for Excellence in Journalism, 2013).

Social Media

Social media is now a critical and indispensable element in disaster and crisis communications.

Today's suite of social media tools—Twitter, Facebook, YouTube, Google Maps, etc.—are already shaping how crises are communicated and response and relief efforts are coordinated (Figure 5-2). According to Axel Bruns, Queensland University of Technology professor, social media is “a key component of every emergency response effort—as much part of the ‘equipment’ as the fire truck or chopper” (Burns, 2013).

Government agencies have been slow to embrace social media tools and culture, but now FEMA, the Centers for Disease Control (CDC), are among the hundreds of U.S. government agencies that have multiple Facebook and Twitter accounts and FEMA, the Department of Homeland Security (DHS), and the Federal Communications Commission (FCC) have all implemented social strategies into their emergency-management plans (www.fema.gov, www.cdc.gov, www.dhs.gov, www.fcc.gov, 2013).

It has taken time for agencies accustomed to being information gatekeepers, in control of the release of information, to overcome their concerns about the accuracy of content



FIGURE 5-2 LaPlace, Louisiana, September 7, 2012—Mar Tobiason, Red Cross shelter volunteer, shows a group of children a YouTube video featuring children living in a temporary shelter. The American Red Cross and FEMA are working with local, state, and other federal agencies to assist residents affected by Hurricane Isaac. *Photo by Patsy Lynch/FEMA.*

generated by the public and their ability to be heard over what they considered cacophony coming from on-the-ground witnesses, victims in need of help, bloggers, TV and radio outlets, first responders, utility companies, nongovernment agencies, and relief volunteers.

The public has integrated social media into their lives. The fruits of that integration are demonstrated during every disaster. According to Jeff Garrow, disaster planner with the Philadelphia Health Department, “Ignoring the state of the world is, for an emergency manager, tantamount to malfeasance. Our greatest lesson learned this year is that we can no longer ignore social media or keep it out of our planning” (Stephens, 2012).

The good news is that it looks like that integration is happening: Hurricane Sandy, which devastated the Northeast in October 2012, marked a shift in the use of social media by government agencies—an acknowledgement and embrace of social media’s critical role in disasters in disseminating information, connecting people, and controlling rumors.

SOCIAL MEDIA USE IN HURRICANE SANDY

In Sandy, more than ever before, government agencies turned to mobile and online technologies to communicate with the public and response partners:

- The New York Office of Emergency Management and New Jersey Governor Chris Christie used Twitter and Facebook to relay evacuation orders, direct resources where they were needed, provided victims with updates about aid, shelter, and storm conditions.

- On October 29, 2012, the day Sandy made landfall, FEMA reached more than 300,000 people on Facebook (up from an average of 12,000 per day) and reached 6 million Twitter users with one message.
- The American Red Cross offered a *Hurricane App* for both iPhone and Android phone users to monitor conditions in their neighborhood and throughout the storm track, to prepare their families and homes, and to find help and let others know they were safe “even if the power is out.”
- Even before Sandy, New York City had 3 million followers across more than 300 city accounts on Facebook, Twitter (in both English and Spanish), Google + , Tumblr, YouTube and more. Throughout response and recovery, these channels made it easy for the city to share information in various formats, and enabled people to find and consume information in ways they preferred and were used to (www.redcross.org).
- The public could also sign up to receive text alerts from the Mayor’s Office Twitter account, *@nycmayoroffice*, which served as a great alternative digital resource to the city’s website, once people lost power and Internet access.

And the public used social media to update government agencies on conditions on the ground, to ask for help, and to inform deployment of resources decisions:

- Throughout the storm, Mayor Bloomberg’s Office monitored social media for public reactions to the storm, sending reports to City Hall on a daily basis. Questions asked on Twitter were responded to directly.
- FEMA had a team watching the nearly 20 million Twitter messages posted about Sandy to better identify what was happening on the ground and put out timely safety information.
- Throughout the storm, the Red Cross pulled more than 2 million posts for review, using the word “shelter” and other specific keyword searches relevant to Red Cross services. Thirty-one digital volunteers responded to 2386 of the reviewed posts. About 229 posts were sent to mass care teams, and 88 resulted in a change in action on ground operations.

Finally, social media tools, including Twitter, Facebook and photo sharing platforms, were used to verify information and dispel rumors. For example, when false reports and images began circulating on the Internet, including a photo of the New York Stock Exchange under 3 feet of water, first responder agencies such as the New York City Fire Department posted messages on Twitter and other social media sites to correct the misinformation. FEMA launched a *Hurricane Sandy: Rumor Control page*, which helped to distinguish the truth from false information about contractors, cash cards, food stamps, and shelters.

WHAT CAN SOCIAL MEDIA DO?

Social media are Internet-based tools, technologies, and applications that enable interactive communications and content exchange between users who move back and forth easily between roles as content creators and consumers.

While many traditional media (such as newspapers, radio, and television) remain important disaster communication channels, traditional media primarily facilitate one-way information dissemination. Social media provides the platform for real-time two-way dialogue and interaction between organizations, the public, and individuals.

News consumers turn to social media during disasters because it provides:

- **Immediate access.** Nearly half of all Americans are now smartphone owners which means they can log onto social media with the tap of a finger. The proliferation of personal computers, laptops, tablets, and mobile phones provide previously unparalleled access to information through social media.
- **Familiarity in a frightening time.** People are more likely to use a particular medium if their friends and family frequently use it and/or they trust and ascribe a high level of credibility to a social media platform. People are more likely to use social media if their friends and family are also users. People turn to existing social networks during disasters, including social media networks created before disasters.
- **Real time information and situational awareness.** Social media use rises during disasters as people seek immediate and in-depth information. Information seeking is a primary driver of social media use during routine times and spikes almost instantaneously during disasters. After the 2011 Japanese tsunami there were more than 5500 tweets per second about the disaster. And social media uniquely provides real-time disaster information. For example, during the 2007 California wildfires, the public turned to social media because they thought journalists and public officials were too slow to provide relevant information about their communities. Time-sensitive information provided by social media during disasters is also useful for officials. For example, an analysis of more than 500 million tweets, found Twitter data forecasted future influenza rates with high accuracy during the 2009 pandemic obtaining a 95 percent correlation with national health statistics. Notably, the national statistics came from hospital survey reports, which typically had a lag time of 1 to 2 weeks for influenza reporting.
- **A way to reach rescuers and ask for help.** More disaster victims are turning to social media for help and rescue, especially in events where loss of phone lines and cell towers make it impossible to call 911. And two Red Cross surveys confirm that the public overwhelmingly believes government agencies should be monitoring social media for distress calls so they can respond promptly.
- **A place to reunite families and friends.** In a survey of 1058 Americans, the American Red Cross found that nearly half of their respondents would use social media to let loved ones know they are safe during disasters (Red Cross 2010). After the 2011 earthquake and tsunami in Japan, the public turned to Twitter, Facebook, Skype, and local Japanese social networks to keep in touch with loved ones while mobile networks were down.
- **Unfiltered information.** Social media provides “raw” information unfiltered by traditional media, organizations, or politicians (Figure 5-3).
- **Power to hold officials accountable.** When the Japanese government would not admit the scope of the danger from the leaking radiation at the Fukushima nuclear power plant after the 2011 earthquake, social media and crowd-sourced information were used to create an accurate picture of the threat.
- **A platform for volunteering or donating.** During disasters, people use social media to organize emergency relief and ongoing assistance efforts. Both Facebook and Twitter were used for disaster relief fundraising in Haiti. Social media has also been used to identify and respond to urgent needs after disasters. For example, just 2 hours after the 2010 Haitian earthquake Tufts University volunteers created Ushahidi-Haiti, a crisis map where disaster survivors and volunteers could send incident reports via text messages and tweets. In less than 2 weeks, 2500 incident reports were sent to the map (Ushahidi, 2012).



FIGURE 5-3 Nashville, Tennessee, May 5, 2010—Nashville resident and disaster survivor Amy Frogge uses social media to display pictures that document the flood and damage to her home in Davidson County. FEMA responded to the severe storms and flooding that damaged or destroyed thousands of homes in May 2010 across Tennessee. *David Fine/FEMA.*

- **A tool for building community and resilience.** As the public logs in online to share their feelings and thoughts, they build relationships and create a sense of community even when scattered across a vast geographical area. These virtual communities can be temporary or continue through recovery and beyond.
- **Emotional support and healing.** Disasters are tragedies and they prompt people to seek not only information but also human contact, conversation, and emotional support.

WHAT ARE THE SOCIAL MEDIA OUTLETS

Social and new media outlets include, but are not limited to the following groups:

- **Blogs.** Online journals that provide a platform for individuals and organizations to write and share content where readers can comment on the content as well as share that information with others
- **Microblogs.** Sites that allow people to share limited amounts of information through posts, often with links to additional information. The best example of a microblog is Twitter, which allows sharing of bite-sized (140 character) content. Microblogs play an increasingly important role during public health emergencies.
- **Crowdsourcing.** Crowdsourcing is making an open call to the public asking for solutions to a problem. These groups aren't being asked to donate food or clothing. They are being asked to use the Internet and its vast search and connective capabilities to gather and disseminate data, to help out an overloaded infrastructure that cannot or will not provide services needs in an emergency. Crowdsourcing social media sites have been used successfully in response to emergencies:
 1. Managing traffic following natural disasters
 2. Tracking food radiation contamination following the 2011 Japanese earthquake and tsunami

- **Digital Mapping.** Data from many disasters such as fires, floods, and even disease outbreaks are compiled and turned into real-time, interactive visual images or digital maps. Google Maps and Ushahidi8 are examples of mapping programs used by the public.
- **Forums.** Online discussion groups focus on particular interests and topics. They have diverse topics of interest available for discussions. They can be powerful and popular elements of online communities during a public health emergency. LiveJournal and ProBoards are good examples.
- **Photo and video sharing and podcasts.** Online sites for sharing photos, videos, and other multimedia content in which YouTube, Flickr, iTunes, and Pinterest are prime examples.
- **Wiki.** Web pages where people work together as a community to create and edit content. Wikipedia is an online encyclopedia that allows participants to add content or edit information included in the entries.

Social media use has grown exponentially—four out of five adults in the U.S. are now on the Internet. Whether through a computer or mobile phone, consumers continue to spend increasing amounts of time on the Internet. Time spent on PCs and smartphones was up 21 percent from July 2011 to July 2012. People continue to spend more time on social networks than on any other category of sites—roughly 20 percent of their total time online via personal computer (PC), and 30 percent of total time online via mobile. Total time spent on social media in the U.S. across PCs and mobile devices increased 37 percent to 121 billion minutes in July 2012, compared to 88 billion in July 2011. According to the Pew Research Center’s Internet and American Life Project, as of December 2012, 67 percent of online adults used social networking sites (PEW Research Center’s Internet & American Life Project, 2013).

Facebook remains the top social network, but new social media sites continue to emerge and catch on:

- Facebook remains the most visited social network in the U.S. via PC (152.2 million visitors), mobile apps (78.4 million users), and mobile web (74.3 million visitors), and is multiple times larger than the next largest social site across each platform.
- Facebook has a staggering 63.46 percent membership share—if Facebook was a country it would be the third largest in the world, right behind China and India and twice the size of the United States.
- Twitter is the fastest growing site in the U.S., growing a staggering 94 percent to 33.8 million active users and 59 million account holders from Q2 to the end of Q4 in 2012. One reason—older Americans. The over-55 year olds are the fastest growing demographic on Twitter. Active usage grew 116 percent between Q2 and Q4 2012 while active usage among 45 to 54 year olds increased 81 percent in the same period (PEW Research Center’s Internet & American Life Project, 2013).
- One in four Americans watch a YouTube video every single day.
- How important are social media tools—their popularity and ubiquity to emergency preparedness and response? Very.

RED CROSS SURVEY OF SOCIAL MEDIA USE

In August of 2011, the American Red Cross did a survey on potential social media use during emergencies and what they found—no surprise—is that social media is already intertwined with communication and information management and is now a critical element in preparedness and response communications.

According to those surveyed:

- Online news is the third most popular source for emergency information
- 18 percent would use Facebook to get information about emergencies
- 24 percent would use social tools to tell others they're safe
- 30 percent in metro areas and 20 percent in nonmetro areas would sign up for emergency alerts
- 80 percent expect emergency responders to monitor social sites and to respond promptly for calls for help
- 20 percent would try an online channel to get help if unable to reach EMS

The Red Cross did a similar survey in 2012 and learned Americans are becoming increasingly reliant on mobile devices during emergencies. In their survey, mobile apps tied social media as the fourth most-popular way to get information in an emergency, followed by television, radio, and online news. They also found that 20 percent of Americans said they have gotten some kind of emergency information from an app, including emergency apps, those sponsored by news outlets and privately developed apps. And most telling: At least a third of the public expects help to arrive in less than an hour if they posted a request for help on a social media website—and more than three out of four (76 percent) expect help within 3 hours, up from 68 percent in 2011.

Source: American Red Cross, 2011; American Red Cross, 2012.

Social media is now an indispensable and entrenched communications tool that provides an enormous and ready-made network of people who are already connected and come online during disasters or crisis seeking or providing information and help. So the question for emergency managers—just as it is for the media—is no longer whether to use social media, but how.

So how did the use of social media evolve to this point? And what have we learned about the use of social media in disasters?

Social media has played prominent and multiple roles in a variety of recent crisis and disaster situations. An analysis of events traces the evolution of best practices and increasing reliance on social media.

EXAMPLES OF SOCIAL MEDIA USE IN RECENT DISASTERS

2004 Southeast Asia tsunami. Photo sharing capabilities and features were used to document events and to provide dramatic visual eyewitness accounts, including a poignant and frightening video of an incoming wave taken from the abandoned camera of one of the victims. This disaster also saw the initiation of the use of mobile technologies to solicit and receive donations for relief efforts.

2005 London subway terrorist attack. Mobile devices played key communication roles in disseminating information primarily by texting during the terrorist attacks in the London subways. Mobile devices were also used to forward pictures of the impact of the bombings on train stations to the London community, the media, and the rest of the world.

Virginia Tech shootings of 2007 and Northern Illinois University (NIU) shootings of 2008. People used mobile media more extensively to communicate with others and give real-time accounts on what was going on during these traumatic events. People used virtual communities (e.g., social networking sites) to interact with others, seek information regarding the crisis, share experiences, form online relationships with others, and build community and awareness of the tragic events. Messages posted on Facebook by students identified all 32 victims of the Virginia Tech shooting a full day before the traditional journalistic sources provided their list.

2007 California Wildfires. Residents with camera and video capacities on their cell phones were able to report on the fires' paths before first responders reached the disaster site.

2008 Mumbai terrorist attacks. On November 27, 2008, a series of coordinated terrorist attacks across the city of Mumbai hit several hotels, a cafe, train station, and a Jewish center. Traditional news media took their lead and got most of their information from sources on the ground. Eyewitnesses reported events during the 60-hour terrorist ordeal using tweets, Flickr pictures, and videos posted on YouTube from their mobile devices.

2010 Haiti earthquake. The Haiti earthquake disaster highlighted the use of SMS text messages to communicate first response aid to individuals needing immediate medical attention or who were trapped under buildings and other fallen structures. Mobile phones were used to communicate first aid information and to provide information about where to go for shelter, food, water, and other health assistance. Following the earthquake, mobile devices allowed people from all over the world to donate to relief efforts using text messages. This type of fundraising effort, first seen following the 2004 tsunami disaster in Southeast Asia, increased the awareness of the power of nonprofit organizations as a communication channel in a disaster situation. The growing prevalence of mobile phone ownership and use, even in very poor countries like Haiti, made rescue efforts possible that would have been unthinkable in 2000.

2011 Japanese earthquake and tsunami. In addition to the uses described in the previous crisis events, crowdsourcing websites were used for monitoring traffic patterns out of affected regions and for tracking radiation contamination of food in the affected regions and beyond. Google's Crisis Response site was one of the most visited social media sites used for sharing information on the crisis. It provided access to the company's Person Finder search program, which helps people reconnect after a disaster, using both personal descriptions and photos. They could connect with missing persons' phone lines and emergency voicemail message boards. They could also receive alerts and statuses from world health agencies, Japanese utility companies, government agencies services, and real-time updates of RSS feeds.

Source: University of Maryland, 2012. Social Media Use during Disasters: A Review of the Knowledge Base and Gaps. National Consortium for the Study of Terrorism and Responses to Terrorism. Department of Homeland Security Science and Technology Center of Excellence Based at the University of Maryland. December 12, 2012.

Social Media is One Part of a Comprehensive Disaster Communications Program

Old and new media work symbiotically and never more than during disasters when lives are at risk and the hunger and need for information and connection spikes. Traditional and new media feed each other's content. Research shows the majority of Twitter content comes from traditional mass media during disasters, a practice termed "information broadcasting and brokerage." In addition, traditional media sources can also be influential social media creators. For example, researchers found that the top three most influential Twitter users worldwide during the 2011 Egyptian revolution were news organizations (Beaumont, 2011).

During the Queensland floods in 2011, the tweets from reporters covering briefings given by disaster authorities were used as live "crawls" at the bottom of the local television stations. This crossover between old and new media was almost instantaneous according to the Queensland Police Service Unit (@QPSMedia) that took the lead in social media use during the floods. Police believe the uptake of Twitter feeds in live coverage by major media outlets (running #qldfloods tagged tweets as part of their live news tickers) helped increase the spread of crowd-sourced information and gave less social media savvy residents access to the same instant information (Burns, 2013).

Even though Japan has one of the most advanced media and telecommunications infrastructures in the world, the Japanese are major users of the Internet and social media and the country has sophisticated disaster warning systems. A clear lesson out of the 2011 earthquake and tsunami was the "importance of using all possible channels and technologies, from the highest tech to the lowest, in order ...to reach the most vulnerable populations with critical information when disaster strikes," according to "Connecting the Last Mile," a report examining the role of communications in the east Japan earthquake (Appleby, 2012).

The report documents the inability of the nation's television networks to provide disaster-affected communities with sufficient information about supplies of food, water, gasoline, and electricity. This gap in local information was met by a number of citizen-led initiatives that took advantage of the fact that radio and print were less dependent on grid-based power supplies. According to the report, community radio, local newspapers, and word of mouth played a key role in providing lifesaving information for communities. "Radio was consistently ranked the most useful source of information by the disaster-affected communities" (Appleby, 2012).

The bottom line is that social media is essential during disasters, but its power and benefits are multiplied when it is part of the communications arsenal made up of old and new media.

Disaster Coverage

Disasters are media events. Once that meant newspapers and television and radio outlets reported only what they learned from government briefings and their own reporters. And the assumption once was no communications could come from disaster victims in the affected area when they lost electricity and phone service. No more.

The Internet, social media, and rapid, dramatic advances in technology have completely changed the game. Gone forever is the old, one-way, top-down communications model government agencies once used to control the release of filtered, often dated information to the public through a public information officer to traditional media outlets.

Now the public informs the public about disasters and the impacts on their community. And that ability to communicate peer to peer has had a profound impact on the way news is produced and consumed during disasters. From distress calls on Facebook to the Red Cross' mobile app directing victims to shelter, social media is now integrated into crisis communications plans and increasingly into disaster response and recovery plans. But recent disasters have taught us that social media alone cannot carry the load alone. There continues to be a strong, complementary, ongoing role for old media. And with each disaster we learn more about how the mix of old and new media works to save lives and property, speed response and recovery, and build community resilience.

FUNCTIONS SOCIAL MEDIA SERVES

Over time, the integration of social media into disaster communications has become a norm, particularly suited to serve these functions:

Providing Situational Awareness—Instant Assessment of On-the-Ground Conditions

Tweets from hotelier Richard Morse provided eyewitness, real-time accounts of conditions in Port au Prince after the 2010 earthquake in Haiti (Morse, 2010):

Just about all the lights are out in Port au Prince.. people still screaming but the noise is dying as darkness sets.

The Castel Haiti is a pile of rubble..it was 8 stories high

Our guests are sitting out in the driveway.. no serious damage here at the Oloffson but many large buildings nearby have collapsed

The UNIBANK here on Rue Capois has collapsed

Putting Out Personal Status Information

The top term employed by Facebook users in the United States the day after Hurricane Sandy hit was “we are ok,” demonstrating that people had turned to social media to let their loved ones know they were safe after the devastating East Coast hurricane.

Meeting Real Time Needs

After Hurricane Sandy hit the Northeast in October 2012, in addition to the obvious sources for information about food and shelter like the American Red Cross, FEMA, as well as the Ready.gov site, hashtags like #needgas[zipcode] #chargingstation #warmingshelter were created so the public could directly send aid to the public (<https://www.facebook.com/DisasterRelief>).

Reuniting Families and Friends

After devastating tornadoes hit Joplin, Missouri, dozens of Facebook pages, including “Joplin Tornado Citizen Checks,” helped reunite friends and family and locate the missing. According to *Time Magazine*, these pages “quickly became the fastest way to get information, as survivors and their relatives relied on social media as they might once have leaned on the Red Cross or local relief agencies.”

Recruiting Volunteers and Donations

On Facebook's Disaster Relief site a request to volunteer and donate in the wake of Hurricane Sandy:

"Making a difference & helping Sandy survivors. President Obama reminds us all how we can make a difference in helping our fellow Americans in the wake of a disaster.

<http://www.fema.gov/volunteer-donate-responsibly>"

"Help those affected by Hurricane Sandy in New Jersey. Click here to donate:

<https://sandynjrelieffund.org/>" (<https://www.facebook.com/DisasterRelief>)

And, Increasingly, Responding to Distress Calls

After the March 2011 Japanese tsunami, 59-year old Naoko Utsami found herself on the rooftop of a community center with just one line of communication—the email on her mobile phone. She emailed her husband, who emailed their son in London who sent a Tweet to the deputy director of Tokyo who initiated the air rescue of Utsami and 400 others trapped on the roof.

"To anyone in the Mont Joli-Turgeon area... Jean-Olivier Neptune is caught under rubbles of his fallen house... he is alive but in very bad shape, please, please hurry. 8 rue Mont Jolie Turgeau. Urgent.—text received by the Ushididi website, Haitian earthquake (Appleby, Lois, 2012, University of Maryland, 2012).

CASE STUDY: SOCIAL MEDIA CRISIS MAP SAVES LIVES IN HAITI

On January 12, 2010, a 7.0 magnitude earthquake scale struck near Port-au-Prince in Haiti killing more than 220,000 and displacing 1.7 million people. Within minutes, Patrick Meier, a doctoral student at Tufts University in Boston turned to social media to save lives. Meier was a director of Ushahidi, an organization that uses volunteers to gather data from text messages, emails and social media—primarily Tweets and Facebook posts from eyewitnesses—and to pinpoint those reports on a Web-based, interactive map.

Ushahidi, which is also the name of a crisis-mapping software first developed and used in Kenya, was used to capture, organize, and share critical information coming directly from Haitians during the initial disaster response phase. For example, Tweets like this one reporting a drug store in Port-au-Prince had reopened after the earthquake.

Meier recruited students who worked out of the basement of the Fletcher School of Law and Diplomacy at Tufts and members of the Haitian community living around the globe as volunteers. Within days, over 100 graduate and undergraduate students were trained on how to monitor social and mainstream media for relevant, mappable content.

Reports about trapped people, medical emergencies, collapsed buildings, fires, and specific needs, such as food, water, and shelter, were received and plotted on maps that were updated in real time by an international group of volunteers. These "digital humanitarians" began to manually monitor hundreds and hundreds of online sources for information on Haiti almost 24/7. The Ushahidi Haiti Crisis Map became a live map with some 2000 individual reports added during the entire project.

These reports, and associated geographic information were available to anyone with an Internet connection. Within 4 days of the earthquake, some first-responder teams began to use the Ushahidi map and information stream to determine how, when, and where to direct resources.

On January 19th, just a week after the earthquake, the U.S. Coast Guard emailed the project with the following question: “I am compiling reports from Haiti for the U.S. Coast Guard and Joint Task Force Command Center. Is there someone I can speak with about how better to use the information in Ushahidi?” Meier explained that “We set up a dedicated Skype chat with the Coast Guard to fast-forward the most urgent (and actionable) content that was being added to the live Haiti Crisis Map. We were also contacted by an American Search and Rescue team in Port-au-Prince who urgently needed GPS coordinators for the locations of trapped individuals.”

Secretary of State Hillary Clinton summarized the impact of crisis mapping in her “Internet Freedom” speech on January 21, 2010, saying, “The technology community has set up interactive maps to help us identify needs and target resources.... [O]n Monday, a seven-year-old girl and two women were pulled from the rubble of a collapsed supermarket by an American search-and-rescue team after they sent a text message calling for help.”

The response community echoed Clinton’s praise of the power of this new technology. The U.S. Marine Corps said: “I cannot overemphasize to you what the work of the Ushahidi/Haiti has provided. It is saving lives every day. I wish I had time to document to you every example, but there are too many and our operation is moving too fast.”

Ultimately both FEMA and the U.S. Coast Guard determined that the Ushahidi Crisis map was the most accurate graphic tool of the emergency in Port-au-Prince. The Ushahidi Haiti Project demonstrated the potential of crowd-sourced maps for targeted disaster response, and provided a useful foundational model for the international community to build on and refine. According to Patrick Meier, “These incredible efforts following the Haiti earthquake demonstrated a huge potential for the future of humanitarian response. Student volunteers in Boston working online with the Diaspora-using free mapping technology from Africa could help save lives in another country thousands of miles away without ever setting foot in said country.”

Source: Ushahidi, 2012. Haiti and the Power of Crowdsourcing. <http://blog.ushahidi.com/2012/01/12/haiti-and-the-power-of-crowdsourcing/>

CASE STUDY: CROWDSOURCING A RADIOACTIVE THREAT IN JAPAN

The March 11, 2011 Tohoku earthquake and tsunami killed over 16,000 people, left more than 6000 injured and 2713 missing, destroyed, or partially damaged nearly one million buildings, and produced at least \$14.5 billion in damages. The earthquake also caused a triple meltdown at the Fukushima Daiichi nuclear power plant on Japan’s eastern coast. But as reporting on the meltdown at the nuclear power plant unfolded, an unsettling story of government and industry stonewalling, misinformation, and outright lies emerged.

TEPCO (Tokyo Electric Power Company), which operates the Fukushima plant, characterized radiation levels nearly 100 times higher than normal as “higher than the ordinary level,” and used the phrase “acute danger” to describe two explosions and the meltdown of three of the reactor cores, which actually, according to experts, should be characterized as a “catastrophic meltdown necessitating immediate evacuation.” The Japanese government and media were complicit in the trivializing of one of the world’s worst nuclear disasters.

As the disaster evolved, people wanted accurate and unfiltered information on radiation protection and meltdowns. In response to these growing concerns about radiation and in the absence of information, a volunteer effort called Safecast was created within a week of the disaster the Japanese call 3/11 to collect and share radiation measurements. Safecast is a global project that relies on data collection by trained volunteers equipped with inexpensive radiation sensors. The crowd-sourced Geiger counter readings are sent over the Internet and displayed as granular data points on a Google map.

Social media helped people with a common cause and common interest find each other and work together. Safecast is making serious progress on providing Japan's residents with the information they need to make safe decisions. "We have evidence that our site has forced the government to release data," according to one of Safecast's founders, Joi Ito of MIT. "They acknowledged they had been hiding the data. Social media and foreign experts have been a huge driver in forcing the evidence." Clearly social media and the crowd don't just provide a way to fact check what others put online, it can act as a very powerful fact check on institutional information and as a force for government transparency.

Sources: Appleby, Lois, 2012. *Connecting the Last Mile: The Role of Communications in the Great East Japan Earthquake*. Inter News. November, 2012. <http://www.internews.org/research-publications/connecting-last-mile-role-communications-great-east-japan-earthquake>

CASE STUDY: POLICE TAKE THE LEAD IN QUEENSLAND

Not all governments have been slow or hesitant to recognize and take advantage of the speed, popularity, and power of social media in a disaster. In fact, more government authorities including FEMA are starting to incorporate social media into their disaster communications plans and operations. One breakthrough example occurred in Australia in early 2011.

Between December 2010 and January 2011, unprecedented rainfall caused a series of floods that affected at least 70 towns in Queensland including Brisbane. More than 200,000 people, including many who had to be evacuated, and water filled the Wivenhoe dam to 180 percent of capacity. Three-quarters of the state of Queensland was declared a disaster zone.

During the floods, social media became the go-to medium for the timely release of valuable emergency information. With 'tweeting peaks' often coinciding with flood peaks, Queensland's emergency services and the population at large took full advantage of the versatility and robustness of social media to prepare for and overcome disaster, according to Associate Professor Axel Bruns of the ARC Centre for Excellence for Creative Industries and Innovation (CCI) and Queensland University of Technology.

Despite the fact there was no Queensland Police Service (QPS) directive or policy decision to increase the use of social media during the floods, the Queensland Police Service Media Unit (@QPSMedia) using the hashtag #qldfloods on Twitter established themselves as community leaders by maintaining a constant flow of reliable real-time information including important "mythbusting" information to counter rumors. Facebook's role was also significant, with the Queensland Police Service's Facebook page exploding from 16,000 likes to a staggering 165,000 during the peak of the crisis.

“They delivered timely advice about flood peaks to people who could not get it in other ways, about road closures, about the needs of communities which had been cut off and to coordinate responses. [Twitter and Facebook] were used by authorities to correct false rumours as soon as they started,” Professor Bruns explained.

They also included social streams of all their emergency response partners on their website and Facebook page so the public could easily find them as well. They embedded Twitter feeds from their response partners organized by sector—transportation, power, water, etc. This is now seen as a best practice by the social media community.

At the peak of the Brisbane flood event, the number of tweets rose to 1200 an hour.

The hash tag #qldfloods used on Twitter was spontaneously accepted as a primary and trusted source for information by public, media, police, and emergency services. “As soon as the Police saw people using it, they were quick to take it up as a means of disseminating advice more widely and effectively.” And the community used social media to feed information from the police to the rest of the community. Every tweet by the Queensland Police was retweeted 25 times on average.

The QPS’s growing use of social media occurred organically, as it became recognized as the easiest and fastest way to get information out to the community. There was no official clearance process for released information. Instead the QPS Media Unit was trusted to use their own judgment which allowed information to be transmitted without delay. According to Professor Bruns the use of social media will now become standard operating procedure for police and other emergency managers, “I have no doubt that social media will from now on become a key component of every emergency response effort—as much part of the ‘equipment’ as the fire truck or chopper.”

Source: Professor Axel Bruns of the ARC Centre for Excellence for Creative Industries and Innovation (CCI) and Queensland University of Technology

Finally, one of the primary lessons learned is that no one communications source meets all needs in a disaster. We are learning in disaster after disaster that it is a mix of old and new media that works most effectively to save lives and property, speed response and recovery, and build community resilience. And frankly, that is how news consumers are taking in information—from any platform or source that meets their needs.

After the March 2011 Japan earthquake and tsunami, people turned to a mix of old and new media for information: According to Jesse Green, executive director of the Tokyo office for the public relations firm Hill & Knowlton, who was in Beijing when the earthquake hit Japan, “While the broadcast media gave their global audience an understanding of what was taking place, social media provided the underlying picture—especially useful for those of us living in Japan, where the top-line details simply weren’t enough” (Skarda, 2011). The report, *Connecting the Last Mile: The Role of Communications in the Great East Japan Earthquake*, from *Internews* concluded that “Low tech local community-led media initiatives (radio, newspaper and newsletters) met the urgent needs of communities affected by the disaster for information on the missing and the dead, on shelter, food, water and fuel in ways national media, in particular, TV, was unable to” (Appleby, 2012).

In Queensland, the Police Service commented on an “almost instant crossover between ‘new media’ and ‘old media.’” According to the QPS, the uptake of Twitter feeds in live coverage by major media outlets (running #qldfloods tagged tweets as part of their live news tickers) helped increase the spread of crowd-sourced information and gave less social media-savvy residents access to the same instant information (Burns, 2013).

Traditional media outlets in Joplin also found benefits in harnessing the platform of social media during the tornado. Local television stations used Facebook in a variety of ways, and reported a jump in interaction on their Facebook pages when it was mentioned on air. News stations monitored these posts and in some cases gleaned material for their broadcasts. One example occurred in Centrailia when a user uploaded a picture of tornado damage that became the focus of a television live shot.

With Hurricane Sandy, local broadcast television stations also saw their web traffic spike. The websites for stations located in areas affected by Sandy experienced up to three times more traffic during the height of the storm than during a normal weekday. AOL’s hyperlocal news sites “Patch” also saw big visitor surges during the storm. The “Patch” network operates approximately 860 sites across the country, but has especially high penetration in New Jersey, New York, and Connecticut (Patch, 2013). Page views for sites from affected regions were up 88 percent from the previous high. Independent local sites, such as the “Sheepshead Bites” in Brooklyn also reported record highs in traffic even when their coverage area was without power. In the wake of the storm, these sites functioned as both newspapers and bulletin boards for local residents (Delo, 2012).

■ ■ Critical Thinking ■

How has social media changed reporting by the media on disasters? How has social media changed the way information has been collected and analyzed by the government, the private sector, and voluntary agency responders? Will social media continue to change the way people receive information about a disaster and how to secure disaster assistance in the future?

Building an Effective Crisis Communications Capability in a Changing Media World

Just as the media world is changing dramatically, the world of emergency management is changing rapidly. The onslaught of major catastrophic disasters around the world and the projected impact of global climate change have forced the emergency management community to re-examine all of its processes, including communications.

Managing information before, during, and after a disaster has changed significantly in recent years, and emergency operations at all levels—local, state, and national—must recognize and acknowledge this change and adapt accordingly.

As we have noted throughout this chapter, the biggest change in disaster communications has come with the emergence of the “first informers”—citizen journalists—and their use of, widely available online and digital technologies and social media outlets to gather and share information and images.

No organization working in the emergency management field—government, nongovernmental groups, volunteer agencies, or the private sector—can ignore the role these “first informers” and their information networks will play in future disasters. In fact, in recent years, emergency management organizations have begun to fully embrace social media much the way traditional media outlets (i.e., television, radio, newspapers) have done. Emergency management organizations such as FEMA have established partnerships with both the traditional media outlets and social media in order to meet their primary communications mission of providing the public with timely and accurate information before, during, and after a disaster.

FEMA ADMINISTRATOR CRAIG FUGATE DISCUSSES USE OF SOCIAL MEDIA

In an interview conducted by The Weather Channel, current FEMA Administrator Craig Fugate had this to say about working with social media: “You mentioned Social Media. It was around at the time of Hurricane Katrina. How has that phenomenon helped change what FEMA does? I think for government this has been a real challenge.

“We’ve been real good at broadcasting information out. But we’ve never been really good at understanding how the public took that information, whether they used it, nor did we do a good job of listening to people.

“I think Social Media has a dynamic there that is something that we have to learn how to do better. That is, we say we want you to do this as action is occurring, but then we can watch people as they communicate back to us and go, “Well, maybe we didn’t do a good job here or maybe they didn’t understand” and we need to re-emphasize that.

“But the other thing is, listen to what people are telling us. Often times they are the best information coming out of a disaster area, well before any official reports come up. And even though you may have the rogue person out there putting out bad information, the general assumption that we find that holds true, if you are crowdsourcing information, the truth will become known and often times the public knows better what is going on in the first hours of an event than even the official channels.”

When asked to cite an example where Social Media helped FEMA, Fugate stated, “I think probably a real good case study of just one example is Joplin (Missouri). We were tracking that day. We knew we had severe weather outbreak potential. But when the original reports started coming up out of Joplin, the Social Media side was much more active, because again it is natural.

“Local responders are still responding to the initial impact. They don’t necessarily have time to say and quantify, “How bad this is.”

“And so those initial reports, balanced against the reports of the tornado, really started painting a picture that this was much bigger than you would have assumed because the state had yet to request assistance; they were still responding. So well before the governor was putting in a formal request, we had already begun moving assistance that way. And again, you are talking about maybe only hours, but that is critical in these types of events to get there as quickly as we can.”

Source: The Weather Channel, 2012. FEMA Chief: Be Prepared. May 7, 2012. <http://www.weather.com/news/fema-fugate-interview-20120507>

Creating Effective Disaster Communications

Seven elements will be necessary in the future to comprise an effective disaster communications capability:

- A communications plan
- Information coming in
- Information going out
- Messengers
- Staffing
- Training and exercises
- Monitor, update, and adapt

A Communications Plan

Disaster communication plans can take several forms. Planning for communicating in disaster response focuses on collecting, analyzing, and disseminating timely and accurate information to the public. A disaster response communications plan will include protocols for collecting information from a variety of sources, including citizen journalists, analyzing this data in order to identify resource needs and to match available resources to these needs, and then disseminating information concerning current conditions and actions to the public through both traditional and new media outlets. The plan will identify trusted messengers who will deliver disaster response information to the public. The plan will identify how disaster communications will be delivered to special needs and non-English-speaking populations.

The disaster response communications plan will include a roster of local, state, and national media outlets; reporters; and first informers. This roster will be contacted to solicit information and to disseminate information back out to the public. Finally, the plan should include protocols for monitoring the media, identifying new sources of information collection or dissemination, and evaluating the effectiveness of the disaster communications. This information would be used to update the plan.

A communications plan for the recovery phase will look very similar. The recovery phase plan must also include protocols for collecting, analyzing, and disseminating timely and accurate information. During the recovery phase, much of the information to be disseminated to the public will come from government and other relief agencies and focus on available resources to help individuals and communities to rebuild.

The communications plan must place a premium on delivering this information to the targeted audiences and must identify the appropriate communications mechanisms to communicate these messages. Information collection from the field from a wide variety of sources must be a priority in the communications plan for the recovery phase. Community relations staff, community leaders, and first informers are all good sources of information on the progress of recovery activities and can provide valuable perspectives of the mood of the individuals and communities impacted by the disaster. These sources are also effective in identifying

communities, groups, and individuals who have been passed over by recovery programs. It is in the recovery phase that consensus is sought, since crucial long-term decisions have to be made at the state and community levels.

Information Coming In

Information is the basis of effective disaster communications. In disaster response, receiving and processing regular information concerning conditions at a disaster site and what is being done by agencies responding to the disaster help disaster communicators provide timely and accurate information to the public. In collecting this information, no potential source should be ignored, and all possible sources should be encouraged to forward relevant information. To be successful in this task, you should identify all potential sources of information and develop working relationships with these various sources *before* the next disaster strikes. You must also be prepared to identify and partner with new sources of information as they come on the scene in the aftermath of a disaster.

Potential disaster information sources include the following:

- *Government damage assessment teams:* Government disaster agencies at every level have staff responsible for assessing damages in the aftermath of a disaster. For a major disaster, a damage assessment team may include representatives from local, state, and federal response agencies. The information collected will include deaths and injuries and any damages to homes, infrastructure, and the environment.
- *First responders:* Among the first on the scene at any disaster, they are equipped with the necessary communications devices and trained to be observant.
- *Voluntary agencies:* These groups often have members or volunteers who are trained in damage assessment and can make first and ongoing assessments. For example, the Red Cross has extensive experience in reporting damage to homes and numbers of people evacuated and in shelters.
- *Community leaders:* Trusted leaders who have their own neighborhood network or work with community-based organizations with networks into the community can be a valuable source of on-the-ground information.
- *First informers:* These are the individuals in the disaster site with the wherewithal to collect information and images and to communicate that information and those images by cell phone, handheld device, or laptop.
- *Social media:* These include blogs (weblogs), Google Earth, Google Maps, wikis (Wikipedia), SMS (text messaging postings like Twitter), Flickr, Picasa (photo survey sites), and YouTube (video sharing sites).
- *Online news sites:* These are aggregates of community news, information, and opinions.
- *Traditional media:* Television, radio, and newspaper reporters, editors, and news producers can be good sources of information, especially if they have deployed news crews to the disaster area before or just after a disaster strikes.

Having identified the potential information sources in your area, you must reach out to these sources to develop a working partnership and to put in place whatever protocols and technologies are needed to accept information from these sources. It is important that all potential sources of information understand what types of information you need from any situation so they are looking for the specific information you need to make decisions. Government response agencies and voluntary agencies practicing NIMS and ICS will know what information to collect. You must reach out to the nongovernmental, nontraditional information sources before the next disaster to let them know what information you need and how to communicate that information to you.

Here are some ideas for developing these working partnerships with nongovernmental, nontraditional information sources:

- Build neighborhood communications networks. Partner with community-based organizations, churches, and neighborhood associations to build neighborhood communications networks. Local residents can be trained in information collection, maybe as part of Community Emergency Response Team (CERT) training, and local community leaders can be entrusted to collect this information and forward it to emergency officials. These networks could also be used to send messages from emergency officials to neighborhood residents through trusted community leaders.
- Create and distribute a disaster information protocol for first informers. List what information you will be seeking over the course of a disaster response, and get this list out to the public. Make sure they know where to email or post the information and images they collect.
- Establish a point of contact within your organization for information sources. Designate staff who will work with information sources during a disaster and are accessible.
- Create an electronic portal for information from the field. Wikis and weblogs (blogs) can accept and aggregate comments from users; set up a Twitter website that can be updated via text messages, and create a homepage on YouTube and Flickr.
- Include first informers and traditional and new media outlets in disaster response training and exercises. Incorporate these information sources into your disaster exercises to identify issues and gaps and to update plans accordingly. Media are not always included in exercises, and neither are first informers, but by including these groups in your exercises, you make the exercise more authentic and you create an opportunity to identify difficult issues prior to facing them in the next disasters so you can make appropriate adjustments. It is also a chance to get to know one another.
- Meet with traditional and new media types on a regular basis, which is another way to create personal relationships with these critical partners in any disaster response.
- Include information sources in your after-action debriefs. Their perspectives and experiences can be used to update plans and operations.

Many of these information sources can be identified as part of hazard mitigation and preparedness campaigns. Working relationships can be developed during these nondisaster periods that will facilitate information collection and flow in disaster response.

Information Going Out

If information coming in is the basis for disaster communication, then information going out is the goal. Timely and accurate information can save lives in disaster response and in hazard mitigation and preparedness programs. In getting information to the public, you must use all available communications mechanisms, including the following:

- *Traditional media:* Television, radio, newspapers, and the Internet
- *Social media:* Post new information on community websites, blogs, wikis, bulletin boards, and social media outlets such as Facebook, YouTube, Twitter, etc.; share timely photos and video online, and tell traditional media that online outlets are being updated routinely
- *Neighborhood communications networks:* Trusted community leaders who go door to door

Historically, emergency officials have disseminated disaster information to the traditional media by means of press conferences, briefings, tours of the disaster site, one-on-one interviews with disaster officials, press releases, situation reports, and postings on the Internet. Radio actualities, photographs, and videotapes have also been provided to traditional media. In major disasters, emergency management agencies have used satellite uplinks and video and audio press conferences to reach traditional media outlets across large sections of the country.

Disseminating information through new media outlets is something new for emergency officials and will require patience and understanding of how these new media function with their audiences. Most of this work can occur during nondisaster periods. This is the time to learn more about Wikipedia, Twitter, blogs, Flickr, Facebook, YouTube, and social networking sites and to discover how you as an emergency manager can best use these media to deliver preparedness and hazard mitigation messages as well as communicate with their target audiences in the disaster response and recovery phases.

Prior to the next disaster you might consider the following:

- *Start a blog.* Get your message out there about the risks your community faces; how community members can take action to reduce those risks and protect their families, homes, and businesses; how to prepare for the next disaster; when to evacuate and how; what will happen when your organization responds; and how members of your community can become first informers.
- *Create a bulletin board.* This could serve as a link to community leaders involved in hazard mitigation and preparedness programs in the neighborhoods and could be accessed by all community members before, during, and after a disaster.
- *Get on Wikipedia.* Load preparedness and hazard mitigation information and links for more information on the site. Understand that this site will grow with information added by readers.
- *Post on YouTube.* Include “how-to” videos on how to disaster-proof your home, office, and business. Post videos that explain how to survive the next disaster (how much water and food to have on hand, where to go for information).
- *Create a Facebook account.* Post preparedness information (Make a Plan, Be Informed, Create a Kit) and evacuation plans and warnings.
- *Create a Google Map.* Include the locations of designated shelters and evacuation routes.

When the next disaster strikes, consider the following:

- *Regular updates on your blog* give you the opportunity to provide a direct link to members of your community. Include time in your schedule to get interactive and answer questions and inquiries.
- *Regular updates on your bulletin board* also give you the opportunity to talk directly to members of the community and another chance to get interactive.
- *Review and update Wikipedia.* Place your information in the Wikipedia file on the disaster, and keep it regularly updated. Update disaster aid and shelter information, links to missing persons sites, correct inaccurate information, and confront rumors.
- *Post on YouTube* videos from informational briefings from affected neighborhoods and appeals for help.
- *Post ongoing information on Facebook.* Post the same information concerning response and recovery actions and activities that you provide to traditional news outlets (TV, radio, and newspapers).
- *Update Google Maps* to show locations of open shelters and hospitals.
- *Display on Google Earth* the locations of affected areas.

Maintain and regularly update all of these sites during the recovery phase.

Messengers

The person who delivers the messages plays a critical role in disaster communications. The messenger puts a human face on disaster response and is critical to building confidence in the public that people will be helped and their community will recover. Public information officers (PIOs) regularly deliver information and messages to the media and the public. However, the primary face of the disaster response should be an elected or appointed official (i.e., mayor, governor, county administrator, city manager) or the director of the emergency management agency or both. These individuals bring a measure of authority to their role as messenger and, in the case of the emergency management director, someone who is in charge of response and recovery operations.

The public wants to hear from an authority figure, and the media wants to know that the person they are talking to is the one making the decisions. Elected officials who served as successful messengers in recent disasters included California governor Arnold Schwarzenegger during the 2007 Southern California wildfires, New York City mayor Rudy Giuliani during the September 11 attacks, Florida governor Jeb Bush during the four hurricanes that struck Florida in 2004, and Oklahoma governor Frank Keating during the 1995 Oklahoma City bombing.

Successful emergency managers who served as messengers include former FEMA director James Lee Witt and California Office of Emergency Services director Dick Andrews in the 1994 Northridge Earthquake and Craig Fugate with the Florida Division of Emergency Management during recent hurricanes, tornadoes, and wildfires in Florida. Witt and former president Clinton worked very well together in delivering messages concerning federal relief programs in numerous disasters in the 1990s.

Prior to the next disaster, each emergency management agency should determine if an elected or appointed official will serve as the primary messenger alone or in tandem with the emergency agency director. It is best to work out in advance what types of information will be delivered by which messenger. Protocols for briefing books and situational updates should be developed. A determination should be made as to who will lead press briefings and news conferences, who will be available to the media for one-on-one interviews, and who will be involved in communicating with the new media outlets. Again, all of these activities can be shared by the elected/appointed official and the emergency agency director.

Emergency management agencies should also designate appropriate senior managers who will be made available to both the traditional and new media to provide specific information on their activities and perspective. This is helpful in even the smallest disaster when persons with expertise in specific facets of the response can be very helpful in delivering disaster response information and messages.

TIPS FOR GOVERNMENT SPOKES PEOPLE COMMUNICATING IN A DISASTER

Don't lie. This is a no brainer but critically important. Nothing will destroy your credibility and the credibility of your organization quicker. There really should never be a need to lie and if you do you will be caught. Equally important, don't get caught in an unintentional lie by not confirming the information you are communicating.

Don't talk about what you don't know. Next to lying this is the quickest and surest way to destroy your credibility. If you don't know the answer to a question, don't make up an answer. Instead say you don't know and that your staff will investigate and get the answer to the media as quickly as possible.

Don't talk about actions of other organizations. It is always best to let representatives from other organizations speak for their organization to let them know what their organization is doing. Talking about others can very possibly lead to misunderstandings. It is much simpler to include representatives of other organizations available to speak about their organization than it is to correct a misstatement about another organization. For example, an emergency manager should not report on what the Red Cross is doing in a response but rather have a Red Cross representative make that report.

Don't make promises you can't keep. If you are not 100 percent sure that you or your organization can deliver on a promise do not make it. You will be held accountable for any promises and coming close to meeting your promise is not enough. If you say assistance will be available in 2 days you must be very sure this assistance will be there in 2 days because if it takes 3 days you will be in trouble with the public and the media.

For example, don't say relief checks will be in the mail in 3 days or an inspector will be at your house in 3 days or an emergency shelter is open today or water and meals ready to eat (MREs) will be available in 5 days if you can't deliver on the day you promised.

Be informed. The very best way to avoid making false or misleading statements to the media and the public is to be well informed. This involves a commitment by leadership to pay attention when briefed and the need to have an effective process for collecting, analyzing, and disseminating

information. Examples of the types of information an emergency manager should know include damage levels; number of deaths and injuries; government actions in response and recovery phases; roles of voluntary agencies; how to register for assistance; where to find immediate help; and what actions are planned for today and the coming days.

Acknowledge the conversation. Traditional media (TV, radio, and newspaper) and new media (Internet, social media, and blogs) are aggregations of information and images. Be aware and acknowledge—affirm or rebut—the information that is being generated in the various forms of media. Participate and learn from this public exchange of information.

Focus on performance. When talking to the media and the public, focus on what your organization is doing. What it has done. What it hopes to do in the future to meet the needs of its customers. Examples of such performance-based statements include: Initiated and made progress on debris removal; set up a 1-800 number for information and to register for assistance; coordinating with voluntary agencies to set up shelters and to deliver immediate assistance; updated damage assessments.

Staffing

Not many emergency management agencies have a single communications specialist, much less a communications staff. Federal agencies such as FEMA, DHS, HHS, and others involved in disasters have extensive communications staff. Most state emergency management operations have at least a communications director. The depth of staff support for communications varies widely. Emergency management agencies in major cities in the United States often have communications directors and in some cases extensive communications staff. Small to mid-size cities and communities are unlikely to have a communications director or staff.

The time has come for all organizations involved in emergency management to establish an ongoing communications staff capability. For agencies in small to midsized communities, this may require enlisting help from the local government's communications staff. One way to do this is to provide funding for a percentage of this individual's time each month. In this way communications activities required during nondisaster periods could be acquired on a consistent basis. This will also allow for the local government communications staff and director to become better informed of the emergency management agency's activities and be better prepared to work with the emergency agency director during disaster response and recovery.

For large cities and federal and voluntary agencies with existing communications staff, it is now a matter of reordering priorities to meet the demands of working with social media. Staff will be required to establish and maintain working relationships with social media outlets and to interact with the various blogs, bulletin boards, social networking sites, and other new media outlets that serve their community. At a minimum, there should be one designated staff person on the communications staff who is responsible for the day-to-day interactions with new media. Additional staff should be made available in a major disaster to work with these groups.

The social media designated staff would also work with new media outlets in promoting hazard mitigation and preparedness campaigns in the community and serve as the staff

support for the establishment and maintenance of neighborhood communications networks working with trusted leaders in the community.

Training and Exercises

An effective disaster communications operation requires well-trained messengers and staff, and should be a vital part of all disaster exercises. Elected/appointed officials, agency directors, and public information officers should all receive formal media training in order to become comfortable working with the media to communicate disaster messages to the public. Media training provides methods for communicating a message effectively, techniques for fielding difficult questions, and the opportunity to practice delivery outside the crucible of a crisis. If possible, media training should be provided to senior staff that may appear in the media.

Staff training should come in several forms, including the following:

- Media relations—learning how to work with traditional and new media, including meeting deadlines, responding to inquiries, scheduling interviews, understanding what types of information each media outlet requires, and learning how a news operation works
- Social media—learning what a blog is, how social networking works, and how to establish and maintain a neighborhood communications network
- Marketing—learning how to pitch a story idea for a preparedness program or hazard mitigation project to all forms of media, how to develop supporting materials for preparedness and hazard mitigation campaigns, and how to evaluate the effectiveness of such efforts

Communications operations must always be included in future disaster exercises. It is highly recommended that these exercises include reporters from traditional media outlets and representatives from the new media, including bloggers and online news sites. Working with new media and online news sites should be included in the exercise, such as updating and correcting a Wikipedia site and posting information on a community bulletin board. Community leaders involved in neighborhood communications networks should also be included in the exercise.

Monitor, Update, and Adapt

Staff should be assigned to regularly monitor all media outlets. Summaries of news stories in the traditional and social media should be compiled regularly. Staff should routinely monitor new media outlets and provide regular summaries of news on these sites. This activity is especially important during a disaster response. Through monitoring, the media staff is capable of identifying problems and issues early in the process and can shape communications strategies to address these issues before they become big problems. This is also an opportunity to identify trends in how information flows through the media to the public and to identify areas for improvement in message development and delivery. Regular monitoring will identify rumors and misinformation and speed corrections.

The information collected as part of monitoring activities can be used to update communications plans, strategies, and tactics. This data can be used to determine how to allocate

staff resources and to update training and exercise programs. Emergency management agencies must be constantly on the lookout for emerging communications technologies and opportunities.

Conclusion

The changing shape of emergency management in the coming years will demand that communications take a larger role in all emergency operations and programming.

Incorporating new media forms and functions into communications plans and strategies and adapting to new technologies must be the order of the day for all emergency management agencies.

Emergency officials can no longer avoid communicating with the media and the public.

Emergency agencies must continue to accept the expanded role of communications in all four phases of emergency management and embrace it as a valuable tool in meeting the needs of the public.

Important Terms

Disaster communications strategy

Joint Information Center

Situation report

Social media

Self-Check Questions

1. What is the mission of an effective disaster communications strategy?
2. What are the five critical assumptions of an effective disaster communications strategy?
3. What are some of the ways FEMA director James Lee Witt exhibited his commitment to effective communications?
4. What is the goal of a media partnership?
5. Name and describe six basic emergency management audiences.
6. How has the role of social media expanded in the coverage of disaster since 2004?
7. How have the changes in media coverage changed how emergency managers must deliver timely and accurate information to the public?
8. What communications media have traditionally been used to communicate disaster information?
9. Name several types of social media and describe how they have been used in recent years in communicating disaster information.
10. What role have “first informers” come to play in disaster communications?
11. List and summarize the seven elements of an effective disaster communications capability.

Out-of-Class Exercises

1. Using the Internet, the library, or another information source, print out three different articles that describe the same disaster event. Compare the three articles to determine which provides the most useful information to the reader in terms of immediate response and recovery information.
2. Go to your state office of emergency management's website. Print out disaster preparedness and mitigation guidance provided on that site. Critique this information with regards to how useful it is to you personally and to the members of your community.

The Disciplines of Emergency Management: Response

What You will Learn

- The roles and responsibilities of local first responders and emergency managers
- How states are involved in emergency management
- The contribution of volunteer organizations to disaster response efforts
- What the Incident Command System (ICS) is, and how it functions
- How presidential disaster declarations occur
- How the federal government provides assistance in the aftermath of a declared disaster
- How the National Response Framework works, and how it coordinates the efforts of agencies and organizations in government and in the private and nonprofit sectors

Introduction

Whether an emergency event, such as a house fire or automobile accident, or a major disaster, such as a flood, earthquake, or hurricane, the first government officials to respond are always the local police, fire, and emergency medical personnel. Their job is to perform rescue, attend to the injured, suppress fires, secure and police the disaster area, and begin the process of restoring order. They are supported in this effort by local emergency management personnel and community government officials.

Emergency events become disasters when the requirements of the event is so great as to exceed the capabilities of the local responders, and when the costs of the damage inflicted exceeds the capacity of the local government to absorb. When this happens, the mayor or county executive must turn to the governor and state government for assistance in meeting the outstanding response requirements, and in helping the community to recover. The governor in turn activates their state's emergency management capability, which is maintained in a state-level office of emergency management and homeland security. The governor also has his or her resources—the National Guard and other state government agencies with resources and services—capable of providing needed assistance to the stricken community.

If the governor determines that the size of the disaster event exceeds the state's capacity to meet the outstanding needs of one or more local jurisdictions impacted, as based on information generated by community and state officials, they will submit a formal request to the president and the Secretary of Homeland Security for a presidential major disaster declaration. This request is prepared by state officials in cooperation with FEMA staff. Each request is analyzed

first by the corresponding FEMA Regional Office and then forwarded to FEMA headquarters in Washington, D.C. where headquarters staff review and evaluate the governor's request. An analysis and recommendation is forwarded to the president, who considers the information at hand and makes a decision to either reject the request or to grant the declaration. Once a declaration is granted, the support of the federal government as defined in the Stafford Act and in the Code of Federal Regulations becomes available.

In January 2008, FEMA introduced the National Response Framework (NRF) "to ensure that government executives, private sector and non-governmental organization (NGO) leaders, and emergency management practitioners across the nation understand the domestic incident response roles, responsibilities, and relationships in order to respond more effectively to any type of incident" (FEMA, 2008). Like the multi-agency response coordination mechanisms that came before it—including the National Response Plan (NRP), which was adopted by FEMA in December 2004 in the aftermath of the September 11, 2001 terrorist attacks, and the Federal Response Plan (FRP) which had guided federal government response activities since the early 1990s)—the NRF outlines how the federal government and its partners provide critical emergency assistance across 15 support functions. FEMA also released the National Incident Management System (NIMS) to improve coordination between agencies from the various levels of government (federal, state, tribal, and local), and the different sectors (private, nonprofit, voluntary, and more).

When the president grants a major disaster declaration, federal government departments and agencies involved in the response effort operate according to their accepted roles as defined within the NRF, always in support of local officials, and in partnership with emergency managers, non-governmental groups, and the private sector. This legal and procedural declaration also delineates what specific assistance programs are made available, which typically includes either public assistance, individual assistance, or both, and delineates which specific local jurisdictions are eligible for funding as determined by sustained damages and needs at the county level.

CASE STUDY: THE SPACE SHUTTLE *COLUMBIA* DISASTER

On February 1, 2003, as the space shuttle *Columbia* reentered the earth's atmosphere following a successful space mission, it suddenly began to break apart, showering debris over an area of hundreds of square miles in east Texas and western Louisiana. President Bush issued emergency declarations for Texas and Louisiana in the absence of requests for assistance from either governor, as the shuttle craft was considered federal property. Within hours, federal and state agencies had deployed teams to the disaster area to assist local fire, law enforcement, and emergency management authorities already on-site. More than 60 agencies, including public and private groups, responded with personnel, supplies, and equipment. Disaster field offices (DFOs) were opened at Barksdale Air Force Base in Shreveport, Louisiana, and in Lufkin, Texas, and a satellite DFO was established in Fort Worth, Texas. The Lufkin DFO was the regional center of all search-related operations. This was the first major response performed by the newly created Department of Homeland Security (DHS).

As this was a federally declared disaster, FEMA was in charge of Federal Response Plan (FRP) coordination, and it also coordinated the response and recovery operations. NASA, with the assistance of the Texas Forest Service (TFS), the U.S. Forest Service (USFS), the Environmental Protection Agency (EPA), and many other groups, supervised the search for shuttle material. The EPA's role was to assist FEMA and NASA by conducting environmental monitoring and assisting in the cleanup of hazardous materials from *Columbia*. EPA experts from across the country were mobilized to help local, county, and state officials protect public health and the environment, as well as to assist officials in recovering materials from communities and providing for safe transport of these materials to secure locations.

From the onset, the agencies' priorities were threefold: ensure public safety, retrieve evidence—pieces of the shuttle that ultimately could determine the cause of the tragedy—and reimburse expenses of state and local governments and private citizens who may have sustained property damage as a result of the accident and search. NASA quickly identified potential hazardous materials, such as tanks containing toxic substances or unexploded pyrotechnic devices, and once found, the material was secured by the EPA. The EPA also worked with state and local authorities to clear school campuses and public access areas, and it tested air and water samples taken along the flight path for shuttle contaminants. Using the resources of the Emergency Response and Removal Service (ERRS) contractors and the U.S. Coast Guard (USCG) Gulf Strike Team, the EPA found no evidence of hazardous material in the atmosphere or drinking water supplies. Early in the recovery effort, teams from NASA, the FBI, the National Guard, Urban Search and Rescue (US&R) organizations, the Department of Public Safety, and others conducted a successful search in Texas to recover and bring home the bodies of *Columbia's* crew.

Three days after the accident, local fire and police departments, volunteers, Texas Department of Public Safety officers (DPS), Louisiana State Police, and EPA, the U.S. Forest Service (USFS), the Texas Forest Service (TFS), and National Guard units from Texas, Louisiana, Oklahoma, and New Mexico began clearing shuttle debris in high-traffic areas. A one-page set of guidelines prepared by the state of Texas, NASA, and the EPA enabled the teams to collect, document, tag, and transport nonhazardous debris without prior EPA or NASA clearance. These initial teams ended their search operations on February 17. The TFS, under the direction of NASA, now assumed responsibility for search activities in the field, which involved extensive air and ground searches in a 10-mile by 240-mile corridor along the projected shuttle flight path. The TFS, through the Texas Interagency Coordination Center, called upon experienced management and firefighting crews from across the nation and Puerto Rico. The air operations, managed by TFS, included up to 36 helicopters and 10 fixed-wing aircraft. Also involved in the air search but not managed by TFS were motorized paragliders, an ER-2 (similar to the U-2), a specially equipped DC-3, and the Civil Air Patrol (CAP), among others. Volunteers put in more than 800 search-days of flying in the weeks just after the accident and covered the flight corridor area west of Fort Worth to the New Mexico border. The USFS, Bureau of Indian Affairs, Bureau of Land Management, National Park Service, U.S. Fish and Wildlife Service, along with state forestry organizations and contractors, provided the greatest number of crews, drawing from their expertise in wildland firefighting. More than 4000 people at a time searched 12 hours a day, 7 days a week. Camp crews were stationed at sites near Hemphill, Nacogdoches, Palestine, and Corsicana, with a goal of finding as much material as possible before spring vegetation growth made the search more difficult.

The U.S. Navy supervised the water search activities in Lake Nacogdoches and Toledo Bend Reservoir, located at the eastern end of the 2400-square-mile search area. Beginning on February 22, 60 divers from the Navy, the U.S. Coast Guard (USCG), EPA, DPS, Houston and Galveston police and fire departments, and Jasper County Sheriff's department combed the lakes using sophisticated sonar-equipped boats to help identify shuttle material. As in any operation of this magnitude, the hazards for all the searchers were challenging. Ground crews slogged through mud, dense vegetation, and rocky areas; faced wild hogs, snakes, and other wild animals; and dealt with the ever-changing weather. Divers reckoned with the murky waters of the Texas lakes, along with underwater forests and various submerged hazards.

Ground and air operations covered over 1.5 million acres, mostly in Texas, with searches also conducted in Louisiana, California, Utah, Nevada, and New Mexico. More than 82,500 shuttle items were recovered and processed by the Kennedy Space Center in Florida, weighing 84,800 pounds and amounting to almost 40 percent of the total weight of *Columbia*. The total cost of the search and recovery operation amounted to \$161,945,000. These funds include costs associated with the ground, air, and water search operations; equipment; and personnel. FEMA Public Assistance, working through Texas and Louisiana, reimbursed the two states approximately \$4.5 million for their efforts. FEMA turned over control of the recovery operation to NASA on April 30. The same day, NASA opened the *Columbia* Recovery Operation (CRO) office at the Johnson Space Center in Houston. FEMA closed the Disaster Field Office in Lufkin, Texas, on May 10.

Source: FEMA. <http://training.fema.gov/EMIWeb/edu/Chapter%204%20Response.doc>.

In the 1990s, the emergency management system in the United States was repeatedly tested by a series of major disaster events that included the 1993 Midwest floods; the 1994 Northridge, California, earthquake; and several devastating hurricanes and tornadoes. In each of these instances, the system was found to be largely effective in tapping into the full resources of the federal government, and bringing together the different partners at the federal, state, and local levels to produce a comprehensive, coordinated, and effective response (Figure 6-1). The system also leveraged the capabilities and resources of America's cadre of volunteer organizations to provide victims with immediate relief in terms of nutrition, hydration, and shelter. In recent years, government officials and agencies at all levels have begun to expand the capabilities of this system, and to further increase community resilience, by reaching out to the vast business community. The private sector has brought to the table a range of information, capabilities, and resources that has not only filled many of the response and recovery capacity gaps that have persisted, but has also resulted in an overall reduction in community vulnerability.

The September 11 terrorist attacks caused government agencies at all administrative levels to reevaluate their response procedures and protocols. The combination of factors that included little to no existing preparation on the part of first responders to deal with terrorist hazards, poor coordination and communications mechanisms between responding agencies, and a lack of adequate responder safety procedures, all led to an epic loss of life among



FIGURE 6-1 Midwest Floods, July 1993—Residents and volunteers work to fill sandbags in an effort to stop the flood from causing further damage. A total of 534 counties in nine states were declared for federal disaster aid. As a result of the floods, 168,340 people registered for federal assistance. *Photo by Andrea Booher/FEMA Photo.*

first responders that reached levels several times greater than what is typically sustained in an entire year of activity. The after-action reports and studies conducted led to changes in the procedures and protocols that have in many ways revolutionized the profession. Additionally, the prospect of terrorism has placed an increased focus on ways to better protect first responders from harm in all types of disasters, terrorist or otherwise (see Chapter 9).

The botched response to Hurricane Katrina in 2005 resulted in another reexamination of how all parties should work together when responding to catastrophic disasters. Numerous after-action reports were prepared by the U.S. Senate, the U.S. House of Representatives, and the White House, resulting in FEMA and the Department of Homeland Security crafting the National Response Framework (NRF) and embracing the National Incident Management System (NIMS) as the backbone for coordinating the response to major disasters by federal, state, and local government; voluntary and nongovernmental organizations; and the private sector.

CASE STUDY: THE RESPONSE TO HURRICANE KATRINA

By all accounts, the response to Hurricane Katrina represented a failure on all levels. According to the White House Report on the disaster, “The response to Hurricane Katrina fell far short of the seamless, coordinated effort that had been envisioned by President Bush when he ordered the creation of the National Response Plan in February 2003” (Townsend, 2006). The Senate report found that “the suffering...continued longer than it should have because of—and in some cases exacerbated by—the failure of government at all levels to plan, prepare for, and respond aggressively to the storm. These failures were not just conspicuous; they were pervasive” (Senate Committee on Homeland Security and Governmental Affairs, 2006). The report concluded that there were many coincident

failures, but that four among these deserved special placement given their important role in the disaster. These included:

1. Long-term warnings went unheeded, and government officials neglected their duties to prepare for a forewarned catastrophe.
2. Government officials took insufficient actions or made poor decisions in the days immediately before and after landfall.
3. Systems on which officials relied on to support their response efforts failed.
4. Government officials at all levels failed to provide effective leadership” (Senate Committee on Homeland Security and Governmental Affairs, 2006).

The report developed by the House of Representatives to study the event also recognized that systemic weaknesses existed, including that the agencies tasked with responding to catastrophic events were not prepared to do so; the command, control, and coordinate systems in place were not utilized effectively or to capacity; the defenses (levees) built to protect the city were not adequate to hold back the storm surges that occurred; and more. The report noted that the Hurricane Pam Exercise, which was conducted prior to Hurricane Katrina, and which investigated what would happen and what response requirements were likely if a Category 4 or 5 hurricane were to happen, should have been adequately informative for the decision-makers in place about the dangers that existed. On the positive side, the investigators concluded that the accuracy and timeliness of the National Weather Service and National Hurricane Center forecasts prevented further loss of life. Other key findings included:

- The failure of complete evacuations led to preventable deaths, great suffering, and further delays in relief.
- Massive communications damage and a failure to adequately plan for alternatives impaired response efforts, command and control, and situational awareness.
- The collapse of local law enforcement and lack of effective public communications led to civil unrest and further delayed relief.
- Medical care and evacuations suffered from a lack of advance preparations, inadequate communications, and difficulties coordinating efforts.
- Long-standing weaknesses and the magnitude of the disaster overwhelmed FEMA’s ability to provide emergency shelter and temporary housing.
- FEMA logistics and contracting systems did not support a targeted, massive, and sustained provision of commodities.
- Contributions by charitable organizations assisted many in need, but the American Red Cross and others faced challenges due to the size of the mission, inadequate logistics capacity, and a disorganized shelter process (Select Bipartisan Committee to Investigate the Preparation for and Response to Hurricane Katrina, 2006).

In summary, these reports found that the government response lacked leadership at the top, was unprepared, operated on poor information and situational awareness, was poorly coordinated, and was incapable of communicating among the various responding agencies and with the general public. All of these factors added up to the confusion, violence, and suffering documented in the first weeks by the media and witnessed by billions across the globe (Figure 6-2).



FIGURE 6-2 New Orleans, Louisiana, February 24, 2006—FEMA contractors remove debris created by Hurricane Katrina from the Lower Ninth Ward. Crews continue collecting wreckage throughout the neighborhood as more people return to rebuild New Orleans. *Robert Kaufmann/FEMA.*

This chapter describes how local, state, and federal government officials and their partners respond to disasters in the United States. The chapter includes sections discussing local response, state response, volunteer group response, the Incident Command System (ICS), the National Incident Management System (NIMS), the National Response Framework (NRF), and communications among responding agencies.

The Local Response

Minor, routine emergencies occur on a daily basis in communities throughout the United States. Local emergency services personnel, who are staffed, trained, and equipped to deal with these likely hazards, typically manage the response to such events in a systematic and well-planned manner. In most communities, the emergency services cadre includes firefighters, police officers, and emergency medical technicians, supported by hospital emergency departments, private and public utility response teams, and other local government departments that address isolated needs (e.g., the local departments of health or public works and engineering). These local individuals and agencies assess the incident, secure the scene and maintain order, rescue and treat the injured, contain and suppress fire or hazardous conditions, retrieve the dead, and ultimately, they stabilize the situation.

There are many hazards that cause locally isolated incidents that result in local impacts and which are fully managed at that same local level. For instance, the management of most hazardous materials transportation and storage incidents, structure fires, automobile accidents, civil disturbances, and even localized flooding, are fully within the capabilities of local officials.

These events are considered high-likelihood, and low- to moderate-consequence. And given the ever-presence of resource limitations, meeting the needs of these events is likewise what the community bases its capabilities on.

Lower-likelihood, higher-consequence events do happen, however, and when they do the local jurisdictions can quickly become overwhelmed in one or more response functions. Capability shortfalls trigger an escalation of the emergency or even a disaster situation, which prompts a request for assistance from mutual aid partners and/or the state. If the state is unable to manage or meet the needs of the requests that come in, the crisis is further escalated to the federal level through a request by the governor. But no matter the event's size, local officials are always the first responders on the scene, and local incident commanders maintain command and control of the growing response no matter how many outside agencies come to their support (with the exception of incidents involving terrorism or national security risks where either the FBI or DHS will maintain jurisdiction over law enforcement investigations or national security activities).

The United States operates under a decentralized emergency management structure that is in line with federalism. Additionally, the actions local first responders are driven by are procedures and protocols developed by each of these responding agencies themselves (e.g., fire, police, and emergency medical), rather than being driven by some national- or state-level 'grand plan.' Most jurisdictions in the United States have developed communitywide emergency management (or emergency operations) plans that spell out a range of necessary procedures and protocols appropriate to the hazards to which the community is exposed or at risk. These plans also identify appropriate roles and responsibilities for each of the agencies and personnel expected to respond in a wide range of possible disaster scenarios, and clarify the statutory authorities that empower each of those agencies and officials to take the needed actions.

Virtually all jurisdictions structure their emergency plans using an 'all-hazards' framework wherein there exists a base plan that addresses functions, actions, decisions, and other factors common to all hazard types, supplemented by functional and hazard annexes that provide greater detail on the incident of function-specific topics. In the aftermath of 9/11, many communities reviewed, reworked, and/or expanded their community emergency operations plans to include procedures and protocols for responding to intentional hazards inclusive of terrorism, in light of the special factors involved in these events. Weapons of mass destruction events, especially those involving bio or chemical weapons and radiological hazards, involve a unique range of participants and actions. These events also require an expanded set of statutory authorities (and may even require relinquishing command authority over part or all of the incident to the federal government).

Despite the uniqueness of most local plans, there has been a push for a standardization of response command, control, and coordination systems ever since many problems were brought to light in the aftermath of Hurricane Katrina. FEMA has since instituted requirements that all state and local emergency responders be trained in the Incident Command System (ICS) and become NIMS compliant in order to retain eligibility for certain federal grant funding. As mentioned in Chapter 4, in November 2010 FEMA published the updated version

(version 2) of a guide entitled *Developing and Maintaining State, Territorial, Tribal, and Local Government Emergency Operations Plans*, which is better known among emergency managers as *Comprehensive Preparedness Guide 101 (CPG-101)*. This was the latest in a series of preparedness guides the government has provided to state and local agencies to guide their activities over the past half-decade. *CPG-101* was developed to provide local agencies direction in developing their emergency operations plans, in recognition that great leeway exists but that standardization promotes enhanced coordination when it is needed. The guide supports a common understanding of fundamental planning and decision-making practices in hopes of helping local emergency planners to manage their community's hazard risk profile in a manner that enables greater integration of outside resources when they are needed (FEMA, 2010a).

Local Emergency Managers

The designated local emergency manager is typically responsible for developing and maintaining the community's suite of emergency plans, including those for emergency operations or response. In many communities, this same individual may serve in another position in the local government, such as fire or police chief for example, and their part-time role as emergency manager is secondary. Chapter 1 describes how the profession of emergency management in the United States has matured since the 1980s, and this is certainly true at the local level. Today there are many more opportunities for individuals to receive formal emergency management training, and many more communities value a strong emergency management capacity. Response capabilities, both basic and technical, are bolstered through training centers in every state, by education at more than 180 junior college, undergraduate, and graduate programs throughout the country, and at FEMA's Emergency Management Institute (EMI) located in Emmitsburg, Maryland. EMI trains over 2 million students in one or more disaster-related courses each year through both on-campus and distance-learning programs (more information on EMI and other emergency management education programs can be found in Chapter 4).

In an effort to standardize the profession of emergency management, several certification programs have emerged, the most prominent of which is the Certified Emergency Manager (CEM) designation. CEM was created by the International Association of Emergency Managers (IAEM) in 1993 when a college degree was not required for certification (out of recognition that the academic side of the profession was in its infancy). Since then a combination of professional experience and academic achievement has become the requirement, in addition to a number of other factors that establish what IAEM considers to be the benchmark for the profession. Several other certifications exist, including a number administered by the States (e.g., the Kansas Certified Emergency Manager (KCEM) program and the Certified Texas Emergency Manager (TEM) program.)

More and more communities have designated dedicated emergency managers who are responsible for guiding response and recovery operations to correspond with these professional developments. The maturing of the emergency management profession has already led

to more effective and efficient local responses to disaster events given that the range of individuals trained and certified in emergency management goes far beyond the office of emergency management in many communities.

The State Response

Each of the 50 states and six territories that constitute the United States maintains a state government office of emergency management. Funding for state emergency management offices comes almost entirely from the FEMA and state budgets. For years, FEMA has provided up to \$339 million annually to states and territories to fund state and local government emergency management activities. This money is used by state emergency management agencies to hire staff, conduct training and exercises, and purchase equipment. A segment of this funding is targeted for local emergency management operations as designated by the state. State budgets also provide funding for emergency management operations, but this funding historically has been inconsistent, especially in those states with minimal annual disaster activity.

The principal resource available to governors in responding to a disaster event in their state is the National Guard. The resources of the National Guard that can be used in disaster response include personnel, communications systems and equipment, air and road transport, heavy construction and earth-moving equipment, mass care and feeding equipment, and emergency supplies such as beds, blankets, and medical supplies.

In early 2007, with the passing of the John Warner National Defense Reauthorization Act (PL 109-364), the authority of governors to deploy the National Guard was severely eroded. In section 1076 of this Act, the president was given the authority to effectively commandeer total control of this invaluable response resource. It is believed that the provision was a reaction to sentiments that the federal government should have taken over the response to the Katrina disaster and that the military would have been best suited to manage in that case. The National Governor's Association (NGA), an organization representing the interests of the leadership of all 50 states, immediately voiced their opposition to the inclusion of such a provision in the legislation, as they felt it undermined their authority over the National Guard and therefore further limited their ability to ensure the safety of their constituents. The governors wrote, "By granting the president specific authority to usurp the Guard during a natural disaster or emergency without the consent of a governor, Section 1076 could result in confusion and an inability to respond to residents' needs because it calls into question whether a governor or the president has primary responsibility during a domestic emergency" (NGA, 2007).

During the response to Hurricane Sandy, National Guard assistance was requested in 7 of the affected states (New York, Massachusetts, Virginia, New Jersey, Delaware, Connecticut, and Maryland.) Approximately 1500 national guard forces were activated, and provided response assistance at shelters, by clearing debris, performing search and rescue, and delivering equipment and supplies. In this even, Defense Secretary Leon Panetta appointed "Dual Status" commanders to command both Federal and state National Guard forces that were operating in the impacted states, which represented a new mechanism of command for this resource. Dual Status commanders are appointed to maintain separate chains of command between troops

reporting to the Federal and state levels, in hopes of reducing redundancies and confusion like occurred in Hurricane Katrina. The States have signed agreements with the Department of Defense which allows the governor to appoint a Dual Status commander once approval to do so has been granted by the Secretary of Defense (Insinna, 2012).

Response capabilities and capacities are strongest in those states and territories that experience high levels of annual disaster activity. For instance, North Carolina (which faces high risk from hurricanes and floods), Florida (which faces high risk from hurricanes), and California (which faces high risk from seismicity and wildfires), are three states with emergency management capacities that are considered to be very well-developed. Each state prepares a State Preparedness Report that details the emergency management capacity that exists at the state level. Some states choose to publish their reports while others do not. Examples of states with preparedness reports available online include Nebraska and Washington State.

Volunteer Groups' Response

Volunteers have served on the front lines of almost every disaster response. National volunteer groups such as the American Red Cross and the Salvation Army roster and maintain local chapters staffed by both paid and volunteer staff that are trained in one or more aspects of emergency response. These organizations work with local, state, and federal authorities to address the immediate needs of disaster victims. These organizations provide shelter, food, and clothing to victims who have lost their homes to disasters large and small. In many communities, specific volunteer organizations are given defined response roles within the Emergency Operations Plans (EOPs), most commonly for mass care, shelter, psychosocial counseling, case management, and more. Volunteer groups also participate in support of federal efforts, as has been true with Army Corps of Engineers "Blue Roof" operations (wherein blue tarp materials are applied to seal roof leaks and make the home habitable until permanent repairs can be made) and for distribution of emergency supplies at mass care points of distribution (PODs).

The American Red Cross (which is actually a quasi-government organization given that sitting government employees serve on its governing board) is the most widely recognized volunteer group associated with emergency response in the United States. However, it is just one of a much larger community of organizations that includes the Salvation Army, The United Way, Save the Children, Habitat for Humanity, and many more that together meet a great deal of response needs that are not typically addressed by official offices of emergency management at the local, state, or national levels.

Many volunteer groups participating in disaster management are members of associations that exist at the national, state, and local levels called Voluntary Organizations Active in Disasters (VOADs) The National VOAD, or NVOAD, consists of 49 national member organizations. There are currently 55 state and territorial VOADs, and a growing number of local VOADs involved in disaster response and recovery operations around the country and abroad. Formed in 1970, NVOAD helps member groups at a disaster location to coordinate and communicate in order to provide the most efficient and effective response. A list of the NVOAD member organizations is provided.



FIGURE 6-3 Lafayette, Louisiana, September 22, 2005—Wheel chairs are corralled along with hospital beds and other equipment used for the residents with special needs at the Heymann Community Center. When the path of Hurricane Rita was projected to affect the Lafayette area, residents were evacuated by ambulances and vans to shelters a safe distance away. *Robert Kaufmann/FEMA.*

Hurricane Katrina changed the landscape in terms of the involvement of voluntary agencies, non-governmental organizations (NGOs), and the private sector in disaster response. The size of Katrina required resources and capabilities beyond the usual government programs. The massive evacuation in advance of the hurricane created an extraordinary demand for shelters, medicine, food, and temporary housing (Figure 6-3). NGOs and the private sector provided many of the support services to help Katrina victims to get back on their feet. Over 5000 children were separated from their parents in the evacuations, and the NGO National Center for Missing and Exploited Children helped to successfully reunite every one of them. The private sector helped to raise over \$1 billion for the response and supported a number of activities not covered by government relief programs. For example, Chevron worked with the Early Childhood Institute at Mississippi State University and Save the Children to rebuild and resupply child care centers across the three Mississippi coastal counties.

Here is a list of NVOAD member organizations:

- ATCS World Relief
- Adventist Community Services
- All Hands Volunteers
- Alliance of Information and Referral Systems
- American Radio Relay League
- American Red Cross
- Billy Graham Rapid Response Team
- Brethren Disaster Ministries
- Buddhist Tzu Chi Foundation
- Catholic Charities USA
- Churches of Scientology Disaster Response

- Church World Service Emergency Response Program
- City Team Ministries International Disaster Response
- Convoy of Hope
- Cooperative Baptist Fellowship
- Episcopal Relief and Development
- Feeding America
- Feed the Children
- Habitat for Humanity
- Headwaters Relief Organization
- HOPE Animal-Assisted Crisis Response
- Hope Coalition America (Operation Hope)
- HOPE Worldwide Ltd.
- Humane Society of the United States
- ICNA Relief USA
- Islamic Relief USA
- International Critical Incident Stress Foundation
- International Relief and Development
- The Jewish Federations of North America
- Latter-Day Saints Charities
- Lutheran Disaster Response
- Mennonite Disaster Services
- Mercy Medical Airlift
- National Association of Jewish Chaplains (NAJC)
- National Baptist Convention USA
- National Organization for Victim Assistance
- Nazarene Disaster Response
- NECHAMA - Jewish Response to Disaster
- Noah's Wish
- Operation Blessing
- Points of Light Action Networks
- The Presbyterian Church in America—Mission North America
- Presbyterian Church USA—Presbyterian Disaster Assistance
- Rebuilding Together
- Samaritan's Purse
- Save the Children
- Society of St. Vincent De Paul
- Southern Baptist Convention
- The Salvation Army
- United Church of Christ
- United Methodist Committee on Relief
- United Way Worldwide
- World Renew

The Incident Command System (ICS)

A difficult issue in any response operation is determining who is in charge of the overall response effort. The Incident Command System (ICS) was developed after the 1970 fires in Southern California. Duplication of efforts, lack of coordination, and communication problems hindered all agencies responding to the expanding fires. The main function of ICS is to establish a set of planning and management systems that would help the agencies responding to a disaster to work together in a coordinated and systematic approach. The step-by-step process enables the numerous responding agencies to effectively use resources and personnel to respond to those in need (Figure 6-4).

There are multiple functions in the ICS system. They include common use of terminology, integrated communications, a unified command structure, resource management, and action planning. A planned set of directives includes assigning one coordinator to manage the infrastructure of the response, assigning personnel, deploying equipment, obtaining resources, and working with the numerous agencies that respond to the disaster scene. In most instances either the local fire chief or fire commissioner is the Incident Commander.

For the ICS to be effective, it must provide for effective operations at three levels of incident character: (1) single jurisdiction and/or single agency, (2) single jurisdiction with multiple agency support, and (3) multijurisdictional and/or multiagency support. The organizational structure must be adaptable to a wide variety of emergencies (i.e., fire, flood, earthquake, and rescue). The ICS includes agency autonomy, management by objectives, unity integrity, functional clarity, and effective span of control. The logistics, coordination, and ability of the multiple agencies to work together must adhere to the ICS so efficient leadership is maintained



FIGURE 6-4 Warren Grove, New Jersey, May 16, 2007—Firefighters being briefed at the Warren Park Incident Command Post. A fire management assistance declaration from FEMA was granted for the Warren Grove Fire burning in Burlington and Ocean Counties. The declaration triggers a way for federal funding to reimburse state and locals for firefighting efforts. It will allow firefighters to do what they need to do to protect people and property, and FEMA will help to cover the costs. *Andrea Booher/FEMA.*

during the disaster. One of the most significant problems before the ICS was that agencies who would respond to major disasters would assign their own commander and there would be power struggles, miscommunication, and duplication of efforts (Irwin, 1980).

There are five major management systems within the ICS: command, operations, planning, logistics, and finance.

- The *command* section includes developing, directing, and maintaining communication and collaboration with the multiple agencies on site, working with the local officials, the public, and the media to provide up-to-date information regarding the disaster.
- The *operations* section handles the tactical operations, coordinates the command objectives, and organizes and directs all resources to the disaster site.
- The *planning* section provides the necessary information to the command center to develop the action plan to accomplish the objectives. This section also collects and evaluates information as it is made available.
- The *logistics* section provides personnel, equipment, and support for the Command Center. They handle the coordination of all services that are involved in the response, from locating rescue equipment to coordinating the response for volunteer organizations such as the Salvation Army and the Red Cross.
- The *finance* section is responsible for accounting for funds used during the response and recovery aspect of the disaster. This section monitors costs related to the incident and provides accounting procurement time recording cost analyses.

In today's world, the public, private, and political values at risk in major emergencies demand the most efficient methods of response and management. Meeting this demand when multiple and diverse agencies are involved becomes a difficult task. ICS allows for a range of command structures that change according to the size, scope, and the nature of the incident.

1. *Single Incident Command*: If an emergency or disaster is contained within a single jurisdiction, and no jurisdictional or functional overlap exists between areas or agencies, the incident is managed by a single Incident Commander. This individual has overall incident management responsibility. The vast majority of incidents managed by ICS are handled under this simple structure.
2. *Unified Command*: The Unified Command structure is used when a multiagency response is required, and more than one of these agencies have jurisdictional authority. Agencies operating within a Unified Command structure are able to work together through representational membership that allows the analysis of the information available for the purposes of establishing a common set of objectives and strategies. A single incident action plan is developed according to which the actions of all agencies within the Unified Command Structure must follow. This structure does not alter ICS operations in any other way. Its purpose is to enable an effective decision-making process for all of the agencies responsible for incident response (Figure 6-5).
3. *Area Command*: The Area Command Structure is established when there are multiple ICS incidents being managed by multiple ICS organizations. Area command, which is



FIGURE 6-5 Greensburg, Kansas May 19, 2007—An incident command briefing at the FEMA Emergency Operations Center keeps everyone updated on progress and safety issues. Briefings are held twice daily with representatives of relief organizations and town, county, state, and federal governments. *Photo by Greg Henshall / FEMA.*

best for incidents that are not site-specific, are not immediately identifiable, or which are geographically dispersed or which evolve over time, allows for common strategies and priorities over incidents spanning over wide or even disparate geographic areas. A public health emergency that is occurring throughout the country is a good example where Area Command might be utilized. Area Command is very effective at enabling more effective resource allocation across the wider incident area. Area Command structure differs from Unified and Single Incident Command in that there is no operations section (given that operations are conducted on-scene). An Area Command can become a Unified Command when incidents are multijurisdictional or involve multiple agencies.

Without ICS in place, there often exists:

- A lack of accountability
- Poor communication
- A lack of a planning process
- Overloaded incident commanders
- No method to integrate interagency requirements

PROCEDURES FOR AN INCIDENT COMMAND SYSTEM

For an ICS to be effective, the following procedures must be followed closely:

- A command post needs to be established.
- Proper equipment such as computers, radios, and telephone lines need to be installed and in working order.
- A media/press area needs to be established.

- Topographic maps need to be located and posted. After tornados, street signs or other identifying landmarks are destroyed, and rescue personnel are unable to use traditional road maps.
- A missing persons list must be prepared and positioned in an accessible location.
- The movement and location of triage areas and transportation of victims must be monitored.
- The ability to maintain continuous communication with local hospitals to monitor the number of victims received must be maintained.
- The search area (if needed) must be established and gridded.
- The resources available and deployed within the local area must be inventoried.
- Tasks that need to be performed and new task development must be monitored.

Source: Irwin, 2002.

The Incident Commander (IC) delegates functional and operational responsibilities as needed in order to maintain focus on the developing response. They must assign responsibilities and positions, which might include such things as “debriefers,” coordinators, and unit leaders, to manage the command center. As response and recovery proceed, the IC maintains an ongoing dialogue with staff and officials to monitor and manage the response and to maintain an overall operational picture of the incident (a Common Operating Picture). The IC likewise evaluates the continuing needs of responders and determines if additional resources are required. Once the incident has been brought under control, after-action reporting, discussion and evaluation are conducted to evaluate success according to organizational competence and effectiveness (of the IC and the incident command structure in general).

The Federal Response

Once the governor has determined that a disaster event has overwhelmed the capacity of state and local governments to effectively respond and to subsequently fund the recovery effort, the governor forwards a letter to the president requesting a presidential disaster declaration. This is the first step toward involving federal officials, agencies and departments, and resources in a disaster event. If the president declares a major disaster, there are more than 30 federal departments and agencies, as well as nongovernmental organizations including the American Red Cross, who work together within the structure of the National Response Framework (NRF) and as authorized by the Robert T. Stafford Disaster Relief and Emergency Assistance Act, to support the efforts of state and local officials.

The Department of Homeland Security, through FEMA, is responsible for coordinating all federal activities in support of state and local response and recovery efforts in a presidentially declared disaster. In such an instance, FEMA implements the NRF (Figure 6-6). FEMA also manages several programs that provide disaster assistance to individuals and affected communities. These programs are discussed in detail in Chapter 7.

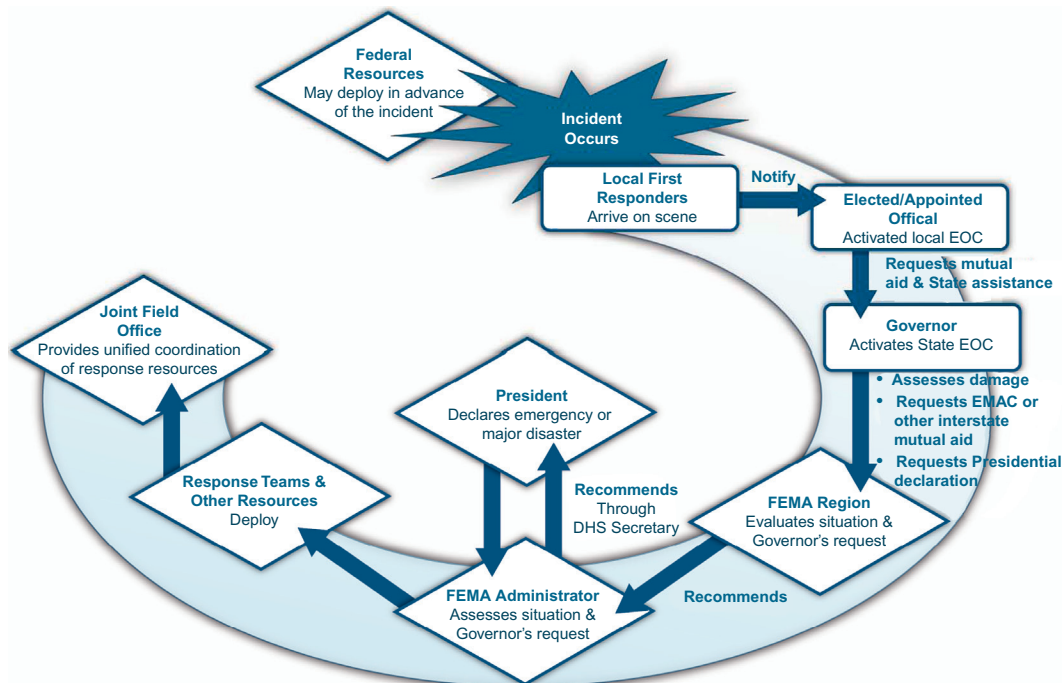


FIGURE 6-6 Stafford Act support to the states. Source: <http://www.fema.gov/pdf/emergency/nrf/nrf-stafford.pdf>

The Presidential Disaster Declaration Process

Disaster declaration is a mechanism by which governments acknowledge that response resources have become overwhelmed. Through the declaration, a government is able to communicate that additional assistance is required and, likewise, requested, from higher levels of jurisdictional and organizational authority.

In the United States, a presidential disaster declaration is what makes available the range of resources available to the affected local and state governments as established through the Stafford Act. Although a formal declaration does not have to be signed for the federal government to respond, a state's governor must make a formal request for assistance and specify in the request the specific needs of the disaster area. In the presidential major disaster declaration process, federal, state, local, tribal, private sector, and nongovernmental organizations report threats, incidents, and potential incidents, using established communications and reporting channels. The Homeland Security Office of Operations Coordination and Planning receives threat and operational information regarding incidents or potential incidents and makes an initial determination to initiate the coordination of federal information-sharing and incident management activities. The decision to make a disaster declaration is completely at the discretion of the president. There are no set criteria to follow and no government

regulations to guide which events are declared by the president and which events are not. FEMA has developed several factors it considers in making its recommendation to the president, including individual property losses per capita, level of damage to existing community infrastructures, and insurance coverage. In the end, however, the decision to make the declaration is the president's alone.

A presidential disaster declaration can be made in as short a time as a few hours, as was the case in the 1994 Northridge earthquake and the 1995 Oklahoma City bombing (see the Oklahoma City Bombing Case Study below). Sometimes, however, it takes weeks for damages to be assessed and the capability of state and local jurisdictions to fund response and recovery efforts to be evaluated. If the president turns down the governor's request, the governor has the right to appeal and can be successful, especially if new damage data become available and are included in the appeal.

CASE STUDY: RESPONSE TO TERRORISM—THE OKLAHOMA CITY BOMBING

On April 19, 1995, an explosion rocked the federal plaza in Oklahoma City. Within 45 minutes after notification from the Oklahoma Department of Civil Emergency Management, FEMA deployed staff to Oklahoma City. FEMA coordinated the federal response to the Oklahoma City bombing and later worked closely with state and local officials on recovery efforts. The president signed an Emergency Declaration within 8 hours of the occurrence. This was the first time that section 501(b) of the Stafford Act, granting FEMA the primary federal responsibility for responding to a domestic consequence management incident, was ever used. The president subsequently declared a major disaster on April 26, 1995. Because the disaster site was also a federal crime scene, FEMA appointed a liaison to the FBI to coordinate site access, support requirements, control public information, and other issues. The coordinated work among federal agencies in Oklahoma City led to the further clarification of agency and department roles in crisis and consequence management.

Harsh lessons were learned in Oklahoma City. A situation arose when local radio stations requested that all medical personnel should respond to the disaster area. A nurse who answered the call was killed by falling debris while trying to rescue victims in the building. A term constantly used after the bombing was the *Oklahoma Standard*. Oklahoma had personnel on the scene within 30 minutes. Federal officials were notified within minutes of the disaster. Volunteer services were immediate, and because this was a local disaster, everyone took responsibility to do whatever they could to help. Hospital personnel established an effective and efficient triage system. Phone numbers, Internet sites, and briefings were launched within hours of the disaster. The American Red Cross, as in all disasters, was quick to respond with personnel and supplies to help family members of those who were injured or killed in the bombing. The Salvation Army responded within hours with food and supplies. By the end of the day, the Salvation Army had deployed seven units to provide services to the workers and the victims. Law enforcement and EMS personnel had up-to-date training. Oklahoma had excellent coordination with the Public Works Department, the National Weather Service, and the National Guard. The Department of Public Safety also had a predetermined disaster plan in place.

Presidential declarations are routinely sought for such events as large floods, hurricanes, earthquakes, and big tornadoes. In recent years, governors have become more inventive and have requested presidential disaster declarations for snow removal, drought, the West Nile virus, and economic losses caused by failing industries such as the Northwest salmon spawning decline. Between 1979 and 2012 there were 1526 presidential major disaster declarations, averaging 45 declarations per year. As an example of disaster declaration activity in a single year, in 2012 there were 47 major disaster declarations in 40 states and American Samoa.

As was previously mentioned, it is a Stafford Act requirement that all requests for a presidential major disaster declaration be made by the governor of the affected state (which includes territories, the District of Columbia, and on tribal lands.) The governor's request is made through one of the ten regional FEMA offices. State and federal officials conduct a preliminary damage assessment (PDA) to estimate the extent of the disaster and its impact on individuals and public facilities. This information is included in the governor's request to show that the disaster is of such severity and magnitude that effective response is beyond the capabilities of the state and the local governments and that federal assistance is necessary. Normally, the PDA is completed prior to the submission of the governor's request. However, when an obviously severe or catastrophic event occurs, the governor's request may be submitted prior to the PDA. Nonetheless, the governor must still make the request.

As part of the request, the governor must take appropriate action under state law and direct execution of the state's emergency plan. The governor furnishes information on the nature and amount of state and local resources that have been or will be committed to alleviating the results of the disaster, provides an estimate of the amount and severity of damage and the impact on the private and public sector, and provides an estimate of the type and amount of assistance needed under the Stafford Act. In addition, the governor certifies that, for the current disaster, state and local government obligations and expenditures (of which state commitments must be a significant proportion) will comply with all applicable cost-sharing requirements.

Based on the governor's request, the president may declare that a major disaster or emergency exists, thus activating an array of federal programs to assist in the response and recovery effort. Not all programs, however, are activated for every disaster. The determination of which programs are activated is based on the needs found during the damage assessment and any subsequent information that may be discovered. Some declarations will provide only individual assistance or only public assistance. Hazard mitigation opportunities are assessed in most situations.

The Preliminary Damage Assessment (PDA)

The preliminary damage assessment team is comprised of personnel from FEMA, the state's emergency management agency, county and local officials, and the U.S. Small Business Administration (SBA). The team's work begins with reviewing the types of damage or

emergency costs incurred by the units of government, and the impact to critical facilities, such as public utilities, hospitals, schools, and fire and police departments. They will also look at the effect on individuals and businesses, including the number damaged, the number of people displaced, and the threat to health and safety caused by the storm event. Additional data from the Red Cross or other local voluntary agencies may also be reviewed. During the assessment the team will collect estimates of the expenses and damages.

The information obtained through the PDA is used by the governor to support a declaration request—showing the cost of response efforts, such as emergency personnel overtime, other emergency services, and damage to citizens, is beyond state and local recovery capabilities. The information gathered during the assessment will help the governor certify that the damage exceeds state and local resources.

FEMA Declaration Criteria

Federal disaster law restricts the use of arithmetical formulas or other objective standards as the sole basis for determining the need for federal supplemental aid through a disaster or emergency declaration. As a result, FEMA assesses a number of factors to determine the severity, magnitude, and impact of the adverse event. In evaluating a governor's request for a major disaster declaration, a number of primary factors, along with other relevant information, are considered in developing the recommendation that is ultimately provided to the president for use in considering whether or not the state or other jurisdictional entities merit a declaration and the assistance that comes with it. Primary factors considered include:

- Amount and type of damage (number of homes destroyed or with major damage)
- Impact on the infrastructure of affected areas or critical facilities
- Imminent threats to public health and safety
- Impacts to essential government services and functions
- Unique capability of the federal government
- Dispersion or concentration of damage
- Level of insurance coverage in place for homeowners and public facilities
- Assistance available from other sources (federal, state, local, and voluntary organizations)
- State and local resource commitments from previous, undeclared events
- Frequency of disaster events over recent time period

The very nature of disasters—their unique circumstances, the unexpected timing, and varied impacts—precludes a complete listing of factors considered when evaluating disaster declaration requests. However, the above lists the most primary considerations (FEMA, 2013).

■ ■ Critical Thinking ■

Should there be more strict or more direct guidelines about what events the president can declare a disaster? Why or why not?

The National Response Framework (NRF)

In 1992 FEMA created the Federal Response Plan (FRP) to provide for the first time a coordinated federal government-wide emergency management structure. FEMA defined the FRP as a signed agreement among 27 federal departments and agencies, including the American Red Cross, that performed the following: Provides the mechanism for coordinating delivery of federal assistance and resources to augment efforts of state and local governments overwhelmed by a major disaster or emergency, supports implementation of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended (42 U.S.C. 5121, et seq.), as well as individual agency statutory authorities, and supplements other federal emergency operations plans developed to address specific hazards.

The fundamental goal of the FRP was to maximize available federal resources in support of response and recovery actions taken by state and local emergency officials.

Following the absorption of FEMA into the Department of Homeland Security on February 18, 2003, President Bush signed Presidential Directive 5 (HSPD-5) “to enhance the ability of the United States to manage domestic incidents by establishing a single, comprehensive national incident management system.” This action authorized the design and development of a National Response Plan (NRP) to “align federal coordination structures, capabilities, and resources into a unified, all-discipline, and all-hazards approach to domestic incident management.”

The NRP was designed according to the template of the National Incident Management System (NIMS; released March 1, 2004) to ensure that a consistent doctrinal framework existed for the management of incidents at all jurisdictional levels, regardless of the incident cause, size, or complexity. NIMS was created to integrate effective practices in emergency preparedness and response into a comprehensive national framework for incident management. NIMS enables responders at all levels to work together more effectively and efficiently to manage domestic incidents no matter what the cause, size, or complexity, including catastrophic acts of terrorism and disasters.

In January 2008, DHS published the National Response Framework (NRF) that replaced the National Response Plan (NRP) and currently serves as the guide for response to major disaster events in the United States. According to FEMA:

The National Response Framework (NRF) presents the guiding principles that enable all response partners to prepare for and provide a unified national response to disasters and emergencies—from the smallest incident to the largest catastrophe. The Framework defines the key principles, roles, and structures that organize the way we respond as a nation. It describes how communities, tribes, states, the federal government, and private sector and nongovernmental partners apply these principles for a coordinated, effective national response. The national response framework is always in effect, and elements can be implemented at any level at any time. (FEMA, <http://www.fema.gov/pdf/emergency/nrf/nrf-overview.pdf>.)

In May of 2013 an updated version of the NRF was released in order to incorporate the Whole Community concept, alter the coordination function contained in ESF#5 (changed from Emergency Management to Planning and Information), and to make other minor structural changes.

The NRF was developed according to five key principles that form the basis of its response doctrine. These include:

- Engaged partnership
- Tiered response
- Scalable, flexible, and adaptable operational capabilities
- Unity of effort through unified command
- Readiness to act

The NRF base document is comprised of the following six components:

- Roles and responsibilities
- Core capabilities
- Coordination structures and integration
- Relationship to other mission areas
- Operational planning
- Supporting resources

The NRF identifies the key players and their roles in the NRF.

THE NATIONAL INCIDENT MANAGEMENT SYSTEM (NIMS)

In the aftermath of Hurricane Katrina, President George W. Bush directed the Department of Homeland Security, through Homeland Security Presidential Directive 5 (HSPD-5), to develop a national-level incident management system. This action was taken in the aftermath of the September 11th attacks when poor coordination between disparate agencies was noted by the 9/11 Committee. NIMS was developed as an outgrowth of ICS that allows for increased interorganizational coordination that is not necessarily addressed under standard ICS structures. The system is designed to be a more comprehensive incident management system than ICS because it goes beyond the field-level incident command and control and addresses all phases of emergency management, as well as all stakeholders (including the NGO and private sectors). It does not, however, replace ICS.

The federal government promoted NIMS adoption at the local and state levels by making it a requirement for many federal grant programs. As a result, it is recognized by response agencies in almost all U.S. communities, and oftentimes by other entities involved in response like hospitals and schools. However, its use is optional among the nongovernmental organizations so the degree to which it has been adopted and understood by these organizations remains undetermined.

NIMS, coupled with ICS and the Multi-agency Coordination System (MACS), represent a comprehensive federal strategy to improve the coordination of different agencies in major disaster events.

The official definition of NIMS, as detailed in the NIMS Guide dated December 2008, is as follows:

“The National Incident Management System (NIMS) provides a systematic, proactive approach to guide departments and agencies at all levels of government, nongovernmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity, in order to reduce the loss of life and property and harm to the environment. NIMS works hand in hand with the National Response Framework (NRF). NIMS provides the template for the management of incidents, while the NRF provides the structure and mechanisms for national-level policy for incident management.” (FEMA, 2008)

ICS, which manages incident command and control, is considered a critical component of NIMS, which is a more comprehensive system that establishes a national approach to the management of emergencies and disasters. NIMS exists in order to provide a methodology through which human and equipment resources, supplies, and finances may be coordinated for a more effective response.

While NIMS does not establish command and control procedures or protocols, it should not be thought of as a mere resource allocation plan. Rather, NIMS represents a core set of doctrines, concepts, principles, terminology, and organizational processes that together exist to provide a more effective, efficient, and collaborative management of the incident.

FEMA presents the following overview of NIMS in terms of what the system is, and what it is not (FEMA, 2009):

What NIMS is:

- A comprehensive, nationwide, systematic approach to incident management, including the Incident Command System, Multi-agency Coordination Systems, and Public Information
- A set of preparedness concepts and principles for all hazards
- Essential principles for a common operating picture and interoperability of communications and information management
- Standardized resource management procedures that enable coordination among different jurisdictions or organizations
- Scalable, so it may be used for all incidents (from day-to-day to large-scale)
- A dynamic system that promotes ongoing management and maintenance

What NIMS is NOT:

- A response plan
- Only used during large-scale incidents
- A communications plan
- Only applicable to certain emergency management/incident response personnel
- On the Incident Command System or an organizational chart
- A static system

NATIONAL RESPONSE FRAMEWORK KEY PLAYERS**Local Governments**

Local governments (counties, cities, or towns) respond to emergencies daily using their own resources. They also rely on mutual aid and assistance agreements with neighboring jurisdictions when they need additional resources. The National Incident Management System (NIMS) provides information on mutual aid and assistance agreements. When local jurisdictions cannot meet incident response resource needs with their own resources or with help available from other local jurisdictions, they may ask the state for assistance.

Tribal Governments

Tribal governments respond to the same range of emergencies and disasters that other jurisdictions face. They may require assistance from neighboring jurisdictions under mutual aid and assistance agreements and may provide assistance as well. The United States has a trust relationship with American Indian tribes and recognizes their right to self-government. As such, tribal governments are responsible for coordinating resources to address actual or potential incidents. When local resources are not adequate, tribal leaders seek assistance from states or the federal government.

For certain types of federal assistance, tribal governments work with the state, but as sovereign entities, they can also elect to deal directly with the federal government for other types of assistance. To obtain federal assistance via the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act), the state governor must request a presidential declaration on behalf of a tribe.

State Governments

The state helps local governments if they need assistance. States have significant resources of their own, including local emergency management and homeland security agencies, state police, health agencies, transportation agencies, incident management teams, specialized teams, and the National Guard.

If additional resources are required, the state may request assistance from other states through interstate mutual aid and assistance agreements such as the Emergency Management Assistance Compact (EMAC). Administered by the National Emergency Management Association, EMAC is a congressionally ratified organization that provides form and structure to the interstate mutual aid and assistance process.

If an incident is beyond the local and state capabilities, the governor can seek federal assistance. The state will collaborate with the impacted communities and the federal government to provide the help needed.

The Federal Government

The federal government maintains a wide array of capabilities and resources that can assist state governments in responding to incidents. Federal departments and agencies provide this assistance using processes outlined later in this document. In addition, federal departments and agencies may also request and receive help from other federal departments and agencies.

Nongovernmental Organizations

Nongovernmental and voluntary organizations are essential partners in responding to incidents. Working through emergency operations centers and other structures, nongovernmental and voluntary organizations assist local, tribal, state, and federal governments in providing sheltering, emergency food supplies, counseling services, and other vital support services to support response and promote the recovery of disaster victims. These groups often provide specialized services that help individuals with special needs, including those with disabilities.

To engage these key partners most effectively, local, tribal, state, and federal governments coordinate with voluntary agencies, existing Voluntary Organizations Active in Disaster (VOADs), community and faith-based organizations, and other entities to develop plans to manage volunteer services and donated goods, establish appropriate roles and responsibilities, and train and exercise plans and procedures before an incident occurs.

The Private Sector

Forming the foundation for the health of the nation's economy, the private sector is a key partner in local, tribal, state, and federal incident management activities. The private sector is responsible for most of the critical infrastructure and key resources in the nation and thus may require assistance in the wake of a disaster or emergency. They also provide goods and services critical to the response and recovery process, either on a paid basis or through donations.

Source: FEMA. <http://www.fema.gov/pdf/emergency/nrf/nrf-overview.pdf>.

Federal Assistance in Disaster Response

Federal disaster assistance can come from a number of initiating factors, but is most commonly associated with a presidential declaration and its statutory authority, the Stafford Act. Federal disaster assistance may be provided to state, tribal, and local jurisdictions, to other federal departments and agencies, and to private and nongovernmental sector organizations, in a number of different ways through various mechanisms and authorities all dictated according to eligibility.

Federal disaster assistance does not always require coordination by the Federal Emergency Management Agency, and may be provided without a presidential major disaster or emergency declaration. In such cases, the coordination of federal assistance may be initiated and led by other federal departments and agencies consistent with their authorities, such as with a public health emergency declared and managed by the Department of Health and Human Services, or an Agricultural Emergency Declaration as declared and managed by the Department of Agriculture (see *Non-Stafford Act Federal Support to State and Local Jurisdictions* below).

The vast majority of federally supported disaster events that are the result of the major natural and technological hazards described in this text, and which fall squarely under the purview of the local emergency manager, are typically those that require a presidential disaster declaration and which likewise are within the bounds of the Stafford Act. Federal support for

such events is structured according to the National Response Framework and coordinated by the secretary of Homeland Security through FEMA.

Federal support to states and local jurisdictions under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (The Stafford Act) occurs about 44 times each year on average (in addition to major emergency and fire management assistance declarations which provide more limited assistance). Before the declaration request is made, the governor must first activate their state's emergency operations plan and procedures, and ensure that all appropriate state and local emergency response actions have been initiated within the limits of their capabilities. The affected area must be surveyed to determine the extent of private and public damage, and joint preliminary damage assessments must be conducted with FEMA officials to estimate the types and extent of federal disaster assistance that will be required.

Ordinarily, only the governor can initiate a request for a presidential emergency or major disaster declaration. In extraordinary circumstances, the president may unilaterally make such a declaration. The governor's request is made through the FEMA regional administrator and based on a finding that the disaster is of such severity and magnitude that effective response is beyond the capabilities of the state and affected local governments and that federal assistance is necessary.

The governor's request includes the following:

- Information on the extent and nature of state resources that have been or will be used to address the consequences of the disaster
- A certification by the governor that state and local governments will assume all applicable nonfederal costs required by the Stafford Act
- An estimate of the types and amounts of supplementary federal assistance required
- Designation of a State Coordinating Officer who oversees the management of all state operations relative to the disaster (and interfaces with the Federal Coordinating Officer in the Joint Field Office).

The FEMA regional administrator evaluates the damage and requirements for federal assistance and makes a recommendation to the FEMA administrator, who, acting through the secretary of Homeland Security, then recommends a course of action to the president. The governor, appropriate members of Congress, and federal departments and agencies are immediately notified of a presidential declaration.

Non-Stafford Act Federal Support to State and Local Jurisdictions

While the Stafford Act is the most familiar mechanism by which the federal government may provide support to state, tribal, and local governments, it is not the only one. Often, federal assistance does not require coordination by DHS and can be provided without a presidential major disaster or emergency declaration.

In these instances, federal departments and agencies provide assistance to states, as well as directly to tribes and local jurisdictions, consistent with their own authorities. For example, under the Comprehensive Environmental Response, Compensation, and Liability Act, local

and tribal governments can request assistance directly from the Environmental Protection Agency and/or the U.S. Coast Guard.

This support is typically coordinated by the federal agency that has primary jurisdiction rather than by DHS. The secretary of Homeland Security may monitor such incidents and may, as requested, activate National Response Framework mechanisms to support federal departments and agencies without assuming overall leadership for the incident.

Organizing Support—The Emergency Support Function (ESF)

To best organize and coordinate the different categories of emergency support that is required in response, and the myriad agencies tasked to provide such support, Emergency Support Function (ESF) annexes are developed. The ESF format organizes the operational aspects of an emergency plan or framework according to the most common categories of anticipated support, presented in a manner that accommodates the nature and preferences of the agencies for which the ESFs pertain. The ESF format is appropriate for larger-scale events because it accounts for the fact that multiple agencies and individuals who perform similar functions must coordinate their actions and resources. Furthermore, it accounts for the fact that agencies and individuals may perform tasks and actions that fall into several different or all areas of support. By grouping response activities according to key functional areas, it becomes much easier to understand what individuals, groups, and resources will need to work in unison to deliver a key area of support to the affected population. For instance, ESF#6 of the NRF (Mass Care and Emergency Assistance) describes the various actions and activities that must be performed in order to ensure that the population has food, water, shelter, psychosocial support, among other things. To provide these goods and services, there must be a concerted and coordinated effort on the part of the responsible government, nonprofit, private-sector, and other stakeholders. This involves preparedness actions (such as the identification of viable shelters, for instance, or the training of shelter managers), resource allocations (such as the identification of providers of food, cots, blankets, and hygiene kits), assessment, reporting, and more. There are various legal and aspects that must be addressed, including the financial and liability concerns of shelter location owners, and the authority of officials to open those facilities. Tasks will have to be assigned, and standard protocols and operational policies will need to be created (and trained and exercised). This format does not change from hazard to hazard, or ESFs to ESF. Emergency Support Functions allow for a limited and focused response which can be scaled up or down depending upon the needs of the incident by simply activating some ESFs but not others.

The federal government and most state and local governments utilize the ESF format in their emergency plans. The same is true to a growing extent in the nongovernmental (private and nonprofit) sectors as well. While there is some standardization for which functions correspond to which ESF number, the needs of the jurisdiction served by the plan dictate what

functions are used and there is no requirement for them to follow suit with what exists in the NRF. The ESF format gained momentum in the 1980s after FEMA's release of the Federal Response Plan (FRP). Many state and local agencies recognized not only the value of such a format, but saw that by developing plans to mirror those of state and federal agencies, coordination between agencies during major disasters would be easier. Today, most agencies continue to use the ESF format and in many cases have expanded upon the 14 ESFs included in the NRF to address concerns that are of special interest to their state or local jurisdiction (note that the NRF includes 15 ESFs, but ESF #14 (Long-Term Community Recovery) has been superseded by the National Disaster Recovery Framework and is therefore no longer utilized). The Tuscaloosa County, AL Emergency Operations Plan, for example, includes 18 ESFs, one of which is 'Animal Care.'

During a response, ESFs are a critical mechanism to coordinate functional capabilities and resources provided by federal departments and agencies, along with certain private sector and nongovernmental organizations. ESFs may be selectively activated for both Stafford Act and non-Stafford Act incidents where federal departments or agencies request DHS assistance or under other circumstances as defined in Homeland Security Presidential Directive 5 (HSPD-5). Not all incidents result in the activation of ESFs.

ESFs may be activated to support headquarters, regional, and/or field activities (Figure 6-7). The Incident Command System provides for the flexibility to assign ESF and other stakeholder resources according to their capabilities, tasking, and requirements to augment and support the other sections of the Joint Field Office (JFO)/Regional Response Coordination Center (RRCC) or National Response Coordination Center (NRCC) in order to respond to incidents in a more collaborative and crosscutting manner.



FIGURE 6-7 Princess Anne, Maryland, November 4, 2012—(from left) John Reginaldi, regional administrator with the Maryland Emergency Management Agency, Butch Loper, public assistance with the Mississippi Emergency Management Agency, and John Albert Evans, department director of the Hancock County Emergency Management Agency, at the EOC in the Somerset County Office Complex in Princess Anne, Maryland, as they follow areas affected by Hurricane Sandy. *Photo by Frank Niemeir/FEMA.*

While ESFs are typically assigned to a specific section at the NRCC or in the JFO/RRCC for management purposes, resources may be assigned anywhere within the unified coordination structure. Regardless of the section in which an ESF may reside, that entity works in conjunction with other JFO sections to ensure that appropriate planning and execution of missions occur. For example, if a state requests assistance with a mass evacuation, the JFO would request personnel from ESF #1 (transportation), ESF #6 (mass care, emergency assistance, housing, and human services), and ESF #8 (public health and medical services). These would then be integrated into a single branch or group within the operations section to ensure effective coordination of evacuation services.

ESF Member Roles and Responsibilities

Each ESF Annex identifies the coordinator and the primary and support agencies pertinent to the ESF. Several ESFs incorporate multiple components, with primary agencies designated for each component to ensure seamless integration of and transition between preparedness, response, and recovery activities.

- **ESF Coordinator.** The ESF coordinator is the entity with management oversight for that particular ESF. The coordinator has ongoing responsibilities throughout the preparedness, response and recovery phases of incident management. The role of the ESF coordinator is carried out through a “unified command” approach as agreed upon collectively by the designated primary agencies and, as appropriate, support agencies.
- **ESF Primary Agency(ies).** An ESF primary agency is a federal agency with significant authorities, roles, resources, or capabilities for a particular function within an ESF. ESFs may have multiple primary agencies, and the specific responsibilities of those agencies are articulated within the relevant ESF Annex. A federal agency designated as an ESF primary agency serves as a federal executive agent under the federal coordinating officer (or federal resource coordinator for non-Stafford Act incidents) to accomplish the ESF mission.
- **ESF Support Agencies.** Support agencies are those entities with specific capabilities or resources that support the primary agency(ies) in executing the mission of the ESF.
- **ESF Leaders Group (ESFLG).** Each ESF is included in a Framework-wide ESF Leaders Group (ESFLG) staffed by representatives from each of the federal departments and agencies designated as coordinators for ESFs or coordinating agencies for other NRF annexes. The ESFLG, which is led by FEMA, provides a forum for members to jointly address topics such as policies, preparedness, and training.

There is a common organizational format to the ESFs within the NRF, and most state and local plans likewise use these components. They include a purpose statement, a description of capabilities, an overview of the concept of operations within the ESF, and the designation of ESF members identifying the ESF coordinator and primary and support agencies.

ESF #3—PUBLIC WORKS AND ENGINEERING

Purpose

Emergency Support Function (ESF) #3, Public Works and Engineering, assists the Department of Homeland Security (DHS) by coordinating and organizing the capabilities and resources of the federal government to facilitate the delivery of services, technical assistance, engineering expertise, construction management, and other support to prepare for, respond to, and/or recover from a disaster or an incident requiring a coordinated federal response.

Capabilities

ESF #3 is structured to provide public works and engineering-related support for the changing requirements of domestic incident management to include preparedness, response, and recovery actions. Activities include:

- Conducting pre-incident and post-incident assessments of public works and infrastructure.
- Executing emergency contract support for life-saving and life-sustaining services.
- Providing technical assistance to include engineering expertise, construction management, and contracting and real estate services.
- Providing emergency repair of damaged public infrastructure and critical facilities.
- Implementing and managing the DHS/Federal Emergency Management Agency (FEMA) Public Assistance Program and other recovery programs.

Concept of Operations Overview

The Department of Defense (DOD)/U.S. Army Corps of Engineers (USACE) is the primary agency for providing ESF #3 technical assistance, engineering, and construction management resources and support during response activities.

DHS/FEMA is the primary agency for providing ESF #3 recovery resources and support, to include assistance under the DHS/FEMA Stafford Act Public Assistance Program. The Public Assistance Program provides supplemental federal disaster grant assistance for debris removal and disposal; emergency protective measures; and the repair, replacement, or restoration of disaster-damaged public facilities and the facilities of certain qualified private nonprofit organizations.

Close coordination is maintained with federal, state, tribal, and local officials to determine potential needs for support and to track the status of response and recovery activities.

Priorities are determined jointly among state, tribal, and/or local officials. Federal ESF #3 support is integrated into the overall federal, state, tribal, local, non-governmental organization (NGO), and private-sector efforts. Support agency representatives collocate with ESF #3 field personnel to coordinate support as necessary.

Source: FEMA, <http://www.fema.gov/pdf/emergency/nrf/nrf-overview.pdf>.

The NRF currently has 15 ESFs, 14 of which are active. These include:

ESF #1—Transportation

ESF #2—Communications

ESF #3—Public Works and Engineering

- ESF #4—Firefighting
- ESF #5—Information and Planning
- ESF #6—Mass Care, Emergency Assistance, Temporary Housing, and Human Services
- ESF #7—Logistics
- ESF #8—Public Health and Medical Services
- ESF #9—Search and Rescue
- ESF #10—Oil and Hazardous Materials Response
- ESF #11—Agriculture and Natural Resources
- ESF #12—Energy
- ESF #13—Public Safety and Security
- ESF #14—Long-Term Community Recovery (superseded by the National Disaster Recovery Framework—see *The National Disaster Recovery Framework* in Chapter 7)
- ESF #15—External Affairs

The NRF also includes the following support annexes that “describe how federal departments and agencies; state, tribal, and local entities; the private sector; volunteer organizations; and NGOs coordinate and execute the common functional processes and administrative requirements necessary to ensure efficient and effective incident management. During an incident, numerous procedures and administrative functions are required to support incident management” (NRF, http://www.lrc.fema.gov/em_doctrine_fema_nrf.html):

- Critical Infrastructure and Key Resources
- Financial Management
- International Coordination
- Private Sector Coordination
- Public Affairs
- Tribal Relations
- Volunteer and Donations Management
- Worker Safety and Health

NRF Roles and Responsibilities

Several key officials at the federal, state, and local levels are instrumental to a response involving federal resources as dictated in the NRF. Each of these individuals and descriptions of the NRF roles and responsibilities include:

The Governor

The governor is responsible for ensuring the public safety and welfare of state residents. The governor coordinates state resources, provides strategic guidance in disaster response, supports local governments as needed, and coordinates assistance with other states and the federal government. A governor is also responsible for the following:

- In accordance with state law, may make, amend, or suspend certain orders or regulations associated with response.

- Communicates to the public, in an accessible manner (e.g., effective communications to address all members of the whole community), and helps people, businesses, and organizations cope with the consequences of any type of incident.
- Coordinates with tribal governments within the state.
- Commands the state military forces (National Guard personnel not in federal service and state militias).
- Coordinates assistance from other states through interstate mutual aid and assistance agreements, such as the Emergency Management Assistance Compact (EMAC).
- Requests federal assistance including, if appropriate, a Stafford Act declaration of an emergency or major disaster.

Local Chief Elected or Appointed Official

Jurisdictional chief executives are responsible for the public safety and welfare of their constituents. They must maintain a clear understanding of their emergency management roles and responsibilities and how to apply the response core capabilities as they may need to make decisions regarding resources and operations during an incident. Lives may depend on their decisions. Elected and appointed officials also routinely shape or modify laws, policies, and budgets to aid preparedness efforts and improve emergency management and response capabilities. The local chief executive's response duties may include:

- Suspending local laws and ordinances, such as to establish a curfew, direct evacuations, and, in coordination with the local health authority, ordering a quarantine (dependent on state and local law).
- Providing leadership and playing a key role in communicating to the public, and in helping people, businesses, and organizations cope with the consequences of any type of domestic incident within the jurisdiction.
- Negotiating and entering into mutual aid agreements with other jurisdictions to facilitate resource-sharing. Requesting state and, if necessary, federal assistance through the governor of the state when the jurisdiction's capabilities have been exceeded or exhausted.

Tribal/Territorial/Insular Area Leader

The tribal/territorial/insular area leader is responsible for the public safety and welfare of the people within their jurisdiction. Other responsibilities might include:

- Coordinating tribal resources to address the full spectrum of actions to prevent, prepare for, respond to, and recover from incidents involving all hazards, including terrorism, natural disasters, accidents, and other contingencies.
- Suspending tribal laws and ordinances in extraordinary circumstances, such as to establish a curfew, direct evacuations, and order a quarantine.
- Providing leadership and playing a key role in communicating to the jurisdictional area, and in helping people, businesses, and organizations cope with the consequences of any type of domestic incident within the jurisdiction.

- Negotiating and entering into mutual aid agreements with other jurisdictions to facilitate resource-sharing.
- Requesting state (if appropriate) and federal assistance through the governor of the state or through the FEMA regional office when the capabilities under the authority of the leader have been exceeded or exhausted.

Secretary of Homeland Security

Pursuant to HSPD-5, the secretary of Homeland Security does the following:

- Is responsible for coordinating federal operations within the United States to prepare for, respond to, and recover from terrorist attacks, major disasters, and other emergencies
- Serves as the “principal federal official” for domestic incident management. The secretary is also responsible for coordinating federal resources utilized in response to or recovery from terrorist attacks, major disasters, or other emergencies if and when any of the following four conditions applies:
 - A federal department or agency acting under its own authority has requested DHS assistance.
 - The resources of state and local authorities are overwhelmed and federal assistance has been requested.
 - More than one federal department or agency has become substantially involved in responding to the incident.
 - The secretary has been directed to assume incident management responsibilities by the president.

FEMA Administrator

The FEMA Administrator is the principal advisor to the president, the secretary of Homeland Security, and the Homeland Security Council regarding emergency management. The FEMA administrator’s duties include assisting the president, through the secretary, in carrying out the Stafford Act, operation of the National Response Coordination Center (NRCC), the effective support of all ESFs, and more generally, preparation for, protection against, response to, and recovery from all-hazards incidents.

Attorney General

The attorney general is the chief law enforcement officer in the United States. In accordance with HSPD-5 and other relevant statutes and directives, the attorney general has lead responsibility for criminal investigations of terrorist acts or terrorist threats:

- By individuals or groups inside the United States
- Directed at U.S. citizens or institutions abroad

Generally acting through the FBI, the attorney general, in cooperation with other federal departments and agencies engaged in activities to protect national security, coordinates the activities of the other members of the law enforcement community.

Secretary of Defense

Department of Defense (DOD) resources are committed in a disaster only after approval by the secretary of defense or at the direction of the president (there are other federal authorities that enable DOD officials to respond domestically when needed to save or sustain lives and to protect property in dire situations). When DOD resources are authorized to support civil authorities, command of those forces remains with the secretary of defense. DOD elements in the incident area coordinate with the National Guard forces that are under the governor's command, as well as with response organizations from all government levels as needed.

Secretary of State

Domestic disaster incidents can and have had international and diplomatic implications that call for coordination and consultation with foreign governments and international organizations. This is most common when foreign citizens residing in the U.S. or visiting the area where the disaster occurred are impacted. The secretary of state is responsible for all communication and coordination between the U.S. government and other nations regarding the response to a domestic crisis. The department of state also coordinates international offers of assistance and formally accepts or declines these offers on behalf of the U.S. government based on needs conveyed by federal departments and agencies as stated in the International Coordination Support Annex. Some types of international assistance are pre-identified, and bilateral agreements are already established. For example, the USDA/Forest Service and department of the interior have joint bilateral agreements with several countries for wildland firefighting support.

Non-governmental Organizations (NGOs)

NGOs collaborate with first responders, governments at all levels, and other agencies and organizations providing relief services to sustain life, reduce physical and emotional distress, and promote recovery of disaster victims when assistance is not available from other sources.

Private Sector

DHS and NRF primary and support agencies coordinate with the private sector to effectively share information, form courses of action, and incorporate available resources to prevent, prepare for, respond to, and recover from disasters. The roles, responsibilities, and participation of the private sector during presidentially declared disasters vary based on the nature of the organization and the type and impact of the incident. Private sector organizations may be involved as:

- *An impacted organization or infrastructure.* Private sector organizations may be affected by direct or indirect consequences of the incident. Examples of privately owned infrastructure include transportation, telecommunications, private utilities, financial institutions, and hospitals.
- *A response resource.* Private sector organizations may provide response resources (donated or compensated) during an incident, including specialized teams, equipment, and advanced technologies.

- *A regulated and/or responsible party.* Owners/operators of certain regulated facilities or hazardous operations may bear responsibilities under the law for preparing for and preventing incidents from occurring, and responding to an incident once it occurs. For example, federal regulations require owners/operators of nuclear facilities that are regulated by the Nuclear Regulatory Commission to maintain emergency (incident) preparedness plans, procedures, and facilities and to perform assessments, prompt notifications, and training for a response to an incident.
- *Partner with federal/state/local emergency organizations.* Private sector organizations may serve as an active partner in local and state emergency preparedness and response organizations and activities.

Citizen Involvement

Strong partnerships with citizen groups and organizations provide support for incident management prevention, preparedness, response, recovery, and mitigation. The U.S. Citizen Corps brings these groups together and focuses efforts of individuals through education, training, and volunteer service to help make communities safer, stronger, and better prepared to address the threats of terrorism, crime, public health issues, and disasters of all kinds.

The Mission Assignment (MA) Process

FEMA coordinates the federal response process through their role as coordinating agency for ESF #5, Information and Planning. When FEMA must task another federal agency with disaster-related work, that tasking (and any associated reimbursement) is performed through the vehicle of the Mission Assignment (MA). MA is essentially a work order that is issued by FEMA to another federal agency directing the completion of a specific task, and citing funding, other managerial controls, and guidance. MAs may be given in anticipation of, or response to, a presidential declaration of an emergency or major disaster. The MA itself is not a grant or contract to another federal agency; instead, it is a reimbursable work order for a specific task that can be performed before and/or after a declaration. To speed up the process of providing federal support, a large number of Pre-Scripted Mission Assignments, or PSMAs, have been drafted. (Related Video: Debris removal continues after Hurricane Sandy —http://www.youtube.com/watch?v=RpvqqLB-GHY&feature=youtube_gdata).

NRF Operations Coordination

When the NRF is activated, the response operations that result require a significant amount of coordination to be effective given the multiple partners and stakeholders. Coordination structures exist at each government level where operations are being conducted. Within each coordination structure there is a range of actions and activities going on that enable decision makers to determine the appropriate course of action and to provide oversight for the emergency operations being conducted. Each serves a unique and important purpose, and includes the following.

Local Incident Command Post (ICP)

Local coordinating structures are typically composed of entities within a specific functional area such as public works, law enforcement, emergency medical services, and fire departments. Integration among these structures occurs at an Incident Command Post (ICP). The ICP is the field location where the primary tactical-level, on-scene incident command functions are performed. The ICP may be collocated with the incident base or other incident facilities and is normally identified by a green rotating or flashing light. ICS is used not only by government, but also by private and nonprofit sector organizations as well.

Local Emergency Operations Center (EOC)

If the local incident commander determines that additional resources or capabilities are needed, he or she contacts the local EOC and relays requirements to the local emergency manager. The EOC is the physical location at which the coordination of information and resources to support local incident management activities within a defined local jurisdiction normally takes place.

State Emergency Operations Center (EOC)

This is the physical location at which the coordination of information and resources to support state incident management activities normally takes place. State EOCs are activated as necessary to support local EOCs and to ensure that responders have the resources they need to conduct response activities. This is achieved through integration of state-level coordinating structures working with local coordinating structures or the local incident command structure. State EOCs are typically organized by a combination of ESFs or other coordinating structures aligned to disciplines or capabilities.

National Operations Center (NOC)

The NOC is the primary national hub for situational awareness and operations coordination across the federal government for incident management. It provides the secretary of Homeland Security and other principals with the information necessary to make critical national-level incident management decisions. The NOC is a continuously operating multi-agency operations center. The NOC's staff monitors many sources of threat and hazard information from across the United States and abroad. It is supported by a 24/7 watch officer contingent, including (1) NOC managers; (2) selected federal interagency, state, and local law enforcement representatives; (3) intelligence community liaison officers provided by the DHS chief intelligence officer; (4) analysts from the Operations Division's interagency planning element; and (5) watch standers representing dozens of organizations and disciplines from the federal government and others from the private sector. The NOC facilitates homeland security information sharing and operations coordination with other federal, state, tribal, local, and nongovernmental partners. During a response to a significant incident, the NOC meets its information-fusion and information-sharing responsibilities by providing spot reports,

situation reports, and other information-sharing tools, all supported by and distributed through its common operating picture. The continued development and rapid integration at the federal, state, tribal, and local levels of electronic reporting and information-sharing tools supporting the NOC's common operating picture is a very high priority of the Framework.

National Response Coordination Center (NRCC)

The NRCC is FEMA's primary operations management center, as well as the focal point for national resource coordination. As a 24/7 operations center, the NRCC monitors potential or developing incidents and supports the efforts of regional and field components. The NRCC also has the capacity to increase staffing immediately in anticipation of or in response to an incident by activating the full range of ESFs and other personnel as needed to provide resources and policy guidance to a Joint Field Office (JFO) or other local incident management structures. The NRCC provides overall emergency management coordination, conducts operational planning, deploys national-level entities, and collects and disseminates incident information as it builds and maintains a common operating picture. Representatives of nonprofit organizations within the private sector may participate in the NRCC to enhance information exchange and cooperation between these entities and the federal government.

National Infrastructure Coordinating Center (NICC)

The NICC monitors the nation's critical infrastructure and key resources on an ongoing basis. During an incident, the NICC provides a coordinating forum to share information across infrastructure and key resources sectors through appropriate information-sharing entities such as the Information Sharing and Analysis Centers and the Sector Coordinating Councils.

National Military Command Center (NMCC)

The NMCC is the nation's focal point for continuous monitoring and coordination of worldwide military operations. It directly supports combatant commanders, the chairman of the Joint Chiefs of Staff, the secretary of defense, and the president in the command of the U.S. Armed Forces in peacetime contingencies and war. Structured to support the president and secretary of defense effectively and efficiently, the center participates in a wide variety of activities, ranging from missile warning and attack assessment to management of peacetime contingencies such as Defense Support of Civil Authorities (DSCA) activities. In conjunction with monitoring the current worldwide situation, the center alerts the Joint Staff and other national agencies to developing crises and will initially coordinate any military response required.

National Counterterrorism Center (NCTC)

The NCTC serves as the primary federal organization for integrating and analyzing all intelligence pertaining to terrorism and counterterrorism and for conducting strategic operational planning by integrating all instruments of national power.

Strategic Information and Operations Center (SIOC)

The FBI SIOC is the focal point and operational control center for all federal intelligence, law enforcement, and investigative law enforcement activities related to domestic terrorist incidents or credible threats, including leading attribution investigations. The SIOC serves as an information clearinghouse to help collect, process, vet, and disseminate information relevant to law enforcement and criminal investigation efforts in a timely manner. The SIOC maintains direct connectivity with the NOC. The SIOC, which is located at FBI headquarters, supports the FBI's mission in leading efforts of the law enforcement community to detect, prevent, preempt, and disrupt terrorist attacks against the United States. The SIOC maintains liaison with the National Joint Terrorism Task Force (NJTTF). The mission of the NJTTF is to enhance communications, coordination, and cooperation among federal, state, tribal, and local agencies representing the intelligence, law enforcement, defense, diplomatic, public safety, and homeland security communities by providing a point of fusion for terrorism intelligence and by supporting Joint Terrorism Task Forces throughout the United States.

Joint Operations Center (JOC)

The JOC branch is established by the Senior Federal Law Enforcement Officer (SFLEO) (e.g., the FBI SAC during terrorist incidents) to coordinate and direct law enforcement and criminal investigation activities related to the incident. The JOC branch ensures management and coordination of federal, state, local, and tribal investigative/law enforcement activities. The emphasis of the JOC is on prevention as well as intelligence collection, investigation, and prosecution of a criminal act. This emphasis includes managing unique tactical issues inherent to a crisis situation (e.g., a hostage situation or terrorist threat). When this branch is included as part of the Joint Field Office (JFO), it is responsible for coordinating the intelligence and information function (as described in NIMS), which includes information and operational security, and the collection, analysis, and distribution of all incident-related intelligence. Accordingly, the Intelligence Unit within the JOC branch serves as the interagency fusion center for all intelligence related to an incident. If a Joint Field Office (JFO) is established (see below), the JOC becomes part of the JFO.

Joint Information Center (JIC)

The Joint Information Center (JIC) is also a valuable tool for getting emergency management partners on the same page. In disasters of catastrophic or nationally significant proportions, a JIC is established to coordinate the dissemination of information about all disaster response and recovery programs. Public Affairs Officers (PAOs) who represent all of the federal, state, local, and voluntary agencies providing response or recovery services are invited to collocate and be a part of JIC operations. Interagency coordination is one of the central functions of the JIC, and teamwork is a key to implementing successful public information and media affairs programs. JICs involve coordination among the Federal Coordinating Officer (FCO), the lead state PAO, the congressional liaison, community relations and disaster assistance program managers, and other public agency PAOs.

Other DHS Operations Centers

Depending on the type of incident (e.g., National Special Security Events), the operations centers of other DHS operating components may serve as the primary operations management center in support of the secretary. These are the U.S. Coast Guard, the Transportation Security Administration, U.S. Secret Service, and U.S. Customs and Border Protection operations centers.

Incident Level Coordination: The Joint Field Office (JFO)

A JFO is a temporary federal facility established locally to coordinate operational federal assistance activities to the affected jurisdiction(s) during declared disasters. The JFO is a multiagency center that provides a central location for coordination of federal, state, local, tribal, nongovernmental, and private sector organizations with primary responsibility for threat response and incident support. The JFO enables the effective and efficient coordination of federal incident-related prevention, preparedness, response, and recovery actions. It utilizes the scalable organizational structure of the Incident Command System (ICS), and its organization adapts to the magnitude and complexity of the situation at hand. Although the JFO uses an ICS structure, it does not manage on-scene operations. Instead, it focuses on providing support to on-scene efforts and conducting broader support operations that may extend beyond the incident site.

There are a number of key JFO sections that are integral to its functioning. These include:

Operations Section. The Operations Section coordinates operational support to on-scene incident management efforts. Branches may be added or deleted as required, depending on the nature of the incident. The Operations Section also is responsible for coordination with other federal command posts that may be established to support incident management activities. The Operations Section may include the following elements:

- The **Response and Recovery Operations Branch** coordinates the request and delivery of federal assistance and support from various special teams. This branch is composed of four groups: emergency services, human services, infrastructure support, and community recovery and mitigation.
- The **Law Enforcement Investigative Operations Branch/Joint Operations Center (JOC)** is established by the Senior Federal Law Enforcement Official (SFLEO) (e.g., the FBI Special Agent in Charge (SAC) during terrorist incidents) to coordinate and direct law enforcement and criminal investigation activities related to a terrorist incident. The JOC branch ensures management and coordination of federal, state, local, and tribal investigative/law enforcement activities. The emphasis of the JOC is on prevention as well as intelligence collection, investigation, and prosecution of a criminal act. This emphasis includes managing unique tactical issues inherent to a crisis situation (e.g., a hostage situation or terrorist threat).
- For National Special Security Events (NSSEs), a third branch, the **Security Operations Branch, or Multi-agency Command Center (MACC)**, may be added to coordinate protection and site security efforts. In these situations, the Operations Section Chief is

designated by mutual agreement of the JFO Coordination Group based on the agency with greatest jurisdictional involvement and statutory authority for the current incident priorities. The agency providing the Operations Section Chief may change over time as incident priorities change.

Planning Section. The Planning Section provides current information to the JFO Coordination Group to ensure situational awareness, determine cascading effects, identify national implications, and determine specific areas of interest requiring long-term attention. The Planning Section also provides technical and scientific expertise. The Planning Section is composed of the following units: situation, resources, documentation, technical specialists, and demobilization. The Planning Section may also include an information and intelligence unit (if not assigned elsewhere).

Logistics Section. The Logistics Section coordinates logistics support that includes the following:

- Control and accountability for federal supplies and equipment
- Resource ordering
- Delivery of equipment, supplies, and services to the JFO and other field locations
- Facility location, setup, space management, building services, and general facility operations
- Transportation coordination and fleet management services
- Information and technology systems services, administrative services such as mail management and reproduction, and customer assistance

The Logistics Section may include Coordination and Planning, Resource Management, Supply, and Information Services Branches.

Finance and Administration Section (Comptroller). The Finance and Administration Section is responsible for the financial management, monitoring, and tracking of all federal costs relating to the incident and the functioning of the JFO while adhering to all federal laws, acts, and regulations. The position of the financial and administration chief will be held exclusively by a comptroller who serves as the senior financial advisor to the team leader (e.g., FCO) and represents the coordinating agency's chief financial officer (CFO) as prescribed by the CFO Act of 1990.

FEMA Incident Management Assistance Teams (IMATs)

FEMA has developed a number of full-time, rapidly-deployable emergency response teams called Incident Management Assistance Teams (IMATs). IMATs can deploy within 2 hours of notification and can arrive at an incident within 12 hours to support the local incident commander. The teams support the initial establishment of a unified command and provide situational awareness for federal and state decision makers crucial to determining the level and type of immediate federal support that may be required.

IMATs are built on the concept of a former group of national and regional response teams called ERT-Ns (National Emergency Response Teams) and ERT-As (Regional Emergency Response Teams). These teams are still being staffed and developed, but the plan is to

eventually have 3 National IMATs with 16 full-time staff each, and 13 Regional IMATs staffed with 4 full-time and 6 collateral duty personnel each. All 10 FEMA Regions will have 1 dedicated IMAT team except for Regions II, IV, and VI, which will each have 2 teams.

IMATs provide a forward federal presence to facilitate the management of the national response to catastrophic incidents. The primary mission of a FEMA IMAT is to rapidly deploy to an incident or incident-threatened venue, provide leadership in the identification and provision of federal assistance, and coordinate and integrate inter-jurisdictional response in support of an affected state or territory.

IMATs are led by experienced, senior-level emergency managers and staffed with a core of permanent full-time employees. When not deployed, the teams are responsible for building and maintaining a close working relationship with regional, state, tribal, and local emergency management officials, federal partners, and the private sector to support planning, training, exercising, and other activities in preparation for disaster response (FEMA, 2010b). (Related video: “IMAT—Meeting the Challenge”—http://www.fema.gov/media-library/media_records/9452. Related video: “IMAT Operational Response Exercise”—http://www.fema.gov/media-library/media_records/7966.)

CASE STUDY: JOPLIN, MISSOURI TORNADO

The city of Joplin is located in the southwest corner of Missouri, and has a population of 49,024. During the day, the population rises to 270,000 because the city houses major industrial, agricultural, and educational resources, among others. Joplin sits squarely within an area of unusually high tornado risk called “tornado alley.”

On Sunday, May 22, 2011, the conditions were perfect for the creation of a tornado-producing supercell thunderstorm. The storm tracked from southeast Kansas to southwest Missouri in the late afternoon and into the evening. As it moved, it generated a number of tornadoes. At 2:40 p.m., the National Weather Service (NWS) Storm Prediction Office issued a tornado watch at for parts of Arkansas, Kansas, Missouri, and Oklahoma. A tornado was spotted near Joplin around 5:45 p.m., and the Joplin/Jasper County Emergency Management began coordinating with the NWS to track it. A warning was issued for Joplin at 6:17 p.m., which ultimately gave residents 24 minutes to take action before its arrival. Outdoor emergency sirens were sounded 6:17 p.m. and again at 6:31 p.m.

At 6:41 p.m. EDT, an EF-5 tornado touched down in Joplin with winds exceeding 200 mph. The tornado cut a 22.1 mile path that was 1 mile wide and passed for 6 miles through the city. The tornado caused catastrophic loss of life and almost completely destroyed the commercial district of the city. It resulted in 161 fatalities and 1371 injuries, making it the single deadliest U.S. tornado since 1947 and the seventh deadliest in U.S. history. Thousands of structures were destroyed and damaged, from single family homes to apartment buildings to large retail and public buildings (including a major hospital and several big-box stores.) The housing loss was phenomenal for a tornado, with 4380 homes completely destroyed and another 3884 damaged. The high school was completely destroyed, but by luck a graduation ceremony was being held offsite and a major additional loss of life was avoided.

In the immediate aftermath of the tornado, emergency responders and the public began conducting search and rescue operations in damaged buildings and providing medical care and

shelter for survivors. An estimated 3 million cubic yards of debris had been generated and needed to be cleared and disposed. All of the major health-care facilities sustained damage, and 183 patients had to be evacuated within 90 minutes of the event. The Empire District Electric Company reported the loss of 130 transmission poles throughout the city, resulting in power loss to 18,000 customers. Thousands were forced to seek lodging with families or friends, or at an American Red Cross established shelter at a nearby university.

FEMA had been conducting disaster response and recovery in Missouri in the months prior to the Joplin tornado. Severe winter storms in January and February 2011 led President Barack Obama to issue a major disaster declaration for 59 counties throughout the state. FEMA Administrator Craig Fugate had appointed an FCO, and a JFO had been established in Columbia, Missouri. Several weeks later, spring storms brought damaging tornadoes and flooding to Missouri. On May 9th, 2011, President Obama had issued a major disaster declaration for five counties in Missouri for that flooding. Administrator Fugate had also appointed an FCO for that event, with the JFO continuing to operate from its offices in Columbia. On the evening of May 22, 2011, shortly after the tornado, FEMA Headquarters, Region VII Administrator Freeman and the FCO activated in Missouri held a series of calls to discuss how FEMA could support response operations in Joplin. The state of Missouri had the option to request that the Joplin event be added to the existing declaration or to have a new presidential declaration made. Administrator Fugate issued an amendment to the existing declaration on May 23, 2011, which provided individual assistance, debris removal, and emergency protective measures funding to individuals in Jasper and Newton counties.

Source: FEMA. 2011. The Response to the 2011 Joplin, Missouri, Tornado: Lessons Learned Study. <http://kyem.ky.gov/teams/documents/joplin%20tornado%20response,%20lessons%20learned%20report,%20fema,%20december%2020,%202011.pdf>.

Key Federal Response Officials

Several senior federal government officials play important roles in the activation of a federal disaster response effort, several of whom may be deployed to oversee the federal effort. These include the following.

Principal Federal Official (PFO)

By law and by presidential directive, the secretary of Homeland Security is the *principal federal official* responsible for coordination of all domestic incidents requiring multiagency federal response. The DHS secretary is authorized to designate someone from either within or outside the Department of Homeland Security to serve as his or her primary representative and to ensure consistency in and effectiveness of the provision of federal support. When appointed, the PFO serves in the field at the incident location. Congress has provided that, notwithstanding the general prohibition on appointing a PFO for Stafford Act incidents, “there may be instances in which FEMA should not be the lead agency in charge of the response, such as a pandemic outbreak or an Olympic event.” Congress also recognized that there may be “major non-Stafford Act responses that may include a Stafford Act component.” In either situation, the

DHS secretary may assign a PFO. It is important to note that the DHS secretary is only likely to appoint a PFO for catastrophic or unusually complex incidents that require extraordinary levels of coordination. Once appointed, the PFO interfaces with federal, state, tribal, and local jurisdictional officials regarding the overall federal incident management strategy and acts as the primary federal spokesperson for coordinated media and public communications. The PFO is as a member of the Unified Coordination Group (see below) and provides a primary point of contact and situational awareness locally for the secretary of Homeland Security. A PFO is a senior federal official with proven management experience and strong leadership capabilities. The PFO deploys with a small, highly trained mobile support staff, and once formally designated for an ongoing incident they relinquish the conduct of all previous duties to focus exclusively on incident management. The same individual will *not* serve as the principal federal official and the federal coordinating officer (FCO—see below) at the same time for the same incident. When both positions are assigned, the FCO will have responsibility for administering Stafford Act authorities, as described below.

The PFO does not direct or replace the incident command structure established at the incident, nor does the PFO have directive authority over a federal coordinating officer, a senior federal law enforcement official, a DOD Joint Task Force commander, or any other federal or state official. Other federal incident management officials retain their authorities as defined in existing statutes and directives. Rather, the PFO promotes collaboration and, as possible, resolves any federal interagency conflict that may arise. The PFO identifies and presents to the secretary of Homeland Security any policy issues that require resolution.

UNIFIED COORDINATION GROUP

The JFO is directed by a Unified Coordination Group (UCG), which is typically comprised by several or all of the following officials (as determined by the needs of the incident):

- *The Federal Coordinating Officer*, who is appointed by the president to execute Stafford Act authorities
- *The State Coordinating Officer*, who is appointed by the governor to coordinate state disaster assistance efforts
- *The Federal Resource Coordinator*, who DHS may designate in non-Stafford events when one or more federal departments or agencies acting under their own authority has requested DHS assistance in obtaining support from another other federal department or agency. The FRC coordinates support through interagency agreements and memorandums of understanding.
- *The Joint Task Force Commander*, who the Department of Defense (DOD) may designate to command military activities in support of a disaster incident if the type and complexity of the incident warrants such action. This official maintains operational control of federal military personnel and most defense resources in the federal response except in the case that the entity is guided by another authority (as in the case of the U.S. Army Corps of Engineers or the National Guard).
- *The Senior Health Official*, who is the senior official from the Department of Health and Human Services and who represents the Assistant Secretary for Preparedness and Response (ASPR). The Senior Health Official is deployed in events with significant ESF #8 requirements.

- *The Defense Coordinating Officer*, who is drawn from a cadre of ten Defense Coordinating Officers (DCOs) assigned by DOD to each of the FEMA regions. If requested, this official serves as DOD's single point of contact at the JFO for requesting military assistance. With few exceptions, requests for Defense Support of Civil Authorities (DSCA) originating at the JFO are coordinated with and processed through the DCO.
- *The Senior Federal Law Enforcement Official (SFLEO)*, who is appointed by the attorney general during an incident requiring a coordinated federal response to coordinate all law enforcement, public safety, and security operations with intelligence or investigative law enforcement operations directly related to the incident. The SFLEO is responsible for ensuring that allocation of law enforcement requirements and resource allocations are coordinated as appropriate with all other members of the UCG. In the event of a terrorist incident, the SFLEO will normally be a senior FBI official who has coordinating authority over all law enforcement activities related to the incident, both those falling within the attorney general's explicit authority as recognized in HSPD-5 and those otherwise directly related to the incident itself.

Based on the scope and nature of an incident, senior officials from other federal departments and agencies; state, tribal, or local governments; and the private sector or nongovernmental organizations may participate in a UCG. Usually, the larger and more complex the incident, the greater the number of entities represented. In catastrophic or complex incidents, a Principal Federal Official (PFO) may be appointed to serve as the Secretary of Homeland Security's representative. When appointed, the PFO works within the UCG and interfaces with all levels of responders regarding the overall federal incident management strategy but does not direct nor replace the incident command structure established at the incident.

Federal Coordinating Officer (FCO)

For Stafford Act incidents (i.e., emergencies or major disasters), upon the recommendation of the FEMA administrator and the secretary of Homeland Security, the president appoints an FCO. The FCO is a senior FEMA official trained, certified, and well experienced in emergency management, and specifically appointed to coordinate federal support in the response to and recovery from emergencies and major disasters. The FCO executes Stafford Act authorities, including commitment of FEMA resources and the mission assignment of other federal departments or agencies. If a major disaster or emergency declaration covers a geographic area that spans all or parts of more than one state, the president may decide to appoint a single FCO for the entire incident, with other individuals as needed serving as deputy FCOs.

In all cases, the FCO represents the FEMA administrator in the field to discharge all FEMA responsibilities for the response and recovery efforts under way. In Stafford Act incidents, the FCO is the focal point of coordination within the UCG, ensuring overall integration of federal emergency management, resource allocation, and seamless integration of federal activities in support of, and in coordination with, state, tribal, and local requirements. Some FCOs are given additional, specialized training regarding unusually complex incidents. For example, one may be further trained for catastrophic earthquake response, whereas another might cultivate unique skills for response related to weapons of mass destruction or pandemic influenza.

PRE-DESIGNATION OF PFOS AND FCOS

In certain scenarios, the secretary of Homeland Security may pre-designate a PFO and/or an FCO. Such predesignation can focus on specified geographic areas or be based on specific potential threats, or a combination of both. For example, beginning in 2007, the secretary predesignated a national PFO and five regional PFOs together with a national FCO and regional FCOs, who will serve in the event of a nationwide outbreak of pandemic influenza or other similar nationwide biological event. Predesignation of these leadership teams is allowing for sustained advance planning conducted with state, tribal, and local leaders.

State Coordinating Officer (SCO)

The SCO plays a critical role in managing the state response and recovery operations following Stafford Act declarations. The governor of the affected state appoints the SCO, and lines of authority flow from the governor to the SCO, following the state's policies and laws. For certain anticipated events in which a Stafford Act declaration is expected, such as an approaching hurricane, the secretary of Homeland Security or the FEMA administrator may pre-designate one or more federal officials to coordinate with the SCO to determine resources and actions that will likely be required and begin deployment of assets. The specific roles and responsibilities of the SCO include serving as the primary representative of the governor for the affected state or locality with the RRCC or within the JFO once it is established; working with the federal coordinating officer to formulate state requirements, including those that are beyond state capability, and set priorities for employment of federal resources provided to the state; ensuring coordination of resources provided to the state via mutual aid and assistance compacts; providing a linkage to local government; and serving in the UCG in the JFO.

Other Senior Officials

Based on the scope and nature of an incident, senior officials from other federal departments and agencies, state, tribal, or local governments, and the private sector or NGOs may participate in a UCG. Usually, the larger and more complex the incident, the greater the number of entities represented.

FEMA National Disaster Reservists

FEMA manages a cadre of more than 7000 National Disaster Reservists. These were formerly called Disaster Assistance Employees, or (DAEs, though the DAE program was terminated in October of 2012). Reservists are federal employees that works on an on-call, intermittent basis. They form the bulk of the FEMA workforce during disasters, and are critical to the FEMA mission in the disaster-impacted areas. Reservists staff the Joint Field Offices (JFOs) and Disaster Recovery Centers (DRCs), interview disaster victims, conduct and verify damage assessments, provide administrative, financial and logistical support, and perform a wide variety of other



FIGURE 6-8 San Diego, California, October 26, 2007—Northern California fire crews set fire backburn to stop the Poomacha fire from advancing westward. Currently the fires in Southern California have burned more than 355,000 acres. *FEMA photo/Andrea Booher.*



FIGURE 6-9 Hattiesburg, Mississippi, March 1, 2013—This Red Cross van is parked at the First Trinity Baptist Church on Mobile Street, handing out snacks and other small items to local residents. American Red Cross volunteers are positioning their trucks in locations where they can provide food and supplies to workers and disaster survivors. *Photo by Marilee Caliendo/FEMA.*

tasks as identified by staffing needs and operational requirements. Reservists typically deploy a minimum of once per year for a minimum of 30 days per deployment. Reservists are classified according to the FEMA Qualification System (FQS) which characterizes individuals by their specific skills and knowledge. (Figures 6-8 and 6-9).

(Related Video: FEMA Minnesotans Work Near Home—http://www.youtube.com/watch?v=YNTikghMlZk&feature=youtube_gdata.)

FEMA QUALIFICATION SYSTEM (FQS)

FEMA has recently begun a new program of establishing benchmarks of skills and knowledge required for each different position in the FEMA workforce. A panel of subject matter and program experts from the existing FEMA workforce began this process in mid-2011. These experts developed the baseline qualifications for each program position, and then began the process of evaluating each cadre member against those standards for training, experience, and performance. The process for determining current FEMA employee qualifications has grown out of the National Incident Management System (NIMS). The FQS has only two rating levels: *Trainee* and *Qualified*. Trainees are personnel who are working through the required steps to fully qualify for their position. Fully qualified personnel have met the standards for qualification as determined through a formal process based on their experience, training, and performance.

■ ■ Critical Thinking ■

- What are the strengths and weaknesses of the National Response Framework?
- Would disaster response be more efficient if the federal government had the authority to assume power over any disaster response, regardless of the ability of local response agencies? Why or why not?

FEME'S MOBILE OPERATIONS CAPABILITY

Disasters may require resources beyond the capabilities of the local or state authorities. In response to regional requests for support, FEMA provides mobile telecommunications, operational support, life support, and power generation assets for the on-site management of disaster and all-hazard activities. This support is managed by the Response and Recovery Directorate's Mobile Operations Division (RR-MO).

The Mobile Operations Division has a small headquarters staff and five geographically dispersed Mobile Emergency Response Support (MERS) Detachments and the Mobile Air Transportable Telecommunications System (MATTS) to:

- Meet the needs of the government emergency managers in their efforts to save lives, protect property, and coordinate disaster and all-hazard operations.
- Provide prompt and rapid multimedia communications, information processing, logistics, and operational support to federal, state, and local agencies during catastrophic emergencies and disasters for government response and recovery operations.

The MERS and MATTS support the Disaster Field Facilities. They support the federal, state, and local responders—not the disaster victims.

Available Support

Each of the MERS Detachments can concurrently support a large Disaster Field Office and multiple field operating sites within the disaster area. MERS is equipped with self-sustaining

telecommunications, logistics, and operations support elements that can be driven or airlifted to the disaster location. MATTS and some of the MERS assets can be airlifted by C-130 military cargo aircraft.

The MERS and MATTS are available for immediate deployment. As required, equipment and personnel will deploy promptly and provide:

- Multimedia communications and information processing support, especially for the Communications Section, Emergency Support Function (ESF) #2 of the Federal Response Plan (FRP).
- Operational support, especially for the Information and Planning Section, ESF #5 of the FRP.
- Liaison to the Federal Coordinating Officer (FCO).
- Logistics and life support for emergency responders.
- Automated information and decision support capability.
- Security (facility, equipment, and personnel) management and consultation.

Most equipment is preloaded or installed on heavy-duty, multiwheel drive trucks. Some equipment is installed in transit cases.

Source: FEMA, www.fema.gov.

State-to-State Support: The Emergency Management Assistance Compact (EMAC)

The Emergency Management Assistance Compact (EMAC) is a national-level mutual aid program that has all 50 states, the District of Columbia, Puerto Rico, Guam, and the U.S. Virgin Islands as its members. It was established in 1996. Through EMAC, states that have disasters declared by their governor can request assistance from other members in the forms of personnel, equipment, and commodities that are needed to respond to the disaster they are facing. EMAC has a unique dedicated governance structure composed of the International Association of Emergency Managers, an EMAC Committee, administration, an advisory group, an executive task force, and operational components. This distinguishes it from other mutual aid agreements which typically exist as agreements on paper. EMAC also benefits from its relationships with response organizations at all government levels.

States request assistance through EMAC using a five-phase process that provides the necessary systematic approach, form, and structure for assistance provision. These phases include (Figure 6-10):

1. *Pre-Event Preparation:* Participant jurisdictions develop internal procedures for implementing the compact, incorporate lessons learned into their planning, perform resource typing and predetermine cost estimates, and conduct EMAC training and exercises in cooperation with their state emergency management agencies.
2. *Activation:* Affected jurisdictions identify needs and communicate them to the state office of emergency management. The state determines the appropriate course of action,

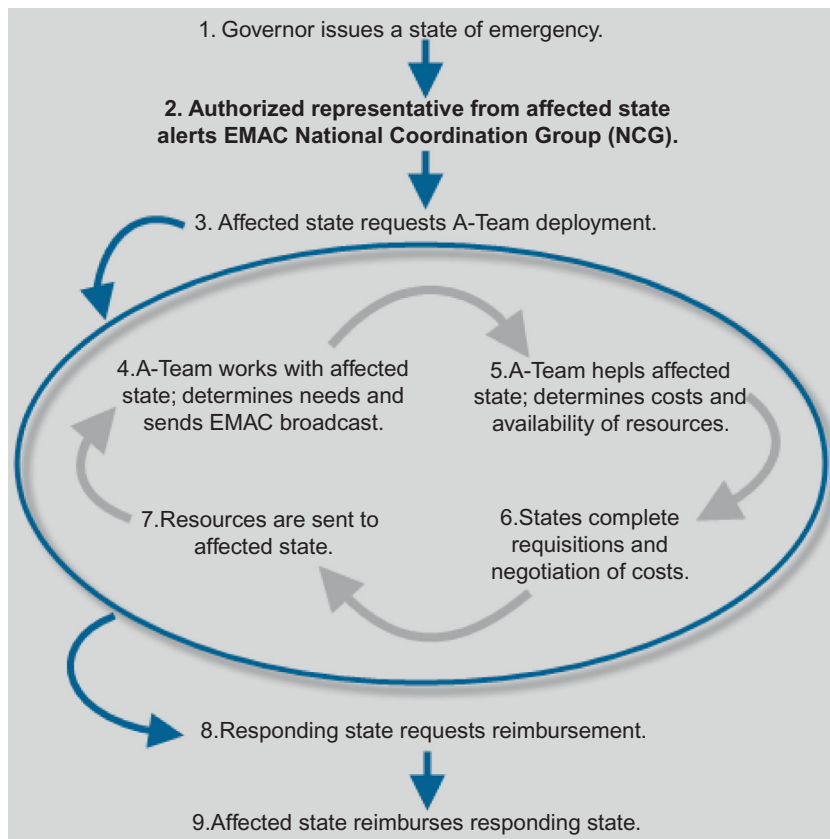


FIGURE 6-10 The EMAC process flow. Reprinted courtesy of www.emacweb.org.

whether that involves a presidential disaster declaration request, request from the private sector, from EMAC, or any other source.

3. *Request and Offer:* State agencies use their in-state resource request procedures to route all requests, including those under EMAC, to their home state emergency management agency. Once a state emergency management agency identifies a need or receives a request for assistance and determines that those resources are best obtained through EMAC Member States, the request and offer phase of the EMAC process begins.
4. *Response:* After all request requirements have been satisfied, including a contractual agreement between the assisting and requesting states, the movement of resources begins. Staff mobilize and deploy, and tap into the coordination and the command and control systems in place.
5. *Reimbursement:* After the need for assistance has ended, the requesting state begins the process of reimbursing the assisting state for the agreed-upon personnel, material, and service assistance that was provided.

EMAC offers the following benefits:

- EMAC assistance may be more readily available than other resources.
- EMAC allows for a quick response to disasters using the unique human resources and expertise possessed by member states.
- EMAC offers state-to-state assistance during governor-declared states of emergency and a responsive and straightforward system for states to send personnel and equipment to help disaster relief efforts in other states. When resources are overwhelmed, EMAC helps to fill the shortfalls.
- EMAC establishes a firm legal foundation: Once the conditions for providing assistance to a requesting state have been set, the terms constitute a legally binding contractual agreement that makes affected states responsible for reimbursement. Responding states can rest assured that sending aid will not be a financial or legal burden, and personnel sent are protected under workers' compensation and liability provisions. The EMAC legislation solves the problems of liability and responsibilities of cost and allows for credentials to be honored across state lines.
- EMAC provides fast and flexible assistance: EMAC allows states to ask for whatever assistance they need for any type of emergency, from earthquakes to acts of terrorism. EMAC's simple procedures help states dispense with bureaucratic wrangling.
- EMAC can move resources such as medical provisions that other compacts cannot.

Conclusion

Responding to disaster events is the most visible activity that any federal, state, or local emergency management agency conducts. The politicians, the media, and the general public rate the success of an emergency management organization by how well it functions in the response phase of a disaster. A successful disaster response at any level of government requires a strong command and control system, clear lines of communication, and coordination of numerous agencies from multiple jurisdictions. Local first responders—fire, police, and emergency medical technicians—are on the scene first. Local and state emergency managers coordinate resources and assess the damage and the capacity of their jurisdictions to respond effectively. For major disaster events, a presidential disaster declaration activates the NRF that delivers the full resources of the federal government in support of local and state authorities.

Currently, the nation's response to major disasters is guided by the National Response Framework (NRF), which defines the roles and responsibilities of federal, state, and local government, voluntary agencies, and the private sector and provides guidance on how these groups plan and work together in a disaster response. One element that is currently missing in the nation's response capability is an agreement similar to the Federal Response Plan (FRP) and the National Response Plan (NRP) that preceded the NRF that identifies and empowers a single federal agency responsible for coordinating the efforts of the federal government in responding to a major disaster in support of state and local partners. FEMA was created in 1979 in response to the demand made by state emergency management directors and their governors that the

federal government establish a single agency to coordinate the federal response. The NRF does not designate a single federal agency that has the authority to coordinate the activities of all federal departments and agencies as FEMA did as part of the FRP and the NRP. This missing piece in the current federal response is of concern to its state and local partners and must be addressed if the federal response is to be timely and effective in the future.

Important Terms

Emergency management/response personnel
 Emergency Operations Plan
 Emergency Support Function
 First responders
 Incident Command System (ICS)
 Incident Commander (IC)
 National Incident Management System (NIMS)
 National Response Framework
 Unified Command

Self-Check Questions

1. How is the National Guard deployed to assist in response to a disaster?
2. What is the role of first responders when a routine “minor disaster” occurs in a local community?
3. What drives the actions of local first responders?
4. Where can you find a detailed description of the roles and responsibilities of first responders in your community?
5. Who is usually in charge of developing and maintaining the community emergency plan?
6. Where does the emergency management office reside at the state level? Give three examples.
7. What is the principal source of funding for state emergency management offices?
8. What kinds of things do volunteer organizations provide for victims in the aftermath of a disaster?
9. What is the Incident Command System, and why was it originally developed?
10. What are the five major management systems within the Incident Command System?
11. What is the role of the incident commander?
12. At whose discretion is the decision to make a disaster declaration?
13. What is the National Response Framework?
14. How does the National Response Framework compare to its predecessors, the National Response Plan and the Federal Response Plan?
15. What are some of the reasons why communications among responding agencies is crucial?

Out-of-Class Exercises

1. Contact your state National Guard office. Find out what kinds of resources they can offer to assist local communities in the event of a disaster and what kind of training and exercises they conduct to prepare their members for disaster response.
2. Make a list of the primary differences between the command and control, and the coordination response models.
3. Contact your local ham radio organization and take a certification course. Use your certification to get involved in local response. You can get more information from the Amateur Radio Relay League (ARES; <http://www.arrl.org/>).
4. Take a Community Emergency Response Team (CERT) course. To find a course near you, visit the Citizen Corps CERT website at <https://www.citizencorps.gov/cert/>.

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The Disciplines of Emergency Management: Recovery

What You will Learn

- The role of the National Disaster Recovery Framework
- The role of the federal government in disaster recovery operations
- The recovery programs administered by FEMA to fuel individual and community recovery operations
- How federal agencies other than FEMA contribute to disaster recovery
- The role of national voluntary relief organizations
- How to develop a Community Long-Term Recovery Plan

Introduction

A theoretical debate has been raging over when the response function ends and the recovery function begins. For this book, the *response function* is classified as the immediate actions to save lives, protect property, and meet basic human needs. The recovery function is not so easily classified. This function often begins in the initial hours and days following a disaster event and can continue for months and, in some cases, years, depending on the severity of the event (Figure 7-1).

Unlike the response function, where all of the efforts have a singular focus, the recovery function or process is characterized by a complex set of issues and decisions that must be made by individuals and communities. Recovery involves decisions and actions relative to rebuilding homes, replacing property, resuming employment, restoring businesses, and permanently repairing and rebuilding infrastructure. The recovery process requires balancing the more immediate need to return the community to normalcy with the longer-term goal of reducing future vulnerability. The recovery process can provide individuals and communities with opportunities to become more economically secure and improve the overall safety and quality of life.

Because the recovery function has such long-lasting effects and usually high costs, the participants in the process are numerous. They include all levels of government, the business community, political leadership, community activists, and individuals. Each of these groups plays a role in determining how the recovery will progress. Some of these roles are regulatory, such as application of state or local building ordinances, and some, such as the insurance industry, provide financial support. The goal of an effective recovery is to bring all the players



FIGURE 7-1 New Orleans, Louisiana, September 18, 2005—The city skyline looks over a neighborhood south of the city still flooded after 3 weeks. Recovering from Hurricane Katrina would prove to be an arduous process. *Win Henderson/FEMA.*

together to plan, finance, and implement a recovery strategy that will rebuild the disaster-affected area safer and more secure as quickly as possible.

As noted in Chapter 6, the precipitating event for an area affected by a disaster is the presidential declaration of disaster under the Stafford Act. Recovery activities begin immediately after a presidential declaration as the agencies of the federal government collaborate with the state in the affected area in coordinating the implementation of recovery programs and the delivery of recovery services.

Historically, FEMA has obligated an average of \$2.88 billion on public assistance projects annually for major disaster declarations, with an average of \$58 million per major disaster declaration annually. In addition, FEMA has historically obligated over \$153 million in public assistance for emergency declarations annually, averaging nearly \$11 million per emergency declaration.

In the period from 1993 to September of 2012 FEMA spent more than \$134 billion for declared disasters and emergencies compared to \$3.9 billion in current dollars for 1980 to 1989.

These figures do not include the costs for Hurricane Sandy estimated to be approximately \$65 billion or the costs for the Nor'easter that impacted the same region after Sandy. Sandy will be the costliest storm to the federal government since Hurricane Katrina in 2005. And it is important that these costs do not reflect the costs to businesses, lost tax revenues for local and

state governments and a variety of other factors. These numbers only reflect what the federal government has expended or projects to expend. The process of recovery takes years, sometimes even decades as the following case study on Katrina will visually demonstrate.

CASE STUDY: THE NEW ORLEANS INDEX AT SIX—MEASURING GREATER NEW ORLEANS' PROGRESS TOWARD

Nearly 6 years after Hurricane Katrina and the levee failures inundated 80 percent of New Orleans and much of the metro area, the results of the decennial census confirm that New Orleans had 29 percent fewer residents in 2010 than in 2000, and the metro area had 11 percent fewer residents (i). But while the decennial census provides an accurate snapshot of the New Orleans population as of April 2010, it does not provide insight into the post-Katrina trajectory of recovery. To assess this trajectory, it is essential to look at intervening years of data since 2005, as well as indicators of prosperity and well-being such as economic growth, sustainability, inclusive growth, and quality of life.

Researchers analyzing disasters as far back as the Great Plains droughts of the 1890s found that catastrophes the magnitude of Hurricane Katrina often accelerate predisaster trajectories. Yet there are cases where regions hit by disasters broke from their historical path when residents and leaders used the interruption in the status quo to transform key institutions while leveraging massive rebuilding investments and capitalizing on emerging economic opportunities (ii). New Orleans' case is particularly striking because the region was hit by not one crisis but three in five years: Katrina, the Great Recession, and the Deepwater Horizon oil spill. Despite this, there is evidence to suggest that the region may be on the path to transformation.

In *Resilience and Opportunity: Lessons from the U.S. Gulf Coast after Katrina and Rita*, local scholars document measurable progress in the transformation of public education, health care delivery, criminal justice, and evacuation planning (iii). The installation of an inspector general's office in New Orleans city government has laid the foundation for greater integrity and less waste in public spending. And the adoption of a citywide master plan supports greater transparency in land-use decisions. There has been a measurable rise in civic engagement in shaping public policies post-Katrina.

A more informed and sophisticated network of neighborhood organizations and nonprofits has emerged and undertaken holistic strategies to rebuild neighborhoods for returning and existing residents. Yet the authors of *Resilience and Opportunity* remain only cautiously optimistic, as some of this progress is under threat, and much of it is dependent on federal disaster-related dollars. Moreover, meaningful progress in restoring the wetlands that are New Orleans' first line of defense against hurricanes has yet to be initiated, leaving the city and region vulnerable to strong storm surge.

The moment of the Katrina anniversary is a good time for leaders to assess whether efforts to date are putting the New Orleans metro on a course toward greater prosperity, inclusion, sustainability, and improved quality of life. By looking at more than 20 indicators reaching back to 1980, we assess the extent to which the New Orleans metro area is rebounding from Katrina, the recession, and the Deepwater Horizon oil spill better than its historic path. In short, this research finds:

- Greater New Orleans continues to recover and in some ways is rebuilding “better than before” with emerging signs of a healthier economy, better social outcomes, and improved schools and basic services.

Economic Growth

- The New Orleans metro area economy has been buffered from the worst of the Great Recession by substantial rebuilding activities. The metro area lost only 1.2 percent of jobs from 2008 to 2010 compared to the national job loss rate of 5.1 percent.
- The New Orleans regional economy has begun to diversify with growth in knowledge-based industries such as higher education, legal services, and insurance agencies. Together, regional “export” jobs in these sectors have grown from approximately 10,000 in 1980 to over 17,000 in 2010.
- From 2000 to 2004, average wages in the New Orleans metro area grew 7 percent. This trend accelerated after Katrina when wages jumped 14 percent from 2004 to 2006. Although growth stalled when the Great Recession struck, average wages in the New Orleans metro at \$45,492 in 2009 are now nearly on par with the national average after having significantly trailed the nation since 1985.
- Entrepreneurship has spiked post-Katrina, from 218 individuals starting businesses out of every 100,000 metro area adults in 2003 to 2005 to 427 in 2008 to 2010, and remains well above the national average of 333.

Inclusion

- While the 2009 median household income in the New Orleans metro area is no higher than in 1999, this stands in contrast to the 7 percent drop in incomes nationwide from 1999 to 2009. Moreover, incomes locally are now only 8 percent lower than incomes nationally—a gap that has narrowed significantly since 1989 when local incomes trailed national incomes by 19 percent.
- The share of households that are middle-income within the city is steadily expanding, growing from 16 percent in 1989 to 17 percent in 1999 to 18 percent in 2009.

Quality of Life

- The number of relatively large arts and culture nonprofits in New Orleans has grown from 81 in 2004 to 98 in 2008 despite a smaller population to support this growth. With 29 such nonprofits per 100,000 residents, New Orleans outpaces the nation more than 2 to 1.
- A greater share of public school students across the metro area attends schools that meet state standards. Orleans Parish has made the largest gains since 2003, with 68 percent of Orleans students attending academically satisfactory schools in 2010, up from 28 percent in 2003 and 44 percent in 2008.

Sustainability

- Air quality has continued to improve in the New Orleans metro area since 2000, reflecting, in part, national and state regulations mandating emissions reductions as well as a more modern fleet of post-Katrina buses and cars.
- Yet several economic, social, and environmental trends in the New Orleans metro area remain troubling, and indicate the region has significant challenges and unmet needs.

Economic Growth

- The New Orleans regional economy is still largely reliant on legacy industries. The three largest economic driver industries—tourism, oil and gas, and shipping and logistics—have shed tens of thousands of jobs over the last 3 decades, and the gains in knowledge industries have not made up for the losses in these top three drivers.

- The share of adults with a college education in the metro area has grown every decade since 1980. However, these gains lag national gains. In the New Orleans metro area, 26 percent of adults have a bachelor's degree compared to 28 percent nationwide, and 54 percent of adults locally have at least some college compared to 57 percent nationally.
- Since 2004, jobs sprawl has accelerated in the New Orleans metro area such that Jefferson Parish now has the largest share of jobs at 39 percent. There are now two job clusters in Jefferson Parish that are each nearly as large as the Central Business District/French Quarter. In 2008, the Greater Elmwood and Causeway-Veterans area had 30,233 and 29,586 jobs respectively while the CBD/French Quarter had 39,293 jobs.

Inclusion

- In the New Orleans metro area, African American and Hispanic households earn 50 percent and 30 percent less than white households, respectively. Income disparities in the New Orleans metro area are particularly stark because white households locally earn significantly more than white households nationally, and black households locally earn significantly less than black households nationally.
- From 1989 to 1999, the number of people living in poverty declined in the city while it grew in the rest of the metro area. The trend toward suburbanization of poverty accelerated post-Katrina, and today the surrounding parishes are home to 56 percent of the metro's impoverished population.
- Housing costs spiked post-Katrina and 55 percent of New Orleans' renters paid more than 35 percent of their pretax household income on rent and utilities in 2009, up from 43 percent in 2004. At 33 percent, New Orleans' homeowners are burdened with housing costs at rates higher than the nation.

Quality of Life

- Violent and property crime rates in the city have fallen to below pre-Katrina levels. Still public safety continues to be a significant problem in New Orleans with violent crime rates 80 percent higher than the national average as of 2009.

Sustainability

- During a time when commuters are increasingly using public transportation nationally, the percent of workers in New Orleans using public transit fell from 13.2 percent in 2000 to 7.4 percent in 2009.
- Fully 29 percent of the coastal wetlands that protect the New Orleans metro area has been converted to open water since 1932.

Conclusion

Although enormous progress has been made in New Orleans in the last 6 years, leaders must be vigilant to sustain and expand on that progress for the long term. The public education, health care, housing, and criminal justice reforms underway have significant potential to raise the standard of living for families who have struggled to break out of poverty, and at the same time build a safer and more just community for everyone. These reforms have been greatly aided by massive federal rebuilding investments. Over the long term New Orleans will need a stronger economy in order to further prosperity and inclusion in the region.

There are currently significant opportunities to expand the economy by helping new and existing industries better tap the growth in emerging world markets. Just as residents and civic and political leaders came together to tackle health care, public education, ethics, and criminal justice reform, that same collective energy is needed to strengthen the economy and capitalize on these emerging opportunities. Specifically, the region needs to come together around an economic agenda that leverages competitive strengths in energy, shipping, engineering, and higher education to expand into rapidly growing industries such as oil spill remediation, wind energy manufacturing, carbon storage, and water management (iv). This agenda could include tapping new entrepreneurial networks to help older industries make the transition to new products and services. Importantly, this agenda must include workforce training well matched to the needs of emerging industries. An effective workforce-development system will be critical to ensuring that New Orleans can grow knowledge industries as well as higher paying jobs.

While growing the economy and lifting up opportunities for all residents is essential, perhaps more important still are additional flood-risk reduction efforts. The Army Corps of Engineers has now largely completed its multibillion dollar “Hurricane and Storm Damage Risk Reduction System” designed to protect many of the areas most damaged in 2005 (v). This system provides protection from storms with a 1 percent chance of occurring in any given year. Still the 1 percent standard is low and more is needed. State and federal leaders must invest in extensive wetland restoration and New Orleanians should lead by example by implementing many of the good Dutch-inspired ideas in the city’s master plan for integrating water into the city’s form and function. These efforts will be crucial to ensure the long-term sustainability of the city and region as sea levels continue to rise and the coast continues to subside.

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ADDITIONAL RESEARCH

The White House report on Katrina, “The Federal Response to Hurricane Katrina: Lessons Learned,” estimated damage to housing at \$67 billion; business property suffered \$20 billion in damages, and government property an estimated \$3 billion in damages (Townsend, 2006).

Without a doubt, the federal government plays the largest role in providing the technical and financial support for recovery. For that reason, this chapter focuses on the federal role in the disaster recovery function. It discusses the structure and the various programs available to assist individuals and communities in the postdisaster environment. The various national voluntary organizations that provide some assistance for recovery are briefly referenced, and several case studies are included to demonstrate the different types of recovery.

As noted earlier, the decisions during recovery are predominantly driven by local government. At the end of the chapter is a listing of potential planning tools for the recovery process. This, along with a more-encompassing discussion of the complexities of recovery, and roles and responsibilities of the various players in it, can be found in a book prepared for FEMA by the American Planning Association entitled *Planning for Post-Disaster Recovery and Reconstruction*.

The National Response Framework for Disaster Recovery Operations

Issued in 2005, the National Response Plan (NRP) outlined how the federal government implements the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended, to assist state and local governments when a major disaster or emergency overwhelms their ability to respond effectively. The NRP describes the policies, planning assumptions, concept of operations, response and recovery actions, and responsibilities of 32 federal departments and agencies, including the American Red Cross, that guide federal operations following a presidential declaration of a major disaster or emergency.

The NRP is built on the template of the National Incident Management System (NIMS), which provides a consistent doctrinal framework for incident management at all jurisdictional levels, regardless of the cause, size, or complexity of the incident. The activation of the NRP and its coordinating structures and protocols, either partially or fully, for specific Incidents of National Significance (INS) provides mechanisms for the coordination and implementation of a wide variety of incident management and emergency assistance activities. Included in these activities are federal support to state, local, and tribal authorities; interaction with nongovernmental, private donor, and private sector organizations; and the coordinated, direct exercise of federal authorities, when appropriate.

In January 2008, the National Response Framework (NRF) was published, and it replaced the National Response Plan (NRP) as the guide for how all responding parties (government, private sector, and voluntary agencies) work together in responding to a major disaster. According to FEMA, “The National Response Framework presents the guiding principles that enable all response partners to prepare for and provide a unified national response to disasters and emergencies—from the smallest incident to the largest catastrophe. This important document establishes a comprehensive, national, all-hazards approach to domestic incident response. The Framework defines the key principles, roles, and structures that organize the way we respond as a nation. It describes how communities, tribes, states, the federal

government, and private sector and nongovernmental partners apply these principles for a coordinated, effective national response. It also identifies special circumstances where the federal government exercises a larger role, including incidents where federal interests are involved and catastrophic incidents where a state would require significant support. The Framework enables first responders, decision makers, and supporting entities to provide a unified national response.” The guidance included in the NRF concerning recovery is presented in the box below.

RECOVERY

Once immediate lifesaving activities are complete, the focus shifts to assisting individuals, households, critical infrastructure, and businesses in meeting basic needs and returning to self-sufficiency. Even as the immediate imperatives for response to an incident are being addressed, the need to begin recovery operations emerges. The emphasis upon response will gradually give way to recovery operations. Within recovery, actions are taken to help individuals, communities, and the nation return to normal. Depending on the complexity of this phase, recovery, and cleanup efforts involve significant contributions from all sectors of our society.

- *Short-term recovery* is immediate and overlaps with response. It includes actions such as providing essential public health and safety services, restoring interrupted utility and other essential services, reestablishing transportation routes, and providing food and shelter for those displaced by the incident. Although called “short-term,” some of these activities may last for weeks.
- *Long-term recovery*, which is outside the scope of the Framework, may involve some of the same actions but may continue for a number of months or years, depending on the severity and extent of the damage sustained. For example, long-term recovery may include the complete redevelopment of damaged areas.

Recovery from an incident is unique to each community and depends on the amount and kind of damage caused by the incident and the resources that the jurisdiction has ready or can quickly obtain. In the short term, recovery is an extension of the response phase in which basic services and functions are restored. In the long term, recovery is a restoration of both the personal lives of individuals and the livelihood of the community. Recovery can include the development, coordination, and execution of service- and site-restoration plans; reconstitution of government operations and services; programs to provide housing and promote restoration; long-term care and treatment of affected persons; and additional measures for social, political, environmental, and economic restoration. Recovery programs do the following:

- Identify needs and resources.
- Provide accessible housing and promote restoration.
- Address care and treatment of affected persons.
- Inform residents and prevent unrealistic expectations.
- Implement additional measures for community restoration.
- Incorporate mitigation measures and techniques, as feasible.

The Joint Field Office (JFO) remains the central *coordination* point among local, tribal, state, and federal governments, as well as private sector and nongovernmental entities that are providing recovery assistance. Here are some examples of federal and state recovery actions:

- Coordinating assistance programs to help individuals, households, and businesses meet basic needs and return to self-sufficiency. Such programs include housing assistance, other needs assistance, crisis counseling services, disaster legal services, and unemployment or reemployment programs. Other activities include coordinating with local and tribal governments the need for and locations of Disaster Recovery Centers.
- Establishing Disaster Recovery Centers. Federal, state, tribal, local, voluntary, and nongovernmental organizations determine the need for and location of Disaster Recovery Centers. Staff provides recovery and mitigation program information, advice, counseling, and related technical assistance.
- Coordinating with private sector and nongovernmental organizations involved in donations management and removal, and the repair or replacement of disaster-damaged public facilities and associated environmental restoration.
- Coordinating with the private sector on restoration and recovery of Critical Infrastructure and Key Resources (CIKR). Activities include working with owners/operators to ensure the restoration of critical services, including water, power, natural gas, and other recovery activities.
- Coordinating public assistance grant programs authorized by the Stafford Act. These programs aid local, tribal, and state governments and eligible private nonprofit organizations with the cost of emergency protective services, debris petroleum, emergency communications, and health care.
- Coordinating mitigation grant programs to help communities reduce the potential impacts of future disasters. Activities include developing strategies to rebuild resilient communities.

After the JFO closes, ongoing activities transition to individual agencies with primary recovery responsibilities. Federal partners then work directly with their regional or headquarters offices to administer and monitor recovery programs, support, and technical services.

Source: National Response Framework. January 2008. <http://www.fema.gov/pdf/emergency/nrf/nrf-core.pdf>.

NATIONAL DISASTER RECOVERY FRAMEWORK INITIATIVE

On August 27, 2009, FEMA administrator Craig Fugate announced the establishment of a National Disaster Recovery Framework Working Group. Elizabeth Zimmerman, assistant administrator for Disaster Assistance, was appointed to lead the effort. The goal was to engage recovery stakeholders to create a comprehensive coordinating structure that will enhance our ability to work together and effectively deliver recovery assistance.

On September 29, 2009, President Obama announced an effort to examine lessons learned during previous catastrophic disaster recovery efforts, areas for improved collaboration between federal agencies, and among the federal government and state and local governments and stakeholders. At the president's request, the secretaries of Homeland Security and Housing and Urban Development co-chaired a Long-Term Disaster Recovery Working Group composed of the secretaries and

administrators of more than 20 departments, agencies, and offices. This high-level, strategic initiative was to provide operational guidance for recovery organizations, as well as make suggestions for future improvement. An intensive stakeholder outreach effort during October and November 2009, involving state, local, and tribal government representatives, as well as a wide array of private organizations and private nonprofit organizations, will inform these efforts.

The National Disaster Recovery Framework Working Group was finally co-chaired with HUD and came under the umbrella of the White House's Long-Term Disaster Recovery Working Group effort. It will provide one of the two main outcomes of the effort. The other outcome is a "Report to the President" that was to summarize the findings of the Working Group.

The National Disaster Recovery Framework was to do the following:

- Define the federal, state, local, tribal, private nonprofit, and private sector roles and individual citizen's roles in disaster recovery.
- Design and establish an effective coordinating structure for disaster recovery programs.
- Identify gaps, as well as duplications, in recovery programs and funding.
- Establish performance standards for the federal support of state and local recovery.

Desired Outcome

The desired outcome is recovery programs and capabilities at all levels of the government and in all sectors that will function together harmoniously and be supported by:

- A coordinating structure with defined roles and responsibilities.
- Clearly defined measures of success.
- A communications strategy designed to keep all stakeholders informed about the recovery arena.

Approach

- Merging efforts with the Long-Term Recovery Working Group, the team would engage federal agency partners and state, tribal and local governments and nongovernmental organizations in a comprehensive collaborative review and shaping of the national approach to managing disaster recovery.
- Develop the Framework based on the stakeholders' perceptions of how recovery should be organized and managed.
- Include all stakeholders, particularly those representing traditionally underserved communities, such as children and adults with disabilities and low-income, multicultural, and rural communities.

Source: FEMA. <http://www.fema.gov/recoveryframework/>.

In September 2011, FEMA released the final version of the National Disaster Recovery Framework. The box below includes the Executive Summary from the Framework.

NATIONAL DISASTER RECOVERY FRAMEWORK (NDRF): EXECUTIVE SUMMARY

Experience with recent disaster recovery efforts highlights the need for additional guidance, structure, and support to improve how we as a nation address recovery challenges. This experience prompts us to better understand the obstacles to disaster recovery and the challenges faced by communities that seek disaster assistance. The National Disaster Recovery Framework (NDRF) is a guide to promote effective recovery, particularly for those incidents that are large-scale or catastrophic.

The NDRF provides guidance that enables effective recovery support to disaster-impacted states, tribes and local jurisdictions. It provides a flexible structure that enables disaster recovery managers to operate in a unified and collaborative manner. It also focuses on how best to restore, redevelop, and revitalize the health, social, economic, natural, and environmental fabric of the community and build a more resilient nation.

The NDRF defines:

- Core recovery *principles*
- *Roles and responsibilities* of recovery coordinators and other stakeholders
- A *coordinating structure* that facilitates communication and collaboration among all stakeholders
- Guidance for pre- and postdisaster recovery *planning*
- The overall *process* by which communities can capitalize on opportunities to rebuild stronger, smarter, and safer

These elements improve recovery support and expedite recovery of disaster-impacted individuals, families, businesses, and communities. While the NDRF speaks to all who are impacted or otherwise involved in disaster recovery, it concentrates on support to individuals and communities.

The NDRF introduces four new concepts and terms:

- Federal Disaster Recovery Coordinator (FDRC)
- State or Tribal Disaster Recovery Coordinators (SDRC or TDRC)
- Local Disaster Recovery Managers (LDRM)
- Recovery Support Functions (RSFs)

The FDRC, SDRC, TDRC, and LDRM provide focal points for incorporating recovery considerations into the decision-making process and monitoring the need for adjustments in assistance where necessary and feasible throughout the recovery process. The RSFs are six groupings of core recovery capabilities that provide a structure to facilitate problem solving, improve access to resources, and foster coordination among state and federal agencies, nongovernmental partners and stakeholders. Each RSF has coordinating and primary federal agencies and supporting organizations that operate together with local, state and tribal government officials, nongovernmental organizations (NGOs), and private sector partners. The concepts of the FDRCs, SDRCs, TDRCs and RSFs are scalable to the nature and size of the disaster.

The NDRF aligns with the National Response Framework (NRF). The NRF primarily addresses actions during a disaster response. Like the NRF, the NDRF seeks to establish an operational structure and to develop a common planning framework. The NDRF replaces the NRF Emergency Support Function #14 (ESF #14)—Long-Term Community Recovery. Key ESF #14 concepts are expanded in the NDRF and include recovery-specific leadership, organizational structure, planning guidance, and other components needed to coordinate continuing recovery support to individuals, businesses, and communities.

Fundamentally, the NDRF is a construct to optimally engage existing federal resources and authorities, and to incorporate the full capabilities of all sectors in support of community recovery. The effective implementation of the NDRF, whether or not in the context of a Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) declaration, requires strong coordination across all levels of government, NGOs, and the private sector. It also requires an effective, accessible public information effort so that all stakeholders understand the scope and the realities of recovery. The NDRF provides guidance to assure that recovery activities respect the civil rights and civil liberties of all populations and do not result in discrimination on account of race, color, national origin (including limited English proficiency), religion, sex, age, or disability. Understanding legal obligations and sharing best practices when planning and implementing recovery strategies to avoid excluding groups on these bases is critical.

The NDRF is a guide to promote effective recovery. It is a concept of operations and not intended to impose new, additional, or unfunded net resource requirements on federal agencies. As responsibilities, capabilities, policies, and resources expand or change, the NDRF will be revised as needed to ensure that it continues to provide a common and adaptable approach to disaster recovery (Figure 7-2).



FIGURE 7-2 Glensville, New York, April 18, 2012—Infrastructure on Lock-9 of the Erie Canal system on the Mohawk River is being repaired for flood control systems announced by Governor Andrew Cuomo as part of a state-wide works project. FEMA plays a vital role supporting state, tribal, and local governments as they respond with recovery efforts. *Hans Pennink/FEMA.*

Source: FEMA. September 2011. <http://www.fema.gov/national-disaster-recovery-framework>.

RECOVERY CONTINUUM – DESCRIPTION OF ACTIVITIES BY PHASE

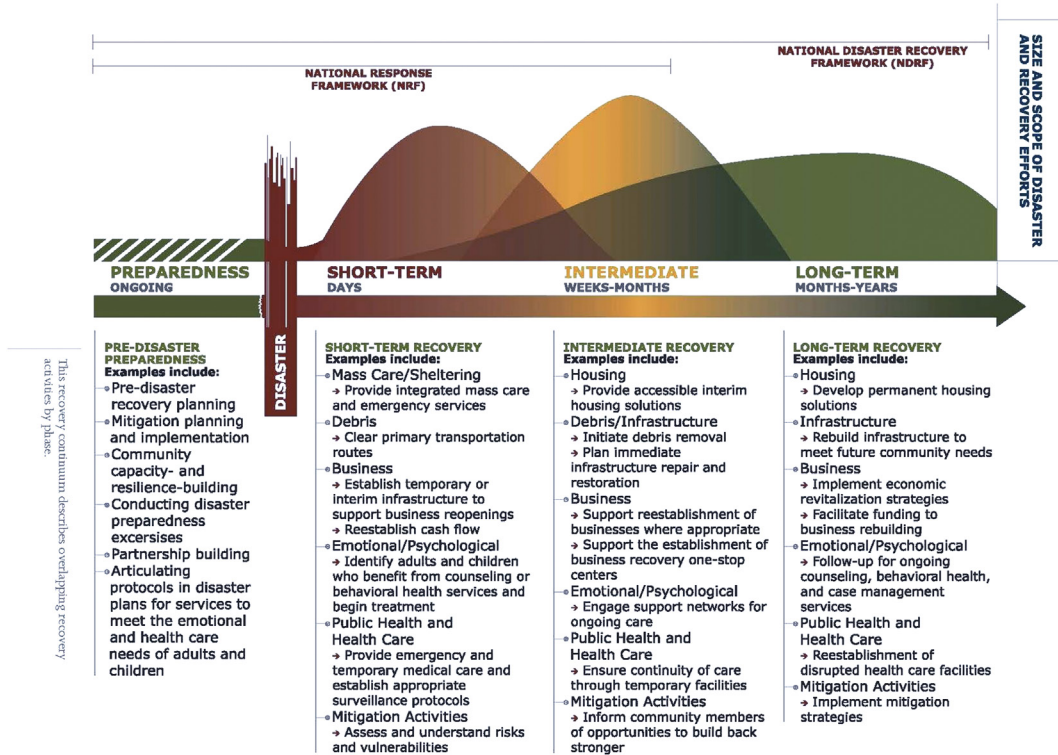


FIGURE 7-3 Recovery Continuum—Descriptions of activities by phase, outlines the typical process leading toward recovery. Source: FEMA. <http://www.fema.gov/library/viewRecord.do?id=5124>.

The recovery process can be described as a series of interdependent and often concurrent activities that move forward within a community towards a successful recovery. However, decisions and priorities made early in the process will accelerate the rate of recovery.

FEMA’s Individual Assistance Recovery Programs

Individual Assistance programs are oriented to individuals, families, and small businesses, and the programs include temporary housing assistance, individual and family grants, disaster unemployment assistance, legal services, and crisis counseling. The disaster victim must first register for assistance and establish eligibility. Three national centers provide centralized disaster application services for disaster victims. FEMA’s National Processing Service Centers (NPSCs) are located in Denton, Texas; Berryville, Virginia; and Hyattsville, Maryland.

Since the first national center opened in 1994, more than 4 million applications have been processed and over 4.5 million calls have been taken for more than 300 major disasters. These

NPSCs house an automated teleregistration service, through which disaster victims apply for Disaster Housing and the Individual and Family Grant program, and through which their applications are processed and their questions answered.

This automated system provides automatic determination of eligibility for about 90 percent of Disaster Housing cases, usually within 10 days of application. The other 10 percent of cases, which may need documentation, take a little longer. Cases are also automatically referred to the state for possible grant assistance if the applicant's needs exceed the Disaster Housing program and the individual cannot qualify for a disaster loan from the Small Business Administration.

Following the September 11 events, FEMA was concerned that many individuals and businesses had not sought help in the aftermath of the attack. Working with the Advertising Council and a volunteer ad agency, Muezzin Brown & Partners, a public service advertising campaign was developed to let viewers know that assistance was available by calling FEMA's toll-free registration number. The advertisements were distributed to electronic and media outlets in New York, New Jersey, Connecticut, Pennsylvania, and Massachusetts.

Disaster Housing Program

The Disaster Housing Program ensures that people whose homes are damaged by disaster have a safe place to live until repairs can be completed. These programs are designed to provide funds for expenses that are not covered by insurance and are available to homeowners and renters who are legal residents of the United States and who were displaced by the disaster.

- *Lodging expenses reimbursement* provides a check for reimbursement for the costs of short-term lodging such as hotel rooms that were incurred because of damage to a home or an officially imposed prohibition against returning to a home.
- *Emergency minimal repair assistance* provides a check to help repair a home to a habitable condition.
- *Temporary rental assistance* provides a check to rent a place for the predisaster household to live.
- *Mortgage and rental assistance* provides a check to pay the rent or mortgage to prevent evictions or foreclosure. In order to qualify, the applicant must be living in the same house before and after the disaster and have a documented disaster-related financial hardship that can be verified by FEMA.

Individuals and Households Program (IHP)

The Individuals and Households Program (IHP) formerly called the Individual and Family Grant (IFG) Program, provides funds for the necessary expenses and serious needs of disaster victims that cannot be met through insurance or other forms of disaster assistance. The IHP is not designed to cover all of a victim's losses (home, personal property, household goods) that resulted from the disaster, nor is it intended to restore damaged property to its condition before the disaster. Also, the IHP does not cover any business-related losses that resulted

from the disaster. By law, the IHP cannot provide any money for losses that are covered by insurance.

IHP provides assistance for the following:

- *Temporary housing* (a place to live for a limited period of time). Money is available to rent a different place to live or a government-provided housing unit when rental properties are not available.
- *Repairs*. Money is available to homeowners to repair damage from the disaster that is not covered by insurance. The goal is to make the damaged home safe, sanitary, and functional.
- *Replacements*. Money is available to homeowners to replace their home destroyed in the disaster that is not covered by insurance. The goal is to help the homeowner with the cost of replacing their destroyed home.
- *Permanent housing construction*. This involves either direct assistance or money for the construction of a home. This type of help occurs only in insular areas or remote locations specified by FEMA, where no other type of housing assistance is possible.
- *Other needs*. Money is available for necessary expenses and serious needs caused by the disaster. This includes medical, dental, funeral, personal property, transportation, moving and storage, and other expenses that are authorized by law.

The IHP covers only repair or replacement of items that are damaged as a direct result of the disaster that are not covered by insurance. Repairs or rebuilding may not improve a victim's home above its predisaster condition unless such improvements are required by current building codes.

Housing Needs

Money to repair a home is limited to making the home “safe and sanitary” so the victim can continue to live there. IHP will not pay to return a home to its predisaster condition. Grants may be used for housing needs to repair the following:

- Structural parts of the home (foundation, outside walls, roof)
- Windows, doors, floors, walls, ceilings, cabinetry
- Septic or sewage systems
- Wells or other water systems
- Heating, ventilating, and air conditioning system
- Utilities (electrical, plumbing, and gas systems)
- Entrance and exit ways from your home, including privately owned access roads
- Blocking, leveling, and anchoring of a mobile home and reconnecting or resetting its sewer, water, electrical, fuel lines, and tanks

Other Needs

Money to repair damaged personal property or to pay for disaster-related necessary expenses and serious needs is limited to items or services that help prevent or overcome a disaster-related hardship, injury, or adverse condition. Grants may be used to pay for the following:

- Disaster-related medical and dental costs
- Disaster-related funeral and burial cost

- Clothing, household items (room furnishings, appliances), tools (specialized or protective clothing and equipment) required for a job, necessary educational materials (computers, school books, supplies)
- Fuels for primary heat source (heating oil, gas, firewood)
- Cleanup items (wet/dry vacuum, air purifier, dehumidifier)
- Disaster-damaged vehicle
- Moving and storage expenses related to the disaster (moving and storing property to avoid additional disaster damage while disaster-related repairs are being made to the home)
- Other necessary expenses or serious needs as determined by FEMA

Money received from IHP for “housing” and “other” needs must be used for eligible expenses only, as identified by FEMA. If a grantee does not use the money for the reasons defined in the grant application, he or she may not be eligible for any additional help and may have to return any grant money provided. Grant money has the following features:

- Is usually limited to up to 18 months from the date the president declares the disaster
- Does not have to be repaid
- Is tax-free
- Is not counted as income or a resource in determining eligibility for welfare, income assistance, or income-tested benefit programs funded by the federal government
- Is exempt from garnishment, seizure, encumbrance, levy, execution, pledge, attachment, release, or waiver
- May not be reassigned or transferred to another person

FEMA pays 100 percent of the “housing” portion of the grant, and 75 percent of the “other needs” portion. The state pays the remaining 25 percent of the “other needs” portion. The states may administer only the “other needs” portion of the grant. The total maximum amount of grant assistance for each family or individual in fiscal year 2005 was \$25,000, and this amount was broken down further into the various types of assistance provided. For example, although up to \$25,000 may be provided for home repairs, a maximum of \$10,000 will be provided for replacement of “owner-occupied private residences.”

Although some money often is made available through the IHP, most disaster aid from the federal government is provided in the form of loans from the Small Business Administration (SBA) that must be repaid. Applicants to IHP may be required to seek help from the SBA first before being considered for certain types of IHP help. The SBA can provide three types of disaster loans to qualified homeowners and businesses to repair or replace homes, personal property, or businesses that sustained damages not covered by insurance:

- *Home disaster loans* provide funds to homeowners and renters to repair or replace disaster-related damages to home or personal property.
- *Business physical disaster loans* provide funds to business owners to repair or replace disaster-damaged property, including inventory and supplies.
- *Economic injury loans* provide capital to small businesses and to small agricultural cooperatives to assist them through the disaster recovery period. If the SBA determines

that the individual is ineligible for a loan, or if the loan amount is insufficient to meet the individual's needs, then the applicant is referred to the IFG program.

Disaster Unemployment Assistance

The Disaster Unemployment Assistance (DUA) program provides unemployment benefits and reemployment services to individuals who have become unemployed because of major disasters and who are not eligible for disaster benefits under regular unemployment insurance programs.

Legal Services

The Young Lawyers' Division of the American Bar Association, through an agreement with FEMA, provides free legal assistance to low-income disaster victims. The assistance that the participating lawyers provide is for insurance claims; counseling on landlord/tenant problems; assistance in consumer protection matters, remedies, and procedures; and replacement of wills and other important legal documents destroyed in a major disaster. This assistance is intended for individuals who are unable to secure legal services adequate to meet their needs as a consequence of a major disaster.

Special Tax Considerations

Taxpayers who have sustained a casualty loss from a declared disaster may deduct that loss on their federal income tax return for the year in which the casualty occurred or through an immediate amendment to the previous year's return. Businesses may file claims with the Bureau of Alcohol, Tobacco, and Firearms (ATF) for payment of federal excise taxes paid on alcoholic beverages or tobacco products lost, rendered unmarketable, or condemned by a duly authorized official under various circumstances, including where a major disaster has been declared by the president.

Crisis Counseling

The Crisis Counseling Assistance and Training Program is designed to provide short-term crisis counseling services to people affected by a presidentially declared disaster. The purpose of the crisis counseling is to help relieve any grieving, stress, or mental health problems caused or aggravated by the disaster or its aftermath. These short-term services are provided by FEMA as supplemental funds granted to state and local mental health agencies. The American Red Cross, the Salvation Army, and other voluntary agencies, as well as churches and synagogues, also offer crisis counseling services.

Cora Brown Fund

Cora C. Brown of Kansas City, Missouri, died in 1977 and left a portion of her estate to the United States to be used as a special fund solely for the relief of human suffering caused by natural disasters. The funds are used to assist victims/survivors of presidentially declared major disasters for disaster-related needs that have not or will not be met by government agencies or other organizations.

■ ■ Critical Thinking ■

- Do you think that FEMA's individual grant programs provide enough assistance to individuals and families that are affected by disasters?
- Should federal assistance programs be available to all disaster victims regardless of their income or net worth? Why or why not?

FEMA's Public Assistance Grant Programs

FEMA, under the authority of the Stafford Act, administers the Public Assistance Program. The Public Assistance Grant Program provides federal assistance to state and local governments and to certain private nonprofit (PNP) organizations. These grants allow them to recover from the impact of disasters and to implement mitigation measures to reduce the impacts from future disasters. The grants are aimed at governments and organizations with the final goal to help a community and its citizens recover from devastating major disasters. The federal share of assistance is not less than 75 percent of the eligible cost for emergency measures and permanent restoration. The state determines how the nonfederal share is split with the applicants.

Eligible applicants include the states, local governments, and any other political subdivision of the state, Native American tribes, Alaska Native Villages, and certain PNP organizations. Eligible PNP facilities include educational, utility, irrigation, emergency, medical, rehabilitation, temporary or permanent custodial care, and other PNP facilities that are open to the public and provide essential services of a governmental nature to the general public. The work must be required as the result of the disaster, be located within the designated disaster area, and be the legal responsibility of the applicant. PNPs that provide critical services such as power, water, sewer, wastewater treatment, communications, or emergency medical care may apply directly to FEMA for a disaster grant. All other PNPs first must apply to the SBA for a disaster loan. If the loan is declined or does not cover all eligible damages, the applicant may reapply for FEMA assistance.

Work that is eligible for supplemental federal disaster grant assistance is classified as either emergency work or permanent work:

- *Emergency work* includes debris removal from public roads and rights-of-way as well as from private property when determined to be in the public interest. This may also include protective measures performed to eliminate or reduce immediate threats to the public.
- *Permanent work* is defined as work that is required to restore an eligible damaged facility to its predisaster design. This effort can range from minor repairs to replacement. Some categories for permanent work include roads, bridges, water control facilities, buildings, utility distribution systems, public parks, and recreational facilities. With extenuating circumstances, the deadlines for emergency and permanent work may be extended.

As soon as possible after the disaster declaration, the state, assisted by FEMA, conducts the applicant briefings for state, local, and PNP officials to inform them of the assistance that is available and how to apply for it (Figure 7-4). A Request for Public Assistance must be filed



FIGURE 7-4 Freehold, New Jersey, January 27, 2013—In Freehold, New Jersey, new front steps and an entry have been attached to a Temporary Housing Unit (THU) provided by FEMA for use by a family displaced by Hurricane Sandy. THUs are administered through FEMA's direct housing program. *Photo by Sharon Karr/FEMA.*

with the state within 30 days after the area is designated eligible for assistance. A combined federal, state, and local teams work together to design and deliver the appropriate recovery assistance for the communities (Figure 7-5). In determining the federal costs for the projects, private or public insurance can play a major role. For insurable buildings within special flood hazard areas (SFHAs) and damaged by floods, the disaster assistance is reduced by the amount of insurance settlement that would have been received if the building and its contents had been fully covered by a standard NFIP policy. For structures located outside of an SFHA, the amount is reduced by the actual or anticipated insurance proceeds.

In 1998, FEMA redesigned the Public Assistance program to provide money to applicants more quickly and to make the application process easier. The redesigned program was approved for implementation on disasters declared after October 1, 1998. This redesigned program placed new emphasis on people, policy, process, and performance. The focus of the program was also modified to provide a higher level of customer service for disaster recovery applicants and to change the role of FEMA from inspection and enforcement to an advisory and supportive role.

In December 2008, the U.S. General Accounting Office (GAO) released an evaluation of FEMA's Public Assistance program's activities in helping to rebuild the Gulf Coast in the aftermath of the 2005 hurricanes that devastated numerous communities along the Gulf Coast. The GAO report raised a number of issues concerning current Public Assistance program activities principally in the areas of program development, information sharing and tracking, project approval and appeals, and human capital. A copy of this report can be found at United States Government Accountability Office. December 2008. "Disaster Recovery: FEMA's Public



FIGURE 7-5 Cherokee, North Carolina, March 12, 2013—Walt Kruski, a FEMA Public Assistance specialist answers questions from participants at the first kickoff meeting for the Eastern Band of the Cherokee Indians (ECBI) officials. FEMA is working with representatives of the ECBI and the State of North Carolina to assist with road and other public work projects which were damaged during a severe weather incident earlier in the year. *Photo by Patsy Lynch/FEMA.*

Assistance Grant Program Experienced Challenges in Gulf Coast Rebuilding." <http://www.gao.gov/new.items/d09129.pdf>.

In the aftermath of Hurricane Sandy, a series of legislative actions were taken that impact both FEMA's IA and PA programs. The Congressional Research Service undertook a complete analysis of all of the legislation that was passed. A brief summary of this report was mentioned in Chapter 1 of this book and is repeated below as well as the source to access the complete analysis and report.

ANALYSIS OF THE SANDY RECOVERY IMPROVEMENT ACT OF 2013

Hurricane Sandy caused extensive human suffering and damage to public and private property. In response to this catastrophic event, Congress considered legislation to provide supplemental appropriations to federal disaster assistance programs. In addition, Congress considered revisions to the Robert T. Stafford Disaster Relief and Emergency Assistance Act (the Stafford Act, P.L. 93-288 as amended), which is the primary source of authorities for disaster assistance programs for FEMA. As a result, Congress passed the Sandy Recovery Improvement Act of 2013, which was included as Division B of the Disaster Relief Appropriations Act, 2013 (P.L. 113-2). Division A of P.L. 113-2 provided a \$50.7 billion package of disaster assistance largely focused on responding to Hurricane Sandy. Additionally, Congress increased the National Flood Insurance Program's borrowing authority

by \$9.7 billion (from \$20.725 billion to \$30.425 billion) (P.L. 113-1). Both of these supplemental relief laws are discussed separately in CRS Report R42869, FY2013 Supplemental Funding for Disaster Relief. This report analyzes the provisions of the Sandy Recovery Improvement Act of 2013. In general, these provisions amend the Stafford Act with a stated goal of improving the efficiency and quality of disaster assistance provided by FEMA. Briefly, the amendments to the Stafford Act include:

- Establishing a new set of alternative procedures for administering the Public Assistance Program, which provides assistance for debris removal and the repair and restoration of eligible facilities (Section 1102 of the Sandy Recovery Improvement Act of 2013)
- Authorizing FEMA to enter into agreements with private owners of multifamily rental properties to expand postdisaster housing resources (Section 1103)
- Revising the administration of the Hazard Mitigation Grant Program to include a possible advancement of 25 percent of grant funds (Section 1104)
- Directing the establishment of alternative dispute resolution procedures (including binding arbitration), building on FEMA's current appeals process, to resolve federal and state disagreements on costs and eligibility questions (Section 1105)
- Directing the creation of a joint process for environmental and historical review for disaster recovery projects with the goal of increasing the speed of the process (Section 1106)
- Directing FEMA to study, and report to Congress, whether it is appropriate to increase the dollar size of "small projects" eligible for simplified procedures (Section 1107)
- Including child care as an eligible expense under the "other needs assistance" provided in certain disasters (Section 1108(a))
- Specifically authorizing the reimbursement of the base wages of government employees providing emergency work under certain circumstances (Section 1108(b))
- Directing FEMA to update the factors considered when assessing the need for individual assistance in the declaration process (Section 1109)

Source: Congressional Research Service. 2013. Analysis of the Sandy Recovery Improvement Act of 2013. <https://opencrs.com/document/R42991/2013-03-11/>.

ADDITIONAL RESEARCH

A Guide to Disaster Assistance and Relief Funding: How to Navigate the Disaster Assistance Process, compliments of U.S. Senator Kirsten Gillibrand, New York, December 18, 2012. December 18, 2012. [http://www.esboces.org/doc/Gillibrand_Disaster_Relief_Funding_Assistance_Hurricane_Sandy_Guidebook_11.2012\[1\].pdf](http://www.esboces.org/doc/Gillibrand_Disaster_Relief_Funding_Assistance_Hurricane_Sandy_Guidebook_11.2012[1].pdf).

CASE STUDY: NEW YORK CITY HURRICANE SANDY RECOVERY PROGRAM

Following Hurricane Sandy, New York City established a host of programs to lead the recovery effort at the local governmental level. Some of these programs were established to manage and administer federal funds but most of these programs are being supplemented by state and local funds. New York, of course, is an anomaly in terms of its fiscal assets. While it was impacted by the recession, its tax

base has been restored and it has the ability to contribute local funds to recovery. In addition, the political strength of the New York congressional delegation has assured that the city will receive top priority for federal funding. But for the purpose of this report, identifying the types of programs that a local government could establish in a postdisaster situation is informational.

- **New York City Rapid Repairs Program:** This program supports teams of contractors and city inspectors who travel into Hurricane Sandy-impacted neighborhoods to make necessary repairs to damaged homes.
- **New York City Business Recovery Resources Emergency Loans for small to midsize businesses:** Emergency loans for businesses were made available in the aftermath of the hurricane and patterned after similar programs deployed in past emergencies. Loans were capped at \$25,000. Each emergency loan was the sum of costs for replacement/repairs to facilities or equipment and/or the working capital needed to restart or continue business operations (up to \$25,000). The emergency loan program is for independently owned and operated businesses paying taxes in New York City and nonprofit organizations that:
 - Are located in New York City
 - Have fewer than 100 employees
 - Filed 2011 business tax returns
 - Have experienced business interruption and/or damages as a result of Superstorm Sandy.
- **Hurricane Emergency Sales Tax Exemption Program (HESTEP):** In response to Hurricane Sandy's impact on New York City businesses, the New York City Industrial Development Agency provided emergency assistance to small businesses by establishing the Hurricane Emergency Sales Tax Exemption Program ("HESTEP"). This program provides sales tax exemptions of up to \$100,000 for each affected company on purchases of building, construction and renovation materials, machinery and equipment, and other items of personal property, and related services needed to rebuild after the storm.
- **Matching Grant Program:** Up to a \$10,000 matching grant has been made available for New York City businesses most impacted by the hurricane. In total, \$5.5 million in matching grants were made available for businesses that were displaced from their workplace for 3 weeks. The grants are designed to provide critical supplemental assistance to what is being provided through low-interest loans, and are capped at no more than the amount the business receives in loans.

Other Federal Agency Disaster Recovery Funding

Other federal agencies have programs that contribute to social and economic recovery. Most of these additional programs are triggered by a presidential declaration of a major disaster or emergency under the Stafford Act; however, the secretary of agriculture and the administrator of the SBA have specific authority relevant to their constituencies to declare a disaster and provide disaster recovery assistance. All the agencies are part of the structure of the NRP. This section does not provide a complete list of all disaster recovery programs available after a disaster declaration, but it provides a summary of many of the federal agencies in addition to FEMA that provide disaster recovery programs. These agencies include the following:

- U.S. Army Corps of Engineers
- Department of Housing and Urban Development

- Small Business Administration
- U.S. Department of Agriculture
- Department of Health and Human Services
- Department of Transportation
- Department of Commerce
- Department of Labor

A more comprehensive list is available in the Catalog of Federal Domestic Assistance (CFDA), which is available through the Federal Assistance Programs Retrieval System. Each automated edition is revised in June and December.

U.S. Army Corps of Engineers

In a typical year, the U.S. Army Corps of Engineers responds to more than 30 presidential disaster declarations, plus numerous state and local emergencies. Under the NRP, the Corps has the lead responsibility for public works and engineering missions. For example, after the events of September 11, 2001, the Corps provided technical assistance for the debris removal operation. By December 2001, more than 661,430 tons of debris had been moved to the Staten Island landfill.

Department of Housing and Urban Development

The Department of Housing and Urban Development (HUD) provides flexible grants to help cities, counties, and states to recover from presidentially declared disasters, especially in low-income areas, subject to availability of supplemental appropriations. When disasters occur, Congress may appropriate additional funding for the Community Development Block Grant (CDBG) and HOME programs to rebuild the affected areas and bring crucial seed money to start the recovery process. Because it can fund a broader range of recovery activities than most other programs, CDBG disaster recovery assistance supplements recovery assistance from FEMA and helps communities and neighborhoods that otherwise might not recover because of limited resources.

The CDBG program funds have been especially useful to communities that are interested in incorporating mitigation into their recovery process. These funds have been combined with FEMA assistance to remove or elevate structures from the flood plain and to relocate residents and businesses to safer areas.

The HOME Program helps expand the supply of decent, affordable housing for low- and very-low-income families by providing grants to states and local governments. Funds can be used for acquisition, new construction, rehabilitation, and tenant-based rental assistance. HOME disaster recovery grants are an important resource for providing affordable housing to disaster victims.

Small Business Administration

The Small Business Administration (SBA) Disaster Loan Program offers low-interest loans to assist in long-term recovery efforts for those who are trying to rebuild their homes and businesses in the aftermath of a disaster. Disaster loans from the SBA help homeowners, renters,

businesses of all sizes, and nonprofit organizations fund rebuilding efforts. The SBA Disaster Loan Program reduces federal disaster costs compared to other forms of assistance such as grants, because the loans are repaid to the U.S. Treasury.

The SBA can approve loans only to applicants who have a reasonable ability to repay the loan and other obligations from earnings. The terms of each loan are established in accordance with each borrower's ability to repay. Generally, more than 90 percent of the SBA's disaster loans are made to borrowers without credit available elsewhere and have an interest rate of around 4 percent. The disaster loans require borrowers to maintain appropriate hazard and flood insurance coverage, thereby reducing the need for future disaster assistance.

The SBA is authorized by the Small Business Act to make two types of disaster loans: physical disaster loans and economic injury disaster loans. Physical disaster loans are a primary source of funding for permanent rebuilding and replacement of uninsured disaster damages to privately owned real and/or personal property. Economic injury disaster loans provide necessary working capital until normal operations resume after a physical disaster.

In Fiscal Year 2009 (October 1, 2008 to September 30, 2009), the SBA approved 21,780 disaster loans for \$1,129,515,400, with the following breakdown: physical loans—21,132, totaling \$1,079,642,500; and economic injury loans—648, totaling \$49,872,900. Since the inception of the program in 1953, the SBA has approved more than 1.8 million disaster loans for more than \$47 billion. In the aftermath of Hurricanes Katrina, Rita, and Wilma in 2005, the SBA approved 160,805 disaster loans totaling \$10.9 billion. In 2001, after 9/11, the SBA approved more than \$526 million in low-interest loans to more than 5300 applicants for home repairs, business loans, and loans to assist small businesses suffering economic injury as a result of losses caused by the disaster.

CASE STUDY: CEDAR RAPIDS BUSINESS CASE MANAGEMENT PROGRAM

In 2008, Cedar Rapids experienced more than \$6 billion in damages to businesses, housing, and the city's infrastructure, making this the fifth largest disaster in U.S. history. A business grassroots organization, the Cedar Rapids Small Business Recovery Group, was created within days of the flood crest and quickly created a unified voice for the business community¹. The group's leaders served on the Chamber's Flood Recovery Committee, including its chair. It was this group that identified the need for the creation of a Business Case Management Program.

The Business Case Management Program, which was implemented in 2010 and is the first of its kind. The program was established to provide direct one-on-one assistance to flood affected businesses. It was initially supported by state funding, but federal funding was secured as the program expanded. Over a 2-year period of time, the Case Management Team of business professionals reached out to 1230 businesses to determine their flood status and recovery needs. This program improved the survival rate of businesses compared to national statistics at the three year mark.

¹The number of affected businesses included: 943 Businesses with Overland Water (757 at ground level and 186 upper floors); 81 Businesses fringe to flood area (power/steam loss, sewer back-up, etc.); 173 businesses closed. More than 2500 jobs were lost.

U.S. Department of Agriculture

The U.S. Department of Agriculture (USDA) Farm Service Agency (FSA) provides low-interest loan assistance to eligible farmers and ranchers to help cover production and physical losses in counties declared as disaster areas by the president or designated by the Secretary of Agriculture. The emergency loans can be used to restore or replace essential physical property, pay all or part of production costs associated with the disaster year, pay essential family living expenses, reorganize the farming operation, and refinance debts.

Department of Health and Human Services

The Department of Health and Human Services (DHHS) is the lead federal agency responsible for implementing the health and medical portion of the NRP. Their activities provide support to individuals and communities affected by disasters, state and local mental health administrators, and other groups that respond to those affected by human-caused disasters (such as school violence). The Center for Mental Health Services (CMHS) within the DHHS works with FEMA to implement the Crisis Counseling Assistance and Training Program discussed earlier in this chapter.

The DHHS also provides disaster assistance for older Americans through its Administration on Aging (AoA). Older people often have difficulty obtaining necessary assistance because of progressive physical and mental impairments and other frailties that often accompany aging. Many older people who live on limited incomes, and are sometimes alone, find it impossible to recover from disasters without special federal assistance services. The AoA's national aging network assists older persons by providing critical support such as meals and transportation, information about temporary housing, and other important services on which older adults often rely.

Department of Transportation

Congress authorized a special program from the Highway Trust Fund for the repair or reconstruction of federal-aid highways and roads on federal lands that have suffered serious damage as a result of natural disasters or catastrophic failures from an external cause. The Department of Transportation (DOT) Federal Highway Administration (FHWA) administers the Emergency Relief Program, which supplements the commitment of resources by states, their political subdivisions, or other federal agencies to help pay for damages resulting from disasters. The applicability of the program to a natural disaster is based on the extent and intensity of the disaster.

Department of Commerce

Within the Department of Commerce, the Economic Development Administration (EDA) administers programs and provides grants for infrastructure development, business incentives, and other forms of assistance designed to help communities alleviate conditions of substantial and persistent unemployment in economically distressed areas and regions. The EDA provides postdisaster economic assistance for communities affected by declared natural disasters. Funding for this program has been a problem over the years.

Department of Labor

The Department of Labor (DOL) Disaster Unemployment Assistance (DUA) program provides financial assistance to individuals whose employment or self-employment has been lost or interrupted as a direct result of a major disaster and who are not eligible for regular state unemployment insurance. Funding for this program comes from FEMA. The DUA is administered by the state agency responsible for providing state unemployment insurance.

The Workforce Investment Act of 1998 authorizes the U.S. Secretary of Labor to award National Emergency Grants to assist any state that has suffered an emergency or major disaster to provide disaster relief employment. These funds can be used to finance the creation of temporary jobs for workers dislocated by disasters to clean up and recover from the disaster and to provide employment assistance to dislocated workers. Interestingly, in creating this program, Congress expanded eligibility beyond people affected by the disaster to dislocated workers and certain civilian Department of Defense employees affected by downsizing and certain recently separated members of the armed forces.

National Voluntary Relief Organizations

Many voluntary organizations and nongovernmental organizations (NGOs) are involved in disaster recovery. These organizations help individuals to get back on their feet in the immediate aftermath of a disaster event by providing food, shelter, medicine, and clothing. These groups also provide long-term assistance in many areas such as housing repair and rebuild, child care, and assistance in accessing government relief. After Hurricane Katrina, a voluntary agency provided case management services to individual Katrina victims. For the most part, voluntary agencies and NGOs address the unmet needs of individuals that government relief programs do not cover.

National Voluntary Organizations Active in Disaster (NVOAD)

National Voluntary Organizations Active in Disaster (NVOAD) coordinates planning efforts by many voluntary organizations responding to disaster in order to provide more effective service to people affected by disaster. Members include 34 national voluntary organizations that are active in disaster mitigation and response, 52 state and territorial chapters (VOADs), and dozens of local organizations. Once a disaster occurs, NVOAD or an affiliated state VOAD encourages members and other voluntary agencies to convene on site. The member organizations provide a wide variety of disaster relief services, including emergency distribution services, mass feeding, disaster child care, mass or individual shelter, comfort kits, supplementary medical care, cleaning supplies, emergency communications, stress management services, disaster assessment, advocacy for disaster victims, building or repair of homes, debris removal, mitigation, burn services, guidance in managing spontaneous volunteers, and victim and supply transportation. NVOAD maintains a close relationship with FEMA and encourages the state and local affiliates to work closely with the state and local emergency management agencies.

The American Red Cross

Although the American Red Cross is not a government agency, its authority to provide disaster relief was formalized when, in 1905, the Red Cross was chartered by Congress to “carry on a system of national and international relief in time of peace and apply the same in mitigating the sufferings caused by pestilence, famine, fire, floods, and other great national calamities, and to devise and carry on measures for preventing the same.” Red Cross disaster relief focuses on meeting people’s immediate emergency disaster-caused needs and provides disaster assistance to individuals to enable them to resume their normal daily activities independently. The Red Cross provides shelter, food, and health and mental health services to address basic human needs. The Red Cross also feeds emergency workers, handles inquiries from concerned family members outside the disaster area, provides blood and blood products to disaster victims, and helps those affected by disaster to access other available resources.

The Red Cross is one of the nongovernmental organizations included in the NRP and is designated a support agency for ESF #6, Mass Care, Housing, and Human Services. The Red Cross helps coordinate the use of federal mass care resources in a presidentially declared disaster or emergency, and works closely in support of state and local efforts to meet the mass care needs of victims of a disaster. This federal assistance supports the delivery of mass care services of shelter, feeding, and emergency first aid to disaster victims; the establishment of systems to provide bulk distribution of emergency relief supplies to disaster victims; and the collection of information to operate a Disaster Welfare Information system to report victim status and assist in family reunification.

Recovery Planning Tools

Despite the pressures on politicians and community leaders to return to a period of normalcy as quickly as possible and because of federal incentives, public interest, and insurance retractions, more and more communities are looking at ways to reduce their future vulnerability. As disasters repeat themselves and the public sees the emotional and financial benefits of mitigation, communities are making the long-term investment in mitigation. For example, the devastating 1993 Midwest floods that occurred again in some areas in 1995 had a minimal impact in those towns where buyout and relocation programs were undertaken after the 1993 flood. The following is a partial list of policy areas and tools that should be considered by decision makers as they develop their recovery plan:

- *Land-use planning techniques*, including acquisition, easements, annexation, storm water management, and environmental reviews
- *Zoning*, including special-use permits, historic preservation, setbacks, density controls, wetlands protection, floodplain, and coastal zone management
- *Building codes*, including design controls, design review, height and type, and special study areas (soil stability ratings)
- *Financial*, including special districts, tax exemptions, special bonds, development rights, property transfer, or use change fees

- *Information and oversight*, including public awareness and education, regional approaches and agreements, global information systems, town hall meetings, and public hearings

Most agree that one of the critical factors in a successful recovery is local leadership. A clear common vision, a well-defined plan, the active participation of the community—especially the business community—financial resources and a good functioning partnership with federal, state and local levels all make a difference in an effective and swift recovery. But leadership is the absolute key. City Administrator Steve Hewitt led his community of Greensburg, Kansas back from a devastating tornado in 2008 and was named municipal leader of the year by *American City and County* magazine for turning that community into a model green community that is more economically vital now than it was before the disaster hit. Cedar Rapids, Iowa is another example of outstanding leadership by both elected officials and the business community.

Across the Midwest, the Public Finance Authority was created in the aftermath of a series of floods in 2008 and 2010.

Public Finance Authority (PFA) is a unique government entity established to issue tax-exempt conduit bonds for public and private entities nationwide. PFA is sponsored by the National Association of Counties, the National League of Cities, the Wisconsin Counties Association, and the League of Wisconsin Municipalities. PFA partners with private borrowers and local governments to provide tax-exempt financing for public benefit projects. These projects are credited with creating temporary and permanent jobs, affordable housing, community infrastructure, and improving the overall quality of life in local communities.

The Midwestern Disaster Area Bonds (MDAB) program was established under the PFA to support communities in the aftermath of the floods of 2008.

MDABs may be used for the following purposes:

1. Acquisition, construction, reconstruction, or renovation costs of nonresidential real property for “eligible loss or replacement business”
2. Multi-family residential rental projects for low and moderate income individuals
3. Repair or reconstruction of public utility property damaged by severe storms, tornados, or flooding during the period of May 20, 2008 to August 1, 2008.

In every case where we see innovation at work, it is almost always a partnership of elected officials and the business community, determined to bring their communities back and to build back better.

Interest in long-term recovery planning has increased in the aftermath of Hurricane Katrina. It has been suggested that long-term recovery planning at the community level should be conducted prior to the next disaster instead of after the next disaster strikes as it has been done in the past. One method for conducting community long-term recovery planning is presented below.

Community Long-Term Recovery Planning

The time to conduct long-term recovery planning is before the next disaster strikes. If a jurisdiction engages in predisaster long-term recovery planning, it provides the following benefits:

- Identifies the most vulnerable areas of the community
- Accelerates approval of federal funding for rebuilding in the postdisaster environment
- Anticipates/compensates for regulatory and environmental requirements for rebuilding
- Minimizes economic and social disruption to the community
- Maximizes postdisaster funding in the public and private sectors
- Promotes a favorable climate for municipal bond and insurance portfolios

Planning Process

The purpose of building a long-term recovery plan is to identify what impact a major disaster will have on a community's residents, homes, infrastructure, economy, and environment, and to develop processes and procedures designed to ensure that the community is rebuilt safer and stronger. The process would include at a minimum the following activities:

1. Establish a long-term recovery planning committee that includes all community stakeholders from government (local, state, and federal), the private sector, community groups, voluntary organizations, nonprofit groups, unions, churches, the media, and so on.
2. Conduct a risk vulnerability assessment that provides an estimate of the damage that a major disaster will inflict on the community's residents, institutions, critical infrastructure, economy, and environment.
3. Identify and prioritize those actions that can be taken prior to the next disaster to reduce the future disaster impacts.
4. Identify and prioritize the actions to be taken after the next disaster to rebuild the community safer and stronger.
5. Identify regulatory and environmental data needs in the recovery phase.
6. Identify the potential sources of recovery resources (i.e., state and federal government, local government funding sources, mutual aid agreements, private sector, foundations, voluntary organizations, nongovernmental organizations, etc.) and determine the types of information needed to successfully apply for these resources in a timely way.
7. Identify potential barriers to a timely recovery and put in place emergency waivers and authorities that will overcome these barriers in the recovery phase.
8. Establish and implement an aggressive public outreach and information campaign that involves the public in the planning process, data collection, and the implementation phase in the recovery.
9. Develop an Implementation Plan for the recovery phase that includes:
 - a. Establishment of a community long-term recovery committee
 - b. A notification process
 - c. Data collection and analysis procedures

- d. Procedures for instituting emergency waivers and authorities
 - e. Roles and responsibilities among stakeholders in preparing applications for recovery aid
 - f. Procedures for tracking recovery aid applications
 - g. A process for distributing and spending recovery aid
 - h. Internal and external communications procedures and support
10. Update and refine the long-term recovery plan annually.

KEY PRINCIPLES OF PRE-DISASTER RECOVERY PLANNING.

Predisaster planning relies on key principles to:

- Establish clear leadership, coordination and decision-making structures at the local, state and tribal levels.
- Develop predisaster partnerships to ensure engagement of all potential resources through the following methods:
 1. Identify and engage stakeholders including, but not limited to, the general public, community leaders, faith-based organizations, nonprofit organizations, and private sector entities.
 2. Organize connections to interface with local, state, tribal and, federal governments.
 3. Ensure community participation of historically underserved populations including diverse racial and ethnic communities, individuals with disabilities and others with access and functional needs, children, seniors, and individuals with limited English proficiency.
- Test and evaluate predisaster plans through seminars, workshops, and exercises.
- Build partnerships between neighborhoods and local government agencies that form the basis for pre- and postmultihazard assessments and support for mitigation actions.
- Integrate predisaster recovery planning (e.g., response, land use, and hazard mitigation planning) with other appropriate community planning (e.g., comprehensive, accessibility design, and capital improvement planning).
- Identify limitations in community recovery capacity and the means to supplement this capacity.
- Incorporate sustainable development, including environmental, historic preservation, and financial elements into recovery planning guidelines.
- Develop an accessible public information campaign that addresses the concerns of the public and an array of possible scenarios.
- Prepare predisaster “Memoranda of Understanding” (MOUs) as a way to establish early partnerships, planning initiatives and expectations with stakeholders, community faith-based organizations, nonprofit groups, and private sector entities.
- Develop and implement recovery training and education as a tool for building recovery capacity and making it available to all other stakeholders.
- Identify resource requirements and conduct acquisition planning.

Source: FEMA. September 2011. <http://www.fema.gov/national-disaster-recovery-framework>.

■ ■ Critical Thinking ■

Why is the recovery period often called a “risk-reduction window of opportunity?” What kinds of risk-reduction measures are easier to perform during recovery than other times, and why are they easier?

CASE STUDY: THE JOPLIN, MISSOURI TORNADO

For residents in Jasper and Newton counties, including the City of Joplin, Missouri, May 22, 2011 brought about life-changing events as an EF 5 tornado pummeled through communities claiming lives and devastating homes, businesses, and critical infrastructure. One month later, state and federal disaster assistance has reached nearly \$14 million for residents and businesses in the two counties, helping to meet temporary housing and other needs caused by the disaster.

As of today, 30 days after the Joplin tornado disaster, more than 600 federal and state employees from across the country are working to meet the needs of more than 9000 Jasper and Newton disaster survivors who have registered for assistance.

A critical recovery mission, the removal of debris, continues in full force through the close collaboration between local, state and federal agencies. To date, more than 650,000 cubic yards of debris has been removed from the Joplin area.

“FEMA is only part of the Missouri disaster recovery team,” explained Libby Turner, federal coordinating officer for the Federal Emergency Management Agency (FEMA). “The coordinated efforts between federal, state, local, nonprofit, private sector and faith-based organizations have provided a broad network for survivors to get the critical information, resources and disaster assistance they need most, and in a timely fashion.”

Over the course of the week following the May 22 disaster, a multitude of volunteer resources, agencies, and personnel sprang into action. Together with local and community officials, the City of Joplin, the State of Missouri, the Missouri Voluntary Organizations Active in Disaster (VOAD), the Governor’s Faith-based and Community Service Partnership for Disaster Recovery and FEMA worked to coordinate the assembly and movement of critical emergency supplies, medical aid, and disaster relief (Figure 7-6).

Volunteer efforts included the opening of operation of six shelters, 120 Points of Distribution, and a Volunteer Reception Center managed by members of AmeriCorps, which has processed more than 32,000 volunteers. In just a month’s time, volunteers had worked over 190,000 hours. Disaster recovery volunteers have also included players, coaches and staff from the NFL St. Louis Rams, who helped with cleanup efforts in Joplin. The team also recorded public service announcements with FEMA to promote community preparedness and encourage survivors to apply for assistance at 1-800-621-FEMA.

Another community partner, the Missouri Humane Society, continues to reunite pets lost after the tornado disaster with their owners. To date, more than 500 pets have been reunited with their human companions. Now a month later, the Humane Society continues to work jointly with the American Society for the Prevention of Cruelty to Animals (ASPCA) and several emergency animal shelters in Joplin to reunite more than 600 pets that are still absent from their owners.

Federal, state, and local officials have also teamed up with the Independent Living Center and other disability organizations to serve as a resource for individuals with disabilities, access, and other

functional needs. Through focused disability integration efforts in Missouri, FEMA continues to take steps ensure the whole community—including people with disabilities, seniors, and those with low English proficiency—has the same opportunity to benefit from disaster assistance programs.

As recovery efforts continue, the following summary outlines the progress that has made over the first 30 days following the Joplin tornado disaster:

Individual Assistance: \$14 million in federal assistance approved for Jasper and Newton counties.
\$5.6 million in Housing Assistance which includes rental assistance.



FIGURE 7-6 Joplin, Missouri, May 20, 2012—The Joplin “Spirit Tree,” one of the many trees in Joplin, that was destroyed by the deadly tornado that struck Joplin on May 22, 2011. The tornado killed 161 residents of Joplin, destroyed 25 percent of the town and generated \$2.2 billion in property damage. This 40-foot tree on 20th Street near the Kansas City Southern Railway tracks has been painted with vibrant colors inspired by Native American spirit stick art. After the tornado, the “Spirit Tree” was painted by Dolores and Darrel Bilke and members of the Tank, a public art group that has worked on other public murals in Joplin. The “Spirit Tree” is a symbol of the unity and resilience of the residents of Joplin. FEMA supports the recovery efforts of towns and communities like Joplin as they work to recover and rebuild after a disaster. *Photo by Christopher Mardorf/FEMA.*

Conclusion

As this chapter demonstrates, the federal government plays a significant role in initiating and funding the disaster recovery process. But for recovery to be effective, the planning and decision making must be done at the local level. With a disaster comes disruption and tragedy, but in the aftermath comes opportunity. Changes to FEMA’s Stafford Act now require communities and states to have mitigation plans approved before the disaster. These plans, developed in the calm before an event happens, can become the blueprint for facilitating recovery and making

communities less vulnerable in the postdisaster environment. Communities should strive to integrate pre-event recovery and mitigation planning into their ongoing planning efforts. Such integration will allow for the political process to work, to include citizen participation, and to garner support for changes that will make their communities safer and more secure. Hurricane Sandy was the first major disaster in which the NDRF was deployed and used extensively to support the recovery process. As with any new process, things have not gone as smoothly as was hoped. Coordination between the Recovery Support Functions has not worked as well as planned, or hoped, aspects of the NDRF structure have proven awkward to implement and there is a general lack of understanding of how the federal agencies will work together. None of these problems are insurmountable and hopefully, the NDRF will be relooked at and modified based on the Sandy experience. Of more interest, was the decision of President Obama to name HUD Secretary Shaun Donovan as the person in charge of the Long Term Recovery for Hurricane Sandy, not Administrator Fugate or DHS Secretary Napolitano. The long-term implications of this decision will be discussed and speculated about for some time into the future. FEMA's decision to focus on preparedness and response may mean it will move out of the mitigation and recovery fields except to serve as the banker through the DRE. The policy implications of these decisions will have long-term impacts for emergency management, not just at the federal level but also at the state and local levels.

Important Terms

Disaster Recovery Center
 Federal Disaster Recovery Coordinator
 Federal Coordinating Officer (FCO)
 Joint Field Office (JFO)
 National Disaster Recovery Framework
 National Processing Service Center (NPSC)
 Recovery
 State Coordinating Officer
 Zoning

Self-Check Questions

1. Who plays the largest role in providing the technical and financial support for recovery?
2. What is a Disaster Recovery Center?
3. Which office is the central coordination point among federal, state, local, and tribal agencies and voluntary organizations for delivering recovery assistance programs?
4. What is the purpose of the National Processing Service Centers in Texas, Virginia, and Maryland?
5. What are the four types of assistance provided by the Disaster Housing Program?
6. What is covered under the Individual and Households Program?
7. What is the minimum federal share for FEMA Public Assistance Grants?

8. What changes have been made since Hurricane Sandy for entities to be eligible for Public Assistance grant funding?
9. What is the difference between emergency work and public work?
10. What federal agencies besides FEMA provide recovery assistance, and what kind of assistance does each provide?
11. What is a VOAD, and what does it do?
12. Name some examples of policy areas and tools that should be considered by decision makers as they develop their recovery plan. Explain why each should be considered.

Out-of-Class Exercises

1. Visit the NVOAD website, and find out what organizations are members of your state VOAD (www.novoad.org/network).
2. Contact your state office of emergency management, and ask them if your state has any active recovery operations related to presidentially declared disasters. Find out how much money was granted toward the state, where it went, and what kinds of recovery and mitigation measures it covered.

International Disaster Management

What You will Learn

- How developing nations are affected by disasters
- Why and how national, international, and nongovernmental organizations assist countries that are affected by major disasters
- Important issues that influence how international disasters are managed
- How several of the United Nations components respond to disasters
- The nongovernmental response to international disasters
- Assistance provided by the United States government to other nations affected by disasters
- Involvement of the international financial institutions, including the World Bank and the International Monetary Fund, in the funding of disaster response, relief, and reconstruction

Introduction

Citizens of all nations face risks associated with the natural and technological hazards described throughout this book, and almost all nations eventually become victims to disaster. Throughout history, civilizations have adapted to their surroundings in the hopes of increasing the likelihood of survival. As societies became more organized, complex systems of response to these hazards were developed on local, national, and regional levels. Response capacity of individual nations can be linked to several factors, including the propensity for disaster, local and regional economic resources, government structure, and the availability of technological, academic, and human resources. However, as hazards and human settlements change, it is becoming increasingly common that the response capabilities of individual nations fall short in the face of large-scale disasters, and outside international assistance is required. Furthermore, there appears to be an increase in the number of disasters that affect entire regions, which calls upon a global response structure that is still in its infancy.

This chapter describes the international disaster concept and introduces the conglomeration of participants in the international disaster management domain (which includes governmental agencies, international organizations, nongovernmental organizations (NGOs), and financial institutions) that prepare for, respond to, and bring about recovery from them. The mission and goals of each of these entities and groups are described (although their performance is not detailed).

Disasters in Developing Nations

Disasters of all kinds strike literally every nation of the world, although these events do not occur with uniformity of distribution. While both rich and poor nations are affected, it is the developing nations that suffer the greatest impact of nature's fury on account of their vulnerability, and these same nations are also most often subject to the internal civil conflict that leads to Complex Humanitarian Emergencies (CHEs). Furthermore, the greatest incidence of capacity-exceeding natural disaster events occurs within the developing countries, with 90 percent of disaster-related injuries and deaths sustained by nations with per capita income levels below \$760 per year (UNICEF, n.d.).

Although disaster preparedness and mitigation are widely accepted by international development agencies as being integral components in the overall development process, it comes as no surprise that countries ranking lower on development indices have placed similarly low budgetary priority on disaster management issues. These nations' resources tend to be more acutely focused on social interests such as education and infrastructure, or on military demands, rather than reducing short- or long-term hazard risk. Because disasters are chance events, and thus not guaranteed to occur, disaster management programs in poor countries tend to be viewed as superfluous. Many assume their military is well-enough equipped to handle whatever immediate logistical needs might arise, and expect that the mass care relief and long-term reconstruction needs will be planned for and solved if and when a disaster happens. Even in countries with moderate levels of development, delegation of disaster management responsibilities to the military is common despite the fact that these agencies rarely are trained to carry out the response tasks that are needed. Poverty and uncontrolled urbanization further compound the problem, and often force large populations to concentrate in perilous, high-risk urban areas that contain little or no defense against disasters.

International Disasters Defined

In Chapter 2, the term *disaster* was defined as an adverse event that overwhelms an individual, agency, or jurisdiction's capacity to respond. As each successive administrative level becomes overwhelmed, a disaster event likewise grows in size and scope. When the response capacity of the entire nation's emergency management structure is overwhelmed, that event becomes known as an *international disaster*, and involvement of the international community of responders is required.

The threshold beyond which a disaster becomes international in size and scope is unique to each country and driven by a number of factors, including the severity of hazard consequences, the availability of economic resources, the comprehensiveness and appropriateness of responder training, the built-in resilience of infrastructure, the actual ability and the public impression of the government's ability to manage the situation, and the availability of specialized assets, among many others. Such a threshold is crossed much earlier in poorer countries where deficiencies exist in each of these areas. But even the wealthiest nations find themselves in need of help from the international community from time to time, whether for supplies, manpower, money, or a specific skill or asset that cannot be found locally.

Due to the sheer number of events that have escalated to this level, systems and procedures have emerged by which appeals for assistance are made and offers of support (both unsolicited and solicited) are communicated and enacted. In today's globally-interconnected world, driven by round-the-clock television coverage, Internet, new media, and social media, news of a disaster typically receives global recognition within a matter of minutes. And when that happens, the formal and informal international response mechanisms leap into action.

Three types of emergencies normally spur an international disaster response: natural disasters, technological disasters, and complex humanitarian emergencies (CHEs). The first two of these are clearly defined and typically well-understood. CHEs, on the other hand, have been subject to diverse interpretations and changing standards and thus, for the purposes of this book, are characterized by a definition established by the United Nations (UN). The UN classifies a CHE as a "humanitarian crisis in a country or region where there is total or considerable breakdown of authority resulting from the internal and/or external conflict and which requires an international response that goes beyond the mandate or capacity of any single agency" (DODCCRP, n.d.). Andrew Natsios (1997), a former director of the U.S. Agency for International Development (USAID), identified five characteristics most commonly seen in CHEs in varying degrees of intensity:

- Civil conflict, rooted in traditional ethnic, tribal, and religious animosities (usually accompanied by widespread atrocities)
- Deteriorated authority of the national government such that public services disappear and political control dissolves
- Mass movements of population to escape conflict or search for food, resulting in refugees and internally displaced people (IDPs)
- Massive dislocation of the economic system, resulting in hyperinflation and the devaluation of the currency, major declines in gross national product, skyrocketing unemployment, and market collapse
- A general decline in food security, often leading to severe malnutrition and occasional widespread starvation

Although these emergencies are fundamentally different from natural and technological disasters in regards to their generally political and intentional sources, they share many characteristics in terms of their requirements for response and recovery. In accordance, many of the organizations and entities described in this chapter respond to all three types of disasters indiscriminately. (*Related video*: Commissioner Georgieva Visiting NRC in Zaatari Refugee Camp. www.youtube.com/watch?v=I9WUQym91nE.) (*Related video*: What is UNHCR?. www.youtube.com/watch?v=7XgOTTdLRMQ.)

Important Issues Influencing the Response Process

Several issues must be addressed when responding to international disasters. The first, *coordination*, is a vital and immediate component because of the sheer numbers of responding agencies that almost always appear. It is not uncommon in larger disasters to see several hundred local and international NGOs, each with a particular skill or service to offer. Successful coordination

and cooperation can lead to great success and many lives saved, but infighting, turf battles, and nonparticipation can lead to confusion and even cause a second disaster (PAHO, n.d.).

The UN has become widely recognized as the central coordinating body in disasters requiring international assistance, and specialized UN agencies handling the more specific needs associated with particular disaster consequences. The UN is able to capitalize on long-standing relationships shared with the host country government to form partnerships on which joint control is established. However, UN coordination must be requested by the affected government and even then, the organization will have limited statutory authority. Moreover, many of the nongovernmental and faith-based organizations that respond to international disasters can and do freely operate outside of any such coordination structure established by the UN or any other organization. Several of the larger nongovernmental organizations and associations have even established their own standards on coordination and conduct, including the Red Cross Code of Conduct (www.ifrc.org/en/publications-and-reports/code-of-conduct/), the Sphere Project Humanitarian Charter and Minimum Standards in Disaster Response (www.sphereproject.org/handbook/), the Oxfam Code of Conduct for NGOs (www.oxfam.org/sites/www.oxfam.org/files/oi_code_of_conduct_2003_0.pdf), and the INGO Accountability Charter (www.ingoaccountabilitycharter.org/).

The second issue is that of *sovereignty of the state*. State sovereignty is based on the recognition of political authority characterized by territory and autonomy. Accordingly, a foreign nation or organization cannot intercede in domestic matters without the prior consent of the ruling government. This can be a major hurdle in response to CHEs that have resulted from civil war, as continues to plague efforts in Somalia where there is infighting and a lack of any single recognized or stable government with which stakeholders may work. Although less commonly seen, sovereignty has also been an issue in matters of natural and technological disasters, particularly when a nation does not want to be viewed as weak or unable to take care of its people. Examples of such behavior include Japan's initial resistance to international response agencies in the first days following the 1995 Kobe Earthquake, the actions of the former Soviet Union following the nuclear power plant accident in Chernobyl, and most recently the government of Burma's refusal to allow entry of humanitarian aid workers in the aftermath of Cyclone Nargis (note that the Government of Japan learned from this incident and took great measures to welcome international assistance in the immediate aftermath of the 2011 Great East Japan Earthquake).

The third issue is *equality in relief distribution*, and this factor also applies to all disaster types. Situations often arise where, for any number of cultural or political reasons, certain groups in need of aid are favored over others. There are two primary causes of such inequality. The first example is discrimination as a result of gender bias, which is most commonly found in societies where gender roles are strictly defined and women are traditionally tasked with duties related to the home and children (which tend to be increased in times of crisis). In these cultures, the men are more likely to have opportunities to wait in relief lines for supplies, and the women (as well as children and the elderly) become even more dependent on them for survival. This situation is exacerbated if a woman is a widow or single parent and has no ability to compete for distributed aid.

ADDITIONAL RESEARCH

Considerable effort has been expended in assessing the effect of gender on disaster vulnerability and the recovery abilities of individuals living in societies where gender bias is prevalent. The following reports shed considerable light on the plight of women affected by disasters throughout the world:

- The Pan American Health Organization fact sheet “Gender and Natural Disasters.”
www.paho.org/English/DPM/GPP/GH/genderdisasters.pdf
- The World Health Organization assessment tool “Gender Considerations in Disaster Assessment.”
www.who.int/gender/other_health/en/gwhdisasterassessment.pdf
- The World Health Organization paper “Gender and Health in Disasters.”
www.who.int/gender/other_health/en/genderdisasters.pdf

The second form of inequality in relief is that of class bias. Although most obvious in social systems explicitly based on caste identity, underlying ethnic and racial divides often present similar problems. Avoiding these forms of bias is difficult because the agencies involved must be aware of the discrimination in order to counteract its influence. Often, host-country nationals are “hired” by humanitarian agencies to assist in relief distribution, and inadvertent hiring of specific ethnic or social groups can lead to unfair distribution along those same ethnic/social lines. At the same time, humanitarian agencies are quick to focus on those groups most visibly affected by a CHE, such as IDP populations, causing an inordinate percentage of aid to be directed to them while other needy groups go unnoticed.

Many of the international response agencies are continuously developing systems of relief and distribution that work to counteract the complex problems associated with these biases; however, the difficult nature of this issue is highlighted in the fact that specifically targeting groups, such as women or children, can lead to reverse discrimination. Any of these biases can lead to a decline in perceived legitimacy or impartiality of the assisting agency and/or result in exacerbation of the needs being addressed (Maynard, n.d.).

A fourth issue is the importance of *capacity building* and *linking relief with development*. Responding agencies have an obligation to avoid using a bandage approach in assisting the affected country. Disasters almost always present a window of opportunity to rebuild old, ineffective structures and develop policy and practice in a way that leaves behind a more empowered, resilient community. Because these goals mirror those of most traditional development agencies, linking relief and development should not be a major deviation from either type of agencies’ missions. These opportunities are greatest in situations that require the complete restoration of infrastructure and basic social services, and are found equally in disaster and CHE scenarios. In the reconstruction phase, it is vital that training and information exchanges occur and that local risk is fully incorporated to mitigate for repeat disasters. These repeat disasters often contribute greatly to a nation’s lag in development, and therefore fully addressing them is vital to increasing the nation’s likelihood of being developed sustainably.

■ ■ Critical Thinking ■

- Do problems associated with equality in distribution of relief occur only in developing countries, or can they occur in any country? Can you find any examples of times when there has been inequality in relief distribution in the United States?
- Why is it imperative that relief is linked with development? Do you think that disaster relief makes recipient nations more dependent or more independent? Explain your answer.

The United Nations System

The UN was established in 1945, when representatives from 51 countries met in San Francisco to create the United Nations Charter as a commitment to preserve peace in the aftermath of World War II. Later that year, the Charter was ratified by the five permanent members: China, France, the Soviet Union, the United Kingdom, and the United States, as well as several other countries. Today, 192 countries are members of the UN, and the Charter (which is similar to a sovereign state's constitution and establishes the rights and responsibilities of member states) is amended as is necessary to reflect the changing needs of current world politics.

The UN itself is not a government body, nor does it write laws; however, the autonomous member states do have the ability through the UN to resolve conflict and create international policy. No decision or action can be forced on a sovereign state, but as global ideals are naturally reflected through these collaborative policies, they usually are given due consideration.

Through the major UN bodies and their associated programs, the UN has established a presence in most countries throughout the world and fostered partnerships with Member State governments. Although more than 70 percent of UN work is devoted to development activities, several other issues are central in their mission, including disaster mitigation, preparedness, response, and recovery. In the event of a disaster, the UN is quite possibly the best equipped to coordinate disaster relief and to work with the governments to rehabilitate and reconstruct. This is especially true in the case of the developing countries, where regular projects are ongoing and must be adjusted to accommodate for damages to infrastructure and economy caused by recurrent disasters, and where disasters quickly exhaust the response capabilities.

Upon onset of a disaster, the UN responds immediately and on an ongoing basis by supplying aid in the form of food, shelter, medical assistance, and logistical support. The UN Emergency Relief Coordinator heads the international UN response to crises through a committee of several humanitarian bodies, including the UN Children's Fund (UNICEF), the UN Development Programme (UNDP), the World Food Programme (WFP), the UN High Commissioner for Refugees (UNHCR), and other associates as deemed necessary in accordance with the problems specific to the event. Each of these agencies, as shown in this section, fulfills a specific need presented by most humanitarian emergencies, be they natural or man-made.

The UN also promotes prevention and mitigation activities through its regular development projects. By encouraging the building of early warning systems and the conducting of

monitoring and forecasting routines, they are working to increase local capacity to adequately boost local and regional preparedness. In conclusion of the International Decade for Natural Disaster Reduction of the 1990s (which strove to focus on a shift from disaster response-oriented projects to disaster mitigation), the UN adopted its International Strategy for Disaster Reduction (ISDR) to promote the necessity of disaster reduction and risk mitigation as part of its central mission. This initiative seeks to enable global resilience to the effects of natural hazards in order to reduce human, economic, and social losses through the following mechanisms:

- Increasing public awareness
- Obtaining commitment from public authorities
- Stimulating interdisciplinary and intersectoral partnership and expanding risk-reduction networking at all levels
- Enhancing scientific research of the causes of natural disasters and the effects of natural hazards and related technological and environmental disasters on societies

These strategies are carried out through the country offices and local governments in the most vulnerable communities. Mitigation and preparedness strategies are implemented at all levels of society via public awareness campaigns, secured commitment from public authorities, intersectoral cooperation and communication, and technical knowledge transfer. (Related video: Margareta Wahlstrom on Disaster Risk Reduction. http://www.youtube.com/watch?v=Wg_Ts9MjAYk.)

The United Nations Development Programme

The UNDP was established in 1965 during the UN Decade of Development to conduct investigations into private investment in developing countries, to explore the natural resources of those countries, and to train the local population in development activities (such as mining and manufacturing). As the concept and practice of development expanded, the UNDP assumed much greater responsibilities in host countries and in the UN as a whole.

The UNDP was not originally considered an agency on the forefront of international disaster management and humanitarian emergencies because, while it addressed national capacities, it did not focus specifically on the emergency *response* systems (previously considered to be the focal point of disaster management). However, as mitigation and preparedness received their due merit, the UNDP gained increased recognition for its vital risk reduction role. Capacity building has always been central to the UNDP's mission in terms of empowering host countries to be better able to address issues of national importance, eventually without foreign assistance.

International disaster management gained greater attention as more disasters affected larger populations and caused greater financial impacts. Developing nations, where the UNDP worked, faced the greatest inability to prepare and/or respond to these disasters. The UNDP's projects have shifted toward activities that indirectly fulfill mitigation and preparedness roles. For instance, projects seeking to strengthen government institutions also improve those

institutions' capacities to respond with appropriate and effective policy, power, and leadership in the wake of a disaster.

The UNDP now recognizes that disaster management must be viewed as integral to their mission in the developing world, as well as to civil conflict and Complex Humanitarian Emergency (CHE) scenarios. As excerpts from the UNDP mission show, there are implicit similarities between UNDP ideals and those of agencies whose goals specifically aim to mitigate and manage humanitarian emergencies. Here are some examples:

- [The UNDP] is committed to the principle that development is inseparable from the quest for peace and human security and that the UN must be a strong force for development as well as peace.
- UNDP's mission is to help countries in their efforts to achieve sustainable human development by assisting them to build their capacity to design and carry out development programs in poverty eradication, employment creation and sustainable livelihoods, the empowerment of women, and the protection and regeneration of the environment, giving first priority to poverty eradication.
- UNDP strives to be an effective development partner for the UN relief agencies, working to sustain livelihoods while they seek to sustain lives. It acts to help countries to prepare for, avoid, and manage complex emergencies and disasters.
- UNDP supports [development] cooperation by actively promoting the exchange of experience among developing countries.

The UNDP links disaster vulnerability to a lack of or weak infrastructure, poor environmental policy, land misuse, and growing populations in disaster-prone areas. When disasters occur, a country's national development, which the UNDP serves to promote, can be set back years, if not decades. Even small- to medium-size disasters in the least-developed countries can "have a cumulative impact on already fragile household economies and can be as significant in total losses as the major and internationally recognized disasters" (SARPN, n.d.). It is the UNDP's objective to "achieve a sustainable reduction in disaster risks and the protection of development gains, reduce the loss of life and livelihoods due to disasters, and ensure that disaster recovery serves to consolidate sustainable human development" (UNDP, n.d.).

In 1995, as part of the UN's changing approach to humanitarian relief, the Emergency Response Division (ERD) was created within the UNDP, augmenting the organization's role in disaster response. Additionally, 5 percent of the UNDP budgeted resources were allocated for quick response actions in special development situations by ERD teams, thus drastically reducing bureaucratic delays. The ERD was designed to create a collaborative framework among the national government, UN agencies, donors, and NGOs that will immediately respond to disasters, provide communication and travel to disaster management staff, and distribute relief supplies and equipment. It will also deploy to disaster-affected countries for 30 days to create a detailed response plan on which the UNDP response will be based.

In 1997, under the UN Programme for Reform, the mitigation and preparedness responsibilities of the UN Office for the Coordination of Humanitarian Affairs' (UNOCHA) Emergency Relief Coordinator were formally transferred to the UNDP. In response, the UNDP created the

Disaster Reduction and Recovery Programme (DRRP) within the ERD. Soon after, the UNDP again reorganized, creating a Bureau of Crisis Prevention and Recovery (BCPR) with an overarching mission of addressing a range of nonresponse-related issues:

- Natural disaster reduction
- Recovery
- Mine action
- Conflict prevention and peace building
- Justice and security sector reform
- Small arms and demobilization

The BCPR helps the UNDP country offices prepare to activate and provide faster and more effective disaster response and recovery. It also works to ensure that the UNDP plays an active role in the transition between relief and development. The UNDP's disaster management activities focus primarily on the development-related aspects of risk and vulnerability and on capacity-building technical assistance in all four phases of emergency management.

The UNDP has created the Disaster Reduction Unit (DRU) within the BCPR, which includes a team of seven Geneva-based officials and four regional disaster-reduction advisors located in Bangkok, Nairobi, New Delhi, and Panama. The DRU works to reduce disaster risk and increase sustainable recovery in countries where the UNDP operates. It strengthens national and regional capacities by ensuring that new development projects consider known hazard risks, that disaster impacts are mitigated and development gains are protected, and that risk reduction is factored into disaster recovery. The DRU provides the UNDP country offices with technical assistance and financial support for the design and implementation of disaster reduction strategies and capacity-building programs to carry out these goals. (Related video: Haiti: Disaster to Development. www.youtube.com/watch?v=gJAL9qJ1rI8.)

The UNDP Recovery Unit

Following conflict, crises, and disasters, countries must eventually (and as quickly as possible) transition from response to recovery. Many countries are unable to manage the difficult and diverse needs of recovery on their own, as they may have experienced widespread loss of infrastructure and services. Displaced persons and refugees may have little to return to, and economies may be damaged or destroyed. The Recovery Unit (under the BCPR) operates during the period when the response or relief phase of the disaster has ended but recovery has not fully commenced (sometimes referred to as the “early recovery period”).

The Recovery Unit addresses problems normally encountered in this post-crisis period through its Transition Recovery Programme. This program works to restore government and community capacities to rebuild and recover so as to prevent a return to a crisis situation. Sustainable risk reduction as a component of recovery is central to this mission. The UNDP has recognized that local expertise in risk management and reduction may not be available, and that the technical assistance they provide may be the only option these communities have to increase their resilience to future disasters. This program has proven effective in many recovery

operations, including Cambodia after three decades of civil war; Afghanistan after the 2001 conflict; Gujarat, India, after the 2001 earthquake; and from 2008 to 2010 in Sri Lanka after the 26 years of civil war. Specific activities of the UNDP Recovery Unit include the following:

- Performing early assessments of recovery needs and designing integrated recovery frameworks
- Planning and assistance in area-based development and local governance programs
- Developing comprehensive reintegration programs for former Internally Displaced Persons (IDPs), returning refugees, and ex-combatants
- Supporting economic recovery both at the local and national levels
- Supporting in-country capacity building, UN system coordination, resource mobilization, and partnerships

To meet these recovery priorities, five support services have been developed within the Recovery Unit to assist the UNDP country offices and other UNDP/UN agencies to identify areas where the BCPR and the Recovery Unit can provide assistance. These support services include the following:

- Early assessment of recovery needs and the design of integrated recovery frameworks
- Planning and assistance in area-based development and local governance programs
- Developing comprehensive reintegration programs for IDPs, returning refugees, and ex-combatants
- Supporting economic recovery and revitalization
- Supporting capacity building, coordination, resource mobilization, and partnerships

When required to assist in recovery operations, the Recovery Unit may deploy a special Transition Recovery Team (TRT) to supplement UNDP operations in the affected country. These teams' focus varies according to specific needs. For instance, when neighboring countries have interlinked problems (such as cross-border reintegration of ex-combatants and displaced persons), the TRT may support a sub-regional approach to recovery.

It is important to note that the UNDP has no primary role in the middle of a CHE peace-keeping response; rather, they fulfill a supportive role by ensuring development is tied into relief. During recovery and reconstruction, together with others, they take the lead. In addition to the roles and responsibilities just mentioned, the UNDP leads several interagency working groups. One such group (which consists of representatives from the World Food Programme, the World Health Organization, the Food and Agriculture Organization, the UN Populations Fund, and the UN International Children's Emergency Relief Fund) develops principles and guidelines to incorporate disaster risk into the Common Country Assessment and the UN Development Assistance Framework. The International Strategy for Disaster Reduction Working Group on Risk, Vulnerability and Disaster Impact Assessment sets guidelines for social impact assessments. The UNDP also coordinates a Disaster Management Training Programme in Central America, runs the conference "The Use of Microfinance and Micro-Credit for the Poor in Recovery and Disaster Reduction," and has created a program to elaborate financial instruments to enable the poor to manage disaster risks.

The UNDP has several reasons for its success in fulfilling its roles in the mitigation, preparedness, and recovery for natural and man-made disasters. First, as a permanent in-country office with close ties to most government agencies, activities related to coordination and planning, monitoring, and training are simply an extension of ongoing relationships. Second, the UNDP functions as a coordinating body of the UN agencies concerned with development, so when crisis situations appear, there is an established, stable platform from which it may lead. And third, the UNDP has experience dealing with donors, be they foreign governments or development banks, and therefore can handle the outpouring of aid that usually results during the relief and recovery period of a disaster. This contributes greatly to reducing levels of corruption and increasing the cost-effectiveness of generated funds. In several recent events, the UNDP has established formalized funds to handle large donor contributions, which have been used for long-term post-disaster reconstruction efforts.

The United Nations Office for the Coordination of Humanitarian Affairs

Prior to 1991, the UN Disaster Relief Coordinator managed natural disasters, and special representatives of the UN Secretary General coordinated CHEs. However, UN Resolution 46/182, adopted in December 1991, merged these two roles to create the Emergency Relief Coordinator (ERC). The Department of Humanitarian Affairs was created soon after, with the ERC elevated to the status of Under Secretary General for Humanitarian Affairs. The UN Office for the Coordination of Humanitarian Affairs (UNOCHA) replaced the Department of Humanitarian Affairs under the UN Secretary General's Program for Reform in 1998. UNOCHA was established to accommodate the needs of victims of disasters and emergencies, with its specific role in disaster management the coordination of assistance provided by the UN system (in emergencies that exceed the capacity and mandate of any individual agency). UNOCHA response to disasters can be categorized under three main groupings:

- Coordinating the international humanitarian response
- Providing support and policy development to the humanitarian community
- Advocating for humanitarian issues to ensure that the overall direction of relief reflects the general needs of recovery and peace building

UNOCHA operations are carried out by a staff of approximately 1900 people in New York, Geneva, and in the field. UNOCHA's 2013 budget was \$270,443,000, of which only slightly more than 5 percent was from the regular UN budget. The remaining 95 percent is from "extra-budgetary resources," primarily donations from member states and donor organizations.

As head of UNOCHA, the Under Secretary General for Humanitarian Affairs/UN Emergency Relief Coordinator is responsible for the coordination of UN response efforts through the Inter-Agency Standing Committee (IASC). The IASC consists of UN and outside humanitarian organization leaders, and analyzes crisis scenarios to formulate joint responses that maximize effectiveness and minimize overlap. The ERC works to deploy appropriate personnel from throughout the UN to assist UN resident coordinators and lead agencies to

increase on-site coordination. In March 2007, the Secretary General appointed John Holmes of the United Kingdom to replace Jan Egeland of Norway as Under Secretary General for Humanitarian Affairs and Emergency Relief Coordinator. John Holmes was succeeded by Valerie Amos in September of 2010.

UNOCHA's Disaster Response System monitors the onset of natural and technological disasters. This system includes training assessment teams before disasters strike, as well as conducting post-disaster evaluations. When a disaster is identified, UNOCHA activates a response and generates a situation report to provide the international response community with detailed information (including damage assessment, actions taken, needs assessment, and current assistance provided). If necessary, UNOCHA may then deploy a UN Disaster Assessment and Coordination (UNDAC) team to assist relief activity coordination and assess damages and needs.

If a disaster appears inevitable or is already significant, the ERC in consultation with IASC may designate a humanitarian coordinator (HC), who becomes the most senior UN humanitarian official on the ground for the emergency. The HC is directly accountable to the ERC, thereby increasing the likelihood that the humanitarian assistance provided is quick, effective, and well-coordinated. The HC appointment generally signals that the event merits a long-term humanitarian presence. The criteria used by the ERC in deciding whether to appoint an HC are based on recognition of a need for the following:

- Intensive and extensive political management, mediation, and coordination to enable the delivery of humanitarian response, including negotiated access to affected populations
- Massive humanitarian assistance requiring action by a range of participants beyond a single national authority
- A high degree of external political support, often from the UN Security Council

An On-Site Operations Coordination Center (OSOCC) may be set up in the field to assist local first-response teams to coordinate the often overwhelming number of responding agencies. Finally, UNOCHA can set up communications capabilities if they have been damaged or do not exist at an adequate level, as required by the UN responding agencies. UNOCHA generally concludes its responsibilities when the operation moves from response to recovery.

Overall, UNOCHA coordinates humanitarian affairs to maximize response and recovery operations and minimize duplications and inefficiencies through established structures and policies set forth by the IASC (adapted from UNOCHA, 2005):

- Developing common strategies
- Assessing situations and needs
- Convening coordination forums
- Mobilizing resources
- Addressing common problems
- Administering coordination mechanisms and tools

The Field Coordination Support Unit in Geneva manages the human, technical, and logistical resources UNOCHA uses. These resources are primarily provided by the Danish and

Norwegian Refugee Councils, the Danish Emergency Management Agency, the Swedish Rescue Services Agency, and the Emergency Logistics Management Team of the United Kingdom Overseas Development Administration.

The Emergency Relief Coordinator

The Under-Secretary General for Humanitarian Affairs/Emergency Relief Coordinator advises the UN Secretary General on disaster-related issues, chairs the Executive Committee on Humanitarian Affairs (ECHA), and leads the IASC. The coordinator is assisted by a deputy, who holds the position of Deputy Emergency Relief Coordinator (DERC) and is responsible for key coordination, policy, and management issues. (Related video: Human Security: A New Response to Complex Threats. <http://www.youtube.com/user/UNOCHAfilms>. Related video: Restoring Hope After the Floods in Pakistan. <http://www.youtube.com/watch?v=A3ybDyLYXeg>.)

The Inter-Agency Standing Committee (IASC)

The IASC was established in 1992 under UN Resolution 46/182. It serves as a platform within which the broad range of UN and non-UN humanitarian partners (including UN humanitarian agencies, the International Organization for Migration, three consortia of major international NGOs, and the Red Cross movement) may come together to address the humanitarian needs resulting from a disaster. The IASC's primary role is to formulate humanitarian policy that ensures a coordinated and effective response to all kinds of disaster and emergency situations. The primary objectives of the IASC are to (UNOCHA, 2005):

- Develop and agree on system-wide humanitarian policies
- Allocate responsibilities among agencies in humanitarian programs
- Develop and agree on a common ethical framework for all humanitarian activities
- Advocate common humanitarian principles to parties outside the IASC
- Identify areas where gaps in mandates or lack of operational capacity exist
- Resolve disputes or disagreement about and between humanitarian agencies on system-wide humanitarian issues

The Executive Committee on Humanitarian Affairs (ECHA)

ECHA was created by the UN Secretary General to enhance coordination among UN agencies working on humanitarian affairs issues. ECHA meets on a monthly basis in New York to add a political and peacekeeping dimension to humanitarian consultations.

The UNOCHA Donor Relations Section

The UNOCHA Donor Relations Section (DRS), separated from the Consolidated Appeals Process in 2003, is the focal point for all relations with donors, particularly for funding-related issues. DRS advises the senior management team on policy issues related to interaction with donors and resource mobilization. In addition, it plays a key role in facilitating the interaction of all UNOCHA entities with donors, both at headquarters and in the field level.

The Coordination and Response Division

The Coordination and Response Division (CRD) was created in 2004 by joining the former New York-based Humanitarian Emergency Branch and the Geneva-based Response Coordination Branch. The CRD is responsible for providing disaster-related direction, guidance, and support to the ERC, the UN Resident/Humanitarian Coordinators, and UNOCHA's field offices (including the deployment of extra personnel as necessary or emergency cash grants).

The UNOCHA Emergency Services Branch (ESB)

Based in Geneva, the UNOCHA Emergency Services Branch (ESB) was created to expedite the provision of international humanitarian assistance. The ESB develops, mobilizes, and coordinates the deployment of UNOCHA's international rapid response "tool kit"—the expertise, systems, and services that aim to improve humanitarian assistance in support of disaster-afflicted countries. The ESB's humanitarian response activities include the coordination of disaster response and assessment (UNDAC), the setting of international urban search and rescue standards (INSARAG), and the establishment of OSOCCs.

The *Field Coordination Support Section (FCSS)* was established within the ESB in 1996 to support national governments and the UN Resident Coordinators in developing, preparing, and maintaining "standby capacity" for rapid deployment to sudden-onset emergencies to conduct rapid needs assessments and coordination. The FCSS manages several programs and offices to improve international disaster coordination and cooperation, including the following:

- *The United Nations Disaster Assessment and Coordination (UNDAC) Team.* The UNDAC team is made up of disaster management specialists selected and funded by the governments of UN member states, UNOCHA, UNDP, and operational humanitarian UN agencies (such as WFP, UNICEF, and WHO). It provides rapid needs assessments and supports national authorities and the UN Resident Coordinator in coordinating international relief. UNDAC teams are on permanent standby status so that they can deploy within hours.
- *The International Search and Rescue Advisory Group (INSARAG).* INSARAG is an intergovernmental network within the UN that manages urban search-and-rescue (USAR) and related disaster-response issues. It promotes information exchange, defines international USAR standards, and develops methodologies for international cooperation and coordination in earthquake response.
- *The Virtual On-Site Operations Coordination Centre (Virtual OSOCC).* The Internet has made it possible for humanitarian relief agencies to share and exchange disaster information continuously and simultaneously, and between any locations where Internet access can be obtained. The Virtual OSOCC is a central repository of information maintained by UNOCHA that facilitates this exchange of information with NGOs and responding governments. The information is stored on an interactive web-based database, where users can comment on existing information and discuss issues of concern with other stakeholders.

- *The Surge Capacity Project (including the Emergency Response Roster)*. UNOCHA's Surge Capacity Project seeks to ensure that UNOCHA always has the means and resources to rapidly mobilize and deploy staff and materials to address the needs of countries affected by sudden-onset emergencies. The Emergency Response Roster (ERR), which became active in June 2002, aims to rapidly deploy UNOCHA staff to sudden-onset emergencies to conduct assessments and establish initial coordination mechanisms. Staff included in the ERR are deployable within 48 hours of a request for their services through a deployment methodology based on the UNDAC model. Staff serve on the roster for 2 months at a time.

Established by the IASC in 1995, the *Military and Civil Defense Unit (MCDU)* supports humanitarian agencies by providing military and/or civil defense assets. The MCDU conducts civil-military coordination courses and coordinates UN participation in major humanitarian emergency exercises. The MCDU also maintains the UN's Central Register, which is a database of noncommercial, governmental, and other resources that may be called on for humanitarian response and includes a full range of equipment and supplies, teams of experts, and disaster-response contacts.

The *Logistics Support Unit (LSU)* manages stocks of basic relief items that can be dispatched immediately to disaster- or emergency-stricken areas. The stockpile, which is located at the UN Humanitarian Response Depot in Brindisi, Italy, includes nonfood, nonmedical relief items (such as shelter, water purification and distribution systems, and household items) donated by UN member governments. The LSU is also involved in other logistical challenges, such as designing contingency plans for the rapid deployment of emergency relief flights and providing interface on logistical matters with other humanitarian agencies (such as WFP, WHO, UNHCR, IFRC, and ICRC). The LSU participates in the operation of a UN Joint Logistics Center and has co-sponsored an effort to adopt a UN-wide system for tracking relief supplies and common procedures for air operations. Finally, the LSU contributes information to the CRR related to stockpiles and customs facilitation agreements (which helps speed up the delivery of relief items).

The Environmental Emergencies Section, or the Joint UN Environmental Programme (UNEP)/UNOCHA Environment Unit, serves as the integrated UN emergency response mechanism that provides international assistance to countries experiencing environmental disasters and emergencies. The joint unit can rapidly mobilize and coordinate emergency assistance and response resources to countries facing environmental emergencies and natural disasters with significant environmental impacts. The unit performs several key functions geared toward facilitating rapid and coordinated disaster response, including the following:

- Monitoring
- Notification
- Brokerage
- Information clearinghouse
- Mobilization of assistance
- Assessment
- Financial assistance

UNOCHA Preparedness and Mitigation Measures

Although UNOCHA's efforts primarily focus on coordinating humanitarian emergency response, the agency also serves a risk-reduction function. For instance, UNOCHA representatives work with operational humanitarian agencies to develop common policies aimed at improving how the humanitarian response network prepares for and responds to disasters. It also works to promote preparedness and mitigation efforts in member states to decrease vulnerability. CRD and ESB work closely with the UN Development Programme, other UN programs as necessary, and outside organizations on various projects and activities to increase working relationships with national governments and apply lessons learned from completed disaster responses.

UNOCHA's Geneva offices are continually monitoring geologic and meteorological conditions, as well as major news services, for early recognition or notification of emerging disasters. Working with UN resident coordinators, country teams and regional disaster-response advisers, UNOCHA maintains close contact with disaster-prone countries in advance of and during disaster events. UNOCHA's Regional Disaster Response Advisers work with national governments to provide technical, strategic, and training assistance. They also provide this assistance to other UN agencies and regional organizations to improve international disaster management capacity.

UNOCHA Information Tools and Services

Clearly, information is key to disaster management, and information must be timely and accurate to be useful. This is especially true in the case of early warning and disaster prevention initiatives. UNOCHA maintains several information management activities in support of its humanitarian efforts, and provides systems to collect, analyze, disseminate, and exchange information. These functions are performed jointly by the Early Warning and Contingency Planning Unit, the ReliefWeb project, the Field Information Support Project, and the Integrated Regional Information Networks.

Department of Economic and Social Affairs (DESA)

The Department of Economic and Social Affairs (DESA) is another component within the Secretariat that addresses disaster management, primarily in regards to predisaster capacity building. DESA addresses a full range of issues under three general areas:

- It compiles, generates, and analyzes a wide range of economic, social, and environmental data and information from which member states draw to review common problems and evaluate policy options.
- It facilitates the negotiations of member states in many intergovernmental bodies on joint courses of action to address ongoing or emerging global challenges.
- It advises national governments on translating UN-developed policy frameworks into country-level programs and, through technical assistance, helps build national capacities.

This final area is where DESA addresses disaster management activities within its Division for Sustainable Development. As part of this effort, DESA launched a plan of action during the 2002 World Summit on Sustainable Development in Johannesburg, South Africa, that included commitments to disaster and vulnerability reduction.

The UN Centre for Regional Development (UNCRD) is another component of DESA that addresses disaster management issues. Through its headquarters in Nagoya, Japan, and its regional offices in Nairobi, Kenya, and Bogotá, Colombia, UNCRD supports training and research on regional development issues and facilitates information dissemination and exchange. UNCRD maintains a Disaster Management Planning Office in Hyogo, Japan, that researches and develops community-based, sustainable projects for disaster-management planning and capacity building in developing countries. Examples of ongoing projects maintained by the Hyogo office include the Housing Earthquake Safety Initiative in Algeria, Indonesia, Nepal, and Peru, and the School Earthquake Safety Initiative in Fiji, India, Indonesia, and Uzbekistan.

The Regional Commissions

Five regional economic commissions are within the Economic and Social Council. The secretariats of these regional commissions are part of the UN Secretariat and perform many of the same functions (including the disaster management functions just listed). The five commissions promote greater economic cooperation in the world and augment economic and social development. As part of their mission, they initiate and manage projects that focus on disaster management. While their projects primarily deal with disaster preparedness and mitigation, they also work in regions that have been affected by a disaster to ensure that economic and social recovery involves adequate consideration of risk-reduction measures. These are the five regional commissions:

- The Economic and Social Commission for Asia and the Pacific (ESCAP)—www.unescap.org
- The Economic Commission for Latin America and the Caribbean (ECLAC)—www.eclac.cl/
- The Economic Commission for Europe (ECE)—www.unece.org/
- The Economic Commission for Africa (ECA)—www.uneca.org/
- The Economic and Social Commission for Western Asia (ESCWA)—www.escwa.org.lb

The United Nations Children’s Fund

Like most other major UN agencies, the UN Children’s Fund (UNICEF, formerly known as the United Nations International Children’s Emergency Fund) was established in the aftermath of World War II. Its original mandate was to aid the children suffering in postwar Europe, but its mission has been expanded to address the problems that affect poor children throughout the world. UNICEF is mandated by the General Assembly to serve as an advocate for children’s rights, to ensure that each child receives at least the minimum requirements for survival, and to increase their opportunities for a successful future. Under the Convention on the Rights of the Child (CRC), a treaty ratified by 194 countries (all countries except the United States), the UNHCR holds wide-reaching legal authority to carry out its mission.

Before the onset of disasters, it is not uncommon for UNICEF to have established itself as a permanent in-country presence, with regular budgetary resources. In the situations of disaster or armed conflict where this is the case, UNICEF is well poised to serve an immediate role as aid provider to its specific target groups. This rapid response is important because young mothers and children are often the most marginalized groups in terms of aid received. UNICEF works on a regular basis to ensure that children have access to education, healthcare, safety, and protected child rights. In the response and recovery periods of humanitarian emergencies, these roles are merely expanded to suit the rapidly extended requirements of victims. In countries where UNICEF has not yet established a permanent presence, the form of aid is virtually the same; however, the timing and delivery are affected, and reconstruction is not nearly as comprehensive.

UNICEF maintains that humanitarian assistance should include programs aimed specifically for child victims. Relief projects generally work to provide a rapidly needed response in the form of immunizations, water and sanitation, nutrition, education, and health. Women are recipients of this aid as well because UNICEF considers them to be vital in the care of children. UNICEF also works through recovery and reconstruction projects, providing for the basic rights of children. UNICEF is currently active in more than 190 countries. (Related video: UNICEF—In Myanmar, the Disaster of Surviving the Disaster. www.youtube.com/watch?v=DacPJ4A_KrY.)

The World Food Programme

The World Food Programme (WFP) is the arm of the UN tasked with reacting to hunger-related emergencies throughout the developing world. The WFP was created late in 1961 by a resolution adopted by the UN General Assembly and the UN Food and Agriculture Organization (FAO). Chance enabled the program to prove the necessity of their existence when the WFP provided relief to more than 5 million people several months before they were deemed officially operational in 1963. In the year 2011, WFP fed more than 100 million people in 75 countries. Over the course of its existence, the WFP has provided more than 50 million metric tons of food to countries worldwide.

Because food is a necessity for human survival, it is a vital component of development. The WFP works throughout the world to assist the poor who do not have sufficient food to survive “to break the cycle of hunger and poverty.” Hunger alone can be seen as a crisis because more than 1.02 billion people across the globe receive less than the minimum standard requirement of food for healthy survival. Hunger is often associated with other crises, including drought, famine, and human displacement, among others.

In rapid-onset events such as natural disasters, the WFP is activated as a major player in the response to the immediate nutritional needs of the victims. Food is transported to the affected location and delivered to storage and distribution centers. The distribution is carried out according to preestablished needs assessments performed by UNOCHA and the UNDP. The WFP distributes food through contracted NGOs who have vast experience and technical skills required to plan and implement such projects of transportation, storage, and distribution. The

principal partners in their planning and implementation are the host governments (who must request the aid of the WFP to begin with, unless the situation is a CHE where there is no established government, and the UN Secretary General makes the request). The WFP works closely with all responding UN agencies to coordinate an effective and broad-reaching response because food requirements are so closely linked to every other vital need of disaster victims.

In the aftermath of disasters, during the reconstruction phase, it is often necessary for the WFP to remain an active player through continued food distribution. Rehabilitation projects are implemented in a way that fosters increased local development, and include providing food aid to families, who as a result will have extra money to use in rebuilding their lives, and food-for-work programs, which break the chains of reliance on aid as well as provide an incentive to rebuild communities.

The World Health Organization

The idea for the World Health Organization (WHO) was proposed during the original meetings to establish the UN system in San Francisco in 1945. In 1946, at the United Health Conference in New York, the WHO constitution was approved, and on April 7 (World Health Day), it was signed and made official. Like the WFP, WHO proved its value by responding to an emergency (a cholera epidemic in Egypt) months before it was an officially recognized organization.

WHO was established to serve as the central authority on sanitation and health issues throughout the world. It works with national governments to develop medical capabilities and health care and assist them in the suppression of epidemics. WHO supports research for the eradication of disease and provides expertise on these subjects when requested. It also provides training and technical support and develops standards for medical care.

In the event of a disaster, WHO responds in several ways that address the health of victims. Most important, it provides ongoing monitoring of diseases traditionally observed within the unsanitary conditions of disaster aftermath. WHO also provides technical assistance to the responding agencies and host governments that are establishing disaster medical capabilities and serves as a constant source of expertise as needs arise. (Related video: WHO—Put Health First in Emergencies. www.youtube.com/watch?v=ITePPptmDLw.)

■ ■ Critical Thinking ■

Is the United Nations the organization best suited to coordinate the response to international disasters? Why or why not? If not, who do you believe should be tasked with coordination?

Nongovernmental Organizations

The number of nongovernmental organizations (NGOs) focusing on international humanitarian relief has grown exponentially in the past few decades. These organizations have come to play a vital role in the response to and recovery from disasters, filling gaps left by national and multilateral organizations. They have significantly improved the ability of international relief efforts to address the needs of victims with a diverse range of skills and supplies. Some

of the larger NGOs, like the International Committee of the Red Cross (ICRC), have established an international presence similar to that of the UN and have developed strong local institutional partnerships and a capacity to respond almost immediately with great effectiveness. These grassroots-level organizations are so successful in their activities that the major bilateral development agencies (e.g., the U.S. Agency for International Development Office of Foreign Disaster Assistance [USAID/OFDA]) and the international organizations (e.g., the United Nations) alike regularly arrange for relief projects to be implemented by them rather than their own staff.

There are several classifications of humanitarian organizations. The following broad categorical definitions are widely accepted among the agencies of the international relief community. These are not definitive categories into which each organization will neatly fit, but they have become part of standardized nomenclature in disaster response:

- *Nongovernmental organization (NGO)*. The general term for an organization made up of private citizens, with no affiliation with a government of any nation other than the support from government sources in the form of financial or in-kind contributions. These groups are motivated by greatly varying factors, ranging from religious beliefs to humanitarian values. NGOs are considered national if they work in one country, international if they are based out of one country but work in more than four countries, and multinational if they have partner organizations in several countries. Oxfam and the ICRC are examples of multinational NGOs. NGOs can be further defined according to their functionality. Examples of these would be the religious groups, such as the Catholic Church; interest groups, such as Rotary International; residents' organizations; occupational organizations; educational organizations; and so on.
- *Private voluntary organization (PVO)*. An organization that is nonprofit, tax-exempt, and receives at least a part of its funding from private donor sources. PVOs also receive some degree of voluntary contributions in the form of cash, work, or in-kind gifts. This classification is steadily being grouped together under the more general NGO classification. It should be mentioned that although all PVOs are NGOs, the opposite is not true.
- *International organization (IO)*. An organization with global presence and influence. Although both the UN and ICRC are IOs, only the ICRC could be considered an NGO. There exists international law providing a legal framework under which these organizations can function.
- *Donor agencies*. Private, national, or regional organizations whose mission is to provide the financial and material resources for humanitarian relief and subsequent rehabilitation. These donated resources may go to other NGOs, other national governments, or to private citizens. Examples of donor agencies are USAID, the European Community Humanitarian Organization (ECHO), and the World Bank.
- *Coordinating organizations*. Associations of NGOs that coordinate the activities of hundreds of preregistered member organizations to ensure response with maximized impact. They can decrease the amount of overlap and help distribute assistance to

the greatest range of victims. Also, they have the ability to analyze immediate needs assessments and recommend which member organizations would be most effective in response. Examples of coordinating organizations include InterAction and the International Council for Voluntary Agencies (ICVA).

NGOs bring to the field several resources. First, they are well regarded as information-gathering bodies and thus are vital in establishing accuracy in the development of damage and needs assessments. They tend to provide a single skill or group of specific technical skills, such as the medical abilities of *Medicins sans Frontiers* (MSF, Doctors without Borders) or Oxfam's ability to address nutritional needs. The sheer number of helping bodies that are provided by the involvement of NGOs allows for a greater capability to reach a larger population in less time. Finally, the amount of financial support provided as a result of the fundraising abilities of NGOs brings about much greater cash resources to address the needs of victims.

These organizations can be characterized by several characteristics they have in common:

- They value their independence and neutrality.
- They tend to be decentralized in their organizational structure.
- They are committed.
- They are highly practice-oriented.

The most well-known and most widely established humanitarian NGO is the Red Cross, given their long history and wide international presence. The International Red Cross is described below.

The International Red Cross

The International Red Cross/Red Crescent Movement consists of the International Federation of Red Cross and Red Crescent Societies (IFRC) and the International Committee of the Red Cross (ICRC). The concept of the Red Cross was initiated by Henry Dunant in 1859, following a particularly brutal battle in Italy that he witnessed. Dunant gathered a local group to provide care for the battle-wounded through medical assistance, food, and ongoing relief. Upon returning to Switzerland, he began the campaign that led to the International Committee for Relief of the Wounded in 1863 and, eventually, the ICRC. The Committee, and their symbol of a red cross on a white background, has become the standard of neutral wartime medical care of wounded combatants and civilians.

The IFRC was founded in 1919 and has grown to be the world's largest humanitarian organization. After World War I, American Red Cross War Committee president Henry Davison proposed a creation of a League of Red Cross Societies so the expertise of the millions of volunteers from the wartime efforts of the ICRC could be used in a broader scope of peacetime activities. Today, the IFRC includes 195 member societies, a Secretariat in Geneva, and more than 60 additional delegations dispersed throughout the world.

The IFRC conducts complex relief and recovery operations in the aftermath of disasters throughout the world. Their four areas of focus include promoting humanitarian values,

disaster response, disaster preparedness, and health and community care. Through their work, they seek to “improve the lives of vulnerable people by mobilizing the power of humanity,” as stated in their mission. These people include those who are victims of natural and man-made disasters and postconflict scenarios.

Like the UN, the IFRC is well established in most countries throughout the world and is well poised to assist in the event that disaster strikes. Volunteers are continuously trained and utilized at the most local levels, providing a solid knowledge base before a major need presents itself. Cooperation among groups, through the federation, provides an enormous pool of people and funds from which to draw when local resources are exhausted.

When a disaster strikes and the local capacity is exceeded, an appeal by that country’s national chapter is made for support to the Federation’s Secretariat. As coordinating body, the Secretariat initiates an international appeal for support to the IFRC and many other outside sources and provides personnel and humanitarian aid supplies from its own stocks. These supplies, which can be shipped in if not locally available, pertain to needs in the areas of health, logistics and water specialists, aid personnel, and relief management.

The appeal for international assistance is made an average of 30 times per year, and these assistance projects can continue for years. Long-term rehabilitation and reconstruction projects, coupled with the goal of sustainable development and increased capacity to handle future disasters, have become the norm in regards to major disasters in the poorer countries. The following is how the IFRC responds to international disasters.

Depending on the complexity of the required response, a Field Assessment and Coordination Team (FACT) may be deployed to assist the local chapter in determining the support needs for the event. The teams, which are deployable to any location with only 24 hours’ notice, consist of Red Cross/Red Crescent disaster managers from throughout the IFRC, bringing with them skills in relief, logistics, health, nutrition, public health, epidemiology, water and sanitation, finance, administration, and psychological support. The team works in conjunction with local counterparts and host-government representatives to assess the situation and determine what the IFRC response will consist of. An international appeal is drafted, and then launched, by the Secretariat in Geneva. The teams stay in-country to coordinate the initiation of relief activities. Once the effort has stabilized and has become locally manageable, the FACT concedes its control to the local Red Cross headquarters.

In 1994, following a spate of notably severe disasters (i.e., the Armenian earthquake, the Gulf War Kurdish refugee problem, and the African Great Lakes Region crisis), the IFRC began to develop an Emergency Response Unit (ERU) program to increase disaster response efficiency and efficacy. These ERUs are made up of pre-established supplies, equipment, and personnel, who respond as a quick-response unit on a moment’s notice and are trained and prepared to handle a much wider range of scenarios than before. This concept, similar to the UNDP Emergency Response Division (ERD), has already proven effective in making IFRC response faster and better, through several deployments, including Hurricane Mitch in Honduras. The teams, upon completion of their response mission, remained in-country to train the locals in water and sanitation issues, thus further ensuring the sustainability of their efforts. ERU teams are most effective in large-scale, sudden-onset, and remote disasters.

In 2010, the IFRC launched “Strategy 2020” to guide the organization’s efforts through the decade. This strategy focuses on three strategic aims:

1. Save lives, protect livelihoods, and strengthen recovery from disasters and crises
2. Enable healthy and safe living
3. Promote social inclusion and a culture of nonviolence and peace

The strategy directs the organization to pursue three “enabling actions” to deliver these three strategic aims, including:

1. Build strong National Red Cross and Red Crescent Societies.
2. Pursue humanitarian diplomacy to prevent and reduce vulnerability in a globalized world.
3. Function effectively as the International Federation.

(Related video: 2020 and Beyond: Is the Humanitarian Community Prepared for the Future? <http://www.youtube.com/watch?v=GrIE1HXKB5A>. Strategy 2020, Saving Lives, Changing Minds: www.youtube.com/watch?v=YPbuKcGSs0s&feature=player_embedded#!. Strategy 2020, Asian-Pacific Voices. http://www.youtube.com/watch?v=fjpAODvmFII&feature=player_embedded.)

As a result of this strategy and the Strategy 2010 that preceded it, the IFRC has become increasingly engaged in disaster-risk reduction and emergency preparedness efforts and continues to promote hazard mitigation practices in the communities where they operate. These activities, which focus on consequence reduction and working toward better disaster event prediction and prevention methods, have become more central to the goal of local Red Cross/Red Crescent Society programs.

The first of these three strategic aims is most relevant to the practice of international disaster management. The Strategy 2020 describes their pre- and postdisaster action in this effort as follows:

Preparing and Responding to Disasters and Crises

Following a disaster or in a crisis situation, humanitarian assistance and protection must be appropriate to the requirements that have been identified through timely and specific assessments. Any humanitarian assistance must be sensitive to gender, age and other socio-economic considerations, as well as being proportionate to the magnitude of the situation. Assistance must be provided first to the most vulnerable people and delivered in a way that respects their dignity. Being an integral part of communities allows us a continuous understanding of their needs, vulnerabilities and capacities. Systematic disaster and crisis management starts with preparedness for early action by trained and organized volunteers. It also includes maintaining and prepositioning contingency stocks of essential supplies, and optimizing logistics and communications. Reliable early-warning systems are instrumental in saving the maximum number of lives, and protecting assets and livelihoods. Additionally, our disaster and crisis response includes providing essential healthcare, food and nutrition, and water and sanitation. We help restore family links where these have been disrupted. We also lead the coordination of emergency shelter provision, as part of the agreed division of labor within the humanitarian assistance system. Appropriate laws are crucial to ensure the speed

and effectiveness of humanitarian assistance. Therefore, we emphasize the importance of national legal preparedness and international legal cooperation through the development and promotion of disaster laws, principles and rules. These seek to reduce operational barriers and strengthen the role of communities to ensure that relief and recovery measures are carried out efficiently in a manner respectful of the dignity and rights of affected people. We also promote predisaster cooperation arrangements that facilitate and regulate international assistance in order to enhance preparedness measures and increase the appropriateness and predictability of provision.

Recovering from Disasters and Crises

The impact of a disaster or crisis can be reduced if the situation is stabilized as quickly as possible. This allows people to start rebuilding their lives and communities. Depending on the specific requirements, our recovery assistance aims to prevent further damage and loss, repair essential services, protect health, provide psycho-social support, restore livelihoods, and enhance food security. Recovery is carried out in such a way so as to rebuild more inclusive societies and reduce vulnerability to future disasters. Thus, recovering communities are made safer than before.

Our Disaster Management System

As they are closest to the communities at risk of disasters and crises, building local and national response capacities is a primary responsibility of National Societies. However, we know that major disasters and crises can sometimes overwhelm even those who are best prepared. That is why National Societies have committed to support each other and have built up emergency response capabilities to do so. The Secretariat has a constitutional obligation “to organize, coordinate and direct international relief action” as a core service to members of the IFRC. Drawing on the complementary capacities of National Societies, we ensure that effective tools and reliable surge capacities are always available, in a seamless arrangement that connects global, regional, national, and local capabilities. This gives us the confidence to handle the expected worldwide increase in the number and magnitude of major disasters. The ICRC and the IFRC work together concurrently to maintain substantial capacities to protect and assist people affected by armed conflict and violence. (IFRC, 2010) (Related video: IFRC Disaster Response in Haiti. <http://www.youtube.com/watch?v=Lxp4U3mshKk>.)

■ ■ Critical Thinking ■

- Should nongovernmental organizations be required to adhere to the UN or another governmental coordination system that is in place during the response to international disasters? Why or why not?
- What are the major risks for an NGO that refuses to participate in the coordination mechanism in place in the disaster-affected country or region? What does it gain and what does it lose by choosing to participate?

Assistance Provided by the U.S. Government

U.S. Agency for International Development

The United States has several means by which it provides assistance to other nations requiring aid in the aftermath of a disaster, accident (transportation-based, nuclear, biological, chemical, or other), or conflict. The U.S. agency tasked with providing development aid to other countries, the U.S. Agency for International Development (USAID), has also been tasked with coordinating the U.S. response to international disasters. USAID was created in 1961 through the Foreign Assistance Act, which was drafted to organize U.S. foreign assistance programs and separate military and nonmilitary assistance. One branch of USAID, the Bureau for Democracy, Conflict, and Humanitarian Response (DCHA), manages the various mechanisms with which the United States can respond to humanitarian emergencies of all types. The office under DCHA that most specifically addresses the needs of disaster and crisis victims by coordinating all nonfood aid provided by the government is the Office of U.S. Foreign Disaster Assistance (OFDA) (Figure 8-1).

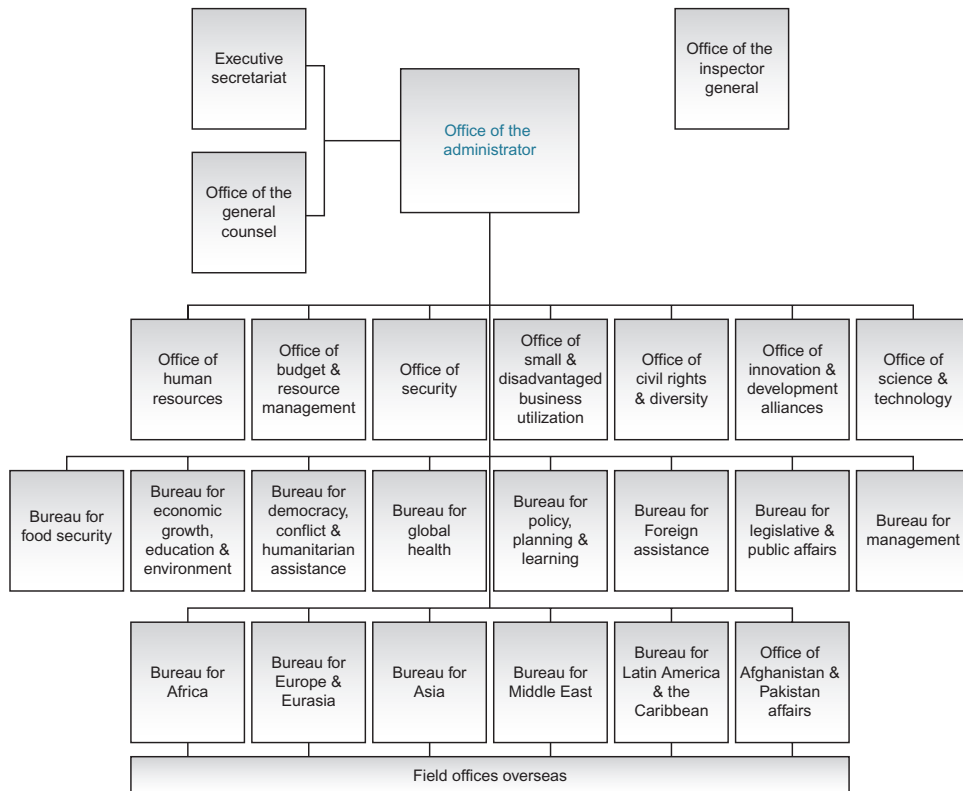


FIGURE 8-1 The USAID organizational chart.

Office of Foreign Disaster Assistance (OFDA)

OFDA is divided into three distinct subunits: Operations Division (OPS); Program Support Division (PS); and Disaster Response and Mitigation (DRM). The Disaster Response and Mitigation Division is responsible for coordinating the provision of humanitarian assistance and relief supplies. The Operations Division develops and manages logistical, operational, and technical support for field offices and disaster responses, including Urban Search & Rescue (USAR) teams, Disaster Assistance Response Teams (DARTs), and Response Management Teams (RMTs). The Program Support Division provides programmatic and administrative support, including budget and financial services, procurement planning, contracts and grants administration, training support, information technology, communications support, and information services.

The administrator of USAID holds the title of President's Special Coordinator for International Disaster Assistance. When a disaster is declared in a foreign nation by the resident U.S. ambassador (or by the Department of State, if one does not exist), the USAID administrator receives an appeal for help. This can be done when three conditions are met: the magnitude of the disaster has overwhelmed a country's local response mechanisms; the government has requested assistance or will at least accept it; and it is in the interest of the U.S. government to assist. OFDA is authorized to immediately disburse \$50,000 in emergency aid to the U.S. Embassy to be spent at the discretion of the ambassador for immediate relief, and given that the disaster satisfies three criteria: (1) the magnitude of the disaster is beyond the capacity of the host country to respond; (2) the host country accepts, or is willing to accept, assistance; and (3) a response is in the best interest of the U.S. government. OFDA also can immediately send regional advisors with temporary shelter and medical aid supplies from one of four OFDA stockpiles in Guam, Italy, Honduras, and the United States (Figure 8-2).

If the disaster is considerable in size, the U.S. ambassador or USAID Mission Director posted in the affected country will appoint a Mission Disaster Relief Officer to oversee the developing response effort. A Disaster Assistance Response Team (DART) is deployed to the country to assess the damages and recommend the level of assistance that should be made by the U.S. government. DARTs work quickly to develop a strategy to coordinate U.S. relief supplies; provide operational support; coordinate with other donor countries, UN agencies, NGOs, and the host government; and monitor and evaluate projects carried out with U.S. funds. In the largest of disasters, Response Management Teams (RMTs) may be established in both Washington, D.C., and the disaster site to coordinate and offer administrative assistance and communication for the several DARTs that would be deployed.

OFDA developed a Technical Assistance Group (TAG) to increase its capabilities in planning and programming. TAGs consist of scientists and specialists in agriculture and food security, emergency and public health, water and sanitation, geoscience, climate, urban planning, contingency planning, cartography, and so on. TAGs work with DARTs and RMTs in response, as well as USAID development missions in preparation and mitigation for future disasters.

In addition to the direct aid and logistical and operational support offered, OFDA provides grants for relief assistance projects. These projects are carried out primarily by PVOs

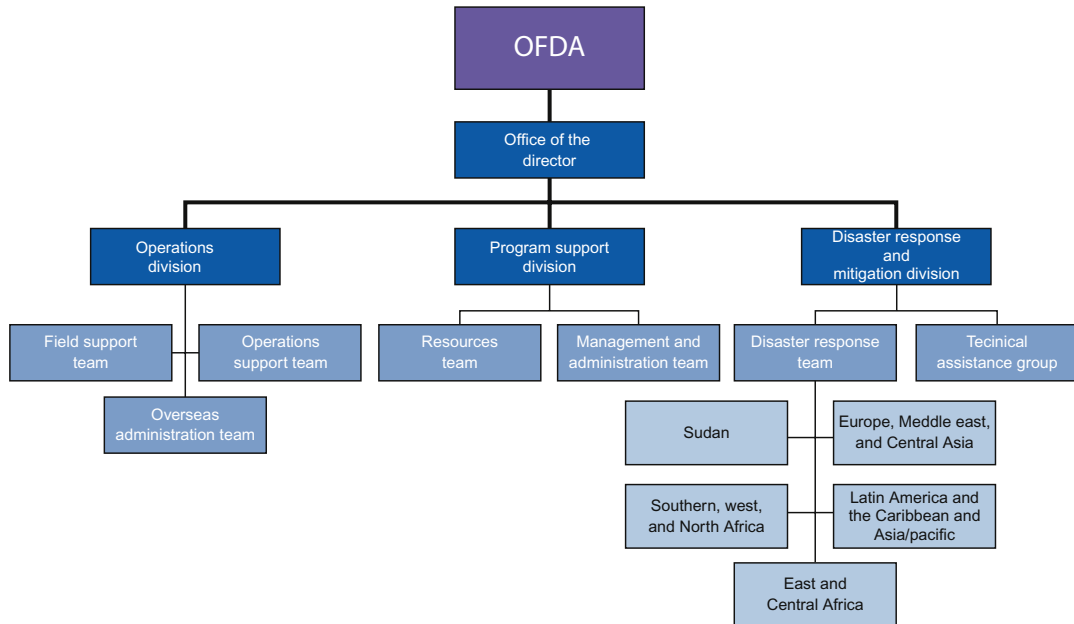


FIGURE 8-2 The OFDA organizational chart.

and NGOs, as well as IOs, the UN, and other various organizations (such as a pilot's club that is hired to transport supplies). Not all this monetary aid goes to response, however. The DRM works to facilitate projects that aim to reduce the impact of disasters before they happen again. These types of projects seek to empower national governments to make them less likely to need international assistance in subsequent events. All these organizations are monitored carefully by OFDA to ensure that they are working efficiently and are spending monetary resources sensibly.

Other USAID Divisions

Under the USAID DCHA, several other offices provide humanitarian aid. The Office of Food for Peace (FFP) handles all the U.S. government's food-assistance projects (U.S. food aid is categorized as Title II or Title III, with the first having no repayment obligations and the second considered a bilateral loan). The Office of Transition Initiatives (OTI) works in postconflict situations to help sustain peace and establish democracy. The Office of Conflict Management and Mitigation (CMM) supports early responses to address the causes and consequences of conflict and war.

The Office of Military Affairs (OMA) helps to build partnerships for humanitarian relief with U.S. Department of Defense officials and offices for planning, training, mitigation, response, and recovery. The Department of State Bureau for Population, Refugees, and Migration (PRM) provides monetary grants to NGOs, PVOs, IOs, and the UN to respond to emergency refugee emergencies. A good portion of this assistance goes directly to the UNHCR. The Department

of Defense (DOD) responds through its Office of Peacekeeping and Humanitarian Affairs (PK/HA). It is important to note that the developed nations of the world are highly unlikely to receive U.S. assistance on the level that is provided to the developing nations.

The U.S. Military

The U.S. military often is involved in relief efforts of natural and technological disasters and Complex Humanitarian Emergencies. The involvement of the military, a well-funded and equipped force whose primary function is national defense, brings about an entirely new perspective to the area of operations. It often is argued that nobody is better equipped to handle disasters than the military, with their wide assortment of heavy equipment, enormous reserve of trained personnel, and common culture of discipline and mission-oriented standard operation; however, it is also said that the military is a war agency, not a humanitarian assistance agency, and that these two organizational ideals are too fundamentally and diametrically opposed in practice to allow for effective military involvement.

The assistance of the military normally is requested by USAID/OFDA through the DOD Office of Political/Military Affairs. The chain of command for military operations begins with the President of the United States and the Secretary of Defense, collectively referred to as the National Command Authority (NCA). The NCA, which directs all functions of the U.S. military, is advised by the Joint Chiefs of Staff (JCS) of the Army, Navy, Air Force, and Marines.

The U.S. military is heavily involved in the response to international disasters through organized operations termed Foreign Humanitarian Assistance (FHA) or Humanitarian Assistance Operations (HAO). FHAs are authorized by the DOD Office of Political/Military Affairs (DODPM) at the request of OFDA (the president, as commander-in-chief, gives final authorization for any support operation). Assistance may be provided in the form of physical or technical support, such as logistics, transportation, communications, relief distribution, security, and emergency medicine. In emergencies of natural or man-made origin that do not involve conflict, the role of the military is to provide support, rather than leadership, to the national government and the overall relief community.

The military is known for its self-contained operational abilities, arriving on-scene with everything they need, so to speak. Usually, they provide more than adequate personnel and supplies for the mission they were called to act upon. Once in-country, they work under the strict guidelines of Force Protection (enforced security of all military and civilian personnel, equipment, and facilities associated with their mission) and Rules of Engagement (ROE, a structured, preestablished guideline of “circumstances and limitations under which the military will initiate or continue combat engagement”). The ROE dictate military action in both peacekeeping and disaster operations.

If a particular command unit is tasked with assisting a relief operation, they may deploy a Humanitarian Assistance Survey Team (HAST) to conduct a needs assessment, which relates to the specific functions the military is suited to address. These assessments are occasionally much different than those generated by more humanitarian-based organizations, such as the UN or OFDA, because the military operates in such a fundamentally different fashion. The

concerns of the HAST tend to focus on the military support requirements and the logistical factors involving the deployment of troops. A Joint Task Force (JTF) will be established soon after to handle the management and coordination of military personnel activities, with a commander for the JTF designated as the person in charge of the operation on-site; however, if an operation involves only one military service, or is minimal in size, a JTF may not be needed.

One of the main roles of the JTF is to establish a Civil Military Operations Center (CMOC). This center effectively functions to coordinate the military support capabilities in relation to the overall response structure involving all other players involved. The CMOC mobilizes requests for assistance from OFDA, the UN, NGOs, and the host government. All intermilitary planning is conducted through this center, including those operations involving cargo transportation and food logistics. This center is the primary node of information exchange to and from the JTF. CMOCs have taken on expanded responsibility in the past, including the reestablishment of government and civil society and the repair or rehabilitation of critical infrastructure.

■ ■ Critical Thinking ■

- The Posse Comitatus Act limits the involvement of the U.S. military in domestic operations, but not international disasters. Do you believe that the U.S. military would be better equipped than DHS to lead the federal response to domestic disasters? Why or why not?
- What aspects of the military make it so effective overseas?
- Why do you think OFDA is a component of the U.S. Department of State and not the Department of Homeland Security?

The International Financial Institutions (IFIs)

The international financial institutions (IFIs) provide loans for development and financial cooperation throughout the world. They exist to ensure financial and market stability and to increase political balance. These institutions are made up of member states, arranged on a global or regional basis, which work together to provide financial services to national governments through direct loans or projects. In the aftermath of disasters, it is common for nations with low capital reserves to request increased or additional emergency loans to fund the expensive task of reconstruction and rehabilitation. Without these IFIs, most developing nations would have no means with which to recover. The largest of these IFIs, the World Bank, and one of its subsidiaries, the International Monetary Fund (IMF), are detailed as follows. Other regional IFIs with similar functions include the Inter-American Development Bank (IDB), which works primarily in Central and South America, and the Asian Development Bank (ADB), based in Manila, Philippines, which works throughout the Asian continent.

The World Bank

The World Bank was created in 1944 to rebuild Europe after World War II. In 1947, France received the first World Bank loan of \$250 million for postwar reconstruction. Financial

reconstruction assistance has been provided regularly since that time in response to countless natural disasters and humanitarian emergencies.

Today, the World Bank is one of the largest sources of development assistance. In the 2012 fiscal year, it committed more than \$52.6 billion in loans, funding hundreds of ongoing and new projects in scores of developing countries. The World Bank is owned collectively by 188 countries and is based in Washington, D.C. It comprises several institutions referred to as the World Bank Group (WBG):

- International Bank for Reconstruction and Development
- International Development Association
- International Finance Corporation
- Multilateral Investment Guarantee Agency
- International Centre for Settlement of Investment Disputes

The World Bank's overall goal is to reduce poverty, specifically, to "individually help each developing country onto a path of stable, sustainable, and equitable growth, [focusing on] helping the poorest people and the poorest countries" (The World Bank, n.d.). As disasters and CHEs take a greater and greater toll on the economic stability of many financially struggling countries, the Bank is taking on a more central role in mitigation and reconstruction.

Developing nations, which are more likely to have weak disaster mitigation or preparedness capacity and therefore little or no affordable access to disaster insurance, often sustain a total financial loss. In the period of rehabilitation that follows a disaster, loans are essential to the success of programs and vital to any level of sustainability or increased disaster resistance. The Bank lends assistance at several points along this cycle.

First, for regular financial assistance, the Bank ensures that borrowed funds are applied to projects that give mitigation a central role during the planning phase. It utilizes its privilege as financial advisor to guide planners, who otherwise might forego mitigation measures in an effort to stretch the loaned capital as far as possible. Ensuring that mitigation is addressed increases systems of prediction and risk analysis in World Bank-funded projects.

Second, the Bank has been working to provide lending, financial assistance and incentives, and direct technical assistance, to address disaster risk head on. In 2006, the World Bank Global Facility for Disaster Risk Reduction (GFDRR) was created to manage all disaster risk management programs and projects. This group helps to bring together experts from throughout the Bank's network to share global knowledge about risk reduction, and to ensure that both Bank staff and their national government counterparts have at their access the information they need to reduce disaster vulnerability for the long term. Between 2006 and 2011, the World Bank financed 113 disaster prevention and preparedness operations totaling \$7.9 billion in funds, and 68 disaster reconstruction operations totaling \$3.8 billion.

Since its inception, the World Bank has been heavily involved in national reconstruction efforts. Over time, these postdisaster programs have not only grown in number and scope, but have also shifted in focus from that of postconflict scenarios to that of a more diverse hazard portfolio—with natural disasters emerging as the prominent instigating factor. The Bank has established and adjusted its policy on managing the postdisaster needs of member nations

through successive policy adjustments that point to an evolution in thinking about how the bank assists its “customers” facing disasters.

The range of disaster events the Bank has addressed through its various response and reconstruction programs has grown over time. All Bank policy stipulates that postdisaster projects should concentrate on restoring assets and productivity levels, thereby focusing on reconstruction (with explicit specification that relief and consumption cannot be financed under the guiding theory that lending should be reserved for economically productive activities, thereby leaving relief managed by local groups, affected governments, bilateral relief programs, NGOs, and specialized relief organizations). Bank policy, in fact, restricts the Bank from participating in the financing of any of the following:

- Temporary shelter
- Search and rescue
- Evacuation
- Health care
- Food and water distribution
- Temporary sanitation
- Restoration of access to transport

Within the framework of these restrictions, the Bank is able to offer effective assistance to disaster-affected nations through a range of loan and technical assistance instruments. The current policy describes five forms of Bank emergency assistance: emergency recovery loans (ERLs) and credits, loan reallocation, the redesign of pipeline projects, new free-standing mitigation projects, and assessments. These and other related capabilities are grouped into the categories of Lending Instruments, Coordination, and Technical Assistance.

World Bank Lending Instruments

Since 1984, the Executive Board of the World Bank has financed more than 725 projects involving the management of disasters in some capacity. Through these projects, a total of more than \$56.3 billion of bank lending—representing about 9 percent of all Bank loan commitments—was provided (World Bank, 2011). Among these projects, the amount of disaster-related support ranges from a few thousand to a half billion dollars. While some projects were entirely devoted to natural disasters, such as the Emergency Recovery Loans (ERLs; described below), more than two-thirds involved disasters as a component of more comprehensive development goals. The value of the projects dedicated entirely to disasters totals \$12.2 billion. The various disaster-related loan instruments are as follows.

The Emergency Recovery Loan Program

The Emergency Recovery Loan (ERL) is a loan instrument designed to reduce the time required to complete the project appraisal process in order to meet the disaster-affected borrowers’ urgent needs. The goal of an ERL is to implement the funded emergency projects within a period of 2 to 3 years. Borrower nations are limited in how they can use ERL funds for reconstruction. Projects funded must be limited to the rapid restoration of physical structures and

productive activities. Policy discourages the creation of permanent new institutions for project implementation, but limited changes, such as those that reduce vulnerability, are advocated. ERLs are not intended to address long-term economic problems that require major policy adjustments. They are also not intended for projects addressing broad sectoral, structural, or institutional goals. ERLs, as a disaster response instrument, are designed for more rare disasters, rather than recurrent or longer-term events such as flooding and drought (which are better managed through the use of more traditional development loan programs). ERLs must make every effort to incorporate policy and action that result in an overall reduction in vulnerability from the hazard encountered. Bank policy calls for detailed study, planning, and preparation in advance of and during the implementation of funded projects to ensure overall risk is reduced.

Retroactive Financing

World Bank policy normally restricts financing for payments made by borrowers for a project before the date of a loan agreement. However, the disaster policies allow up to 20 percent of loans to retroactively pay for emergency recovery operation expenditures, as long as they occurred after the disaster and within 4 months before the expected date of loan signing. And, in extraordinary circumstances, exceptions to the 20 percent limit may be granted.

Loan Reallocations

When a government requests postdisaster assistance, the World Bank country staff begins by examining the existing country portfolio to identify loans for which reallocation for reconstruction is possible. Because not all emergency situations demand ERLs, the Bank had often used the reallocation of existing loans to quickly provide smaller amounts of funding as appropriate, or to supplement ERLs in larger disasters. Reallocation worked so quickly because the source projects are already approved; therefore, funds could be very quickly rededicated to disaster-specific needs (often within the broad sector into which they were originally dedicated). Reallocations are most appropriate in situations where the relevance of the original project has been reduced or eliminated by the disaster. From 1984 to 2005, the Bank reallocated funds from 217 projects totaling almost \$3.05 billion in order to make them available for disaster response through loan reallocation. In recent years, however, the Bank has moved away from reallocation in favor of risk pools and contingent credit lines (World Bank, 2012).

Redesign of Projects Not Yet Approved

Another way to make funds available to a disaster-affected government is to redesign projects that have not yet been approved. In doing so, newly acquired data about the country's disaster profile, and thus their vulnerability reduction needs, can be incorporated, as can new project components that contribute to postdisaster reconstruction that were not part of the original project design.

Balance of Payment Support

Balance of payment support is designed to provide quick disbursement of funds to meet the most pressing financial needs of affected countries. Designed to provide quick inputs to

stabilize macroeconomic conditions and facilitate recovery following a calamity, this kind of support is not very common. In fact, very few loans have been made by the World Bank for balance of payment support following natural disasters.

Free-Standing Investment Projects for Mitigation

After a disaster occurs, when new hazard risk information is acquired through assessment and study, disaster mitigation projects can be designed in a way that more effectively limits risk. In this context, the World Bank offers another lending instrument—the free-standing mitigation project loan—that nations may use to reduce their long-term risk. Though mitigation and risk analysis are considered essential components of regular loan programs, free-standing mitigation loans designed specifically to help prevent foreseeable disasters from occurring and/or limiting their destructive impact allow for a more targeted outcome. (Related video: World Bank President Joins Japan in Calling For Increased Disaster Risk Management. www.youtube.com/watch?v=u3Q2EIF0fFY.)

Disaster Lending Instruments under Development

The World Bank has been developing promising alternatives to these lending instruments. For instance, increasing the amount of lending for existing projects, which is already in use for nondisaster-related projects, is being explored in the disaster context. Another specialized form of development policy lending, the Contingent Hazard Recovery and Management Loan, is currently in development. It is hoped that these alternatives will help to avoid the diversion of funds from their original purposes, as occurs with reallocation.

World Bank Coordination

The World Bank is one of a large number of institutions that governments can call upon to offer coordination assistance following a disaster. Bank policy states that it is within both the ability and interest of the Bank to assist disaster-affected borrowers in the coordination of overall donor efforts, especially as they relate to the gathering of damage-assessment information. The policy requires that following a disaster, the Bank should facilitate collaboration between the government, the Bank, multilateral and bilateral donors, and NGOs to develop a common recovery strategy. Coordination can help to ensure that prevention and mitigation activities are incorporated in all reconstruction projects, Bank-funded or otherwise, and that neither duplication nor omission of coverage occurs.

The Bank has and continues to work with other donors in postdisaster situations on several different levels: co-financing Bank-supported projects, co-financing others' projects, donors working on related projects of their own, or by performing joint damage assessments. At present, the Bank fulfills this coordination role through partnership with the UNDP and other international agencies, bilateral donors, and local nongovernmental organizations as appropriate and possible.

The Bank's coordination role in the immediate aftermath of disasters has been somewhat limited. However, it has maintained a more prominent role in longer-term reconstruction

efforts. The Bank typically concentrates on infrastructure and housing during the reconstruction, given its comparative advantage in that area. However, the Bank also has considerable experience with disaster recovery, as well as an important role in assisting with coordination that ensures that the country's needs are met with as few overlaps and conflicts of priorities as possible.

World Bank Technical Assistance

The World Bank assists countries managing their disaster risk, or facing an actual disaster, through the provision of several technical assistance programs. These programs include the following:

- *Analytical Work:* Through the generation of publications, working papers, articles, and reports on natural disaster topics, the Bank continues to advance the study of and knowledge about disasters and their management. These publications have explored a range of topics that have included risk management and financing mechanisms.
- *Application of the Country Assistance Strategy:* The Bank's Country Assistance Strategy (CAS) is designed to synthesize the country situation, government priorities, Bank Group strategy, and Bank partner activities into a coherent program for future work together. In countries with significant disaster-related issues, the CAS has been used to incorporate a hazard risk component in order to elevate the importance of disasters in overall development strategy planning.
- *The Disaster Risk Management Team:* In 1999, in response to an increase in disaster-related lending, the Disaster Management Facility was established, which later became the Hazard Management Unit (HMU). This office provided World Bank task managers with disaster-specific technical assistance, thereby allowing them to provide a more strategic and rapid response. In 2005, this unit was drastically modified to reflect a decentralized structure, and given the new title of Hazard Risk Management Team (within the Urban Unit), later changed to the Disaster Risk Management Team. The Disaster Risk Management Team, which is considered the anchor for the much larger Hazard Risk Management Thematic Group (which consists of more than 100 Bank staff in the various organizational units with a particular interest in hazard risk management), works to facilitate greater adherence to prevention and mitigation objectives in Bank-funded development projects. The Disaster Risk Management team provides technical support to Bank operations in promoting capacity building and establishing partnerships with the international and scientific community working on disaster issues. The Global Facility for Disaster Risk Reduction, described above, is a part of this team.
- *Disaster Damage and Needs Assessment Assistance:* World Bank-wide experience has shown it is important to identify local vulnerabilities and determine how to reduce them in ways that lead to durable solutions. With increasing frequency, the Bank has helped borrowers to assess disaster damages and to develop a recovery strategy. Assessments have shown that almost three quarters of all the disaster assessments in which the Bank was involved have led to a more rapid granting of an ERL.

- *Emergency Preparedness Studies:* Disaster projects often have a studies component related to the achievement of an important project objective. These studies may be used to increase disaster resilience for the project goals. Because so many disaster projects either have experienced or are expected to face repeat or new disasters in the future, disaster studies are necessary for proper hazard risk consideration to be incorporated.
- *Institutional Development:* Through its disaster-related projects, the World Bank has worked in member countries to strengthen hazard management institutions, and to stress the importance of strengthening countries' institutional capacity for long-term disaster prevention and mitigation—both on its own and in cooperation with other agencies. Over the past 20 years, the Bank has formulated institutional development components for 160 completed projects that have included project management, disaster management, general research, early warning improvements, disaster-specific training programs, engineering studies, and legal and policy reform.

The International Monetary Fund

The International Monetary Fund (IMF) was established in 1946 and has grown to a current membership of 188 countries. Its goals are to promote international monetary cooperation, exchange stability, and orderly exchange arrangements; to foster economic growth and high levels of employment; and to provide temporary financial assistance to countries to help ease balance of payments adjustment. It carries out these functions using loans, monitoring, and technical assistance.

In the event of an international disaster or CHE in a member country, the IMF utilizes its Emergency Assistance Specific Facility to provide rapid financial assistance. In these situations, it is not uncommon for a country to have severely exhausted its monetary reserves. The IMF's goals are to rebuild government capacity and to return stability to the local economy. In the event of a natural disaster, funding is directed toward local recovery efforts and for any economic adjustment that may be needed. If the situation is a postconflict one, its aim is to "re-establish macroeconomic stability and the basis for long-term sustainable growth" (IMF, n.d.). The IMF will lend assistance only if a stable governing body is in place that has the capacity for planning and policy implementation and can ensure the safety of IMF resources. After stability has been sufficiently restored, increased financial assistance is offered, which will be used to develop the country in its postemergency status.

When a country wishes to request emergency assistance, it must submit a detailed plan for economic reconstruction and ensure that it will not create trade restrictions or intensify exchange. If the country is already working under an IMF loan, then assistance can come in the form of a reorganization within existing arrangements. Separate emergency assistance loans are also offered, which do not involve the regular criteria under which the countries must normally operate. These loans, although normally available only up to 25 percent of a country's pre-established lending quota, have been created in quantities reaching 50 percent of quota; however, this funding is provided only when the member country is "cooperating with the IMF to find a solution to its economic problems." These loans are required to be repaid within 5 years.

A country often requires technical assistance or policy advice because it is in a situation for which it has no experience or expertise. This is common in postconflict situations where a new government has been established and partnerships are being created for the first time. The IMF offers assistance in building capacity to implement macroeconomic policy. This can include tax and government expenditure capacity, the reorganization of fiscal, monetary, and exchange institutions, and guidance in the use of aid resources.

■ ■ Critical Thinking ■

Should the IFIs be concerned with disaster management, or do you think that they should let UNOCHA and the other UN agencies handle all disaster-related concerns? Explain your answer.

What is the risk of allowing a disaster-affected country to reprogram a regular development loan, such as one that covers the construction of a new hospital, to be used for disaster relief? Under what circumstances does this practice make sense, and in what cases should it be avoided?

CASE STUDY: THE HAITI EARTHQUAKE, JANUARY 12, 2010

On January 12, 2010, the island of Hispaniola was struck by a major earthquake measuring 7.0 on the Richter scale. The tremor, which was centered near the town of Leogane and only 16 miles from Haiti's capital, Port-au-Prince, occurred at 4:53 p.m. and at a depth of 8.1 miles. The primary quake was followed by 52 aftershocks measuring at least 4.5 on the Richter scale.

Virtually all of Haiti's 3 million people, who were woefully unprepared for such an event, were affected by the quake. Though the exact numbers will never be known, reliable estimates place the final death toll at more than 220,000 people, and over 300,000 people were injured. Additionally, approximately 2 million people were made homeless by the quake, which destroyed over 250,000 residences and over 30,000 commercial buildings, causing a massive problem with internally displaced people (IDPs) (Figure 8-3). The event also resulted in total destruction of existing public health and medical infrastructure; damage to roads, bridges, and other transportation infrastructure; and other problems, forcing the already heavily-indebted country to endure a likely 3 decades of recovery (Blanchfield, 2012). The Presidential Palace and National Assembly building were both destroyed, as was the country's primary jail, the city's cathedral, over 4000 schools, and more than half of government and administrative buildings (Disasters Emergency Committee, n.d.).

Haiti's government and people were not completely unaware of the earthquake risk that existed, having suffered multiple major quakes in their country's history (many of which caused mass death and destruction). But because of decades of poor governance and very low development indicators, almost nothing was done to minimize risk or to prepare the population. As such, the country was immediately overwhelmed by the event, and appeals for international aid were made as soon as word could get out. Despite these calls, the country's infrastructure was so heavily damaged (including the total loss of the nation's largest port) that the delivery of foreign aid was hampered for days. Additionally, destruction of the UN offices, from where an international coordination effort would take place, and a lack of communication from the nation's top leaders caused significant confusion about who was in charge and what damages had been sustained.

EARTHQUAKE-AFFECTED AREAS AND POPULATION MOVEMENT IN HAITI

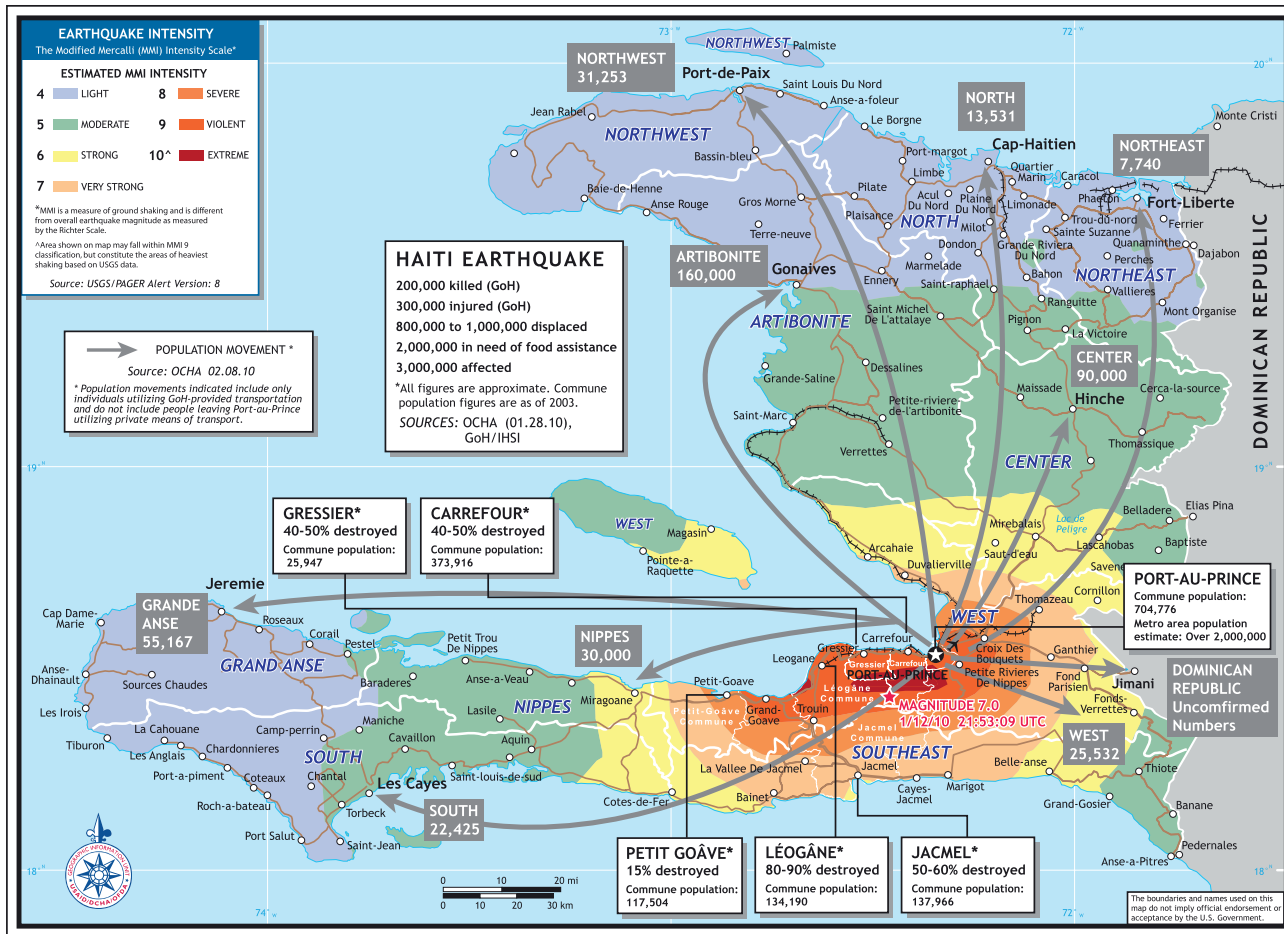


FIGURE 8-3 Map of earthquake intensity and population movement in Haiti, 2010. USAID, 2010.

The impacts of the disaster resulted in major displacements of the population, including 2.1 million people at its peak (of which 302,000 were children). Of these, 1.5 million moved into mass care camps that put the residing population at risk from a number of other hazards including flooding, mudslides, insecurity, and cholera (which has already resulted in over 650,000 infections and over 8000 deaths (CDC, 2013).)

Eventually the deliveries of international assistance began to arrive, and the UN “cluster system” of coordination was put into place to address the complex lifesaving and sustaining needs of Haiti’s population. Twelve clusters, which are similar to ESFs, were activated:

1. Logistics
2. Camp Coordination and Camp Management (CCCM)
3. Shelter
4. Nonfood items (NFI)
5. Food
6. Health
7. WASH (water, sanitation, and health care)
8. Education
9. Protection
10. Early recovery
11. Agriculture
12. Emergency telecommunications

The \$7.9 billion in assessed damages and losses caused by the 2010 earthquake in Haiti represented 120 percent Haiti’s \$6.7 billion GDP. As such, recovery has required significant investment (in the form of bilateral aid and loans from the international financial institutions), technical assistance, and materials. It is estimated that foreign donors provided \$1.6 billion for relief and \$2 billion in recovery assistance. The ongoing recovery effort represents something of a test bed of modern recovery lessons learned, since reconstruction will be nearly total in the impacted areas and is closer to development in many regards. If the recovery leaders and stakeholders are able to effectively drive the recovery efforts in a manner such that corruption is kept to a minimum, efforts are not duplicated and there are no holes in the coverage; and recovery stakeholders are able to work in a holistic, synergistic manner, it is likely that the nation will be more resilient, more developed, and better able to recover from such events in the future.

On January 13, 2010, U.S. Ambassador to Haiti Kenneth H. Merten declared the earthquake situation in Haiti a disaster, which enabled bilateral support by the U.S. government. USAID/OFDA had deployed a Disaster Assistance Response Team (DART) to provide humanitarian assistance and coordinate the USG response in the disaster’s earliest days, and at its height the DART comprised 545 individuals (511 urban search and rescue team members and 34 USAID/OFDA staff members). Following initial life-saving efforts, USAID/OFDA supported a neighborhood-based approach to facilitate returns to areas of origin and help re-establish pre-earthquake social and economic structures. As part of this approach, USAID/OFDA provided shelter support—including transitional shelters, repairs to damaged houses, and host-family support—to approximately 300,000 people.

In the years that followed these initial relief operations, the US Government continued to support the long-term recovery in Haiti through USAID. In that time, USAID performed the following (by sector):

Infrastructure

- Partnered with the international community to provide basic emergency shelter assistance to 1.5 million people.
- Provided shelter solutions—including transitional shelters (t-shelters), repairs to damaged houses, and support to host-families housing people displaced after the earthquake—to more than 320,000 people.
- Collected, recorded, and validated land tenure and occupancy status of more than 8800 plots/buildings.
- Removed 2.2 million cubic meters of rubble of the approximately 5 million cubic meters of rubble that had been removed (an estimated 10 million cubic meters of rubble was created by the earthquake).

Energy

- Began construction on a 10 MW power facility to provide electricity to the new Caracol Industrial Park.
- Began upgrading five electrical substations in Port-au-Prince that sustained damaged during the earthquake.

Economic Security

- Supported the creation of the Haiti Apparel Center (HAC), which trained more than 1900 machine operators, mechanics, and inspectors in 2012, 41 percent of whom were women.
- Provided financing valued at nearly \$10 million to a total of 46 microfinance institutions and financial cooperatives, which support underserved populations and MSMEs in several sectors including agriculture.
- Provided more than 7860 agricultural loans to farmers for coffee, mango, and cocoa production, allowing farmers to improve crop production and access markets directly.
- Leveraged private capital from financial institutions for the disbursement of 560 loans valued at \$5.1 million since the earthquake in key areas of postearthquake recovery, including agriculture and construction.
- Partnered with the Bill & Melinda Gates Foundation to launch the first mobile money campaign in Haiti, which allows Haitians to conduct person-to-person transactions with their cell phones. As of mid-2011, more than 150,000 clients had registered to use mobile money services, and a network of 750 new mobile money agents were functioning in Haiti.

Food Security

- Increased agricultural-related income of beneficiary rural households by 76 percent by rehabilitating irrigation systems, rural roads and supporting storage and processing facilities.
- Introduced improved seeds, fertilizer, and technologies to more than 9700 farmers; these have increased rice yields by 64 percent, corn yields by 338 percent, bean crops by 97 percent, and plantain outputs by 21 percent for beneficiary farmers.
- Trained more than 30,000 people in natural resource management, including soil conservation, tree nurseries, and hillside production.
- Graduated more than 700 people from a master farmers program, approximately 25 percent of whom were women.
- Increased income of 5000 cacao growers by a minimum of 25 percent through partnerships with private sector entities to train farmers in cocoa production.

- Provided mobile collection centers, sorting tables, and 6000 plastic crates for mango harvesting, increasing mango sales by three farmer associations to exporters by more than 65 percent.
- Increased economic benefits derived from sustainable natural resource management and conservation, benefitting nearly 150,000 people through ravine treatment, hillside rehabilitation, and improved technologies that have improved the quality of crop output.

Health

- Continued to support 251 sites that provide primary care and 52 that provide secondary care nationwide, to nearly 50 percent of the Haitian population.
- Provided HIV counseling and testing services for nearly 170,000 pregnant women.
- Identified and treated more than 2900 people with symptomatic tuberculosis. Immunization programs vaccinated nearly 157,000 children under age of 1 in 2011 for routine childhood diseases. Also provided more than 350,000 antenatal care visits and more than 131,000 postpartum/newborn care visits.
- Funded St. Boniface Spinal Cord Injury Center to help 24 spinal cord injury patients, 12 of whom have been successfully discharged back to their communities.

Education

- Constructed more than 600 semipermanent furnished classrooms, enabling more than 60,000 children to return to school following the earthquake.
- Provided teaching and learning kits to accommodate a double shift of students in each classroom, reaching approximately 60,000 students and 1200 teachers.
- Increased physical access in 17 primary schools for people with disabilities and provision of inclusive education training to 150 teachers and school principals.
- Trained 935 teachers on pedagogy and student evaluation.
- Trained 145 administrators and other Ministry of Education officials on administration, information system management, and training of trainers.
- Completed vocational training for youth, with 13,000 successfully transitioning to formal school, further vocational training, or other opportunities.

Governance and Rule of Law

- Completed construction of a temporary Parliament building in November 2011.
- Supported a pilot project to increase tax revenues in St. Marc, which resulted in an approximately 500 percent increase in paid taxes.
- During the most recent Presidential elections, provided technical assistance to and support for presidential debates, attended by 250 people and broadcast nationally on more than 30 radio stations; and deployed more than 7000 people to observe the elections.

Source: USAID. 2013. USAID/HAITI: Earthquake. <http://haiti.usaid.gov/issues/earthquake.php>.

Conclusion

As global populations converge into more concentrated urban settlements, their collective hazard risks amplify. Loss of life and property caused by the realization of these hazard risks will overwhelm the response and recovery capacities of individual sovereign nations to an

ever-increasing degree. Many of these disasters, particularly in the lesser-developed nations, will contribute to existing development obstacles and regional instability unless trends toward increased multilateral cooperation in disaster assistance are recognized more widely for their importance. The capabilities and organizational capacities of the international disaster management agencies listed in this chapter, namely national governments, nonprofit organizations, international organizations, and the international financial institutions, are vital for both the preparation and mitigation of hazard risks, and the response and recovery of actualized disasters.

Important Terms

- Complex humanitarian emergency
- Coordinating organization
- Developing nation
- Donor agency
- International financial institution
- International organization
- Nongovernmental organization
- Private voluntary organization
- Sovereignty

Self-Check Questions

1. What percentage of all disaster-related injuries and deaths are sustained in countries with per capita income levels below \$760 per year?
2. Why do poor nations often place disaster management so low in terms of budgetary priority?
3. When does a disaster require international involvement?
4. How are complex humanitarian emergencies different from those caused by natural or technological disasters?
5. What are the four important issues influencing the response process that are listed in this chapter? Describe each.
6. What was the goal of the International Decade for Natural Disaster Reduction?
7. How does the United Nations Development Programme contribute to international disaster management?
8. What is the purpose of the UNDP Recovery Unit?
9. What are the three main groupings of disaster response performed by UNOCHA?
10. How does UNOCHA help nations mitigate and prepare for disasters?
11. Name the various classifications of nongovernmental organizations, and describe each.
12. What are the four common characteristics shared by the NGOs?
13. How does the U.S. government provide assistance to disaster-affected nations?
14. Name one international financial institution and describe how it assists in the aftermath of an international disaster.

Out-of-Class Exercises

1. Visit the UN Consolidated Appeals Process (CAP) website at <http://www.unocha.org/cap/>. Navigate into the appropriate hyperlinks. Make a list of each emergency, and determine what percentage of the appeal has been funded. From this list, try to determine why some countries' appeals are fully funded, while others fall very far short of their request. Is this an issue of inequality in relief distribution, or is it something else?
2. Visit the Interaction website at www.interaction.org. Select a member organization from their member list, and go to that organization's website. Investigate what that organization does in response to disasters. In what countries around the world is that organization working right now? If a disaster happened in the United States, would that organization respond? Why or why not?

Emergency Management and the Terrorist Threat

What You will Learn

- How the government's hazard focus has been affected by the changing risk of terrorism
- The events of September 11, 2001, the consequences of those events, and how the government responded
- How the Department of Homeland Security was formed, its components, its role in the emergency management and counterterrorism efforts, and its accomplishments
- How the federal government funds first responders
- How the U.S. government communicates terrorist threat information to the public
- Why the 9/11 Commission was formed and what was found as a result of its investigation
- How state and local governments manage the risk of terrorism
- How Hurricane Katrina affected terrorism preparedness and response

Introduction

On September 11, 2001, the United States was hit by a terrorist attack that was so spectacular in its methods, and so devastating in terms of the loss of life and the destruction of property, that every citizen, no matter where they were at the time, felt its impacts. And for most people, this singular, yet devastating event, came to mark what, even in its earliest stages, appeared to be a major turning point in the nation's experience with terrorism. In the days, the months, and now the years that have followed, the country has witnessed the creation of entirely new government agencies that are massive in size and scale, and an expansion of functions across the federal, state, and local government levels as well, all of which are focused on preventing a similar attack from happening.

For the U.S. Congress and for the executive branch, policies and laws were launched at an almost alarming rate—almost all heavily influenced by the pressing need to address this seemingly new hazard. All of this has had a resounding impact not only on emergency management, but also on the nation's foreign policy, immigration policies and enforcement practices, counter-narcotics programs and policies, the protection of the transportation network, and even the nature of international trade agreements.

Almost without precedent, funding totaling well into the billions of dollars per year flooded into the emergency management community as a result of terrorism preparedness efforts. An expansive suite of federal grant programs was created, aimed at helping state, tribal, territorial,

and local governments counteract the singular terrorism hazard that had come to, and which still does in many ways, dominate the public agenda.

At the local level, responders in medical, law enforcement, and fire departments, emergency managers, and local elected officials, were all faced with a sudden rush to understand:

- How this new hazard impacted them as a community,
- How vulnerable their community and each of its different stakeholders were to the hazard, and
- What needed to be done to prepare for, to prevent, to respond to, and to recover from a terrorist attack.

In this manner, every American community has begun to examine itself in a new light. Communities must balance between seeing their “traditional” or “neighborly” ways as being a draw, or as making them an easy target for terrorists. Businesses, government, infrastructure, social functions, and even sporting events all began to be viewed in light of their terrorism potential and communities grappled with the magnitude of the threat situation. Many found that the sum of these threats, in comparison to their capacities to prepare for, prevent, respond to, or recovery from terrorist attacks, represented a problem few could reasonably be expected to adequately manage on their own.

In reality, the nation and its many communities have had to contend with terrorist threats, and actual terrorism, for centuries. Since America was founded almost 250 years ago, there have been thousands of legitimate terrorist threats in thousands of villages, towns, and cities. Of these, hundreds have resulted in actual terrorist attacks involving bombs, shootings, chemical and biological attacks, physical assaults, and much more. Courthouses, research facilities, abortion clinics, energy exploration firms—even auto dealerships—have all been targeted. And while in the vast majority of these events the outcome was relatively minor, a number have resulted in deaths, injuries, and destruction on a scale that overwhelmed typical response mechanisms—even if not to the levels seen on September 11th. In many ways the destruction of the World Trade Center towers and the damaging of the Pentagon was the last straw in a long line of incidents that highlighted the threat potential rather than the first event heralding a new threat category.

Terrorism as a hazard category is actually rather broad in scope, and is perpetrated by individuals and organizations with an equally broad range of types, sizes, and backgrounds. Terrorists may or may not have a tangible ideological or philosophical reason for carrying out their attacks, and they may be ‘home-grown’ or internationally based. They may be individuals acting alone, or members of organized groups running concerted terror campaigns.

Terrorists have a wide range of weapons and tactics to choose from. These include more traditional methods such as shootings, bombings, and assault-type attacks, as well as more devastating methods involving weapons of mass destructions such as chemical, biological, or radiological weapons, as described in Chapter 2. And with the connectivity of financial, infrastructure, communications, and other systems through the Internet, terrorists can cause devastating impacts without even venturing close to their targets by utilizing cyberterrorism.

For the emergency manager, terrorism is just one of many hazards that merit their attention, and likewise their resources. But terrorism is unique in regards to what the threat means to the emergency manager and how it is handled both prior to an attack and after one occurs.

Like natural and technological hazards, there are many actions that can be taken to protect the community from terrorist attacks. In each community, there is a specific hazard risk associated with terrorism represented in its likelihood of happening and the expected set of consequences that could result if an attack took place. With that information in hand, the emergency manager must look at:

- What preparedness actions the community needs to take to ensure they have the knowledge, staff, equipment, procedures, laws, and other capabilities in order to address the consequences of a very wide range of possible attack types
- What the community can do to mitigate, or in other words, to prevent a terrorist attack from happening, or to make an attack less likely to cause damages, injuries, or fatalities
- How the community should respond to actual attacks, and who is responsible for the different actions that must take place to address all of the response needs that arise
- What is going to be needed in the longer-term period of recovery after an attack has taken place, relative to rehabilitating the injured, addressing the psychological impacts that have been sustained, rebuilding damaged property including any decontamination that might be needed, and addressing any vulnerabilities that might have existed to allow the attack to happen in the first place

Terrorism differs from natural and technological disasters in a number of ways, and many emergency managers have had to change their existing plans and procedures, expand their inventories, and provide additional training to address these changes.

- *Intent*—Terrorist hazards are called ‘intentional hazards’ because their perpetrators make every effort to ensure that they are as devastating as possible. Unlike other sources of hazard, terrorists strive to evade detection, to strike without warning, to focus on changing vulnerabilities, and to do whatever it takes to cause the greatest impact.
- *Criminality*—The criminal nature of a terrorist attack adds a new dimension to the management of terrorist events in that there are additional stakeholders involved. These include the intelligence community, whose members identify and track terrorists; the security community, whose members work to deter terrorists or stop their attacks; and the law enforcement and investigations communities, whose members identify those responsible for the attack and to bring them to justice.
- *Laws guiding terrorism prevention and response*—Despite that all hazards present a risk to national security, lawmakers often make special concession for the terrorist threat in large part due to its intent and the emotional aspects that accompany that factor. Terrorism therefore has its own authorities, its own requirements of the emergency management communities, and differences in the command, control, and coordination structures that are employed.

There are of course many other differences, such as the methods of cleanup and decontamination required when weapons of mass destruction are used, the recognition and notification systems that are required for chemical and biological attacks, the impacts related to mere threats of an event, and more. Many parallels could easily be equated to other hazard types in these regards. For instance, whether a railcar containing phosgene is breached in an accident or a deliberate attack, there will be a need to contain the leak, protect those in the immediate area, and treat those who have been affected. Regardless of the cause of the event, without the right knowledge about what must be done and how to do it, and the right protective gear and procedures that are put in place, managing terrorism will be all but impossible even for those communities that are otherwise highly prepared for every other form of disaster.

Changes in Emergency Management and the War on Terrorism

Emergency management is a risk-based discipline, and the dedication of funding, equipment, staff efforts, and other factors should be made according to the outcome of scientific risk analysis as described in previous chapters of this book. However, emergency management policy and strategy is, to an increasing degree, dictated by the policy agenda of government administrations, which are more closely aligned to public opinion than any scientific assessment. It is therefore incumbent upon emergency managers to apply a level of attention to preparing for the next bombing or biochemical event that may be disproportionate to that of preparing for the next hurricane or flood or tornado, as such decisions are dictated by grant requirements, regulations, and other legal and statutory provisions.

The focus of emergency management in the war on terrorism can have many crossover benefits into natural and technological hazards management, as many of the actions taken bring about a net reduction in risk for our first responders, the public, the business community, the economy, and our way of life. Initiatives such as interoperable communications, credentialing, standardization of incident management protocols, and others that were created in the aftermath of 9/11 to manage the terrorist threat all have extensive dual-use applications at all government levels.

The war on terrorism brought about the most fundamental change in nationwide emergency management capacity since the creation of FEMA due to the unprecedented funding resources that have been made available to the state and local emergency management communities, even if those funds are beginning to disappear on account of ongoing budget problems. The federal government recognized the vital role that state and local first responders played in responding to the September 11 events, but it also recognized that most agencies do not have the capacity to handle the growing terrorist threat. The vast sums of money that have been provided by the federal government to first responders have been used for the purchase of equipment and training, to conduct planning and exercises, and for the development of new technologies. Funding for FEMA remains at increased levels, as does the amount of funds FEMA delivers to state and local emergency management organizations, especially

when compared to pre-911 figures. Prior to 2001, FEMA distributed approximately \$175 million annually to its state and local emergency management partners. Since the September 11 attacks, the amount of money granted to these agencies has been measured in the billions of dollars each year. New federal funding sources also have opened up for emergency managers from the Department of Defense, the Department of Justice, and the Department of Health and Human Resources to fund contingency plans, technology assessment and development, and bioterror equipment and training. These changes in funding for emergency management have been felt most significantly at the state and local levels.

The creation of the Department of Homeland Security (DHS) represented a landmark change for the federal community, especially for emergency management. The consolidation of all federal agencies involved in fighting the war on terrorism follows the same logic that first established FEMA in 1979. At that time, then-President Carter, at the request and suggestion of the nation's governors, consolidated all the federal agencies and programs involved in federal disaster relief, preparedness, and mitigation into one single federal agency, FEMA, which had a director that reported directly to the president. However, now that FEMA is a component of DHS, the FEMA director no longer reports directly to the president but rather to the DHS secretary. The impact of this change was not fully understood until Hurricane Katrina exposed the negative implications of mission conflicts. This was the first post-9/11 emergency where there was a need for a strong voice leading emergency management, and that voice did not exist.

Following the 2005 hurricane season, Congress addressed leadership and capacity shortfalls through the Post-Katrina Emergency Management Reform Act of 2006 (PKEMRA) legislation, which again reorganized federal emergency management structures in a way that was closer aligned to the function of the agency as a leader in emergency management rather than as a component of security enforcement. These changes have continued to evolve, though it is still unclear what, if any, impact the 2013 Boston Marathon bombings will have. Either way, now that the move has been made, it is highly unlikely that FEMA will soon be independent from the terror- and security-focused DHS.

The Terrorist Threat

Terrorism is a global problem. From 1969 to 2009, over 38,000 terrorist attacks were reported worldwide. Three thousand, or 8 percent of these, targeted Americans or American interests both inside the United States and overseas, leading to the deaths of almost 5600 people and injuries to over 16,000 more. The economic damage they caused is not as easily calculated, but reaches into the billions of dollars in direct impacts and indirectly into the trillions of dollars.

Terrorism as a hazard has existed for centuries, and most people are in fact aware of what it is and what is generally possible when a terrorist carries out an attack. But there is nonetheless a persistent need among the emergency management and emergency services communities to understand this hazard's complex and the dynamic nature. Without such knowledge, it will be difficult to reduce the community's vulnerabilities to attack, to ensure first response agencies are capable of meeting response requirements in the event of an attack (including protecting themselves and victims from WMDs), or to recover from attacks that do occur.

Terrorism is something for which there are a great many differing definitions because of its historical significance, its political implications, and its great media salience. One must take a broad view, considering much more than our contemporary history, to appreciate the cause of this variance. If we look back through history and consider the collective experience with terrorism and the actions of those considered to be terrorists, we must do so within a definitive standard by which we measure those events and actions. Such distinctions will impact whether or not they are deemed to be terrorism, crime, or something else entirely. The phrase that “one man’s terrorist is another’s freedom fighter” epitomizes this concept.

Many scholars consider the earliest recorded examples of organized terrorism to be an antigovernment campaign launched by the Sicarii in the 1st century BC. The Sicarii were a fanatical religious group that used stabbings and other violent attacks against supporters of the Romans in a successful attempt to influence the Romans to leave or to be expelled from Jerusalem.

Terrorism, as a tactic, has always existed in the United States. There is an ongoing, and somewhat contentious debate, about whether or not the infamous Boston Tea Party, which is hailed as one of the instigating events in the American Revolution, is actually an historical act of terrorism. In this event, 18th century American colonists that opposed the trade policies of the central government destroyed private sector goods in an effort to influence public and political agendas.

Throughout the two centuries that followed the birth of the nation, both government and citizens alike have endured a mix of both domestic and international terrorism. While these attacks have been predominantly domestic in nature, those with international aspects have received the greatest attention given that the mechanisms by which attacks are prevented, and the actions taken in their aftermath to seek justice for the attackers are more significant.

DOMESTIC AND INTERNATIONAL TERRORISM

The FBI defines domestic terrorism as “The unlawful use, or threatened use, of force or violence by a group of individuals based and operated entirely within the United States or Puerto Rico without foreign direction committed against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof in furtherance of political or social objectives.”

The United States Legal Code defines domestic terrorism to be, “activities that:

- Involve acts dangerous to human life that are a violation of the criminal laws of the United States or of any State;
- Appear to be intended, either:
 - To intimidate or coerce a civilian population;
 - To influence the policy of a government by intimidation or coercion; or
 - To affect the conduct of a government by mass destruction, assassination, or kidnapping; and
- Occur primarily within the territorial jurisdiction of the United States.”

International terrorism, by contrast,

- “Involves violent acts or acts dangerous to human life that are a violation of the criminal laws of the United States or of any State, or that would be a criminal violation if committed within the jurisdiction of the United States or of any State;
- Appear to be intended either:
 - To intimidate or coerce a civilian population;
 - To influence the policy of a government by intimidation or coercion; or
 - To affect the conduct of a government by mass destruction, assassination, or kidnapping; and
- Occur primarily outside the territorial jurisdiction of the United States, or transcend national boundaries in terms of the means by which they are accomplished, the persons they appear intended to intimidate or coerce, or the locale in which their perpetrators operate or seek asylum.”

Domestic terrorists in the United States have used all forms of violence, including shootings, bombings, physical attacks and beatings, arson, lynching, vandalism and property destruction, as well as threats of all of these methods and others, all in their efforts to intimidate or influence public opinion and action on a particular issue they find important. A few examples of these many groups that have been accused of or labeled as terrorist organizations in the United States, and the nature of their efforts, include:

- *The Ku Klux Klan (KKK)*—The KKK is a white supremacist organization that has used lynching, public rallies, intimidation tactics such as cross burnings and assaults at voting booths, in order to spread the organization’s ideology and to influence the political processes
- *Anarchists*—Anarchists have been tied to terrorist attacks as far back as 1886. That year, a bomb was detonated by anarchists in Haymarket Square in Chicago during a labor rally. They successfully attacked again in 1901, when an anarchist assassinated President McKinley. Anarchists were also suspected of a 1917 bombing of a Milwaukee police station that killed ten people, several mail bomb attacks in 1919, and the 1920 bombing of Wall Street that killed 38 people and injured over 140 more.
- *Unions*—Labor unions have used terrorism to influence public opinion. Several labor union members have staged attacks to gain support for workers’ rights, and these incidents have caused significant injuries, deaths, and destruction. In 1910, the McNamara brothers blew up the LA Times building in Los Angeles, killing 21 people, to protest the obstruction of unionization in the company. Union leaders were also suspected of detonating a bomb in San Francisco in 1916 that killed 10 people and injured 40 more.

Other groups that have been labeled as terrorists on account of their suspected or actual violent and/or destructive actions include:

- The Black Panthers
- Weather Underground

- The Army of God
- Earth Liberation Front
- Animal Liberation Front
- Aryan Nations
- The Boricua Popular Army
- The Jewish Defense League
- The Symbionese Liberation Army

And of course, there have been a great number of single or 'lone-wolf' terrorists that have carried out attacks for purposes of personal gain, personal ideology, and even for reasons that have no rational explanation. Some of these lone-wolf terrorists have caused incredible levels of fear and have required significant resources to track down and stop them. Some of the most notorious lone-wolf terrorists include:

- George Matesky, otherwise known as the Sunday Bomber, who terrorized New York City from 1940 to 1956 with a series of bombings after being injured at his job at an electrical plant and feeling he had not received the compensation he deserved.
- Radical leftists Sam Melville and Jane Alpert bombed a number of different federal and state buildings in New York in 1969, injuring 20 people and causing significant damages.
- Muharem Kurbegovich, known as the "Alphabet Bomber," who unleashed a terror campaign in Los Angeles in 1974 in an attempt to abolish laws related to immigration and naturalization, including the bombing of Los Angeles International Airport, firebombing houses and cars, burning down two apartment buildings, attempting to bomb a bus station, and threatening to use poisonous gas against the entire city.
- Ted Kaczynski, also known as the Unabomber, who carried out a nationwide series of planted and mailed bombs between 1978 and 1995 to protest modern technology and innovation.
- Timothy McVeigh and Terry Nichols, who sought revenge against what they saw as government tyranny in the Waco, Texas siege of the Branch Davidians and the incident at Ruby Ridge, detonated a truck bomb in front of the Alfred P. Murrah Federal Building in Oklahoma City in 1995. This event remains the most devastating single act of domestic terrorism in U.S. history ([Figure 9-1](#)).

Terrorism, and terrorist weapons, exist because there are terrorists and terror organizations that need them. To the emergency manager and the first responder, the fact that there are terrorists and that are motivated by some ideology or prospect of personal gain is of less concern than the methods through which they hope to achieve their stated or unknown intent. In other words, the first responder cares more about what a terrorist's bomb might do, than why the bomb was made or why it was detonated.

However, there is a reason for the emergency manager to understand the terrorists and their intent, as the nature of the attack and of the weapon of choice can differ depending on who placed it. Knowing who the terrorists' target is, and what their hope is in terms of causing terror, does help to establish what level of danger is faced by the responders themselves and



FIGURE 9-1 Oklahoma City, Oklahoma, April 26, 1995—A scene of the devastated Murrah Building following the Oklahoma City bombing. *FEMA News Photo.*

the victims and civilians they are trying to protect. For instance, there have been many cases where terrorists have placed a small explosive device presumably to lure first responders in, then detonating a second, much larger device in hopes of targeting the responders for a greater terror-inducing effect.

This was the case in an attack on an abortion clinic in Atlanta in 1997. In his attack on the Sandy Springs Professional Building, which contained a family planning clinic, lone-wolf terrorist Eric Rudolph placed two bombs that were timed to detonate an hour apart from each other. The first bomb caused attention but did not do very much damage. The second bomb was much bigger and injured seven responders. It would have done a lot more damage but someone had inadvertently parked their car directly in front of the bomb which absorbed most of the blast.

Terrorists and terrorist organizations are typically grouped according to their motivating factors, namely, the ends to which they believe terrorism is a viable means. The Council on Foreign Relations, a nonprofit think tank that specializes in international affairs, groups terrorists into seven categories.

- **Nationalist Terrorism**—Nationalists are people that wish to separate from the government in the hopes of forming an independent state of their own. Because these terrorists use attacks to draw attention and sympathy to their cause, they tend to target the government

they see as oppressive rather than general civilian targets. Their actions generally try to achieve low levels of violence so that the international community do not see them as barbaric or dangerous, but they understand that a certain level of violence or threats of violence are typically required to get the media attention they need. Examples of nationalist terrorists include the Irish Republican Army (IRA) and the Palestinian Liberation Organization (PLO).

- **Religious Terrorism**—Religious terrorist groups use terrorism as a means to carry out what they envision to be a holy mission. This type of terrorism is especially dangerous because it is rarely constrained by national boundaries and it often operates outside of any normal legal or civil systems. Bruce Hoffman of Georgetown University characterizes modern religious terrorism as having three traits: (1) the perpetrators must use religious scriptures to justify or explain their violent acts or to gain recruits; (2) clerical figures must be involved in leadership roles; and (3) perpetrators use apocalyptic images of destruction to justify the acts. Religious terrorists are often known for using suicide attacks under the promise of martyrdom. This in turn increases the danger associated with this type of attack because the perpetrator does not care about getting caught and is more likely to be brazen in their actions. Examples of religious terrorist organizations include al Qaeda, Aum (“Omu” Shinrikyo), the Army of God, Hamas, and Hezbollah.
- **State sponsored terrorism**—State-sponsored terrorist groups often do the ‘dirty work’ of a sovereign nation, working covertly in the role of mercenary. Their actions serve to inflict harm to enemy nations or to instigate conflict. These groups can be highly effective in their attacks and can use highly technical weapons and tactics because they have access to the higher levels of funding required to carry out such attacks. Some people have claimed that the United States support of the Afghan Mujahadeen, to which Al Qaeda traces many of its roots, is an example of state-sponsored terrorism, but this is of course greatly disputed. The Libyan involvement in the bombing of Pan Am flight 103, which killed 259 people, is a clear-cut example of state-sponsored terrorism. Iran’s support of anti-U.S. and anti-Sunni militias in Iraq is another example. Other countries accused of sponsoring terrorism include the Sudan, Afghanistan, Pakistan, and Qatar.
- **Left-Wing Terrorism**—Left-wing terrorist groups are those that try to reduce the influence of capitalism in favor of communist or socialist ideologies and frameworks. These groups generally try to avoid significant civilian casualties in favor of destroying what they see to be symbols of capitalism. Left-wing terrorist groups have a long history of operating in the United States, and many of the terrorist attacks that took place in the early 19th century were attributed to left-wing terrorists. Examples include the FARC in Colombia, the Shining Path in Peru, Red Brigade in Italy, and the Japanese Red Army.
- **Right-Wing Terrorism**—Right wing terrorist groups are those that use terrorism to try to establish a fascist state. These groups carry out attacks to intimidate or to remove liberal, democratic elements from their government or from society. Right wing groups often have a weaker organizational structure than what is seen with leftist groups, and they rarely garner support outside of their core group. Many of the right-wing terrorist groups are also characterized by racist tendencies, and a hatred of immigrants and those they perceive to

be outsiders, and include the neo-Nazis, Skinheads, and the Aryan Nations. A recent attack by a right-wing terrorist that received a significant amount of international press as a result of its devastating consequences was the bombing and shooting assault by Anders Behring Breivik in Norway. This attack, which took place on July 22, 2011, began with a car bomb that killed 8 and wounded over 200, and was followed with an attack on a summer camp just 2 hours later that killed 69 and wounded 110 more.

- **Anarchist Terrorism**—Anarchist terrorist groups are known to attack any organized government structure in hopes of causing destabilization—whether of the country they are in or of the global political framework. Although anarchist groups have only posed a relatively minor threat since their presence began to decline in the early 20th century, the surge in antiglobalization movements has brought about a resurgence in the anarchist movement—and their impacts are regularly shown in the media. Anarchists have caused significant damage in U.S. cities to correspond with meetings of the United Nations, the World Bank, and other international organizations. Anarchist vandalism in Seattle during the 1999 World Trade Organization Ministerial Conference, or N30, led to what is now known as the “battle of Seattle” wherein anarchist individuals acting within a general protest involving upwards of 40,000 people, began smashing the storefronts and vandalizing the interior of several symbols of capitalism including McDonalds, Gap, Bank of America, and Nike.
- **Single-Interest Terrorism**—This category of terrorists is having an increased impact in the United States and throughout the world. Single-interest terrorists are individuals or groups that try to bring attention to a nonpolitical, nonreligious issue they believe needs to be addressed by attacking who they see to be perpetrators or organizers of the activity they oppose. Examples of single-interest terrorists include environmental, animal rights, agrarian rights, and anti-abortion groups, though some would consider the anti-abortion groups to be religious terrorists if their agenda includes other religiously motivated issues like anti-gay actions. Single-interest terrorists have been known to attack research facilities that use animals, especially those that use primates, in pharmaceutical or product research. The UCLA Primate Research Project, for instance, attempted to burn down the houses of a number of researchers and continues to publicize the names and addresses of researchers presumably to incite actions against them. The Earth Liberation Front is an environmental terrorist group operating in a number of countries worldwide that has conducted a campaign of arson, vandalism, and sabotaging of utility services, to tout their messages and intimidate the individuals and groups they see as promoting poor environmental practices. Many of the maniacal lone-wolf terrorists are also single-interest terrorists. Ted Kaczynski, the infamous Unabomber, was a single-interest terrorist that was against technology and modernization that killed 3 people and injured 23 more by sending bombs through the mail.

Terrorism has traditionally been treated as a criminal act, whether it was carried out by organizations or individuals, throughout the history of the United States. Likewise, terrorism was investigated and prosecuted using the same criminal justice resources, authorities, and frameworks. A major shift in this manner of operations began in 1993 when the World Trade Center was attacked by Ramzi Yusef, a radical Islamist and al Qaeda member.

RAMZI YOUSEF

Ramzi Yousef is the terrorist convicted of the 1993 World Trade Center bombing. Yousef was born in Kuwait to Pakistani parents. His parents' background is notable in that his mother is believed to be the sister of Khalid Sheikh Mohammed, the mastermind behind the September 11th attacks. Yousef was western-educated and trained, and earned an electrical engineering degree from the Swansea Institute in Wales as well as a degree at the Oxford College of Further Education. He was trained in bomb-making skills at a terrorist training camp in Pakistan in the early 1990s.

In 1992 Yousef moved to the United States, using an Iraqi passport. He entered at the same time as a companion who purposely carried poorly falsified documents in order to draw the attention away from Yousef and was detained by the Immigration and Nationalization Service for 3 days, where he eventually requested asylum and was released. He used a fake name and was issued a legitimate Pakistani passport by the Government of Pakistan through their Consulate in New York.

With help from two other people, Yousef assembled a nitrate fuel oil bomb weighing 1500 pounds, using materials that were easy to get at the time. These included urea, nitric acid, compressed hydrogen, and nitroglycerin. The bomb was loaded into a Ryder rental van on February 26, 1993, and the van was driven into the parking garage below the North Tower.

Yousef's intent was to cause the North Tower to become weakened by the blast, and then collapse into the South Tower killing thousands of people in the process. The bomb detonated and did cause significant damage to six floors, and it started a fire. Six people were killed, and over 1000 were injured, but the towers withstood the impact of the massive bomb. Yousef quickly fled the country after the attack, but before doing so he sent a letter to the *New York Times* claiming credit for the attack (and stating that it was done in response to American policies that were supportive of Israel). He was added by the FBI to the top ten list of most wanted fugitives, and was finally caught and arrested in Pakistan two and a half years later following a tip-off.

Terrorist Actions

The Bombing of the Alfred P. Murrah Federal Building

The next watershed terrorism event, and to date the most deadly and destructive act of domestic terrorism, was the bombing of the Alfred P. Murrah Federal Building in Oklahoma City. This attack was carried out by two former U.S. Army soldiers, Timothy McVeigh and Terry Nichols. McVeigh and Nichols felt that the U.S. Government had overstepped its bounds with regards to gun control, and in its handling of the Ruby Ridge, Idaho and Waco, Texas standoffs. McVeigh visited the Waco Branch Davidian complex during its siege and vowed afterwards to bomb a federal building in retaliation.

McVeigh and Nichols traveled the country scoping out buildings for one that they thought would impact many federal agencies but spare nonfederal citizens. They chose the Murrah building because there were 14 federal agencies with offices in the building and because there were few buildings close by that they believed would be directly impacted by their bomb. The pair purchased or stole all of the materials to build the bomb, which cost them only about

\$5000 including the cost of the truck rental. They assembled the 5000 pounds of bomb materials in the back of the truck in Kansas on April 17 and 18, 1995, and drove to Oklahoma City on the morning of the 19th. McVeigh parked the truck under the drop-off for the Murrah Federal Building's daycare center after lighting two fuses set up for the bomb, and walked away towards a getaway vehicle driven by Nichols.

The bomb caused a partial collapse of the building and sent a shockwave through the city that destroyed or damaged 324 buildings in a 16 block radius. The explosion could be heard 55 miles away and glass was shattered in an additional 258 buildings. Damages totaled \$650 million, and hundreds of people were left homeless. More importantly, 168 people died, many of whom were children in the building's daycare center, and almost 700 people were injured.

By a stroke of luck, McVeigh was arrested within 90 minutes of the bombing for driving without a license plate on his vehicle and then for carrying a concealed weapon. Investigation into fragments from the truck found at the blast-site quickly implicated McVeigh, who was still in custody. He and Nichols were both found guilty, and while McVeigh was sentenced to death and subsequently executed, Nichols was given a life sentence without the possibility of parole.

The Khobar Towers Bombing

The next four major terrorist attacks involving U.S. interests happened overseas, the first of which was on June 25th, 1996. This attack represented an escalation of engagement by Islamic Anti-American terrorist groups that were and continue to be dedicated to forcing the United States to disengage from the Middle East and Middle-Eastern regional politics.

To carry out this attack, militants filled a sewage tanker truck with about 5000 pounds of plastic explosives, which is equivalent to approximately 20,000 pounds of TNT. They drove the truck as close to a U.S. Marine barracks building located at the U.S. Central Command in Riyadh as they could, and blew it up. Their hope was that the event would turn U.S. public opinion against U.S. involvement in the Middle East. This bomb was truly massive in its power, and remains the largest terrorist bomb ever used against the United States.

A U.S. military guard onsite recognized that a bombing was imminent and began evacuations immediately, but the force of the bomb was so great that it tore off the front of the building and killed 19 people. His actions did reduce the number killed by quite a bit, however, because most of the people were in the stairwells when the bomb went off and the stairways withstood the blast.

Kenya and Tanzania Embassy Bombings

Two years later, on August 7, 1998, Islamic militants again attacked the United States using coordinated bombings against U.S. diplomatic missions overseas. It was this set of attacks that placed Osama Bin Laden and Ayman al-Zawahiri on the forefront of U.S. counterterrorism efforts, and which finally got Bin Laden on the FBI list of most wanted fugitives.

The attacks were carried out using small trucks, each carrying about 2000 pounds of explosives. The trucks were parked as close as possible to the two embassies on the morning

of August 7th, which is a date that coincided with the anniversary of the arrival of the United States military in Saudi Arabia.

In both events, the majority of victims were local African citizens, but 12 Americans were also killed. In Nairobi, a nearby building sustained the most damage, and a majority the victims were located there. Many of them had heard gunshots right before the explosion and rushed to the window only to be blinded by glass as it shattered from the bomb's shock wave. There were fewer casualties in Dar es Salaam simply because the U.S. embassy was not located in the center of the city and there were fewer buildings in the immediate area.

USS Cole Bombing

Just over 2 years after the embassy bombings in Kenya and Tanzania, the U.S. Navy destroyer *USS Cole* was attacked in Yemen while refueling in the Port of Aden. This was again an attack planned and carried out by al Qaeda. The attack was performed by loading a small boat with about 500 pounds of explosives and steering it right next to the *Cole*. The ship was prohibited by the prevailing rules of engagement from firing on the small craft. The operator detonated the bomb in a suicide attack, causing a large 40-foot hole that tore into the ship's galley. The attack killed 17 sailors and injured 39 more. Osama bin Laden was again implicated in the attack, and he later boasted about it on camera thus strengthening these suspicions.

As for whether the attack was terrorism can be debated, and many have stated that it is not, because it targeted a military vessel and all of those killed were uniformed military. But what is important about this event is that, like the U.S. embassy bombings in Kenya and Tanzania, it had a significant influence on the nature of counterterrorism actions and policies that were underway in the United States, and the nature of the U.S. response to each of the events played heavily into the planning and carrying out of the September 11th attacks.

The September 11th Attacks in New York, Virginia, and Pennsylvania

Perhaps the most extensively planned, and most devastating terrorist attack of all time took place on September 11, 2001. This coordinated event has changed the course of history in ways that the planners likely never imagined. Two wars were started as a result of the event in which the United States is still engaged to some degree 12 years later, and many aspects of the American way of life have changed as well.

For emergency management, the impacts and implications brought about by this event have been extraordinary. The very concept of the emergency management profession is much different today, and the frameworks and organizational structures according to which governments at all levels prepare for, mitigate, respond to, and recover from disasters, whether they are natural, man-made, or terrorism-based, have also changed beyond what could ever have been anticipated. Hundreds of billions of dollars have been spent on the recovery from the initial event, and the preparedness and organizational actions to prevent future attacks or prepare for their management should they occur. Add in the costs related to the wars fought as a result, and the cost reaches into the trillions of dollars.

COSTS ASSOCIATED WITH FEDERAL/STATE DISASTER ASSISTANCE FOLLOWING 9/11 IN NEW YORK CITY

The cost to the federal government for the response and recovery of the World Trade Center bombing was formally estimated to be \$20 billion, though the exact number will never be known due to the complex ways in which the nation's economy, infrastructure, and social fabric was impacted by these events. FEMA provided 42 percent of this federal share with \$8.818 billion in aid. HUD gave the second largest amount, \$2.48 billion, or 17 percent, while DOT ranked third at \$2.37 billion (11.5 percent). All other federal agencies contributed a total of \$820 million, which amounted to 4 percent of the total federal share. Also included in the federal figures of aid are the tax benefits associated with the New York City Liberty Zone, an area of the city where new tax incentives have resulted in over \$5 billion in indirect economic aid to the city and its residents.

Since September 2001, the indirect costs associated with securing the nation from future acts of terrorism have eclipsed this \$20 billion figure, and include the costs associated with creation of the Department of Homeland Security, government control of airport security, overtime of police and fire department staff, increased security at special events and at critical facilities, preparedness grants for equipment and training provided to state and local governments, technology research, and port security, among many others. Include the cost of the wars in Iraq and Afghanistan—considered preemptive action to mitigate the risk of an attack on domestic soil—and the costs of these combined measures across the 9 years since the terrorist attacks, the cost reaches above \$1 trillion.

Investigations discovered that the September 11th terrorist attacks required years of planning, a relatively large group of conspirators, and a more significant amount of money than had been spent on previous attacks. Khalid Sheikh Mohammed conceived of the idea for the attacks around 1996, and eventually received permission to begin operational planning from Osama bin Laden in 1998. A small group of five or so planners recruited volunteers to carry out the attack and focused on getting them entry into the United States. The attackers were selected for a range of skills, including their ability to blend in in America, their ability to excel in flight lessons, and their strength. The attackers themselves were given limited information, and it is even believed that some of the hijackers did not know their mission was suicidal until they were in the midst of the attack.

On the morning of September 11th, three teams of five hijackers, and one team of four, boarded four different airplanes in Boston, New York, and Virginia. Shortly into each flight, the teams overpowered the flight crew and took control of the airplanes. Each plane was steered towards a predetermined target, though only three would eventually reach that target. One plane was crashed into each of the North and South towers of the World Trade Center in New York City (Figure 9-2), one plane was crashed into the Pentagon building in Virginia, and the fourth crashed into a field in Shanksville, Pennsylvania (likely after the hijackers were overpowered by passengers who realized what was happening.)

The use of fuel-filled planes caused catastrophic fires in all three buildings impacted, and this led to collapse of both World Trade Center towers and the wing of the Pentagon directly affected. Because the towers burned for approximately an hour before collapsing, hundreds of



FIGURE 9-2 New York City, New York, September 25, 2001—Fragments of the World Trade Center facade are all that remain of the 110-story structures that once dominated the skyline of lower Manhattan. *Photo by Mike Rieger/FEMA News Photo.*

firefighters from throughout the region had ample time to respond and were thus among those killed. In total the attacks caused:

- 2974 deaths, not counting the 19 terrorists. All but 50 of these were civilian deaths
- 343 firefighters and 75 police officers were killed at the World Trade Center
- 2337 people were injured
- Most of those killed were in New York, though 125 people were killed and 76 were injured at the Pentagon
- In total, 246 people on the airplanes, including the crewmembers, were killed

The attacks also caused catastrophic financial impacts, both as a direct result of the businesses and industries located in and around the World Trade Center, the national and global impacts related to a slowdown in business and tourism travel, increased expenses related to new shipping rules and regulations, and the costs associated with the military engagements in Iraq and Afghanistan that followed. There were 430 companies that operated in the World Trade Center, and on an average day, there were 50,000 employees and about 140,000 visitors to the complex. In addition, the subway stations under and near the World Trade Center were destroyed. For a time, there was even fear that the impact to the foundation of the towers themselves might result in the flooding of the entire south portion of Manhattan.

Response to the attacks was unprecedented, both in terms of the search and rescue operation required (which included the recovery of about 19,500 body parts over about 230 days), the effort to identify victims, the debris removal and cleanup operation from such a dense urban environment, and the nature of the disaster area as a crime scene and point of national and international attention and concern.

Interestingly, it was the 1993 bombing of the World Trade Center that was credited with reducing the number of casualties. It was after that attack that the buildings were retrofitted to allow for faster and more efficient evacuation, which included adding an additional stairway to each tower, and the widening of the existing stairways. Also, the tower management performed regular evacuation drills, so most of the people who worked there knew what to do. In the end, the vast majority—a full 90 percent of those who died in the towers—were above the points of impact where evacuation became impossible in most cases.

In addition to the local responders, federal, state, and nongovernmental groups (e.g., the Red Cross and Salvation Army) were on the scene in a matter of hours establishing relief centers and trying to meet the needs of victims and first responders. The scope of relief efforts that were ultimately provided in New York, for an event that had, relatively speaking, such a small geographic footprint, were unprecedented, and included:

- 55,494 individual victim cases
- 240,417 mental health contacts
- 133,035 health services contacts
- 60 shelters opened, with a population reaching over 3500
- 101 mass care points of distribution opened
- Over 14 million meals served

There were almost 60,000 disaster workers that responded to the incident before it was over. The number of responders killed in this attack deserves special mention. On a typical year, approximately 85 to 110 firefighters die in the line of duty nationwide. In this single event, 343 firefighters were killed, more than would be expected over the course of a 3-year in all events in all communities in the country. Seventy five police officers were also killed, which also represented a record for a single event by a long stretch. These deaths led to a much greater focus on responder safety and security in all disaster events, whether terrorist-related or otherwise, and government funding to support them in their efforts increased dramatically. This tremendous loss of life also resulted in a full reexamination of the protocols and the procedures that first responders generally followed when responding to events involving terrorism and/or great personal risk.

Ultimately, the September 11th attacks resulted in an economic impact to New York City estimated to be between \$83 and \$95 billion dollars. This includes \$22 billion in structures, \$9 billion in the future earnings of the people that died, and between \$53 and \$64 billion in local commerce and revenue. The economic impact of the attacks was felt throughout the United States and the world, causing jobs to be lost and businesses to fail in communities hundreds and thousands of miles from Ground Zero. It was estimated that around 1.8 million jobs were lost as a result of the attack, 100,000 of which were in lower Manhattan and 237,000 of which were in the travel industry.

The costs incurred by the federal government in responding to the attacks, which included emergency assistance, assistance to victims, businesses, and NGOs, debris clearance, and much more, totaled around \$12 billion (Figure 9-3).



FIGURE 9-3 New York City, New York, October 13, 2001—A month later, New York firefighters were still at work putting out fires at the site of the World Trade Center. *Photo by Andrea Booher/FEMA News Photo.*

POST-9/11 FIRST RESPONDER VALUATION

In the summer of 2002, two September 11-related after-action reports were released: “Improving NYPD Emergency Preparedness and Response,” which was prepared by McKinsey & Company for the New York City Police Department, and “Arlington County After-Action Report on the Response to the September 11 Terrorist Attack on the Pentagon,” which was prepared for Arlington County, Virginia, by Titan Systems Corporation. Both reports are based on hundreds of interviews with event participants and reviews of organizational plans. They have served to provide many lessons and recommendations through which change in the emergency discipline has emerged.

The NYPD report (McKinsey & Company, 2002) did not pass judgment on the success or failure of the NYPD on September 11 but rather assessed the NYPD’s response objectives and instruments in order to identify 20 improvement opportunities for the NYPD, of which 6 merited immediate action:

- Clearer delineation of roles and responsibilities of organizational leaders
- Better clarity in the chain of command
- Radio communications protocols and procedures that optimize information flow
- More effective mobilization of response staff
- More efficient provisioning and distribution of emergency and donated equipment
- A comprehensive disaster response plan with a significant counterterrorism component

The “Arlington County After-Action Report” did declare the response by the county and others to the Pentagon terrorist attack a success that “can be attributed to the efforts of ordinary men and women performing in extraordinary fashion” (Titan Systems Corporation, 2002). The terrorist attack on the Pentagon provided an extreme test of the plans and skills of responders from Arlington County, Virginia; the federal government; and other jurisdictions and organizations that responded. Select notable facts about the response to the September 11 attack at the Pentagon, as compiled in the report, include the following:

- The first Arlington County emergency response unit arrived at the crash site less than 3 minutes after impact.
- More than 30 urban search and rescue teams, police departments, fire departments, and federal agencies assisted Arlington’s police and fire in the rescue. Some of these important partners included the FBI, FEMA, U.S. Park Police, the Defense Protective Service, the Military District of Washington, the Metropolitan Washington Airport Authority, the Virginia Department of Emergency Management, and USAR teams from Albuquerque, New Mexico; Fairfax County, Virginia; Montgomery County, Maryland; and Memphis, Tennessee.
- Captain Dennis Gilroy and the team on Foam Unit 161 from the Fort Meyer Fire Station were on-site at the Pentagon when Flight 77 crashed into the building. Firefighters Mark Skipper and Alan Wallace, who were next to the unit, received burns and lacerations but immediately began helping Pentagon employees who were trying to escape through first-floor windows.
- Captain Steve McCoy and the crew of Engine 101 were on their way to fire staff training in Crystal City when they saw the plane fly low overhead and an explosion from the vicinity of the Pentagon. McCoy was the first person to call Arlington County’s Emergency Communications Center to report the plane crash.
- The Arlington County American Red Cross chapter coordinated support from the Red Cross. The chapter had 80 trained volunteers at the time of the attack, but the organization’s mutual-aid arrangements with other chapters garnered nearly 1500 volunteers who helped support the emergency services personnel, victims, and their families.
- Business supporters set up temporary food service in the Pentagon parking lot for rescue workers. Over 187,940 meals were served to emergency workers. Many other businesses brought phones for rescuers to call home, building materials, and other vital necessities.
- More than 112 surgeries on 9 burn victims were performed in 3 weeks. One of the burn victims died after having over 60 percent of her body burned. There were 106 patients that reported to area hospitals with various injuries.

The “Arlington County After-Action Report” contains 235 recommendations and lessons learned, each of which must be understood within the context and setting of the Pentagon response. Some specifically apply to a particular response element or activity. Others address over-arching issues that apply to Arlington County and other jurisdictions throughout the country, particularly those in large metropolitan areas. These recommendations are not weighted or prioritized since their intent was to leave such decisions up to the operational staff drawing lessons from the report. What is interesting about these recommendations is that while they were developed in response to a terrorist attack, they are fully transferable into the all-hazards context. These are some of their recommendations:

1. **The Incident Command System (ICS) and Unified Command.** The primary response participants understood the ICS, implemented it effectively, and complied with its provisions.

The Arlington County Fire Department (ACFD), an experienced ICS practitioner, established its command presence literally within minutes of the attack. Other supporting jurisdictions and agencies, with few exceptions, operated seamlessly within the ICS framework. For those organizations and individuals unfamiliar with the ICS and Unified Command, particularly the military, which has its own clearly defined command and control mechanisms, the Incident Commander provided explicit information and guidance early during the response and elicited their full cooperation.

2. **Mutual Aid and Outside Support.** The management and integration of mutual-aid assets and the coordination and cooperation of agencies at all government echelons, volunteer organizations, and private businesses were outstanding. Public safety organizations and chief administrative officers (CAOs) of nearby jurisdictions lent their support to Arlington County. The response to the Pentagon attack revealed the total scope and magnitude of support available throughout the Washington metropolitan area and across the nation.
3. **Arlington County Comprehensive Emergency Management Plan (CEMP).** The CEMP proved to be what its title implies. It was well thought out, properly maintained, frequently practiced, and effectively implemented. Government leaders were able to quickly marshal the substantial resources of Arlington County in support of the first responders, without interfering with tactical operations. County board members worked with their counterparts in neighboring jurisdictions and elected federal and state officials to ensure a rapid economic recovery, and they engaged in frequent dialogue with the citizens of Arlington County.
4. **Employee Assistance Program (EAP).** At the time of the Pentagon attack, Arlington County already had in place an aggressive, well-established EAP offering critical incident stress management (CISM) services to public safety and other county employees. In particular, the ACFD embraced the concept and encouraged all of its members to use EAP services. Thus, it is not surprising that the EAP staff was well received when they arrived at the incident site within 3 hours of the attack. During the incident response and in follow-up sessions weeks afterward, the EAP proved invaluable to first responders, their families, and the entire county support network. This is a valuable resource that must be incorporated in response plans.
5. **Training, Exercises, and Shared Experiences.** The ACFD has long recognized the possibility of a weapons of mass destruction (WMD) terrorist attack in the Washington metropolitan area and has pursued an aggressive preparedness program for such an event, including its pioneering work associated with the Metropolitan Medical Response System (MMRS). In preparation for anticipated problems associated with the arrival of Y2K, the Arlington County government thoroughly exercised the CEMP. In 1998, the FBI Washington Field Office (WFO) established a fire liaison position to work specifically with area fire departments. Washington metropolitan area public safety organizations routinely work together on events of national prominence and shared jurisdictional interests, such as presidential inaugural celebrations, heads of state visits, international conferences such as the periodic International Monetary Fund (IMF) conference, and others. They also regularly participate in frequent training exercises including those hosted by the Pentagon. All this and more contributed to the successful Pentagon response.

■ ■ Critical Thinking ■

Do you feel that the recommendations of the Arlington County report are relevant to small communities, or do they apply only to large metropolitan areas? Explain your answer.

Statutory Frameworks

Statutory authority and legal frameworks guiding the management of terrorist incidents as exists today is really the junction between the evolution of emergency management statutory authority and the evolution of counterterrorism and law enforcement statutory authority. Prior to the Oklahoma City bombing, at least at the national level, there was little crossover between the emergency management communities who dealt with consequence management, and the federal investigations and intelligence communities that dealt with tracking and prosecuting terrorists and terror organizations, and finding those responsible once the attacks occurred.

However, after September 11th, when FEMA lost its cabinet-level status and was moved into the new Department of Homeland Security—which was an agency born as a result of a terrorist attack—terrorism prevention, preparedness, response and recovery became central to the emergency management mission. And because so much of the state and local capacity to manage all incidents is funded by, and guided by the federal level, this ideological shift quickly trickled down to these levels.

Today, emergency managers plan and train for the response to and recovery from terrorist attacks, and they work within their communities to find better ways to harden targets from terrorists and protect all aspects of the population, infrastructure, and the economy from harm. This is something of a new role for them, but a very necessary role given these directives and laws that are both passed down from the federal level and also instituted locally as well.

The primary federal agency responsible for emergency management in terrorist incidents, as is true in all hazards, is the Department of Homeland Security (DHS). This agency, and the function of homeland security itself, are both primarily the result of ongoing legislative actions that have happened since the 9/11 attacks. But it is important to note that these actions were contemplated well before the attacks but were largely unsupported given that the public had such little apparent concern about terrorism at that time (despite the fact that the nation had been impacted by hundreds of other domestic and international terrorist attacks throughout history).

Early Legislation, Action, and Authorities

Statutory authority for emergency management involvement in terrorism response and recovery traces back to the 1878 passage of the Posse Comitatus Act, which effectively separated the military and police forces and gave default jurisdiction to the local authorities over federal authorities on law enforcement matters. This served the country well until the Cold War, when the primary domestic concern of government emergency management was a possible nuclear attack from abroad. The fears people had about a mass casualty catastrophic incident, which local communities were clearly unprepared to manage, led to the rise of community-based civil defense programs throughout the country. Most towns and cities established bomb and nuclear fallout shelters, primarily by identifying government buildings that were suitable for that reason, and people learned how to act if an attack happened.

It was the Federal Civil Defense Administration, or FCDA, that supported communities as they did this, but because this agency had such limited resources, a companion office in the

Department of Defense, the Office of Defense Mobilization, was created. This office focused on setting up rapid response capabilities in the event of an attack, and eventually the two offices were merged.

In the 1960s, to deal with the growing risk from natural hazards the Kennedy administration created the Office of Emergency Preparedness inside the White House. This office was designed to deal with large-scale events but did not address civil defense responsibilities which remained with the DOD's Office of Civil Defense. The 1974 passage of the Disaster Relief Act increased the ability of the federal government to assist in disaster response from all types of emergencies, but continued to distinguish different responsibilities between different agencies. The creation of FEMA and the consolidation of emergency preparedness, mitigation, and response activities into a single federal agency followed in 1979 through Carter's Reorganization Plan Number 3.

On November 23, 1988, President Reagan signed into law the Robert T. Stafford Disaster Relief and Emergency Assistance Act, which amended the Federal Disaster Relief Act of 1974. Through executive order, FEMA was given authority over the Act, making the agency critical and central to federal response to all presidentially declared disasters. And while the Stafford Act did not specifically distinguish between different hazards, it was through this legal mechanism that the federal government was able to ensure an effective multiagency response to terrorist attacks on American soil that would follow in the years to come. And even today, the Stafford Act is the principal funding mechanism behind the response and recovery to terrorist attacks—and the fact that it is able to be so broadly interpreted as to be so effective in addressing these events speaks to its continuing impact. The Act did state, however, that “In some instances, a disaster or emergency may result in a situation [that] affects the national security of the United States. For those instances, appropriate national security authorities and procedures will be utilized to address the national security requirements of the situation.”

Just 3 years later, the Federal Response Plan (FRP) was issued, which laid out the process and structure by which federal assistance, under the Stafford Act, would be coordinated in support of disaster impacted communities.

In November of 1993, Public Law 103-160§1704 was passed stating that FEMA and other federal agencies should perform emergency planning to develop the capability to detect and respond to (1) the potential terrorist use of chemical or biological agents or weapons; and (2) emergencies or natural disasters involving industrial chemicals or the widespread outbreak of disease. In June of 1994, Executive Order 12919 gave FEMA a greater role on the National Security Council on issues of national security resource preparedness, and in January of 1995 the FEMA director established the Office of National Security Coordination, which reported directly to him.

During this time, the World Trade Center had been bombed, and soon after the sarin gas attack in Tokyo and the Oklahoma City Bombing both took place.

Presidential Decision Directive (PDD) 39

The first notable counterterrorism action impacting emergency management and the management of terrorist incidents occurred on June 21, 1995 was Presidential Decision Directive,

or PDD, number 39. This directive stated that the United States government would use all appropriate means to deter, defeat, and respond to all terrorist attacks that occurred on U.S. soil, or to U.S. interests, wherever that might be. The action gave the Department of Justice the authority to manage the crisis, while FEMA was given consequence management responsibilities. FEMA was also tasked with chairing a Senior Interagency Group for Training and Preparedness for terrorism events.

The Federal Radiological Emergency Response Plan (FRERP)

In May of 1996, the Federal Radiological Emergency Response Plan (FRERP) was signed into operation. This plan addressed radiological sabotage and terrorism, and was important in that it treated the response to events involving radioactive materials as the same whether intentional or accidental.

The Nunn-Lugar-Domenici Act

As was true with PDD39, the Oklahoma City bombing and the sarin gas attack in the Tokyo subway prompted the drafting and passage of the Nunn-Lugar-Domenici Weapons of Mass Destruction (WMD) Act on September 23, 1996. This act provided much more funding to prepare and equip first responders to manage terrorist attacks. Responder preparedness was noted as being particularly problematic in the sarin gas attack, and many U.S. response organizations recognized that they would be no better equipped to deal with a chemical or other WMD attack in their own jurisdiction.

While the law did promote better response to terrorism incidents, little changes in terms of how attacks were prevented and how terrorist organizations were disrupted occurred. There were still too many different agencies and organizations that dealt with these issues, and none of them were willing to give up their budgets or authorities. At the same time, there were not any pressing reasons to prompt such actions despite that recognition of the need for a more coordinated approach existed.

Terrorism Annex to the Federal Response Plan

The next big statutory event influencing terrorism came in 1997, when the NRF's predecessor, the Federal Response Plan (FRP), was modified to address the terrorism hazard. Prior to this, nothing in the plan dictated the roles and responsibilities specific to terrorism incidents, so a new Terrorism Incident Annex was developed. The Terrorism Incident Annex was most directly connected to the 1996 bombing at the Olympics in Atlanta, Georgia. In this event, lone-wolf terrorist Eric Rudolph placed and detonated a pipe bomb in the audience. One person was killed and dozens were injured. The fact that this was a domestic terrorist came as a surprise. But what was most troubling about this incident relative to emergency management was that the criminal investigations element of the attack caused several problems in terms of jurisdiction of the attack scene, and who had incident command authority (specifically because the FRP had been activated). The new terrorism annex gave explicit lines of authority for the various federal agencies, and these contributed heavily to the successful interagency

coordination of the response to the September 11 attacks in Virginia and New York (even if problems with interjurisdictional coordination and communication persisted).

The Three Commissions

In the late 1990s, beginning in 1998, a group of three different government commissions were formed to investigate the threat of terrorism and to identify better ways to manage it.

In 1998, President Clinton and Newt Gingrich led the forming of a 14-member panel called the United States Commission on National Security in the 21st Century, or USCNS/21. It became better known as the Hart-Rudman Commission and was created in order to identify better ways for the government to maintain national security. It did this by reviewing vulnerabilities and security needs with a goal of designing a national security strategy.

The Hart-Rudman Commission report, which was titled, “Road Map for National Security: Imperative for Change,” was released in January of 2001. It recommended that a new independent National Homeland Security Agency (NHSA) be created, and that this agency would have the responsibility for planning, coordinating, and integrating various U.S. government activities relating to the country’s security. The report found that the agency should be structured around FEMA, but should also include the Coast Guard, the Customs Service, and the U.S. Border Patrol. This homeland security agency would ensure that Americans were safe from terrorism and other threats, and would oversee critical infrastructure protection. While no actual structural changes happened before the 9/11 attacks, the research and findings of this commission played strongly into both the form and the function of the Department of Homeland Security that was created in its aftermath.

Two other commissions were established to study the terrorist threat during these years.

The first of these is the Advisory Panel to Assess Domestic Response Capabilities for Terrorism Involving Weapons of Mass Destruction, also known as the Gilmore Commission. This commission produced a series of annual reports from 1999 until 2003 that informed the risk management from weapons of mass destruction including the scope of actions that would be required to counteract that risk.

The second commission was the National Commission on Terrorism, also known as the Bremer Commission. The Bremer Commission looked at the threat from international terrorism, and evaluated the U.S. laws, policies, and practices that existed to prevent terrorism and to go after those who committed terrorist acts against the country. The commission produced a report in 2000 entitled “Countering the Changing Threat of International Terrorism” which found that international terrorism poses a growing threat, and that more must be done to prevent and prepare for terrorist attacks involving all weapons, but especially WMDs. The recommendations helped considerably in the aftermath of the 9/11 attacks, but without a greater understanding of the scope of the risk that the nation faced at the time, little was done to address the recommendations.

Attorney General’s Five Year Interagency Counterterrorism and Technology Crime Plan

In December of 1998 the FBI began coordinating an interagency project, mandated by Congress, to develop an Interagency Counterterrorism and Technology Crime Plan. Through

this effort, it was agreed that the FBI held the distinction of being the federal government's principal agency tasked with responding to and investigating acts of terrorism. The point of the project, dubbed the Attorney General's Five Year Interagency Counterterrorism and Technology Crime Plan, was created to ensure more coordination in the fight against terrorists and their organizations, but it was ultimately ineffective in bringing about a high level of information sharing and cooperation that might have otherwise allowed the 9/11 threat to be recognized and stopped.

Amendment of the Stafford Act

In February of 2001, the Preparedness Against Domestic Terrorism Act of 2001 was passed, which amended the Stafford Act to include acts of terrorism within its definition of "major disaster," which formalized how the federal disaster support in terrorism incidents would take place. It also authorized the FEMA Director to be responsible for carrying out federal emergency preparedness plans and programs, and established the President's Council on Domestic Preparedness to eliminate duplication within federal terrorism-preparedness programs.

General Accounting Office Findings

The General Accounting Office (GAO) performed a review in late 2000 and early 2001 to determine whether or not the nation was prepared to manage the level of terror threat that it was believed existed, and their findings were that it in fact was not. The GAO released a report in March of 2001 related to this effort titled "Combating Terrorism: Comments on Counterterrorism Leadership and National Strategy" which named a number of statutory weaknesses, and argued that without a clearly defined national strategy, the United States would be unable to address the level of terrorism risk that existed. But most importantly, the report stated that there was no one agency that could act as the federal government's lead agency on the terrorism hazard, and that the many agencies that did address that hazard were very fragmented and poorly coordinated.

In early September of 2001, the GAO released a second report titled "Combating Terrorism: Selected Challenges and Related Recommendations" which stated that the federal government was neither equipped nor prepared to manage a major terrorist threat and attack, and claimed that there was no real critical infrastructure protection in place. The report was eerily prophetic, as within days the September 11, 2001 attacks occurred and many of the report's findings were verified.

Executive Order 13228

In the hours and days following 9/11, there was an intense desire to address a threat that was now much more apparent. The president and Congress alike did recognize, however, that time was needed to consider what made the most sense given that knee-jerk legislation could not possibly be informed of the full scope of problems that resulted in the attacks. But also recognizing that the public demanded something be done immediately, President George W. Bush announced 9 days after the attacks the establishment of the Office of Homeland Security

within the White House (Executive Order 13228, October 8, 2001). President Bush also created the Homeland Security Council, which was tasked with developing and coordinating an effective strategy to prevent or respond to terrorist threats and attacks.

The USA PATRIOT Act

Just short of 2 weeks following the 9/11 attacks, on September 24, the president announced he would be supporting the passage of an act titled “Uniting and Strengthening America by Providing Appropriate Tools Required to Intercept and Obstruct Terrorism,” which today is better known by its acronym the PATRIOT Act.

This law was quickly passed with little deliberation, even though it granted powers to investigate suspected terrorism that went far beyond anything that had ever been allowed on such a wide scale, including a significant increase in surveillance and investigative powers. It was signed into law on October 26, 2001. The principal focus of the PATRIOT Act, which has survived mostly intact to this day, is to provide law enforcement with legal authority to take stronger actions in their collection of information on suspected terrorists, to detain suspected terrorists, to keep suspected terrorists from entering the country, and to tie up terrorist financing. The most important provisions of this law are that:

- It promotes information sharing between law enforcement and intelligence agencies
- It makes it illegal to knowingly harbor terrorists
- It increases the ability of law enforcement officers to tap into suspects’ communications, including cell phones and e-mail
- It allows the federal government greater power to detain non-U.S. citizens suspected of terrorism
- It greatly increases protection on the border with Canada
- It increases reporting requirements on international financial transactions
- It increases or eliminates the statute of limitations on most terrorist attacks

Homeland Security Presidential Directives

Beginning less than 2 months after the 9/11 attacks, President George W. Bush began to put in place a wide range of counter-terrorism strategies and policies by issuing a long series of Presidential Directives, which his administration called Homeland Security Presidential Directives or HSPDs. The HSPDs were identical in nature to the Clinton administration’s PDDs. Bush continued to issue these directives throughout his 8 years in office, and 10 of the most important of these in terms of how they have influenced the management of terrorism and terrorist incidents include:

- HSPD-1: Guided the creation and operation of a Homeland Security Council
- HSPD-3: Created the now defunct five-color coded terrorism risk warning system known as the Homeland Security Advisory System (HSAS)
- HSPD-5: Sought to improve the management of domestic terrorism incidents, and which led to the creation of a National Incident Management System (NIMS)

- HSPD-7: Guided the identification, prioritization, and protection of critical infrastructure
- HSPD-8: Sought to strengthen national preparedness for the response to domestic terrorism events as well as events caused by natural disasters, which also sought to help increase preparedness at the state and local levels
- HSPD-9: Sought to protect the nation's food supplies and agriculture
- HSPD-10: Sought to limit the threat from bioweapons
- HSPD-18: Addressed medical countermeasures for WMDs
- HSPD-19: Sought to limit terrorists' use of explosives
- HSPD-21: Sought to increase public health and medical preparedness

Homeland Security Act of 2002

In the summer of 2002, legislation was finally introduced to establish a Department of Homeland Security (DHS), and by November of that year the Homeland Security Act of 2002 was signed into law. This law was like few others in terms how comprehensive it was in its changes to the organization of government. The purpose of the law was to try and shore up weaknesses that allowed the September 11th attacks to occur and to ensure that the response and recovery for terrorist attacks were intimately connected with the efforts to prevent them and prepare for them.

The new DHS was quickly established and given agency-level status. All existing agencies and organizations involved in the response to disasters caused by terrorism, natural hazards, or technological hazards, were moved into DHS at that time. Additionally, all agencies involved in protection of the nation's borders and ports, and immigration and citizenship, were also moved into the DHS. This actually represented a massive organizational change and involved over 230,000 federal employees housed in over 20 agencies. The Act also established the Homeland Security Council in the White House to advise the president on homeland security matters, and the Office for State and Local Coordination and Preparedness, which reported to the DHS secretary (and which is now called the Office of Intergovernmental Affairs).

What the Act did not bring about was the incorporation of the intelligence agencies, including the NSA, CIA, and others, or the investigative agencies, including the FBI. Doing such was the original intent of the legislation but these agencies exerted far too much influence to cede their authority or budgets.

The 9/11 Commission

In November of 2002, Congress established the 9/11 Commission to study the September 11th attacks to understand how and why they happened, and what needed to be done to prevent them from happening in the future, and also to ensure that the country was able to effectively respond to terrorist attacks that happen. The commission looked at every aspect of the attack, including law enforcement, immigration weaknesses, intelligence failures, the influence of diplomatic relationships, and much more.

In July of 2004, the 9/11 Commission released its final report. The findings included 37 recommendations formulated to prevent future terrorist attacks. These ultimately played into

actions taken across all government levels to tighten up weaknesses and to expand response capabilities. The commission's recommendations can be divided into three subject areas:

1. Attacking terrorists and their organizations
2. Preventing the continued growth of Islamist terrorism
3. Protecting and preparing for terrorist attacks

Congress responded to the Commission's report by passing the Intelligence Reform and Terrorism Prevention Act of 2004, which established the Director of National Intelligence, or DNI position, to serve as the lead to the community of intelligence agencies that exist throughout the federal government. It also:

- Provided additional oversight for the intelligence community
- Improved problems related to the transition between presidential administrations related to security
- Did more to stop financing of terrorist organizations
- Took greater action to prevent terrorists from entering the United States
- Increased transportation security by requiring DHS to develop and implement a National Strategy for Transportation Security and to increase the use of biometrics
- Increased overall port security and critical infrastructure protection
- Directed DHS to develop interoperable communications standards for first response agencies

In December 2005, the 9/11 Commission released a follow-up report that graded the Bush administration and Congress's handling of the Commission's recommendations. The findings, which were issued in the form of a "report card," assigned letter grades to the 41 key recommendations. Of the grades given, five were failures, 11 were "D"s, 9 were "C"s, 13 were "B"s, only one was an "A," while two were incomplete. In early 2007, the new Democratic House presented for their first vote of the session a bill, entitled "Implementing the 9/11 Commission Recommendations Act of 2007" (H.R. 1), that would fund all of the remaining unfulfilled recommendations of the 9/11 Commission. The bill easily passed by a vote of 299 to 128. However, the cost of implementing these remaining recommendations—estimated to be over \$21 billion between 2007 and 2012—drew considerable fire from opponents who claimed the bill's provisions were misguided. However, in July 2007, this bill was passed by the Senate, and President Bush signed it into law on August 3 of that same year. Information on this legislation can be accessed at www.govtrack.us/congress/bills/110/hr1.

The Post-Katrina Emergency Management Reform Act (PKEMRA)

Whether because of the success of DHS in preventing attacks or because the domestic and international threat levels waned, the U.S. went through a period of almost 4 years without any successful major terrorist attacks. But on August 29, 2005, Hurricane Katrina struck and brought the topic of natural hazard risk back into focus. Many critics of the government's poor

response felt that the shift in policies biased towards terrorism risk prevention, the changes in government emergency management organization, and because of the manner in which emergency management funding streams had been focused so centrally on terrorism prevention and preparedness, together increased the nation's vulnerability to catastrophic natural hazards.

In response, Congress passed the Post-Katrina Emergency Management Reform Act (PKEMRA) on October 4, 2006. PKEMRA established several new DHS leadership positions and changed the organization within the agency such that many functions that had been removed from FEMA were returned. But PKEMRA also specifically excluded certain offices from returning to FEMA and combined them into a National Protection and Programs Directorate, or NPPD, within DHS. This included the Office of Infrastructure Protection, the Office of Cybersecurity and Communications, the Office of Risk Management and Analysis, and others. And finally, a new office, the Office of Health Affairs, or OHA, was created to manage WMD and biodefense activities and other health-related security issues like responder preparedness for WMD response.

THE EFFECT OF HURRICANE KATRINA ON TERRORISM PREPAREDNESS AND RESPONSE

Both the government and the public interpreted the lack of preparedness for September 11 to mean that too little was being done to plan for and protect the nation from the suddenly obvious terrorist threat. The resulting action included a fundamental shift in the focus of emergency management that many considered to be knee-jerk and that included among other changes the restructuring of a significant number of U.S. government agencies and offices and a redrafting of all U.S. emergency operations plans at all levels of government. Many proponents of "all-hazards emergency management" contended that this shift was so great that it would leave the country more vulnerable to the effects of natural disasters than it was before the changes occurred.

After a period of relatively few major disaster events, during which time the nation's focus on all accounts was the global war against terrorism, the fears of all-hazards proponents were confirmed when Hurricane Katrina (an anticipated and previously exercised natural hazard event) struck on August 29, 2005, and quickly overwhelmed response mechanisms at all government levels. As with all devastating disasters, the subsequent aftermath was rife with finger pointing and wide denials of blame, with the federal government accusing local responders of poor decision making and local and state officials claiming that FEMA ignored their pleas for help. Upon closer examination, however, the general consensus was that FEMA had been diluted too much as an effective response organization within the Department of Homeland Security, much of which came as a result of the terror focus (both programmatically and in relation to the targeting of disaster-preparedness grants) and that major changes would have to be made if such weaknesses were ever to be addressed.

Future Legislation

As we move forward, there are a number of directions that our country can go in with regards to statutory authorities guiding the response to terrorist attacks, and emergency incidents in

general. Clearly, there have been repeat natural disasters to occupy our collective consciousness including Hurricanes Irene and Sandy, the Joplin Tornado, and more. Also influencing legislation is the fact that the Congress, the executive office, and the American public are struggling with federal deficits, and the nature of both postdisaster response and recovery funding, and the grants that have largely supported preparedness and risk reduction efforts for terrorism, are sure to shrink year after year.

There is always talk, and many attempts, to modify the Stafford Act in a way that changes eligibility requirements. This would come into play with terrorism, especially for large-scale events that affected widespread areas of land and large numbers of people. In many ways, it is not fully understood how a weapons of mass destruction incident would be managed by the existing Public Assistance and Individual Assistance programs, and despite considerable planning on the topic there is always a sense of uncertainty about how damages, and reconstruction, might or might not be possible as the law and regulations now stand.

The United States has traditionally been reactive in taking legislative action, as well as operational action, to deal with risk, so in many ways it is the unknown of what terrorist attacks might or might not happen that will in large part drive statutory authority as we move forward. If history is any judge, as we move farther from any actual attacks, our tolerance for authorities that infringe upon privacy or restrict rights will fall out of favor; but in the event of a major attack, our desire to increase such laws will resurface. What we do know for certain is that every community, in every state, will be dealing with the management of emergency and disaster events, regardless of whether they are natural, technological, or terrorist in nature, and the authorities by which and frameworks according to which they are able to do that are vital.

Homeland Security Organizations

Homeland Security is the term most commonly used to characterize the government function of preparing for, preventing, responding to, and recovering from terrorist hazards, though this function is closely associated with the emergency management function and in many cases is fully merged. Terrorism alone is typically what people think of in relation to the term, but the actions of the post-9/11 legislation, which inserted FEMA into the Department of Homeland Security at the federal level, grouped the management of all hazards together under one umbrella function. The roots of America's homeland security function, in this manner, include both civil protection and emergency management, and this combination of disciplines is new and still rapidly evolving.

At the federal level, the Department of Homeland Security is a massive agency that has well over 200,000 employees and a budget reaching into the tens of billions of dollars. The agency's organization is complex, and the span of functions performed in pursuit of terrorism risk management is wide. At the state level, the homeland security organization and span of associated functions is much smaller. But it is a role that is highly dependent on the nature of the state's unique terrorism risk as well as the role that the state government played in emergency management prior to the post-9/11 organizational shift. And finally, at the local level the organization has remained largely the same as it was before 9/11. It is the expectations placed on

responders, on law enforcement, and on emergency planning and management staff with regards to the terrorist threat that has changed.

Local agencies have achieved doing “more with less” across the board, taking on terrorism incident management and all of the associated training, equipment, planning, relationships, in addition to the ongoing need to manage nonterrorist events (often without any additional staff).

Federal grants in the billions of dollars have done quite a bit to support this capacity increase, but this funding is not permanent nor is it always allowed to be used on salaries.

In total, there are more than 87,000 different governmental jurisdictions at the federal, state, and local level that have responsibilities related to the management of terrorist risk and the incidents that occur.

The Department of Homeland Security

Federal-level organizational structures continue to change with regularity, each time coming in the aftermath of a major disaster event. What we see today in the Department of Homeland Security is the settling of dust on what is likely the endpoint of these efforts. The intent was an effective all-hazards organization that balances the ability to respond to both intentional and natural or technological events alike. Whether or not that has been achieved is tested with each new disaster. To best understand the nature of the department’s organization and how the various offices and divisions relate to each other, it is necessary to look at the DHS Organizational Chart (Figure 9-4). Several of these components are described below.

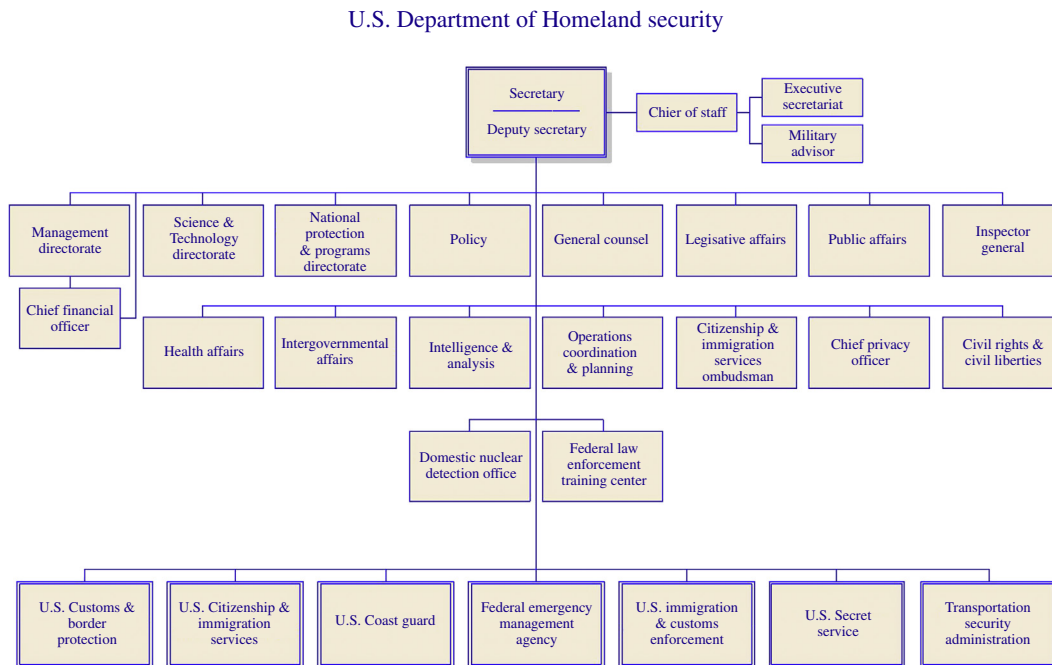


FIGURE 9-4 DHS Organizational Chart. DHS, 2013.

The Office of the Secretary of Homeland Security

DHS is headed by the Secretary of Homeland Security, who has been named a cabinet-level official by both the Bush and the Obama administrations. The Office of the Secretary is responsible for managing the department's overall direction and overseeing its activities. It is also in charge of guiding its budget, which is one of the largest in the federal government. But most importantly, this office sets the direction and priorities for terrorism risk management, and drives the creation of disaster response and recovery initiatives.

Within this office, there are a number of programmatic and issue-related offices that contribute to the overall management of the homeland security mission. These include:

- The Privacy Office, the Office of Civil Rights and Civil Liberties, and the Citizenship and Immigration Ombudsman Office, all three of which ensure that the agency does not overstep its bounds in terms of human rights, civil rights, and civil liberties.
- The Office of the Inspector General which, like all federal inspectors general offices, keeps a close eye on the agency and its various programs, and makes recommendations for improvement whenever they are needed.
- The Office of Legislative Affairs which helps bridge the connection between DHS and Congress and with the White House.
- Office of General Counsel which provides the necessary legal services to support the management of terrorism and counterterror programs.
- The Office of Public Affairs which works with the media and other methods of communication to ensure that the public is informed before, during, and after disasters, or if they are simply seeking information about any of the departments' functions.
- The Office of Counternarcotics Enforcement which advises the secretary on drug enforcement policies, especially as they relate to the funding of terrorist activities, customs, and transportation security.
- The Office of Intergovernmental Affairs which serves as the point of contact between DHS and other federal, state, and local government agencies.

There are also several advisory panels and committees led by this office in pursuit of terrorism prevention and management. Each of these offices provides subject matter expertise to drive department policy which often leads to national-level policies on the same issues. Their titles are indicative of what they address, and include:

- The National Infrastructure Advisory Council
- The Homeland Security Science and Technology Advisory Committee
- The Critical Infrastructure Partnership Advisory Council
- The Interagency Coordinating Council on Emergency Preparedness and Individuals with Disabilities
- The Task Force on New Americans
- The DHS Labor-Management Forum

A seventh council, The Homeland Security Advisory Council, made up of leaders from state and local government, first responder communities, the private sector, and academia, advises the DHS secretary on overarching homeland security issues.

Pre-Existing Offices Moved into DHS

The nature of the Homeland Security Act of 2002 helps in understanding the organization structure of the agency because so many of the agencies that were brought into DHS at its forming were brought in intact. Each of these existed elsewhere in the federal government before that time, but their individual missions were found to be related to counterterrorism and national security efforts, and they were brought in to consolidate the mission.

- **The US Coast Guard:** As was true before it was moved, the primary function of the Coast Guard within the DHS is spread across eleven mission areas which include:
 - Ports, waterways, and coastal security
 - Drug interdiction
 - Aids to navigation
 - Search and rescue
 - Living marine resources
 - Defense readiness
 - Marine safety
 - Migrant interdiction
 - Marine environment protection
 - Ice operations
 - Other law enforcement
- The Coast Guard is still the lead federal agency in charge of maritime safety and security, which includes maintaining the protection of all coasts and waterways from both internal and external threats, which includes terrorism. The Coast Guard is in effect a military force within an executive-level department, and as such it has special capabilities in terms of being able to protect the country from terrorism in a way the other armed forces cannot. The involvement of the Coast Guard in the response to the 9/11 attacks, wherein the Coast Guard readied for possible additional attacks or other response needs, highlighted their important domestic preparedness role. Moving inside DHS actually helped the Coast Guard given that its budget increased, and it has used a significant amount of this money to update its fleet of ships and aircraft.
- **U.S. Secret Service:** The Secret Service has continued its mission of protecting the president and senior executive personnel in its new location, as well as protecting the currency and financial infrastructure and providing security for major national events like the Super Bowl. Each of these remains a major terrorist target, and the loss or attack of any could result in a major national security incident, which is why DHS was seen as a more appropriate home for the Service. The Secret Service also protects many of the facilities that are considered key terrorist targets, like the White House, which the 9/11 planners had indicated to be the target of the fourth hijacked plane that crashed in Pennsylvania. Each

of the people, places, and events the Secret Service protects are thought to be a vital part to the U.S. government functioning or U.S. heritage. Because they are national symbols, they are also high-value terrorist targets.

- **The Federal Emergency Management Agency:** Unlike the Coast Guard and Secret Service, FEMA was not moved into DHS in its original structure at first. Initially, many of the grant-making, preparedness, and training components of FEMA were transferred to other DHS components, but most of these functions were eventually returned. FEMA has always maintained its status as the lead Federal government agency responsible for driving national all-hazards risk management efforts. FEMA maintains a number of programs that drive capacity at the local level through doctrine and guidance, and provide funding for important equipment and planning efforts.
 - FEMA's mission has remained fairly constant within DHS despite losing its independent agency status. Of course, the DHS mission influences programs within the agency, and many feel that terrorism has been given an unbalanced consideration in comparison to other natural hazards (when considered in light of its actual and estimated relative risk). FEMA administers the Disaster Relief Fund, and it uses it to provide individual and public assistance to help families and communities that are impacted by disasters to rebuild and recover from disasters, including those caused by terrorism. FEMA also has a number of programs that help communities to prevent disasters or reduce the risk from hazards, whether they are natural hazards like floods or terrorism. And finally, FEMA is the lead federal agency in major disaster incidents under the NRF, the NDRE, and NIMS, regardless of origin.
- **The Federal Law Enforcement Training Center:** The Federal Law Enforcement Training Center, or FLETC, is in charge of training federal law enforcement personnel spread throughout 85 different federal government offices. FLETC also trains officers at the state and local levels and provides them with technical assistance in training development when they request it. FLETC has four training sites in Georgia, New Mexico, South Carolina, and Maryland. There are also training sites in Botswana; El Salvador; Thailand, and in various U.S. embassies, which helps move the terrorism readiness mission beyond the country's borders.
- **Transportation Security Administration:** The Transportation Security Administration, or TSA, was created just 2 months after the 9/11 attacks through the Aviation and Transportation Security Act. TSA is tasked with protecting all systems of transportation from terrorist attacks, which includes identifying risks in each of the different sectors, prioritizing them, and managing them to acceptable levels.

New Offices and Directorates

When DHS was created, there were also a number of new offices that were created to manage the terrorism and natural and technological hazards risks. These offices have changed in number, form, and function over the years as components have been moved in and out of the different DHS offices, especially FEMA. At present, DHS has three major multifunctional

divisions, which have been termed directorates. One of these is focused on the management of agency operations, while the other two maintain critical homeland security roles. Each is led by a DHS undersecretary. The directorates include:

- **Directorate for National Protection and Programs:** This directorate was created to reduce all-hazards risk in the U.S. It was created in 2007 as a result of PKEMRA, and has two main purposes:
 - To strengthen national risk management efforts for critical infrastructure. To define and synchronize DHS-level homeland security protection doctrine among all important stakeholders, including all government bodies, the private sector, and the NGO community.
- NPPD is something of a DHS “focal point” for risk-reduction policies, and its responsibilities include:
 - Identifying and mitigating cyberattack threats
 - Protecting and strengthening national security and emergency communications capabilities
 - Integrating and disseminating critical infrastructure and key resources threat, consequence, and vulnerability information and developing risk mitigation strategies
 - Reducing threats posed against the 9000 federal facilities nationwide
 - Providing biometric and biographic identity management and screening services
 Leading DHS’s efforts to develop, implement, and share a common homeland security risk management framework
- NPPD performs its mission through the actions of five offices. These are the:
 - Office of Cybersecurity and Communications (CS&C)
 - Office of Infrastructure Protection (OIP)
 - Federal Protective Service (FPS)
 - Office of Risk Management and Analysis (RMA)
 - United States Visitor and Immigrant Status Indicator Technology, or US-VISIT
- **Directorate for Science and Technology:** S&T was created to fund, lead, and implement research and development of technologies and systems used to ensure national security. This includes, among many other things, the prevention of terrorists being able to bring chemical, biological, radiological, nuclear, and related weapons and material in the U.S. S&T products are also developed to help with terrorism prevention in the U.S., and response when attacks happen. This kind of research was conducted prior to 9/11, but to a much lower level of action and within the Department of Justice National Institute of Justice. S&T has four different divisions through which research and development takes place. Three of these in particular produce products that trickle down to the local level, and are:
 - The First Responders Group (FRG), which ties identify the needs of first responders and ties those needs to research.
 - The Homeland Security Advanced Research Projects Agency (HSARPA), which works on highly innovative programs geared towards the country’s future counterterrorism needs. HSARPA issues include:

- Borders and Maritime Security
- Chemical/Biological Defense
- Cyber security
- Explosives
- Human and Behavioral factors, and
- Infrastructure Protection and Disaster Management
- The Research and Development Partnerships, which manages the national research laboratories and works closely with universities and the private sector.

Other DHS Offices

DHS also helps to manage the terrorist hazard through a number of offices focused on protecting the sovereign borders of the United States and tightening up immigration and customs enforcement.

- ***United States Citizenship and Immigration Services:*** USCIS facilitates the immigration process for people who wish to enter the country according to the established immigration laws, whether to work or live. Terrorists have been known to exploit U.S. immigration laws, and this office acts as something of a firewall that permits legal immigration while filtering out potential terrorists or criminals.
- ***United States Customs and Border Protection:*** CBP is in charge of protecting the country's international borders, at each of the official ports of entry, and in between them on the land and at sea. Part of this CBP mandate is to search cargo and people for the purpose of preventing the smuggling of WMDs, agriculture, animals, and other things that could cause a national security risk or an economic disaster. They also inspect travelers and immigrants documents at entry points and send back those who do not have the correct permission to enter. CBP officials work primarily in the United States, but are also deployed overseas at major international seaports through the Container Security Initiative, or CSI. The CSI program was created to allow inspection to occur earlier in the transport process to help prevent illegal and dangerous materials from ever entering the nation's ports in the first place. A total of 58 CSI ports around the world currently cover about 90 percent of all inbound containers. CBP officers have the authority to inspect travelers and cargo that do enter the U.S. to make sure that each enters legally and don't pose a threat to the country in any way. In doing this, CBP officers make direct contact with more than 500 million people that cross the border each year, as well as tens of thousands of shippers, drivers, pilots, and importers.
- ***Immigration and Customs Enforcement:*** ICE is in charge of enforcing U.S. immigration and customs laws. ICE plays an important role in terrorism protection by identifying and dismantling criminal organizations that illegally cross the border, or by identifying, apprehending, and deporting dangerous illegal aliens. Two of ICE's programs in particular directly address the terrorism threat: the Secure Communities Program, and the Office of Intelligence.

The ***Office of Health Affairs*** (OHA) coordinates the preparation for and response to incidents that have a medical- or health-related component, whether because of epidemic

potential or because a bio- or chemical-terrorist weapon is threatened or used. This office also leads DHS efforts to ensure that the country is able to manage medical and food needs of the affected population during catastrophic disasters. The Health Threats Resilience Division of OHA is specifically charged with preparing for the terrorist aspects of the office's mission

Because nuclear and radiological threats pose such great consequence risk, DHS maintains a *Domestic Nuclear Detection Office* that is in charge of efforts to detect any illegal or terrorist-related attempts to import, possess, store, develop, or transport nuclear or radiological material for use against the country, and to help provide guidance for the planning required to manage an incident if there is ever an attack using this material.

■ ■ Critical Thinking ■

Do you think that the Department of Homeland Security can ever have a true risk-based all-hazards focus, or will its focus always be terrorism? Explain your answer.

ANOTHER VOICE

THE PROBLEM OF FEMA IN DHS

In 2009, the Department of Homeland Security Office of the Inspector General released a report titled "FEMA: In or Out?" that tackled the questions surrounding whether FEMA should be a stand-alone agency or remain a component of DHS (OIG-09-25). The findings of this report do not take a stance on the answer to this question, but they do claim to give consideration to both sides of the argument surrounding this issue. However, this internal report clearly takes a strong stance that favors FEMA's steadfast inclusion within DHS, which stands to incredibly benefit the agency (due to FEMA's virtually limitless budget under the provisions of the Stafford Act). This report is far from being impartial, and moreover, it heavily downplays the arguments in favor of FEMA's reinstatement as an independent, cabinet-level agency. The following excerpt is taken verbatim from this report.

Arguments for Keeping FEMA in DHS

Despite generally positive reviews of FEMA's performance in the most recent disasters, calls to return FEMA to its independent-agency status have been renewed. The arguments for this proposal are discussed below, but before addressing them, we will outline the arguments for leaving FEMA in DHS. These include, especially, the nation's current vulnerability to terrorism, the synergy and resources FEMA enjoys as part of DHS, and the importance of avoiding the stovepiping of preparedness and response functions.

VULNERABILITY TO TERRORISM

Our last two presidents, Bill Clinton and George W. Bush, and the current U.K. prime minister, Gordon Brown, all had to deal with a major terrorist attack in their respective countries during their first year in office. While there have been no recent reports of a specific imminent threat, some argue that the United States faces an increased risk of a terrorist event during the first year of a new presidency. In November 2008, shortly before the presidential election, Director of National Intelligence Mike McConnell told intelligence officials that the new administration might be tested

by a terrorist attack during its first year citing, “the World Trade Center was attacked in the first year of President Clinton, and the second attack was in the first year of President Bush.” President-elect Barack Obama made a statement to this effect during a recent interview, saying that it was “important to get a national security team in place, because transition periods are potentially times of vulnerability to a terrorist attack,” and Vice President-elect Joe Biden warned that “it will not be 6 months before the world tests Barack Obama like they did John Kennedy.”

We simply cannot predict whether there will be a terrorist attack in this country in the next year. Given that there is an elevated risk of this happening, however, we must consider whether it makes sense to make major changes to our homeland security apparatus during this period. It is critical to note here that the talk of removing FEMA from DHS generally focuses on the perceived benefits to FEMA—on which not all sides agree. What is not always included in the debate is consideration of the effect that FEMA's removal would have on the department.

Since 2003, a number of support functions for the different components of DHS have been interwoven. A reorganization would impact not only FEMA, which would have to reconstitute itself as a stand-alone agency, but also DHS as a whole, which would have to adjust to losing an important component. Don Kettl warns that “FEMA has gone through a long and wrenching series of reorganizations. . . . Change for the sake of change could simply induce organizational whiplash and further destabilize an already unstable organization.” John Harrald warns that pulling FEMA out of DHS would mean a difficult transition period and the rewriting of doctrine and the redesign of systems, “but natural hazards and terrorists are not going to wait for us to reorganize yet again.”

ONGOING REVIEWS

It is clear that removing FEMA from DHS at this point would cause considerable upheaval to both FEMA and the department. Such action should not be taken without very careful consideration. At this time, the Quadrennial Homeland Security Review (QHSR) is underway at DHS, and the first QHSR report is due in December 2009. This comprehensive review of the department was mandated by Congress in the Implementing the Recommendations of the 9/11 Commission Act of 2007 (P.L. 110–53). The National Academy of Public Administration has just begun an independent assessment of preparedness and response integration, with a focus on FEMA's ten regional offices, and will provide recommendations on the integration, synchronization, and strengthening of preparedness programs between FEMA and its regional offices.

Experts have cautioned that “major structural changes, such as bureaucratic adjustments involving the Department of Homeland Security, should follow a detailed strategic review and be addressed later in the first term.” The formal recommendation of the Homeland Security Presidential Transition Initiative is that “a decision to remove FEMA should be deferred until the completion of the Quadrennial Homeland Security Review in late 2009. Maintaining the status quo in the first year avoids unnecessary instability and confusion at a time of elevated risk. It also provides time for the new administration to consult with congressional leadership and build support for any major changes that may be contemplated within the QHSR process.”

SYNERGY AND RESOURCES

A primary benefit to FEMA of being part of the 200,000-plus person Department of Homeland Security is the wealth of resources available to FEMA through other DHS components. These connections create synergies that were never available to FEMA as a stand-alone agency. In DHS,

FEMA is coupled with components that have far-reaching responsibilities and capabilities, including search and rescue, communications, law enforcement, intelligence, and infrastructure protection.

The Government Accountability Office (GAO) has cited areas of interconnectedness, including grants, through which Urban Area Security Initiative and State Homeland Security Program funding can be used for mass evacuation planning; interoperable communications; DHS Science & Technology expertise for the Equipment Standards Program; and a huge surge capacity of personnel that can be tapped in case of a disaster.

Former DHS secretary Michael Chertoff recently said that “until this department was formed, interagency planning on the civilian side was not a well-executed responsibility.” In contrast, Admiral Thad Allen testified in 2006 that since DHS’s creation, the relationship between the Coast Guard and FEMA has been greatly strengthened. Prior to the establishment of DHS, Coast Guard and FEMA interaction was infrequent. In 2006, the number of joint exercises had increased 354 percent, from 13 in the years 1999 to 2002 to 59 in the years 2003 to 2006.

Chertoff has also stated “the fact that FEMA and other components of DHS have had an opportunity during times of rest to plan, train, and exercise together and to build capabilities that are capable of crossing jurisdictional lines has allowed us to have the kind of capabilities to support an emergency that would not be the case if we were in different departments.” Those joint capabilities were evidenced in recent disasters.

In the wake of Hurricane Katrina, the Coast Guard, the Transportation Security Administration (TSA), U.S. Customs and Border Protection (CBP), U.S. Immigration and Customs Enforcement (ICE), and the Secret Service were all vital. More recently, in responding to Hurricanes Gustav and Ike, “FEMA was supported by all of the elements and all the powers of the Department of Homeland Security.” CBP provided security for the transit of life-sustaining goods and provided aerial assets that allowed surveying of damage. In the past, FEMA relied on DOD for aerial surveillance, which cost considerably more than using CBP. TSA supported 20 FEMA commodity distribution locations, augmenting FEMA staff with 366 additional employees in the field. The Coast Guard performed land, maritime, and air search-and-rescue missions. Chertoff argued that when “it’s necessary to quickly call upon other agencies, the quickest way to do that is not by reaching to another department of government, . . . but it’s to have the ability of the Secretary to immediately order assistance to be rendered in all of the elements and capabilities of the entire Department of Homeland Security.”

Finally, it is important to discuss DHS grants and their importance to the emergency management community. When FEMA initially joined DHS, many of its grants functions were transferred to other parts of DHS. Since Hurricane Katrina, FEMA administers almost all DHS grants, both those focused on natural hazards and those focused on terrorism.

Pulling FEMA out of DHS would almost certainly disrupt the grants function in the short term, and it could result in once again separating out “emergency management” grants from “terrorism” grants, which we know from experience leads to inefficiency, duplication, and waste. The synergies that have been realized in homeland security grants should be an important consideration when debating the merits of removing FEMA from DHS.

PREPAREDNESS AND RESPONSE

The well-recognized cycle of emergency management includes preparedness, response, recovery, and mitigation. This is true of all emergency management, whether for natural or manmade hazards. It is helpful to think of these elements as a four-legged stool. Remove one of the elements, and the

stool becomes unstable. Some would suggest that we need two stools: one labeled crisis management and one labeled consequence management.

The problem is that we know from the past that this structure simply does not work well. It is evident in the “stovepipes” that existed prior to the creation of DHS. Chertoff sums up the argument stating that “the core of the argument made about FEMA is that somehow FEMA’s involved with consequence management, dealing with the response, and DHS, in other respects, is dealing with preventing or protecting against a response and that if these are different functions, that therefore they ought to be under different roofs, and I really beg to differ with that. I think that is a profound misunderstanding of how one plans and prepares and executes in the face of a possible emergency and an actual emergency because the truth is emergencies don’t come neatly packaged in stovepipes and if there’s any lesson we’ve learned in dealing with terrorism or dealing with any other crisis, it is that stovepiping is the enemy of efficient and effective response.”

The Hart-Rudman Commission report states, “The current distinction between crisis management and consequence management is neither sustainable nor wise. The duplicative command arrangements that have been fostered by this division are prone to confusion and delay.” We would add that this duplication wastes time, energy, and resources. Preparedness and response are fundamental to homeland security. If FEMA is removed, a duplicate agency would most certainly be created in DHS, because preparedness and response are so fundamental to DHS’s mission that it could not operate effectively without them.

Finally, Kettl suggests that for local frontline first responders, there is no line between terrorist and nonterrorist hazards; first responders must focus on all-hazards-plus. The federal approach and structure should match the local approach. “Separation would create deep fissures between national policy and the realities of local response.”

GOLDWATER-NICHOLS ACT OF 1986

It is worth mentioning, in the context of merging entities and the growing pains that can result, the Goldwater-Nichols Act of 1986 (P.L. 99-433), which increased integration among the armed services. Like most “independent” agencies, the defense agencies did not want to be integrated initially, but over time, the arrangement has created a stronger DOD. The defense components did not want their individual roles and authorities to be diminished, and they resisted integration for years. The Desert One episode—the failed attempt to rescue the hostages in Iran during the Carter administration—was the final straw in this arrangement. This failure prompted passage of the Goldwater-Nichols Act.

Just as passage of the Homeland Security Act did not automatically bring jointness to homeland security functions, neither did the Goldwater-Nichols Act immediately solve the challenges in the military. According to Wormuth, “The Department of Defense took more than 40 years to evolve from the War Department into the Defense Department and then another 20 years after passage of the 1986 Goldwater-Nichols Act to mature into the integrated agency of today.”

Arguments for Making FEMA a Stand-alone Agency

In the past few months, emergency managers and others have called for FEMA to be removed from DHS. In November 2008, the U.S. Council of the International Association of Emergency Managers (IAEM-USA) formally adopted the position that FEMA’s independent agency status should be restored with the agency reporting directly to the president. The organization further urged that the FEMA director be included as a member of the president’s cabinet.

Ketl suggests that calls for FEMA's removal may be based on a faulty premise: that James Lee Witt transformed the troubled agency and made it successful (under Witt, FEMA was independent), so FEMA should be restored to independent status. Ketl points out, however, that FEMA did not always perform well in the past, even when it was an independent agency.

FEMA was an independent agency when it was roundly criticized for its response to Hurricane Andrew in 1992. Problems were also recognized during the TOPOFF 2000 exercise—again, while FEMA was an independent agency.

“When viewed against the history of emergency management, the success FEMA enjoyed in the 1990s was the exception, not the rule,” Roberts states. Ketl suggests that under Witt, “success in managing FEMA flowed from the leader’s ability to lead.... Restructuring cannot *substitute* for leadership.” In 2006, David Walker, then-comptroller general of the United States, said, “There are pros and cons to keeping FEMA in or out, but the quality of leadership ... and the quantity of resources has more to do with the success of the agency.”

CALLS FOR AN INDEPENDENT FEMA, WITH CABINET-LEVEL STATUS AND A DIRECT LINE TO THE PRESIDENT

Those who would like to see FEMA removed from DHS are calling for three basic elements: (1) independent agency status, (2) including the FEMA administrator in the president’s cabinet, and (3) giving the FEMA administrator a direct line to the president. Addressing the third element first, the FEMA administrator already has a direct line to the president during a disaster. Congress recognized this shortcoming in the aftermath of Hurricane Katrina and legislated this relationship in the Post-Katrina Reform Act. The GAO recently found that the FEMA administrator does give advice directly to the president during meetings.

The critical thing to note here, however, is that having a direct line to the president does not necessarily mean one has the president’s ear. As just pointed out, Witt had President Clinton’s ear, but this likely stemmed more from his personal relationship with the president than from his status as FEMA director. The Post-Katrina Reform Act “assures that there will be direct access, but it cannot assure that the relationship with the president will be strong or that the administrator will have the president’s confidence.”

Including the FEMA director in the cabinet is a decision that cannot be legislated. While not defined in law, the cabinet traditionally includes the vice president and the heads of 15 executive departments. The president has the discretion to accord cabinet-level rank to other officials. Currently, in addition to the heads of the 15 executive departments, cabinet-level status has been given to the White House chief of staff, the director of OMB, the United States trade representative, the administrator of the Environmental Protection Agency, and the director of the Office of National Drug Control Policy. Executives who do not currently have cabinet-level status include the director of the Central Intelligence Agency, the administrator of the Small Business Administration, and the administrator of the National Aeronautics and Space Administration.

The first element of the argument, granting FEMA independent agency status, arguably could be accomplished legislatively or by Executive Order. But this arrangement will not necessarily solve FEMA’s problems or address the concerns of those who would like to see FEMA removed from the Department of Homeland Security. As just evidenced, FEMA often performed poorly even when it was an independent agency. According to Ketl, “Structure matters. But leadership counts far more.”

Other Agencies Participating in Community-Level Funding

DHS is the agency that is most obviously focused on national security and terrorism prevention, and has the most central role in its implementation, but it is by no means alone in this mission at the federal level. There are a number of other federal agencies that addressing one or more specific aspects of terrorism prevention and/or management, or that fund and support the homeland security efforts of state and local governments. While the following list is by no means exhaustive, these agencies play the most significant role in managing terrorism risk.

The White House

Of course, the White House, as the head of the executive office under which all federal agencies falls, leads the overall policy and strategy direction, and the president as commander-in-chief makes all important decisions relative to both through the National Security Staff (NSS). The NSS supports all White House policymaking activities related to international, transnational, and homeland security matters. This office is where the highest level conversations on national security issues, which includes terrorism, WMDs, and natural disasters, and others, happens.

U.S. Department of Agriculture

The safety of the food supply is a national security issue, and terrorists have used the food and water supplies as intended and actual targets in the past. Attacking food at the least could erode international trust in the U.S. food supply and cause a major economic impact, or at worst could lead to the sickening or killing of a great amount of people. USDA has a Homeland Security Council that works on three issues related to terrorism:

- Safety and security of the food supply and agricultural production
- Protection of USDA facilities
- Emergency preparedness of USDA staff

There are a number of USDA divisions that handle different aspects of inspection and monitoring.

When actual events happen, it is the Office of Food Defense and Emergency Response, or OFDER, that develops and coordinates all activities of the USDA to prevent, prepare for, respond to, and recover from nonroutine emergencies resulting from both intentional and unintentional meat and poultry contamination. OFDER serves as USDA's central office for homeland security issues and coordinates food supply issues with DHS and other federal and state government agencies with food-related responsibilities and the private sector.

In the event of an attack, the USDA has the lab capabilities to test for "nontraditional" biological, chemical, and radiological agents. Through the USDA Office of Food Security and Emergency Preparedness, it helps laboratories throughout the country do the same by providing guidance, funding, and other program support.

Law enforcement officers of the Forest Service, which is also part of the USDA, conduct security assessments of research facilities and air tanker bases nationwide, and other very high value terrorist targets on government property like dams, reservoirs, pipelines, water treatment plants, power lines, and energy production facilities.

Department of Commerce

The Department of Commerce plays a key role in homeland security through three of its offices:

- The Bureau of Industry and Security
- The National Institute for Standards and Technology
- The National Oceanographic and Atmospheric Administration

The Bureau of Industry and Security (BIS), contributes to national security by making sure that sensitive goods and technologies do not get into the hand of terrorists or hostile countries. The National Institute for Standards and Technology (NIST) develops infrastructure protection standards, and supports the development of technologies that can identify terror attempts such as biometric identification systems and radiation detection. And finally, the National Oceanographic and Atmospheric Administration (NOAA) while not focused on terrorism is able to provide warnings in the event of a terrorist attack involving WMDs using the weather radio system that has been used for decades to quickly warn and inform large populations that are at high risk.

The Environmental Protection Agency

The Environmental Protection Agency (EPA) plays a major role in terrorism preparedness and response due to their mandate to monitor air and water quality. Attacks using WMDs can involve the release or threatened release of dangerous or poisonous chemicals into the atmosphere, and the EPA is able to help communities to prevent, prepare for, and respond to them.

Because of its inherent role in protecting human health and the environment from possible harmful effects of certain chemical, biological, and nuclear materials, the EPA is actively involved in counterterrorism planning and response efforts, and supports these efforts by:

- Helping state and local responders to plan for emergencies
- Coordinating with key federal partners
- Training first responders
- Providing resources in the event of a terrorist incident

The Department of Justice

The Department of Justice (DOJ) has the lead responsibility for criminal investigations of terrorist acts or threats when they take place inside the United States or are directed at U.S. citizens or institutions abroad. After an attack or threat, the DOJ efforts focus on identifying the perpetrators, catching them, and bringing them to justice. The DOJ has several agencies

involved in these efforts: the Federal Bureau of Investigation (FBI) is in charge of the forensics collection at the attack scene and elsewhere, and any investigations that take place. The Drug Enforcement Administration (DEA) becomes involved when terrorists are using the sale of drugs to finance their operations. And the Bureau of Alcohol, Tobacco, Firearms, and Explosives (ATF) is involved when the terrorists' operations involve firearms or explosive weapons.

The Department of State

The State Department, which makes and promotes the country's foreign policy and coordinates with foreign governments, among other functions, works to secure assistance in dismantling overseas terrorist organizations and in preventing them from reaching our borders. State department political officers work with local contacts to monitor terrorist threats and work with foreign intelligence agencies and governments to ensure that the U.S. government is highly aware of any impending threats.

The Department of Defense

The Department of Defense (DOD) plays a key role in preventing terrorist attacks in the United States and against Americans overseas by first serving as a military deterrent to nations and groups who might otherwise consider launching an attack or harboring those who do, and by taking military actions against terrorist threats that exist overseas. DOD assistance in resolving global conflicts also contributes to national security by decreasing the lawless and rogue state conditions that allow terrorist organizations to thrive. Domestically, DOD only participates in disaster response at the direction of the secretary of defense or the president, and only when the response capabilities of state and local authorities are overwhelmed and no other agency can manage the need.

The Department of Health and Human Services

The Department of Health and Human Services (HHS) leads the coordination of all functions relevant to Public Health Emergency Preparedness and Disaster Medical Response, including preparedness to manage these events. As coordinator and primary agency for the NRF Emergency Support Function #8, Public Health and Medical Services, HHS coordinates support from all levels to address these health and medical issues, which are likely to be central to any terrorist attack involving WMDs.

The Department of the Treasury

The Department of the Treasury both prepares for and responds to attacks that impact the nation's financial systems and goes after terrorists by freezing their ability to finance their efforts. After 9/11, the treasury initiated the Terrorist Finance Tracking Program (TFTP) to support efforts against terror financing.

Homeland Security Activity of State and Tribal Governments

At the state level, each governor holds a considerable amount of responsibility to ensure that national security is being maintained and power to take action to support local jurisdictions if a terrorist attack ever happens. The role of the governor in a terrorism-event response is very similar to that as is performed in natural disaster response. The governor promotes the development of a hazard-risk assessment and vulnerability analysis to all hazards and considers what might be done to reduce or eliminate those risks.

State governments and their resources also represent vulnerabilities. The state maintains quite a bit of critical infrastructure, all of which is considered exposed to terrorism, and the state government itself is a potential terrorist target.

As for jurisdiction of the law enforcement aspect of terrorist attacks, the state government defers to the FBI and other federal agencies (including DHS). If the Secretary of Homeland Security so chooses, DHS also assumes the incident command of the consequence management of response as well which is more a matter of local government response, but certainly impacts the nature of the state's support. The governors have at their disposal both law enforcement resources in the state police force and a diverse response resource in the National Guard. During actual disaster events, states must often mobilize their various response resources as stipulated in the state emergency plan, and help to coordinate federal and other resources as they are provided. States play an important role in managing many of the federal grant programs that are used to prevent and prepare for terrorist attacks and in managing information dissemination relative to threat information.

Following a terror attack, the governor may take on a number of different roles, such as serving as the principal source of information to the public, especially if there is panic, if decontamination or quarantine is required, or if there is going to be an evacuation. Although the governor is always responsible for determining whether or not a disaster declaration is needed—and for making that declaration—given the jurisdiction of the FBI over terrorist attacks, a federal response is all but guaranteed, at least in terms of the law enforcement aspects of the event. And if there are WMDs involved, it is also fairly certain that there will be an emergency declaration to facilitate and formalize the involvement of the other federal agencies which, by law, can only provide assistance if such a declaration is made.

Tribal leaders are very similar to governors in terms of their responsibilities relative to terrorism prevention, preparedness, response, and recovery. They can serve as both key decision-makers and trusted sources of public information during incidents. Tribal governments, which have a special status under federal laws and treaties, ensure the provision of essential services to members within their communities and are responsible for developing emergency response and mitigation plans. Tribal governments may coordinate resources and capabilities with neighboring jurisdictions, and establish mutual aid agreements with other tribal governments, local jurisdictions, and state governments. Depending on location, land base, and resources, tribal governments provide law enforcement, fire, and emergency services, as well as public safety to their members.

All states maintain offices of emergency management and homeland security, and in most states these are combined in recognition of the federal structure. Following the attacks of September 11, the governors designated individuals from various backgrounds in state government to serve as their state homeland security directors. Among the states and territories there is no common model; however, in several states, the homeland security director serves as an advisor to the governor in addition to coordinating state emergency management, law enforcement, health, and related public safety functions. In other models, governors designated the state's adjutant general as homeland security advisor. Although governors generally have opted not to create unique cabinet-level positions with oversight over all state agencies, they did form homeland security task forces. The task forces typically consist of executive office staff and agency heads from law enforcement, fire and rescue, public health, the National Guard, transportation, public works, and information technology. Where the governor places the official in charge of homeland security differs state by state, but across the 50 states and the District of Columbia, these offices exist in:

- A separate Office of Homeland Security/Emergency Management (2 states)
- In the state's military office under the direction of the adjutant general (17 states)
- In the public safety or law enforcement office (16 states)
- Within the executive office of the governor (11 states)
- In other configurations (7 states)

In August 2002, the NGA Center for Best Practices of the National Governors Association released "States' Homeland Security Priorities." A list of ten "major priorities and issues" was identified by the NGA Center through a survey of states' and territories' homeland security offices (NGA Center for Best Practices, 2002). Eleven years later, these same priorities still apply, despite the major events that have occurred in that time:

- Coordination must involve all levels of government.
- The federal government must disseminate timely intelligence information to the states.
- States must work with local governments to develop interoperable communications between first responders and adequate wireless spectrum must be set aside to do the job.
- State and local governments need help and technical assistance to identify and protect critical infrastructure.
- Both the states and federal government must focus on enhancing bioterrorism preparedness and rebuilding the nation's public health system to address 21st century threats.
- The federal government should provide adequate federal funding and support to ensure that homeland security needs are met.
- The federal government should work with states to protect sensitive security information, including restricting access to information available through "freedom of information" requests.
- An effective system must be developed that secures points of entry at borders, airports, and seaports without placing an undue burden on commerce.

- The National Guard has proven itself to be an effective force during emergencies and crises. The mission of the National Guard should remain flexible, and Guard units should remain primarily under the control of the governor during times of crises.
- Federal agencies should integrate their command systems into existing state and local incident command systems (ICS) rather than requiring state and local agencies to adapt to federal command systems.

Local Government Homeland Security Activities

The United States' system of government was designed to maintain the power to govern primarily at the state level. However, within this system, the authority to manage disaster incidents has been further passed down to the most local governments, either at the county (or Parish) or municipal levels. And these same local governments are tasked with making the decisions and the plans to reduce disaster risks within their boundaries, and ensuring that the laws and ordinances related to risk reduction—including terrorism risk reduction—are followed (this is true in all cases except where state or federal authorities have jurisdiction, which represents a small percentage of land and is typically limited to federal buildings, land, air, and seaports, military installations, and other national infrastructure).

Other than the largest cities, most local communities do not have specially designated offices of homeland security or any other terrorism-specific government office or agency. In general, local communities rely on the skills and training of their teams of first responders who include the fire, police, emergency management, emergency medical, and other officials that live within their jurisdictions.

In emergencies and disasters, local elected leaders and emergency managers dictate the response, and the local incident manager commands the use of resources brought to bear no matter what level of government those resources originate from. It is also important to remember that in a typical disaster response involving a presidential disaster declaration, all outside resources are provided to *support* the local response, not to replace it. Like their counterpart governors at the state level, mayors, county executives, and other locally elected and appointed officials are statutorily responsible for ensuring the public safety and welfare of their residents.

Chief elected officials serve as or appoint someone to serve as the jurisdiction's chief communicator and a primary source of information for homeland security-related information, and they ensure their governments are able to carry out emergency response activities. They are typically the key decision-makers in times of disaster as stipulated in the local emergency operations plan.

The greatest amount of emergency response resources exist at the local level and include over 1.3 million firefighters, almost 800,000 police officers, and almost 750,000 paramedics and EMTs. When terrorist attacks happen, they perform the bulk of rescue, fire suppression, medical care, decontamination, scene security, law enforcement, and much more. They are almost without exception the first on the scene, and are there to manage the short- and long-term recovery issues related to site cleanup, decontamination, and planning for the rebuilding. First responders are the heart of the system that the nation depends on for the protection from and

response to terrorist attacks. Local communities are instructed that they may have to manage the aftermath of a terrorist attack for a full 24 to 48 hours on their own before state or federal backup arrives. The high levels of first responder funding that has been provided since the 9/11 attacks is indicative that the federal government recognizes and responded to such facts.

Finally, local governments have been instrumental in the awareness of terrorism threats by developing and promoting public education campaigns that encourage citizens to report threats when they see them. Campaigns like “See Something, Say Something” are geared towards preventing the types of actions that allowed terror attacks in the Tokyo and London subway systems, in buses in Israel and Spain, and in bombings almost anywhere in the world. Local governments must have the mechanisms through which this information, if provided by the public, can be properly processed, distributed to the local or other agency responsible for investigating, and responded to. This obviously requires training and planning throughout the local government and most have taken action to make that happen.

The DHS Office of Intergovernmental Affairs serves as a single point of contact for facilitation and coordination of departmental programs that impact state, local, territorial, and tribal governments. Through this office, DHS has brought together many organizations with a long history of interaction with, and support to, state, local, territorial, and tribal government organizations and associations, and the office is working hard to consolidate and coordinate that support. Today, this office facilitates the coordination of DHS-wide programs that impact state, local, territorial, and tribal governments; serves as the primary point of contact within DHS for exchanging information with state, local, territorial, and tribal homeland security personnel; identifies homeland security-related activities, best practices, and processes that are most efficiently accomplished at the federal, state, local, or regional levels; and utilizes this information to ensure that opportunities for improvement are provided to our state, territorial, tribal, and local counterparts.

The Private Sector

The private sector has been a principal terrorist target, whether because they tend to be easier to attack, because they can result in more civilian casualties and economic impacts, or because terrorist organizations or individuals directly engage particular businesses or organizations. But businesses have responded to the growing threat in a number of ways, especially since September 11, 2001.

Businesses have gone to great lengths to increase at-work and at-home disaster preparedness of their employees, recognizing that a business is only as strong as its employee base, and if employees are unable to come to work for any reason, the business is likely to be affected. Businesses have also taken great steps to protect their physical resources including their facilities, equipment, and vehicles. And finally, businesses have taken great steps to protect their operations, inclusive of their data protections, ensuring access to supply lines and the customer base, and protection of their reputation.

In the aftermath of a terror attack, the community and in some cases the country depends on businesses being able to continue their work, whether they are a utility owner and operator,

a transportation or shipping provider, an energy provider, a producer or seller of food, or anything else communities depend on to function.

The private sector also contributes to terrorism-risk management. Prior to events, businesses are taking a greater role in providing counterterrorism intelligence to government authorities and in forming relationships that enable them to better understand the risks they themselves face as a likely terror target. In response, businesses have provided or supported many of the capabilities to decontaminate and/or reconstruct buildings damaged in a terror attack. Additionally, much of the equipment needed to protect citizens and responders comes from private-sector research, development, and sales. Private contractors provide training in WMD preparedness and response, and likewise, the private sector maintains many of the chemicals and biological materials that must be protected from theft or targeting by terrorists.

Other Homeland Security Structures

Nonprofit organizations, faith-based groups, civic organizations, and other nongovernmental organizations participate to varying degrees in the management of terrorist emergencies and disasters, just as they do in nonterrorist events. Most citizens are aware of their role because of the American Red Cross presence in almost every American community. But there are hundreds of other local and national organizations that address different aspects of terrorism preparedness and/or response, or which serve more comprehensive needs of specific populations that they serve (e.g., the poor, the elderly, those with functional needs, or immigrants, for instance).

These groups' efforts help to reduce the vulnerability of communities, which in turn makes terror attacks less likely to have significant immediate and long-term impacts. And in the response to disasters, these organizations address many of the needs of the population that are not fully filled by government agencies. Following September 11th, NGOs managed the bulk of the tens of thousands of victims who requested psychosocial counseling, as well as many other needs like food and housing assistance.

At the national, state, and local levels, there are associates of specific NGOs that are focused on disaster response called Voluntary Organizations Active in Disasters (VOADs). VOADs help NGOs to coordinate their efforts, and respond when needed in any kind of disaster, whether caused by a terror attack or natural hazard. Community-based NGOs are also taking on the terror threat itself. Examples of these can be seen in almost every city and town, and include organizations like Neighborhood Watch, Community Emergency Response Teams (CERTs), and other civic and professional organizations like the Lions Club or Rotary International. These groups often have a unique knowledge or understanding of local terror threats, local response capabilities, and special needs within their jurisdictions.

Finally, citizens themselves are a critical component of terrorism preparedness, prevention, response, and recovery. People need to understand the threats they face and must take action to reduce that threat for themselves and their community. Citizens represent the greatest resource in terms of eyes and ears capable of detecting terror attacks in planning or in progress whether that includes purchasing materials for an attack, hearing about the planning or

witnessing surveillance, or seeing suspicious activity that might come before an attack such as leaving behind a backpack or suitcase, running from a car parked in a no parking zone, or other behaviors.

In the aftermath of the attack, even before the emergency responders arrive, citizens must know what to do to protect themselves from further harm and to help those directly impacted.

Funding for First Responders and Emergency Management

For state and local government, the events of September 11 resulted in an extraordinary increase in funding for first responders—fire, police, and emergency medical technicians—and emergency management activities. Also, the number of federal government agencies and programs now providing funds for these activities has increased significantly. In the first responder community, historically only the police have received significant funding from the federal government. Fire departments across the country traditionally have raised the majority of their funding from local sources. Emergency medical technicians are often private contractors paid for by local and state government sources.

Proper training and equipping of firefighters responding to a biochemical terrorist attack has been a concern among the fire services community and FEMA since the early 1990s. Passage of the Fire Prevention and Assistance Act in 2000 was the first effort by Congress to support the nation's paid and volunteer fire departments. In the spring of 2001, FEMA initiated a new Fire Grant program that provided \$100 million in small grants to local fire departments for equipment, protective gear, training, and prevention programs. In 2002, the amount available for FEMA fire grants increased to \$300 million. By 2004, that amount had risen to over \$700,000 (though these totals have fallen every year since). In addition to the annual fire grants, the bulk of the \$3 to \$3.5 billion spent on first responders each year has been designated for equipping and training of first responders for future terrorist events.

FEMA is not the only source of terrorism funding for state and local governments. The Department of Justice, through a variety of programs, funds the acquisition of equipment and technology. The Department of Health and Human Resources provides substantial funding to state and local government to address the threat of biochemical terrorist attacks. The Center for Disease Control funds public health planning and capacity building and bolstering of the national pharmaceutical stockpile. The Department of Defense provides funding for emergency management training for military personnel and community officials.

Communicating Threat Information to the American People

On April 20, 2011, DHS Secretary Janet Napolitano announced the implementation of the National Terrorism Advisory System (NTAS). The NTAS took the place of the much-maligned color-coded Homeland Security Advisory System (HSAS) (Figure 9-5) that had been in place



FIGURE 9-5 The Homeland Security Advisory System (HSAS) was unveiled in 2002. It was replaced by the National Terrorism Advisory System (NTAS) in 2011.

since 2002. The HSAS was born out of Homeland Security Presidential Directive-3 (HSPD-3), which was issued on March 11, 2002, and stated that:

The nation requires a Homeland Security Advisory System to provide a comprehensive and effective means to disseminate information regarding the risk of terrorist acts to federal, state, and local authorities and to the American people. Such a system would provide warnings in the form of a set of graduated “Threat Conditions” that would increase as the risk of the threat increases. At each Threat Condition, federal departments and agencies would implement a corresponding set of “Protective Measures” to further reduce vulnerability or increase response capability during a period of heightened alert.

This system is intended to create a common vocabulary, context, and structure for an ongoing national discussion about the nature of the threats that confront the homeland and the appropriate measures that should be taken in response. It seeks to inform and facilitate decisions appropriate to different levels of government and to private citizens at home and at work.

The system which was designed to combine threat information with vulnerability assessments and provide communications to public safety officials and the public, had three components:

- **Homeland Security Threat Advisories.** Contains actionable information about an incident involving, or a threat targeting, critical national networks or infrastructures or key assets.
- **Homeland Security Information Bulletins.** Communicates information of interest to the nation’s critical infrastructures that do not meet the timeliness, specificity, or significance thresholds of warning messages.
- **Color-Coded Threat Level System.** Used to communicate with public safety officials and the public at large through a threat-based, color-coded system so that protective measures can be implemented to reduce the likelihood or impact of an attack.

Since its inception, concerns had been raised about the level of information provided through the HSAS. These concerns were shared by both the general public and members of the first-responder community (e.g., police, fire, and emergency medical technicians), as well as local officials responsible for ensuring public safety. The Partnership for Public Warning (PPW) was formed in January 2002 as a partnership among the private sector, academia, and government entities at the local, state, and federal levels for the purpose of better coordinating disaster warning programs. PPW is a nonprofit entity with its stated mission to “promote and enhance efficient, effective, and integrated dissemination of public warnings and related information so as to save lives, reduce disaster losses and speed recovery” (PPW, 2008).

In May 2003, PPW published “A National Strategy for Integrated Public Warning Policy and Capability,” which examined the current status of public warning systems, practices, and issues across the United States. The report stated, “Working together in partnership, the stakeholders should assess current warning capability, carry out appropriate research and develop the following:

- A common terminology for natural and man-made disasters
- A standard message protocol

- National metrics and standards
- National backbone systems for securely collecting and disseminating warnings from all official sources
- Pilot projects to test concepts and approaches
- Training and event-simulation programs
- A national multimedia education and outreach program” (Partnership for Public Warning, 2003)

In her announcement concerning the NTAS, Secretary Napolitano stated, “The terrorist threat facing our country has evolved significantly over the past 10 years, and in today’s environment—more than ever—we know that the best security strategy is one that counts on the American public as a key partner in securing our country.” DHS released the document entitled “A Public Guide to the NTAS” as part of its effort to announce its establishment (DHS, 2011). Additional information concerning the NTAS released by DHS in April 2011 is presented in the sidebar “National Terrorism Advisory System (NTAS).” A sample NTAS alert is presented in [Figure 9-6](#).


NATIONAL TERRORISM ADVISORY SYSTEM (NTAS)

Under NTAS, DHS will coordinate with other federal entities to issue detailed alerts to the public when the federal government receives information about a credible terrorist threat. NTAS alerts provide a concise summary of the potential threat including geographic region, mode of transportation, or critical infrastructure potentially affected by the threat, actions being taken to ensure public safety, as well as recommended steps that individuals, communities, businesses, and governments can take to help prevent, mitigate, or respond to a threat. NTAS alerts will include a clear statement on the nature of the threat, which will be defined in one of two ways:

- **Elevated Threat:** Warns of a credible terrorist threat against the United States
- **Imminent Threat:** Warns of a credible, specific, and impending terrorist threat against the United States

Depending on the nature of the threat, alerts may be sent to law enforcement, distributed to affected areas of the private sector, or issued more broadly to the public through both official and social media channels, including a designated DHS webpage (www.dhs.gov/alerts), Facebook, and Twitter @NTASAlerts. NTAS alerts and posters will also be displayed in places such as transit hubs, airports, and government buildings. NTAS threat alerts will be issued for a specific time period and will automatically expire. Alerts may be extended if new information becomes available or as a specific threat evolves.

Source: DHS, 2011, http://www.dhs.gov/ynews/releases/pr_1303296515462.shtm.


National Terrorism Advisory System
Alert
www.dhs.gov/alerts
DATE & TIME ISSUED: XXXX

SUMMARY

The Secretary of Homeland Security informs the public and relevant government and private sector partners about a potential or actual threat with this alert, indicating whether there is an “imminent” or “elevated” threat.

DURATION

An individual threat alert is issued for a specific time period and then automatically expires. It may be extended if new information becomes available or the threat evolves.

DETAILS

- This section provides more detail about the threat and what the public and sectors need to know.
- It may include specific information, if available, about the nature and credibility of the threat, including the critical infrastructure sector(s) or location(s) that may be affected.
- It includes as much information as can be released publicly about actions being taken or planned by authorities to ensure public safety, such as increased protective actions and what the public may expect to see.

AFFECTED AREAS

- This section includes visual depictions (such as maps or other graphics) showing the affected location(s), sector(s), or other illustrative detail about the threat itself.

HOW YOU CAN HELP

- This section provides information on ways the public can help authorities (e.g. camera phone pictures taken at the site of an explosion), and reinforces the importance of reporting suspicious activity.
- It may ask the public or certain sectors to be alert for a particular item, situation, person, activity or developing trend.

STAY PREPARED

- This section emphasizes the importance of the public planning and preparing for emergencies before they happen, including specific steps individuals, families and businesses can take to ready themselves and their communities.
- It provides additional preparedness information that may be relevant based on this threat.

STAY INFORMED

- This section notifies the public about where to get more information.
- It encourages citizens to stay informed about updates from local public safety and community leaders.
- It includes a link to the DHS NTAS website
<http://www.dhs.gov/alerts> and
<http://twitter.com/NTASAlerts>

If You See Something, Say Something™. Report suspicious activity to local law enforcement or call 911.

The National Terrorism Advisory System provides Americans with alert information on homeland security threats. It is distributed by the Department of Homeland Security. More information is available at www.dhs.gov/alerts. To receive mobile updates: [www.twitter.com/NTASAlerts](http://twitter.com/NTASAlerts).
 If You See Something Say Something™ used with permission of the NY Metropolitan Transportation Authority.

FIGURE 9-6 A sample NTAS alert. Source: DHS, 2011, <http://www.dhs.gov/xlibrary/assets/ntas/ntas-sample-alert.pdf>.

A PUBLIC GUIDE TO THE NTAS

THE NATIONAL TERRORISM ADVISORY SYSTEM

The National Terrorism Advisory System, or NTAS, replaces the color-coded Homeland Security Advisory System (HSAS). This new system will more effectively communicate information about terrorist threats by providing timely, detailed information to the public, government agencies, first responders, airports and other transportation hubs, and the private sector. It recognizes that Americans all share responsibility for the nation's security, and should always be aware of the heightened risk of terrorist attack in the United States and what they should do.

NTAS Alerts

After reviewing the available information, the Secretary of Homeland Security will decide, in coordination with other Federal entities, whether an NTAS Alert should be issued. NTAS Alerts will only be issued when credible information is available. These alerts will include a clear statement that there is an imminent threat or elevated threat. Using available information, the alerts will provide a concise summary of the potential threat, information about actions being taken to ensure public safety, and recommended steps that individuals, communities, businesses, and governments can take to help prevent, mitigate, or respond to the threat.

The NTAS Alerts will be based on the nature of the threat: in some cases, alerts will be sent directly to law enforcement or affected areas of the private sector, while in others, alerts will be issued more broadly to the American people through both official and media channels. NTAS Alerts contain a sunset provision indicating a specific date when the alert expires—there will not be a constant NTAS Alert or blanket warning that there is an overarching threat.

If threat information changes for an alert, the Secretary of Homeland Security may announce an updated NTAS Alert. All changes, including the announcement that cancels an NTAS Alert, will be distributed the same way as the original alert.

The NTAS Alert—How Can You Help?

Each alert provides information to the public about the threat, including, if available, the geographic region, mode of transportation, or critical infrastructure potentially affected by the threat; protective actions being taken by authorities; and steps that individuals and communities can take to protect themselves and their families, and help prevent, mitigate or respond to the threat.

Citizens should report suspicious activity to their local law enforcement authorities. The “If You See Something, Say Something” campaign across the United States encourages all citizens to be vigilant for indicators of potential terrorist activity, and to follow NTAS Alerts for information about threats in specific places or for individuals exhibiting certain types of suspicious activity. Visit www.dhs.gov/ifyouseesomethingsaysomething to learn more about the campaign.

Alert Announcements

NTAS Alerts will be issued through state, local, and tribal partners, the news media, and directly to the public via the following channels:

- Via the official DHS NTAS webpage—<http://www.dhs.gov/alerts>
- Via email signup at—<http://www.dhs.gov/alerts>
- Via social media

- Facebook—<http://www.facebook.com/NTASAlerts>
- Twitter—<http://twitter.com/#!/NTASAlerts>
- Via data feeds, web widgets, and graphics—<http://www.dhs.gov/alerts>.

The public can also expect to see alerts in places, both public and private, such as transit hubs, airports and government buildings.

Source : DHS, 2011, "NTAS Guide: National Terrorism Advisory System Public Guide," <http://www.dhs.gov/xlibrary/assets/ntas/ntas-public-guide.pdf>.

Table 9-1 DHS Office Funding 2014 (Requested)

Directorate/Agency/Office	Funding Amount (in Millions)	Funding Percent (%)
Customs and Border Protection	\$12,900	22
Federal Emergency Management Agency	\$11,327	17
U.S. Coast Guard	\$9,794	16
Transportation Security Agency	\$7,398	12
Immigration and Customs Enforcement	\$5,342	9
U.S. Citizenship and Immigration Service	\$3,219	5
National Protection and Programs Directorate	\$2,568	4
FEMA Grants	\$2,123	4
U.S. Secret Service	\$1,801	3
Science and Technology	\$1,527	3
Department Operations	\$811	1
Domestic Nuclear Detection Office	\$291	1
Analysis and Operations	\$309	1
Federal Law Enforcement Training Academy	\$271	1

DHS Budget

The White House has proposed a budget for fiscal year 2014 that requests a total of \$59.959 billion for the Department of Homeland Security. This amount is a slight decrease of 0.3 percent compared to what was funded by Congress in FY 2013 (excluding \$12 billion in funds provided in emergency supplemental funding). The FY 2014 budget request targets the following five mission areas:

- Preventing terrorism and enhancing security
- Securing and managing our borders
- Enforcing and administering our immigration laws
- Safeguarding and securing cyberspace
- Ensuring resilience to disasters

Under this budget, DHS offices would be funded as shown in [Table 9-1](#).

Conclusion

Emergency management in the United States was changed forever by the events of September 11. New foci, new funding, new partners, and new concerns associated with the fight against terrorism are changing the way emergency management functions in this country every day. At the federal government level, the Department of Homeland Security has been established, which includes FEMA and all the federal government disaster management programs. At the state level, governors and state emergency management directors are calling for better coordination, new communications technologies, and, always, more and more funding. At the local government level, terrorism remains an old threat but its relatively new elevation of importance greatly expands their facility security requirements and it has been added to a long list of needs and priorities. The threat of terrorism is one that cannot be ignored, and as the bombings at the 2013 Boston Marathon show, it can strike anywhere at any time. Issues of coordination, communications, and funding concern local governments as well.

The United States took its typical response to a new problem. Huge amounts of funding was reorganized and committed to reducing the problem. The ability of the Department of Homeland Security to achieve the enhanced level of coordination has improved, but it still has a long way to go. Many attacks have been prevented, as touted by the intelligence community and DHS; but this is an ongoing effort that will likely never end. And while DHS can participate in the prevention role alongside the intelligence community, the military, diplomatic corps, and law enforcement, the emergency management role of FEMA is largely divorced from these efforts given its mandate. What FEMA can offer is a better prepared and equipped first responder cadre and better systems and plans to deal with the aftermath of attacks that succeed.

The question of cost effectiveness will always remain. The likelihood of natural and technological disasters has already proven to be far greater than that of terrorist attacks. In the years following the September 11 terrorist attacks, the United States has been affected by hurricanes, floods, wildfires, chemical accidents, transportation accidents, volcanoes, ice storms, tornadoes, severe winter weather, avalanches—the list goes on and on. Meanwhile, the deaths, injuries, and damages caused by terrorist events pales in comparison even given the 2013 Boston attacks (which did not even require a presidential disaster declaration). The Department of Homeland Security will need to continually reassess its priorities in terms of terrorism versus other less-sinister hazards, and shift funding as appropriate. The terrorist threat will never go away completely, but over time it should require much less of the attention of the nation's first responders, state responders, and federal government preparedness and response agencies.

Important Terms

- Adjutant General
- After-action Report
- Critical infrastructure
- Homeland Security Presidential Directive
- National Terrorism Advisory System

Self-Check Questions

1. How does the terrorism hazard differ from its natural and technological counterparts?
2. What is the goal of emergency management in regards to the terrorism threat?
3. How much money did the federal government spend in the response to and recovery from the September 11 attacks?
4. What did the two September 11-related after-action reports say about the capabilities of first responders?
5. What has been the most significant result of the September 11 attacks for state and local emergency managers?
6. What did the Post-Katrina Emergency Management Reform Act do?
7. Other than DHS, what federal agencies provide terrorism-based funding for first responders?
8. What was the purpose of the 911 Commission? What did the Commission find?
9. How do states respond to the terrorist threat?
10. How did Hurricane Katrina affect terrorism preparedness in the United States?

Out-of-Class Exercises

Visit the website for your state homeland security office. Where in government is this office? What grants and other assistance does it provide to local governments and citizens of the state? Is this office co-located with the office of emergency management, or is it a separate office? What is the experience of the lead executive of the office?

The Future of Emergency Management

Change has remained a constant in emergency management since 2000. In the aftermath of the September 11, 2001 terrorist attacks, the nation's emergency management system experienced a drastic change in its all-hazards approach to risk to one that focused on the singular terrorism hazard. This particular change is believed to have been the principle cause of the botched response to Hurricane Katrina. Following that event, another change occurred as the focus returned to all-hazards. And again, as the dust rises in the effort to rebuild the Northeast states impacted by Hurricane Sandy, we are seeing new changes to the manner in which our government approaches recovery.

But change in the emergency management profession is not unique to the 21st century. In fact, it was an all-hazards focus that characterized the Federal Emergency Management Agency (FEMA) when it was created in 1979, yet all of that changed in the 1980s when the singular hazard of nuclear attack planning dominated the agenda. And it was Hurricane Andrew in 1993 that swung the pendulum again back to an all-hazards approach.

Like so many other government functions, emergency management is guilty of forgetting the past and needlessly repeating history. But how can emergency management break this cycle and establish a stable and consistent approach to the multitude of hazards our country faces and will continue to face in the future? Which of these changes need to be institutionalized, and what needs to happen to ensure a secure future for emergency management that best serves the individuals, businesses, and communities that comprise the United States.

The purpose of this chapter is to establish: where the emergency management profession stands at the time of writing (May 2013); where we believe emergency management needs to go in the future; and how we think the nation and emergency management can get there.

Where is Emergency Management Now?

A lot has happened since the last edition of this book was published in 2010, not just in the spectrum of emergency management but also across all sectors and all regions of the country. Some of the most notable of these changes include:

- The rising costs of major disasters, including Hurricanes Irene and Sandy and ongoing national drought conditions.
- The designation by President Obama of HUD Secretary Shaun Donovan as the leader of the federal recovery efforts in Hurricane Sandy, representing the first time since 1993 that the head of FEMA has not served in this capacity (yet another instance of history repeating).

- The defunding and all but elimination of FEMA's Pre-Disaster Mitigation Program, effectively disabling the federal government from supporting communities in their efforts to conduct hazard mitigation and thus returning to a situation where communities can only receive risk-reduction funding after a disaster has struck (rather than in advance of their striking when lives could be saved and property and infrastructure protected.)
- The appointment of Craig Fugate by President Obama as FEMA Administrator, which appears to have institutionalized the concept that the head of FEMA should, at minimum, be an experienced emergency manager.
- Reduced funding to the states by FEMA's Emergency Management Performance Grant (EMPG) program that in turn will likely result in reduced capabilities at both the state and local levels.
- The redrawing of community flood maps and changes in National Flood Insurance Program (NFIP) premiums that in one swift move raised premiums on many homes, such as one person's home in South Louisiana whose flood insurance rates rose from \$250 per year to over \$5000 per year (as the NFIP continues to linger in immense debt that has only grown in the aftermath of Hurricanes Irene, Sandy, and Isaac).
- The emergence of social media as the information source of choice for a majority of Americans in major disasters like Hurricane Sandy, and the associated recognition and acceptance by emergency managers that the communication of timely and accurate information to the public through both traditional (television, radio, and newspapers) and social (Facebook, YouTube, Twitter, etc.) media outlets is an important and essential part of their job.
- The reduction in funding and priority of the FEMA Higher Education Program that has been largely responsible for helping universities produce the nation's next generation of emergency managers through their academic and training programs. (The conversion of the FEMA Higher Education Conference in 2013 from a 5-day in-person event at the Emergency Management Institute to four online sessions has had a particularly negative impact in this regard.)
- The reduction in homeland security and emergency management preparedness funding such as the reduction in funding for the Urban Areas Security Initiative (UASI) from \$832 million available in 2010 to \$490 million in 2012 and the continued lack of any funding for Citizen Corps, once hailed as the leading program in community preparedness.
- The struggle to pass the supplemental funding bill for Hurricane Sandy which signals a break from past practices wherein members of Congress support disaster funding in each others' states despite the fact that their own state may not benefit in recognition that their own constituents would only hope for the same in a future event (and thus begging the question of how the impacted congressional members from New York and New Jersey may vote when the same is needed to pay for a major disaster in a region outside their own.)
- The development and adoption of the National Disaster Recovery Framework, the National Mitigation Framework, and the National Prevention Framework by FEMA/DHS that, like the National Response Framework, provide guidance on how all entities will work together but do not detail how the federal role in any these phases will work (as the Federal Response Plan detailed in the past).

- FEMA announced its Whole Community concept calling for all community stakeholders to get involved in building community resilience, supported by the planning frameworks noted above but little else in terms of programming and funding.
- The conduct of predisaster recovery planning in coastal counties in Florida and other communities across the country and the development of predisaster recovery plans, all focused on identifying how the community will be rebuilt after the next major disaster strikes.
- The development of a suite of community-based assessment and planning tools developed by climate change adaptation specialists that communities can use to reduce the impacts of future disaster events made more severe and more frequent by climate change.
- The establishment of the National Hazard Mitigation Association (NHMA), a nonprofit group dedicated to helping communities to reduce the impacts of future disasters through hazard mitigation.
- The increase in Business Continuity Planning (BCP) activities among large and midsized businesses as new regulatory requirements have been approved by Congress expanding the number of business sectors requiring BCP plans per what Sarbanes-Oxley did for the financial services sector.
- The expansion of the American Planning Association's hazard risk division, the conduct of a series of webinars by the International Economic Development Council (IEDC) for its members focused on disaster mitigation and recovery, and the continued leadership of the U.S. Chamber of Commerce in coordinating disaster-relief efforts among the nation's business community.

Events or changes that have impacted the nation's mainstream emergency management community from the outside include:

- Politicians stepping up to lead in disaster response and recovery having learned an important lesson from the failures of President George W. Bush, Louisiana Governor Kathleen Blanco, and New Orleans Mayor Ray Nagin in Hurricane Katrina—shining examples of this new leadership include President Obama, New Jersey Governor Chris Christie, New York Governor Andrew Cuomo, and New York City Mayor Michael Bloomberg in Hurricane Sandy.
- The realization by the Japanese government in the aftermath of the earthquake/tsunami/nuclear event that struck in 2011 that local communities did not have the capacity to conduct comprehensive recovery planning, which significantly disrupted the recovery process in most of the communities impacted.

The elevation of Disaster Risk Reduction by the United Nations and the international financial institutions (The World Bank, the Asian Development Bank, etc.) to priority status in their development planning and disaster-relief efforts in stark contrast to the reduced emphasis on hazard mitigation in the United States. To date, there appears to be no movement in the aftermath of the Boston Marathon bombing to return the emergency management focus back to the single terrorism hazard and away from the all-hazards approach as occurred after the September 11 attacks in 2001.

Climate change continues to play a significant role in the size and frequency of large weather-related disasters, and that is likely to only increase in the future as our nation's political leadership remains gridlocked on how to address the climate change issue (another instance where the United States is trailing the rest of the world).

In summary, there have been both positive and not so positive changes in the past 3 years. On the positive side, FEMA has repaired its reputation and can again be depended on in times of need to support state and local response efforts. Emergency managers at all levels have finally accepted that they need to inform the public especially in the response phase of a disaster. Politicians now recognize both the downside and the upside of disasters (especially disaster response) and have taken steps to hire experienced emergency managers and step-up their leadership role and visibility in a disaster. FEMA's Whole Community concept is one of many efforts to help communities to become more disaster resilient. New partners in the business, economic development, and planning sectors are becoming more involved in emergency management.

On the not-so-positive side, federal funding in all four phases of emergency management has been severely reduced and questions remain about how Congress will act in future disasters. The United States has fallen far behind the rest of the world in disaster risk reduction. Funding for FEMA's EMPG program, FEMA's Higher Education Program, and other FEMA programs has suffered from congressional budget delays and the sequestration impacting how state and local emergency management agencies operate and the education of the next generation of emergency managers. Climate change continues to create more severe and more frequent weather disasters that will only further strain our nation's emergency management system. Finally, every individual with a cell phone in hand is now capable of acting as disaster reporter and this presents both challenges and opportunities for emergency managers.

Future Challenges and Opportunities

Despite all of these issues and challenges, there are significant opportunities available now and in the future to strengthen emergency management in the United States and to help build disaster-resilient communities. A strong foundation has been set and new directions have at least been identified and in some places tentative steps have been taken to address the challenges and take advantage of the opportunities. We have identified the following five general areas where both the challenges and opportunities exist in the future. Not surprisingly, we have addressed some of these areas in past editions of this book and continue to believe that they still need to be addressed.

- 1. Leadership**—The chief executive, whether in government, the business community, or the nonprofit sector, sets the priorities for his or her organization. Those priorities are reflected in the organization's programming and budgeting. Emergency management and disaster resiliency were never top priorities in the past for the overwhelming majority of chief executives. President Clinton made helping Americans in a time of crisis a top priority for his administration and this priority was reflected in FEMA's performance and the

performance of all federal departments and agencies. This was true in the agency's support of state and local response and in creating Project Impact, the forerunner to FEMA's current Whole Community program. The response during Hurricane Sandy by President Obama, Governors Christie and Cuomo, and Mayor Bloomberg reflected their priorities. These are steps in the right direction but all of the nation's leaders must progress beyond these initial moves before the next disasters strike to ensure that funding is available and programs are in place to help constituents mitigate against, prepare for, respond to, and recover from. Members of Congress, state legislatures, and city and county councils must also step up and recognize the need to reorder spending and programming priorities in order to protect their community from future disasters. This type of change will not come easily and will likely require the occurrence of successive catastrophic events in communities across the country, but history tells us that sooner or later that will happen.

2. **Funding**—After leadership, funding is the most critical need. With federal support being reduced and Congress' appetite for supplemental appropriations for disaster response and recovery waning, a new formula for funding all four phases of emergency management must be devised. In mitigation the federal government should create a Mitigation Trust Fund that has an annual appropriation similar to the Highway Safety Fund and that would provide matching funds for state and local hazard mitigation projects. State and local governments need to create locally generated funding sources similar to the sales tax increase implemented in Napa, California, the Stormwater drainage fee in Tulsa, Oklahoma, and the bond program issued in Berkeley, California, each used to match federal funding for hazard mitigation actions. Similar regular funding must be found at the state and local levels for disaster-preparedness programs. Besides government, the business and nonprofit sectors must step-up to provide funding and/or programming that help communities build resiliency. The federal government must continue to be the backstop for funding for response and recovery efforts especially in major disasters that overwhelm local and state resources. The Congress must reverse this current trend of bucking and delaying passage of disaster supplemental bills once the spending has been properly justified. Voluntary agencies and nonprofits provide a wide variety of funding and programming in recovery and this needs to be better coordinated in order to maximize its effectiveness.
3. **Federal Recovery Assistance Programs**—The constant complaint from state and local leaders after a disaster is that the patchwork of federal disaster recovery programs is unnecessarily confusing, complex, and way too slow, and these complaints are justified. The designation of HUD Secretary Donovan as the leader of federal recovery efforts in Hurricane Sandy was a step in the right direction in terms of addressing the issue. It is no secret that emergency managers do not normally manage the long-term recovery effort, and this change in leadership finally recognizes that fact. Another important step came in the strong recommendation made by the new National Disaster Recovery Framework (NDRF) that communities engage in long-term recovery planning *before the next disaster strikes*. This should be common sense practice yet is surprisingly rare. Like all aspects of emergency management, decisions on how to rebuild a community are best made in

a nondisaster period where planning capabilities and capacities can be appropriately managed without the pressing issues that occur in the immediate aftermath of a major disaster. The experience of the communities in Japan after the combined earthquake, tsunami, and nuclear accident clearly illustrates this point. Many of the issues the Japanese continue to deal with 2 years after the event, including where to relocate residents, how to deal with the mountains of debris, and what can be done about the loss of historical and cultural artifacts, could have been settled prior to the event but instead are serving to slow the progress of recovery significantly. As noted earlier, communities in coastal Florida and around the country are developing predisaster recovery plans, and this type of planning is something all communities regardless of their hazard profile would benefit greatly from performing. Something must also be done to streamline FEMA's Public Assistance and Individual Assistance programs and SBA's Disaster Loan Program so that the funds dispensed by these programs better serve the needs of individuals, businesses, and communities impacted by a disaster. There is simply too much red tape for the process to work efficiently. Strong consideration should be given to an idea presented in legislation pending in Congress since 2012 that seeks to manage recovery funding through block grants. This would allow communities to manage their own recovery needs more independently and more holistically rather than having to address funding on a project-by-project basis as is currently done. Finally, the other major recovery stakeholders, who include the voluntary agencies and nonprofit groups, must better coordinate their activities to increase overall effectiveness. This problem has been an anathema to nongovernmental groups in the past and must be addressed.

- 4. Partnerships**—The nation's emergency management system has always worked best as a partnership between federal, state and local government and the voluntary sector. This system of partnership drove the successes of the 1990s and has again to an increasing degree since 2008. The business community has significantly increased its emergency management practices and partnership presence and can now be considered a full partner in all phases of emergency management. Thus far, the response phase has seen the most success for business partnerships, but there are many opportunities to involve business partners in mitigation, preparedness, and recovery efforts as well. There are other partners in the community who have always had an important role to play, including city/county managers, community planners, and economic development officials. Each of these people plays a significant role in the development and quality-of-life in their community, and can play an important role in managing predisaster risk planning and postdisaster recovery. Community-based organizations and neighborhood groups also need to become more involved in all four phases. They are the eyes and ears in the neighborhood for emergency managers, and can likewise serve as the trusted voice of preparedness and warning messages as well as organizers of community mitigation projects. Another new set of partners is the environmental and climate change adaptation groups who share an interest in community resiliency and bring significant technical and grass roots resources to the table. In keeping with FEMA's Whole Community concept, all members of the community must get involved. Appropriate programming must be created and implemented to support these types of activities and funding from all partners made available to support them.

5. Communications and Information Management—The emergency management community has historically been slow to embrace new technologies. This changed after the September 11 terrorist attacks and the field has been flooded with new information management, warning, and detection technologies. Communicating with the media and the public, especially in the response phase, has historically been a challenge for emergency managers. But in the aftermath of Hurricane Katrina, emergency managers and their political bosses have embraced the communications function and, for the most part, do it well especially in comparison to their colleagues in homeland security who still struggle to communicate effectively with the public. The rise of social media was initially a challenge but emergency managers have become very effective at using social media outlets to get information out to the public. The challenge now is how to harness the vast amounts of information flowing regularly in the social media world before, during, and after a disaster. New technologies are being developed to do just that and FEMA Administrator Fugate and others have endorsed these efforts and recognize their importance to effective emergency response and recovery. An opportunity exists now to better-utilize social media in creating an ongoing conversation with the public about disaster preparedness and hazard mitigation. These new communications outlets possess unlimited potential in building the social capital needed to create and sustain community-based disaster-resiliency programs.

Moving Forward

Two scenarios can be envisioned for the future of emergency management. In the first scenario, the nation continues to stumble from one disaster to the next, during which time climate change, budget woes, and increasing populations further diminish the existing emergency management capacity. Before long, response and recovery capacity fall so far behind typical requirements that events managed locally today become the disasters of tomorrow. The Disaster Relief Fund is simply not able to keep up with demands, and support from all levels fails to meet demands. This scenario ends with a bankrupting of our country as has actually happened in less-developed nations but is well within the possibilities of the United States given recent trends. The increase in the number of billion dollar disasters occurring on an annual basis has shown no signs of slowing, and this exceeds any adjustments that can be made for inflation. Capacity must meet demand, and in the United States the demand for response and recovery resources and capabilities is increasing much faster than the system is working to keep up. Without a greater commitment to fund and otherwise support systems and staff at all levels of government, and efforts to better integrate all sectors of society into the management of risk, this is not a far-fetched reality.

In the alternate scenario, the outcome is much more appealing. The emergency management system in the United States is restructured, bringing in all of the key local partners who work every day on all issues important to the community (e.g., city/county managers, planners, economic development officials), almost all of whom not only help to reduce vulnerability and risk but also contribute greatly to meeting response and recovery requirements when disasters do occur. These same groups are those that should support state and federal

departments and agencies to assess community risks in concert with emergency planners and chart a course for mitigating identified hazards and creating disaster resilient communities. Their involvement bolsters the local emergency management capacity to levels where events that had once required outside assistance are now handily managed by the community itself. This scenario tracks the direction the field is pushing towards at the international level, and it requires changes in public, private, and nonprofit sector perceptions of need. Changes in spending must, of course, follow suit, and every member of the community must be involved.

In order to make the second scenario a possible, or even a likely reality, we must first admit that the overwhelming priority of the nation's emergency managers is response. This is true at all levels of government, not just at the local level, and the actions and efforts of the current FEMA administration hold true to this statement. As such, we are doing ourselves a collective disservice by expecting the emergency management community to lead the risk-reduction movement, negating the fact that most emergency managers have neither the interest nor the skill set to manage such efforts.

We must also acknowledge the shortfalls and failures of our current mitigation and preparedness communications efforts. The Internet has become the primary place to put preparedness information and, likewise, to assert our preparedness achievements. But preparedness needs are not uniform and therefore only through community-level social media and grass roots efforts can we effectively prepare citizens for the next disaster. And likewise, we must recognize the limits of these new technologies, especially for vulnerable populations who may avoid or be unable to access them, and ensure a more rounded, inclusive plan of action.

So how do we get there from here? Addressing the challenges identified in this chapter requires a national-level discussion, collaborative problem solving among all sectors, and recognition of what failing to act will cause. This will, in turn, require a reordering of priorities at all levels of government and in the private and nonprofit sectors. Budgets must be reorganized and scarce funding redistributed. In summary, it will require that we change how we plan for the sustainability of our communities and how willing we are to invest in their future. The international community has already gotten on board with this concept and perhaps it is our exaggerated sense of resilience that impedes us from doing the same. This will not be easy and will place incredible demands on leaders in the political, business, and nonprofit sectors, as well as from the public. The public should demand that their community works together to manage risk. Any community that has faced devastation by disaster knows this sentiment. However, we must understand and act on the knowledge of how such sentiments may also be created in communities where experience with such devastation has yet to come. The path to this major change in how communities better deal with disasters and reduce future disaster impacts effectively changes how they function and requires the following of each partner:

Local Government

- Mayor and/or county executive make it a priority and lead the effort.
- Community priorities are reordered with input from all community stakeholders.
- The budget is reconfigured to reflect actions taken to become disaster resilient.

- Local funding sources are created to generate reliable and consistent annual funding.
- A community nonprofit foundation capable of accepting tax-deductible contributions from individuals, businesses, foundations, and other nonprofits is created.
- Existing full-time staff, including the city/county manager (if in place), public affairs, community planning, public works, social services, public housing authority, and other appropriate departments are involved in community-resiliency efforts and recovery planning and conduct.
- A PreDisaster Recovery Plan is developed, with the existing community hazard mitigation plan and steering committee serving as the basis.
- The public is engaged through social media, town hall and neighborhood meetings, and the CERT program.
- Everyone in the community is involved in planning efforts per FEMA's Whole Community concept.
- The local Chamber of Commerce and Economic Development officials are involved, and champions from these sectors are identified and recruited to serve.
- Local and national nonprofit groups, such as Save the Children, are involved in local efforts.

State Government

- Governor and legislature endorse community resiliency efforts.
- A state government-funding source is created to complement FEMA's EMPG funding.
- A state capitol-funding source is created to match federal mitigation dollars for large-hazard mitigation projects.
- Funding is included in annual appropriations for relevant state departments and agencies such as natural resources, public works, public safety, transportation, social services, and others that could support community-resiliency projects.
- Technical assistance is provided to communities to conduct hazard mitigation and preparedness planning and to identify and design mitigation projects.
- A disaster-preparedness program is designed and implemented to complement community-based preparedness programs and messages.

Federal Government

- The president makes community resiliency a top priority and works to promote this concept nationally.
- All federal agencies are required to provide technical and funding support for community-resiliency projects.
- Technical assistance is provided for identifying and designing hazard-mitigation projects.
- A mentoring program is developed to allow communities to exchange best practices and counsel other communities, including an annual national conference focused on community resilience.
- A Mitigation Trust Fund is created to provide matching funds for hazard-mitigation capital projects.

- The National Response Framework is built upon to develop an agreement similar to the old Federal Response Plan that details who is in charge and what federal agencies will do as part of the federal response in support of state and locals to major disaster.
- FEMA's EMPG program is fully funded with a regular annual appropriation that state and locals can depend on.
- Federal government disaster-assistance programs are re-engineered into block grant programs administered by those agencies with experience in managing block grants.
- Economic Development Administration (EDA) programs designed to educate economic development professionals and promote the value of resiliency in the growth and economic vitality of a community are funded.
- Seed money is provided to fund initial community planning efforts.
- The U.S. Army Corps of Engineers refocuses their efforts from structural to nonstructural flood mitigation.
- The Corporation for National and Community Service programs (Senior Corps, AmeriCorps, and others) are involved in community-based mitigation and preparedness efforts.
- The research agenda at the national level is driven to better understand people's attitudes towards resilience and preparedness, to identify new communications and information management technologies, to design new structural and nonstructural mitigation projects, etc.

Business Community

- Fortune 500 CEOs provide leadership and champions.
- Assistance is provided to mid- and small-sized businesses to develop and exercise business continuity plans.
- The private research agenda is driven to identify new technologies, products, industries, and jobs to support resiliency efforts.
- Resiliency is promoted in business' operational practices and up and down their supply chain.
- Disaster-resistant jobs are created.

Voluntary Agencies

- More coordination is instilled among groups involved in response and recovery efforts—change the status quo and stop wasting resources.
- Citizens get involved in the community before the next disaster strikes.

Conclusion

The authors recognize that the changes we have recommended in this chapter will be very difficult and costly to implement. However, whatever the difficulty or the cost, the price of doing nothing will be much higher as has been proven over and over again in past disasters. Our

nation's communities cannot continue to tolerate the social, economic, and environmental disruption caused by major disasters and our country could be bankrupted in the future by an unending string of multibillion dollar events. We can and must change the way we deal with disasters now.

We offer one final recommendation concerning how to get this change started and get our recommendations before the public and on the way to implementation. We suggest that one or more of our nation's major foundations fund a national coalition-building process focused at the local level that raises awareness of the risks we face and generates public demand that everyone involved in making a community resilient take action. FEMA currently has a relationship with the Rockefeller Foundation so there is precedent for a major foundation to get involved in emergency management.

Climate change, increased seismic activity, continued development in at-risk areas, and numerous other factors are making our nation's citizens, businesses, and communities more and more vulnerable to disaster every year. The time is now to take action to reduce these vulnerabilities and to create a nation of resilient communities.



Appendix A

Acronyms

AAR	After-Action Report
AEC	Agency Emergency Coordinator
AFRO	African Regional Office (WHO)
AOA	Administration on Aging
AOR	Areas of Responsibility (DOD)
ARC	American Red Cross
ARES	Amateur Radio Emergency Services
BHR	Bureau for Humanitarian Response (USAID)
B-NICE	Biological, Nuclear, Incendiary, Chemical, and Explosive (Weapons)
CARE	Cooperative for Assistance and Relief Everywhere
CAT	Crisis Action Team
CBDG	Community Development Block Grant
CBRN	Chemical, Biological, Radiological, and Nuclear (Weapons)
CBRNE	Chemical, Biological, Radiological, Nuclear, and Explosive (Weapons)
CCP	Crisis Counseling Assistance and Training Program
CCP	Casualty Collection Point
CCP	Citizens Corps Program
CDC	Centers for Disease Control and Prevention, U.S. Public Health Service
CDRG	Catastrophic Disaster Response Group
CENTCOM	Central Command (DOD)
CEPPO	Chemical Emergency Preparedness and Prevention Office
CERCLA	Comprehensive Environmental Response, Compensation, and Lia-bility Act
CFDA	Catalog of Federal Domestic Assistance
CHE	Complex Humanitarian Emergency
CJTF	Commander for the Joint Task Force (DOD)
CMHS	Center for Mental Health Services
CMOC	Civil/Military Operations Center (DOD)
CMT	Crisis Management Team
CNN	Cable News Network
CRC	Convention on the Rights of the Child
CRC	Crisis Response Cell
CRM	Crisis Resource Manager
CRS	Catholic Relief Services
DAE	Disaster Assistance Employee

DART	Disaster Assistance Response Team (USAID)
DCE	Defense Coordinating Element
DCO	Defense Coordinating Officer
DCSA	Defense Support of Civil Authorities
DEA	Drug Enforcement Agency
DEST	Domestic Emergency Support Team
DFO	Disaster Field Office
DHHS	Department of Health and Human Services
DHS	Department of Homeland Security
DMAT	Disaster Medical Assistance Team
DMORT	Disaster Mortuary Response Team, National Disaster Medical System
DMTP	Disaster Management Training Programme
DOD	United States Department of Defense
DOJ	Department of Justice
DOL	Department of Labor
DOT	Department of Transportation
DRC	Disaster Recovery Center
DRD	Disaster Response Division
DRRP	Disaster Reduction and Recovery Programme
DUA	Disaster Unemployment Assistance
EAS	Emergency Alert System
EC	Emergency Coordinator
ECHO	European Community Humanitarian Organization
ECS	Emergency Communications Staff
EDA	Economic Development Administration
EGOM	Empowered Group of Ministers (India)
EICC	Emergency Information and Coordination Center
EMPG	Emergency Management Performance Grants
EMRO	Eastern-Mediterranean Regional Office (WHO)
EMS	Emergency Medical Services
EOC	Emergency Operations Center
ERC	Emergency Response Coordinator (UN)
ERCG	Emergency Response Coordination Group, Public Health Service/ Centers for Disease Control and Agency for Toxic Substances and Disease Registry
ERD	Emergency Response Division (UNDP)
ERL	Emergency Recovery Loan (WBG)
ERT	Emergency Response Team
ERT-A	Emergency Response Team Advance Element
ERT-N	National Emergency Response Team
ERU	Emergency Response Unit (IFRC)
ESF	Emergency Support Function
EST	Emergency Support Team

EUCOM	European Command (DOD)
EURO	Regional Office for Europe (WHO)
FAA	Federal Aviation Administration
FACT	Field Assessment and Coordination Team (IFRC)
FAO	Food and Agriculture Organization
FBI	Federal Bureau of Investigation
FCO	Federal Coordinating Officer
FECC	Federal Emergency Communications Coordinator
FEMA	Federal Emergency Management Agency
FERC	FEMA Emergency Response Capability
FESC	Federal Emergency Support Coordinator
FFP	Office of Food for Peace (BHR)
FHA	Foreign Humanitarian Assistance (DOD)
FHWA	Federal Highway Administration
FIRST	Federal Incident Response Support Team
FOC	FEMA Operations Center
FRC	Federal Resource Coordinator
FRERP	Federal Radiological Emergency Response Plan
FRN	FEMA Radio Network
FRP	Federal Response Plan
FSA	Farm Service Agency
GSN	Global Seismographic Network
HAO	Humanitarian Assistance Operations (DOD)
HAST	Humanitarian Assistance Survey Team (DOD)
HAZUS	Hazards—US (FEMA Consequence Modeling System)
HET-ESF	Headquarters Emergency Transportation Emergency Support Function
HHS	Department of Health and Human Services
HSAS	Homeland Security Advisory System
HSEEP	Homeland Security Exercise and Evaluation Program (ODP)
HSOC	Homeland Security Operations Center
HSPD	Homeland Security Presidential Directive
HUD	Department of Housing and Urban Development
IAEM	International Association of Emergency Managers
IASC	Inter-Agency Standing Committee
IBRD	International Bank for Reconstruction and Development (WBG)
ICP	Incident Command Post
ICPAE	Interagency Committee on Public Affairs in Emergencies
ICRC	International Committee of the Red Cross
ICS	Incident Command System
ICVA	International Council for Voluntary Agencies
IDA	International Development Association (WBG)
IDNDR	International Decade for Natural Disaster Reduction (UN)
IDP	Internally Displaced Persons

IFC	International Finance Corporation (WBG)
IFG	Individual and Family Grant
IFRC	International Federation of Red Cross/Red Crescent Societies
IHP	Individuals and Households Program
IIMG	Interagency Incident Management Group
IMD	Indian Meteorological Department
IMF	International Monetary Fund
IMT	Incident Management Team
INS	Immigration and Naturalization Service
IO	International Organization
ISCID	International Centre for Settlement of Investment Disputes (WBG)
ISDR	International Strategy for Disaster Reduction (UN)
JCS	Joint Chiefs of Staff (DOD)
JFO	Joint Field Office
JIC	Joint Information Center
JOC	Joint Operations Center
JTF	Joint Task Force (DOD)
JTTF	Joint Terrorism Task Force
MACC	Multi-Agency Command Center
MIGA	Multilateral Investment Guarantee Agency (WBG)
MMRS	Metropolitan Medical Response System
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
MSF	Medecin Sans Frontiers
NACo	National Association of Counties
NASA	National Aeronautics and Space Agency
NCA	National Command Authority (DOD)
NDMOC	National Disaster Medical Operations Center
NDMS	National Disaster Medical System
NDMSOSC	National Disaster Medical System Operations Support Center
NEHRP	National Earthquake Hazard Reduction Program
NEIC	National Earthquake Information Center
NEMA	National Emergency Management Association
NEP	National Exercise Program (ODP)
NEPEC	National Earthquake Prediction Evaluation Council
NGO	Nongovernmental Organization
NIMS	National Incident Management System
NIRT	Nuclear Incident Response Team
NIST	National Institute of Standards and Technology
NMRT	National Medical Response Team
NOAA	National Oceanic and Atmospheric Administration
NPSC	National Processing Service Center

NRC	Nuclear Regulatory Commission
NRCC	National Response Coordination Center
NRP	National Response Plan
NRT	National Response Team
NSEP	National Security Emergency Preparedness
NSF	National Science Foundation
NSSE	National Security Special Event
NVOAD	National Voluntary Organizations Active in Disaster
OCHA	Office for the Coordination of Humanitarian Affairs
ODP	Office for Domestic Preparedness
OEP	Office of Emergency Preparedness, U.S. Public Health Service
OET	Office of Emergency Transportation
OFDA	Office of U.S. Foreign Disaster Assistance
OPA	Office of Public Affairs
OS	Operation Support (OFDA)
OSC	On-Scene Coordinator
OSTP	White House Office of Science and Technology Policy
OTI	Office of Transition Initiatives (BHR)
PACOM	Pacific Command (DOD)
PAHO	Pan-American Health Organization (WHO)
PAO	Public Affairs Officer
PFO	Principal Federal Official
PK/HA	Office of Peacekeeping and Humanitarian Affairs (DOD)
PM	Office of Political/Military Affairs (DOD)
PMPP	Prevention, Mitigation, Preparedness, and Planning (OFDA)
PNP	Private Nonprofit
PRM	Bureau of Population, Refugees, and Migration (USAID)
PS	Program Support (OFDA)
PSA	Public Service Announcement
PSYOPS	Psychological Operations (DOD)
PVO	Private Voluntary Organization
QIP	Quick Impact Project (UNHCR)
RACES	Radio Amateur Civil Emergency Services
RDD	Radiological Dispersion Device
REACT	Radio Emergency Associated Communication Team
REC	Regional Emergency Coordinator
RECC	Regional Emergency Communications Coordinator
RECP	Regional Emergency Communications Plan
RET	Regional Emergency Transportation
RETCO	Regional Emergency Transportation Coordinator
RMT	Response Management Team (OFDA)
ROC	Regional Operations Center

ROE	Rules of Engagement (DOD)
ROST	Regional Operations Support Team
RRT	Regional Response Team
SAC	FBI Senior Agent-in-Charge
SAMHSA	Substance Abuse and Medical Health Services Administration
SAR	Search and Rescue
SBA	U.S. Small Business Administration
SCO	State Coordinating Officer
SEARO	South-East Asia Regional Office (WHO)
SFHA	Special Flood Hazard Areas
SFLEO	Senior Federal Law Enforcement Official
SHSP	State Homeland Security Program (ODP)
SIOC	Strategic Information and Operations Center
SITREP	Situation Report
SOCOM	Special Operations Command (DOD)
SOUTHCOM	Southern Command (DOD)
START	Scientific and Technical Advisory and Response Team
TAG	Technical Assistance Group (OFDA)
TOPOFF	Top Officials Terrorism Exercise (biennial)
TRADE	ODP Training and Data Exchange Group
TRANSCOM	Transportation Command (DOD)
UASI	Urban Areas Security Initiative
UN	United Nations
UNDAC	UN Disaster Assessment and Coordination
UNDP	United Nations Development Programme
UNFPA	United Nations Populations Fund
UNHCR	United Nations High Commissioner for Refugees
UNHRD	UN Humanitarian Response Depot
UNICEF	United Nations Children's Fund
US&R/USAR	Urban Search and Rescue
USACE	United States Army Corps of Engineers
USACOM	United States Atlantic Command (DOD)
USAID	United States Agency for International Development
USDA	United States Department of Agriculture
USGS	United States Geological Survey
VMAT	Veterinarian Medical Assistance Team
WB	World Bank
WBG	World Bank Group
WFP	World Food Programme
WHO	World Health Organization
WMD	Weapons of Mass Destruction
WTC	World Trade Center
ZECP	Zone Emergency Communications Planner



Appendix B

Emergency Management Web Sites

Category	Organization/Agency	Website URL
Academic	Disasters Roundtable	Dels.nas.edu/dr/
Academic	Extension Disaster Education Network	http://eden.lsu.edu/
Academic	FEMA Emergency Management Institute	Training.fema.gov/emiweb
Academic	George Washington University Institute for Crisis, Disaster and Risk Management	www.gwu.edu/~icdrm
Academic	University of Colorado Hazards Center	www.colorado.edu/hazards
Academic	University of Delaware Disaster Research Center	http://www.udel.edu/DRC/
Academic	University of Wisconsin Disaster Management Center	http://www.bt.cdc.gov/
Disaster Information	AlertNet	www.alertnet.org
Disaster Information	Avalanche	www.avalanche.org
Disaster Information	Center for International Disaster Information	www.cidi.org
Disaster Information	Disaster Information Network	www.disaster.net
Disaster Information	Disaster News Network	www.disasternews.net
Disaster Information	Drought Monitor	http://droughtmonitor.unl.edu/
Disaster Information	Earthquake Hazard Program	http://earthquake.usgs.gov/
Disaster Information	EPA Oil Spills	http://www.epa.gov/oilspill/
Disaster Information	Flood Streamflow Conditions	http://water.usgs.gov/waterwatch/
Disaster Information	Global Disaster Alert and Coordination System	http://www.gdacs.org/
Disaster Information	Havaria Information Service	http://viz.rsoe.hu/alertmap/waalert.php?lang=eng
Disaster Information	National Hurricane Center	http://www.nhc.noaa.gov/
Disaster Information	NOAA Watch	www.noaawatch.gov
Disaster Information	Pacific Disaster Center	www.pdc.org
Disaster Information	Relief Web	www.reliefweb.int
Disaster Information	The Disaster Center	www.disastercenter.com
Disaster Information	USGS Landslides	http://landslides.usgs.gov/
Disaster Information	Western Disaster Center	http://www.nasa.gov/centers/ames/researchpark/partners/non-profit/wdc.html
International	Asian Disaster Preparedness Center	www.adpc.net
International	Caribbean Disaster Emergency Response Agency	www.cdera.org
International	Interaction	www.interaction.org
International	International Committee of the Red Cross	www.icrc.org
International	International Federation of Red Cross/Red Crescent Societies	www.ifrc.org
International	International Monetary Fund	www.imf.org

(Continued)

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Category	Organization/Agency	Website URL
International	Pan American Health Organization	www.paho.org
International	Regional Disaster Information Center	http://www.crid.or.cr/cridling/index_ing.html
International	UN Development Programme	www.undp.org
International	UN High Commissioner for Refugees	www.unhcr.ch
International	UN International Strategy for Disaster Reduction	www.unisdr.org
International	UN Office for the Coordination of Humanitarian Affairs	Ochaonline.un.org
International	UNICEF	www.unicef.org
International	World Bank	www.worldbank.org
International	World Bank Hazard Risk Management	http://www.worldbank.org/hazards/
International	World Food Programme	www.wfp.org
Journals/Magazines	<i>Australian Journal of Emergency Management</i>	http://www.em.gov.au/ajem
Journals/Magazines	<i>Disaster Prevention and Management</i>	http://www.emeraldinsight.com/info/journals/dpm/dpm.jsp
Journals/Magazines	<i>Disaster Recovery Journal</i>	http://www.drj.com/
Journals/Magazines	<i>Government Technology Emergency Management Magazine</i>	www.emergencymgmt.com
Journals/Magazines	<i>Journal of Emergency Management</i>	http://www.pnpco.com/pn06001.html
Journals/Magazines	<i>Journal of Homeland Security</i>	http://www.homelandsecurity.org/journal/
Journals/Magazines	<i>Journal of Homeland Security and Emergency Management</i>	http://www.bepress.com/jhsem/
NGO	Action Against Hunger	www.actionagainsthunger.org
NGO	Amateur Radio Disaster Service	www.ares.org
NGO	Feeding America	www.feedingamerica.org
NGO	American Jewish World Service	Ajws.org
NGO	American Radio Relay League	www.arrl.org
NGO	American Red Cross	www.redcross.org
NGO	CARE USA	www.careusa.org
NGO	Catholic Relief Services	www.catholicrelief.org
NGO	Church World Service	www.churchworldservice.org
NGO	Habitat for Humanity	www.habitat.org
NGO	Humane Society	www.hsus.org
NGO	Institute for Business and Home Safety	www.ibhs.org
NGO	Islamic Relief Worldwide	http://www.islamic-relief.com/
NGO	Mennonite Disaster Service	http://www.mds.mennonite.net/
NGO	NVOAD	www.nvoad.org
NGO	Oxfam	www.oxfam.co.uk
NGO	Public Entity Risk Institute	www.riskinstitute.org
NGO	Salvation Army	www.salvationarmyusa.org
NGO	Save the Children	www.savethechildren.org
State and Local Government	Association of State Floodplain Managers	www.floods.org

(Continued)

Category	Organization/Agency	Website URL
State and Local Government	Emergency Management Assistance Compact	www.emacweb.org
State and Local Government	National Association of Counties	www.naco.org
State and Local Government	National Governors' Association	www.nga.org
State and Local Government	National League of Cities	www.nlc.org
State and Local Government	NEMA	www.nemaweb.org
State and Local Government	U.S. Conference of Mayors	www.usmayors.org
Terrorism	Council on Foreign Relations: Terrorism	http://www.cfr.org/issue/terrorism/ri13
Terrorism	The Terrorism Research Center	http://www.terrorism.com/
U.S. Government	FEMA	www.fema.gov
U.S. Government	FEMA for Kids	www.fema.gov/kids
U.S. Government	Centers for Disease Control	http://www.bt.cdc.gov/
U.S. Government	Department of Health and Human Services	www.hhs.gov
U.S. Government	Department of Homeland Security	www.dhs.gov
U.S. Government	Disaster Help	www.disasterhelp.gov
U.S. Government	Environmental Protection Agency	Epa.gov/naturalevents
U.S. Government	Environmental Protection Agency Chemical Preparedness and Prevention	www.epa.gov/ceppo
U.S. Government	EPA Environmental Emergencies	http://www.epa.gov/oswer/emergencies.htm
U.S. Government	Federal Bureau of Investigation	www.fbi.gov
U.S. Government	FEMA Disaster Declarations	http://www.fema.gov/disasters/
U.S. Government	FEMA HAZUS	http://www.fema.gov/hazus
U.S. Government	National Flood Insurance Program	http://www.fema.gov/national-flood-insurance-program
U.S. Government	National Interagency Fire Center	www.nifc.gov
U.S. Government	National Mental Health Information Center	http://www.samhsa.gov/
U.S. Government	NOAA Northwest Weather and Avalanche Center	http://www.nwac.noaa.gov/
U.S. Government	NOAA Satellite and Information Service	http://www.osei.noaa.gov/
U.S. Government	Ready.Gov	www.ready.gov
U.S. Government	Small Business Administration	www.sba.gov
U.S. Government	U.S. Coast Guard National Response Center	http://www.nrc.uscg.mill/index.html
U.S. Government	U.S. Department of Agriculture	www.usda.gov
U.S. Government	U.S. Department of State Terrorism Information Page	http://www.state.gov/m/ds/terrorism/
U.S. Government	U.S. Fire Administration	www.usfa.dhs.gov
U.S. Government	U.S. Secret Service	www.secretservice.gov
U.S. Government	USGS Hazards Page	http://www.usgs.gov/natural_hazards/



Appendix C

How Madison (CT) Helped Madison Patch Cover Superstorm Sandy

Pem McNerney
Madison Patch Local Editor

Studies of disasters have shown that the media are key players in warning the public about imminent natural disasters, encouraging people to heed essential warnings during those disasters, and helping the public return to a sense of normal as soon as possible after a disaster. The coverage of Superstorm Sandy on Madison Patch shows how the tools of hyperlocal Patch sites can be employed in concert with other social media tools to achieve all of these objectives before, during, and after big storms and other disasters.

Madison Patch readers first learned about the Superstorm Sandy on Monday, Oct. 22 (<http://patch.com/A-yR7B>), after the town's deputy emergency management director let me know that the storm was on a track that could make landfall nearby. At this point, a full week before the storm hit, the town's emergency management officials were beginning to prepare for the storm and it was time to let readers know they had to start to prepare as well.

In addition to letting readers know that they should take the traditional steps of preparing their houses, preparing to evacuate if necessary, and making other preparations, I reminded them that Patch would be a central source of information before, during, and after the storm on our Patch site, on Facebook, and on Twitter. Because my home was located in a mandatory evacuation zone, I also made plans to go to an alternate location that would most likely have electricity and an Internet connection throughout the storm. I located and secured a spot about 45 minutes inland in a town that had its own local electric company, in a house that was about a block from the police station, so that if power did go out, it would be restored quickly.

The coverage on Madison Patch from that time included tracking the path of the storm and keeping town residents informed on a 24/7 basis about everything they needed to know to evaluate what they had to do and when they had to do it. Combining information from local, state, and national sources, the coverage informed readers about:

- How best to prepare for a weather emergency
- Which gas stations in town would have generators, and therefore gas, during and after the storm
- How to sign up for emergency alerts and information from the town and state
- Mandatory evacuation orders and repeated admonitions as to why it was important to heed them
- Road closures

- Power outages
- Local and statewide travel bans

I used the Patch website, Facebook, and Twitter as reporting tools in addition to reporting out to readers on these sources. This was particularly valuable as people in town began to wonder about the extent of power outages, where roads were blocked, and what they could expect in terms of weather going forward. At one point there was a lull in the storm, and readers were warned that it was not yet over, that they should stay in a safe place, and that they could expect more high winds and dangerous conditions within a short period of time.

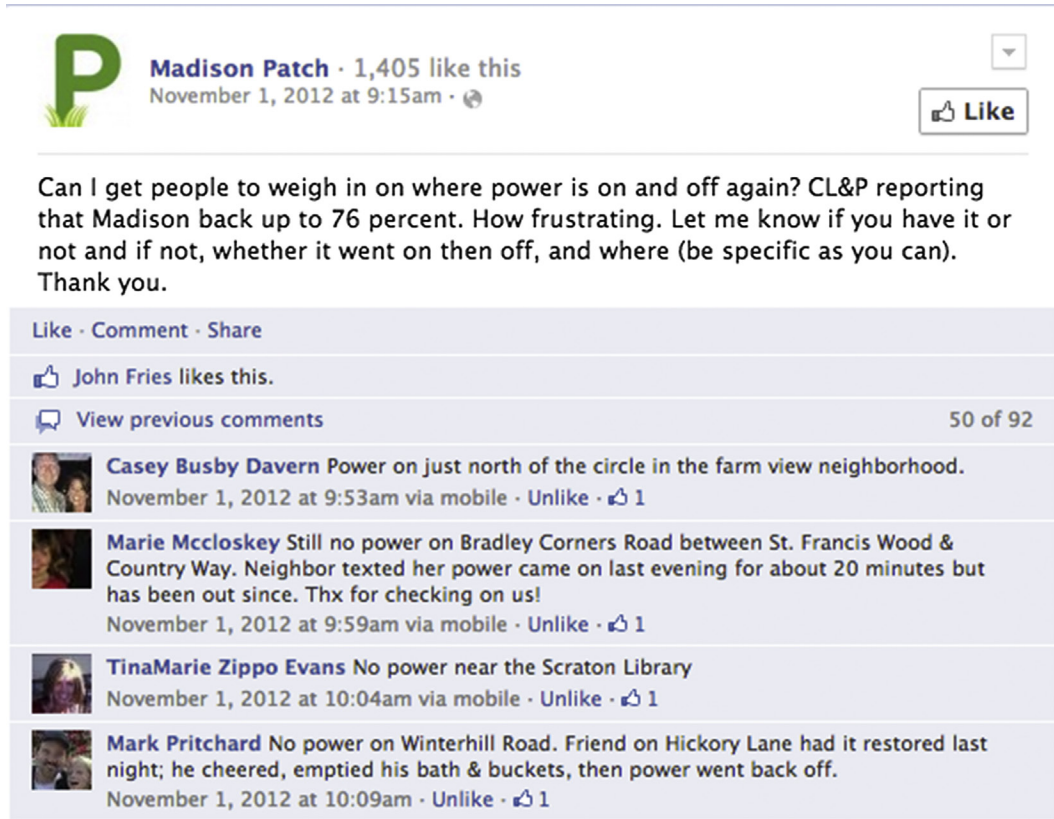
The reports coming in on Facebook and on Twitter allowed Madison Patch to connect neighbors to each other and to information from local and state emergency officials. Even at the height of the storm, we kept the conversations going so people would have a sense of what was going on in the outside world beyond the howling they heard outside their windows. When it came to publishing information and photos from readers, I was always careful to caution readers not to venture out in dangerous conditions, particularly at the height of the storm. I repeatedly warned people that getting a photo of the storm in progress was not what we wanted, and that we didn't want people to be out in the storm, creating a situation where emergency responders would have to rescue them.

Here is an example from the Madison Patch Facebook page of how social media tools were used to facilitate conversations among readers, using that conversation to keep people in town connected with each other and also to serve as a source of news for the site: <https://www.facebook.com/148299361859328/posts/487555084600419>.

Following the storm, Madison Patch readers had all the information they needed to get their lives back to normal. Homecoming was rescheduled, Halloween was held downtown. In the absence of support from the electric utility that served the shoreline, local police were taking matters into their own hands and, with chainsaws and bucket-loaders, clearing the streets of fallen trees (<http://patch.com/A-zncR> -- with video). Line workers were being shipped in from all over the country, and deployed from a local spot near a Madison beach. The story on Madison Patch took readers to that spot and to breakfast with the workers, putting a human face on the men and women who were working night and day to put the lights back on (<http://patch.com/A-zpnz> -- with video). This was important because some people were frustrated by the slow pace of recovery and were starting to take it out on these workers.

With the help of readers reporting in on the site and social media, Madison Patch readers were informed about all of that, along with vital information about what they could expect on election day, when exactly (within minutes!) the lights came back on downtown, when the local movie theater was up and running again, when the shelter was open, and even, from a local bird expert, how to help traumatized birds. Following the storm, Madison Patch readers had all the information they needed to help others who were hit harder and sustained larger losses, along with information about FEMA, the Red Cross, and other services they needed.

The coverage on Madison Patch and associated social media tools, including Facebook and Twitter, exemplified the best of hyperlocal community-supported reporting, along with the most essential information from state and national sources, through storytelling, photography, and videography.



P **Madison Patch** · 1,405 like this
November 1, 2012 at 9:15am ·

Like

Can I get people to weigh in on where power is on and off again? CL&P reporting that Madison back up to 76 percent. How frustrating. Let me know if you have it or not and if not, whether it went on then off, and where (be specific as you can). Thank you.

Like · Comment · Share

John Fries likes this.

View previous comments 50 of 92

Casey Busby Davern Power on just north of the circle in the farm view neighborhood.
November 1, 2012 at 9:53am via mobile · Unlike · 1

Marie Mccloskey Still no power on Bradley Corners Road between St. Francis Wood & Country Way. Neighbor texted her power came on last evening for about 20 minutes but has been out since. Thx for checking on us!
November 1, 2012 at 9:59am via mobile · Unlike · 1

TinaMarie Zippo Evans No power near the Scraton Library
November 1, 2012 at 10:04am via mobile · Unlike · 1

Mark Pritchard No power on Winterhill Road. Friend on Hickory Lane had it restored last night; he cheered, emptied his bath & buckets, then power went back off.
November 1, 2012 at 10:09am · Unlike · 1

FIGURE C-1

In the days after the storm, Madison Patch continued to inform readers about specific infrastructure problems and the progress of the recovery effort.

Author Biography

Pem McNerney, is the local editor for Madison and Guilford Patch, and the owner of Content Creation, LLC in Madison, CT. She has extensive experience with writing, editing, journalism, story telling, and how to make social media work in the context of those environments and the reader experience. For more information about Pem, please see www.contentcreation.com.



Glossary

Adjutant General: An administrative military officer charged with managing military assets in a particular state, primarily those of the National Guard. Many adjutant generals are also charged with managing the state's emergency management resources, though this association has diminished over time.

After-Action Report: A document that summarizes any problems or capability deficiencies that arose in the response to a disaster event and provides possible explanations and solutions for organization learning purposes.

Avalanche: A mass of ice or snow that moves downhill at a high velocity.

Blizzard: A type of severe snowstorm accompanied by very low temperatures (below 20F) and high winds (35 mph or greater).

Building codes: Regulations enacted by state and local governments which provide the requirements for design and construction of buildings in a given jurisdiction.

Business continuity planning: The act of developing a plan by which the survival of an operation of a business is maintained despite the consequences sustained due to emergency or disaster losses (direct or indirect).

CBRN weapons: The broad family of weapons that include chemical, biological, radiological, and nuclear agents which have the potential to bring about an extraordinary degree of deaths, injuries, and property destruction.

Civil defense: The discipline dealing with protecting civil society from threats.

Coastal erosion: A loss of land bordering a body of water.

Complex humanitarian emergency: A humanitarian crisis in a country or region where there is total or considerable breakdown of authority resulting from the internal and/or external conflict and which requires an international response that goes beyond the mandate or capacity of any single agency.

Continuity of Operations Plan (COOP): A planning document that outlines the actions that must be taken to ensure governmental or organizational services and activities (including business operations) do not cease during emergency or disaster contingencies, and identifies the individuals or agencies responsible for those actions.

Coordinating organization: Associations of NGOs that coordinate the activities of hundreds of preregistered member organizations to ensure response with maximized impact.

Critical infrastructure: Infrastructure components that are essential for the normal functioning of society.

Dam failure: The sudden breach of a river water containment wall, known as a dam, which results in a sudden and uncontrolled downstream rush of water and debris.

Department of Homeland Security: The federal departments charged with protecting the United States from future terrorist attacks, reducing the nation's vulnerability to terrorism, and minimizing the damage from potential terrorist attacks and natural disasters.

Developing nation: A self-applied title typically used to describe countries with lower economic, social, nutritional, and other scores on common development indices.

Disaster: An event that exceeds the emergency response and recovery capabilities and resources of the agencies and officials responsible for its management in one or more critical areas of response or recovery.

Disaster communications strategy: Provides timely and accurate information to the public in all four phases of emergency management.

Disaster Recovery Center: A satellite component of the Joint Field Office; provides a central facility where individuals affected by a disaster can obtain information on disaster-recovery assistance programs.

Donor agency: Private, national, or regional organizations whose mission is to provide the financial and material resources for humanitarian relief and subsequent rehabilitation.

Drill: A controlled, supervised method by which a single disaster management operation or function is practiced or tested.

Earthquake: A sudden, rapid shaking of the earth's crust caused by the breaking and shifting of rock beneath the earth's surface.

Emergency management: The discipline dealing with risk and risk avoidance.

Emergency management/response personnel: Includes federal, state, territorial, tribal, substate regional, and local governments, NGOs, private-sector organizations, critical infrastructure owners and operators, and all other organizations and individuals who assume an emergency management role. (Also known as emergency responder.)

Emergency Operations Plan: An ongoing plan for responding to a wide variety of potential hazards.

Emergency support function: The coordination mechanism to provide assistance to state, local, and tribal governments or to federal departments and agencies conducting missions of primary federal responsibility.

Expansive soil: Soils and soft rock that tend to swell or shrink because of changes in moisture content.

Extreme cold: Periods of colder than normal conditions exhibiting a range of negative consequences as dictated by the particular area and economy faced with the cold conditions.

Extreme heat: Temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks.

Federal Coordinating Officer (FCO): Appointed to manage the federal resources during a disaster and their primary mission is to coordinate the timely delivery of federal assistance to state and local governments, individual victims, and the private sector.

Federal disaster recovery coordinator: This official functions as a deputy to the Federal Coordinating Officer (FCO) at the Joint Field Office (JFO) to coordinate Federal recovery efforts on the FCO's behalf. The FDCR serves as the local, state, tribal entry point for federal recovery related matters and the primary contact for helping to identify and resolve recovery needs.

Federal Emergency Management Agency (FEMA): The federal agency responsible for federal policies, programs, and actions to mitigate, prepare for, respond to, and recover from all hazards.

First responders: Fire, police, and emergency medical technicians.

Flood: An overabundance of water that engulfs normally dry land and property which may be caused by a number of factors, including heavy rainfall, melting snow, an obstruction of a natural waterway, and other generative factors.

Full-scale exercise: A scenario-based event that seeks to create an atmosphere closely mimicking an actual disaster.

FSMAUGO: A risk assessment methodology that considers hazards according to their Frequency, Seriousness, Manageability, Awareness, Urgency, Growth, and a seventh category called Outrage that relates to public opinions.

Hail: Frozen atmospheric water that falls to the earth.

Hazard: A source of danger that may or may not lead to an emergency or disaster and is named after the emergency/disaster that could be so precipitated.

Hazard identification: The process undertaken to analyze sources of danger that may or may not lead to an emergency or disaster. Hazard identification is the foundation of all emergency management activities.

Hazardous materials: Substances that can pose a threat to the environment or health if accidentally or intentionally released.

Hazards-risk management: A process by which individuals, communities, and countries deal with the hazard risks they face.

Homeland Security Presidential Directive (HSPD): Presidential directives are executive orders issued by the president of the United States that have security implications and legal authority. Presidents have used a range of terminology for these directives; the HSPD was a moniker of choice for the George W. Bush administration.

Hurricane: A tropical storm with winds that have reached a sustained speed of 74 miles per hour.

Incident Commander (IC): The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and release of resources. The IC has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site.

Incident Command System (ICS): Establishes a set of planning and management systems that helps agencies responding to a disaster work together in a coordinated and systematic approach.

International financial institution: Organizations comprised of national governments that provide loans for development and financial cooperation throughout the world.

International organization: An organization with global presence and influence.

Joint Field Office (JFO): The primary federal incident management field structure. The JFO is a temporary federal facility that provides a central location for the coordination of federal, state, tribal, and local governments and private-sector and nongovernmental organizations with primary responsibility for response and recovery.

Joint Information Center: The central point for coordination of emergency public information, public affairs activities, and media access to information about the latest developments in a disaster.

Landslide: an uncontrolled movement of relatively dry rock, soil, or debris down a slope.

Land-use planning: A process that is applied within communities to determine how the community will grow and develop. It includes a number of strategies which support mitigation such as ordinances, easements, flood plain management, acquisition annexation, historic and environmental reviews, setbacks, and subdivision controls.

Lateral spread: The downward and outward spreading of large quantities of accumulated earth or other materials due to gradual hydrologic and gravitational forces.

Mass movement: The horizontal or lateral movement of large quantities of physical matter.

Mitigation: A sustained action to reduce or eliminate risk to people and property from hazards and their effects.

National Disaster Recovery Framework: A conceptual guide developed by FEMA that, similar to the National Response Framework, defines the roles of all recovery stakeholders (governmental, Nonprofit, private

sector, and others) before and after disasters have occurred, and explains how the Federal government supports State and local governments in their recovery planning efforts.

Mudflow (or debris flow): A water-saturated river of rock, earth, and other debris that is drawn downward by the forces of gravity.

National Incident Management System: A set of principles that provides a systematic, proactive approach guiding government agencies at all levels, nongovernmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the effects of incidents, regardless of cause, size, location, or complexity in order to reduce the loss of life or property and harm to the environment.

National Mitigation Framework: A conceptual guide developed by FEMA in order to establish a common platform for coordinating disaster risk reduction efforts at all government levels and by all nongovernmental and private sector stakeholders.

National Processing Service Centers (NPSCs): Receives calls and processes applications from disaster victims who need assistance. The NPSCs are central to the success of the applicant telephone registration process and the FEMA Helpline. The advantage of the centralized NPSC system is that the centers can be staffed within 5 hours after the president declares a national disaster.

National Response Framework: A guide to how the nation conducts an all-hazards response.

National Terrorism Advisory System: A terror alert system that is administered by the Department of Homeland Security that replaces the color-coded Homeland Security Advisory System.

Natural hazard: A hazard that exists in the natural environment and pose a threat to human populations and communities.

New media: Social media outlets such as YouTube, Facebook, and Twitter.

Nongovernmental organization: The general term for an organization made up of private citizens with no affiliation with a government of any nation other than the support from government sources in the form of financial or in-kind contributions.

Preparedness: A state of readiness to respond to a disaster, crisis, or any other type of emergency situation.

Private voluntary organization: An organization that is nonprofit, tax-exempt, and receives at least a part of its funding from private donor sources.

Recovery: The development, coordination, and execution of service- and site-restoration plans; the reconstitution of government operations and services; individual, private-sector, nongovernmental, and public assistance programs to provide housing and to promote restoration; long-term care and treatment of affected persons; additional measures for social, political, environmental, and economic restoration; evaluation of the incident to identify lessons learned; postincident reporting; and development of initiatives to mitigate the effects of future incidents.

Risk: A measure of the likelihood that a hazard will manifest into an actual emergency or disaster event and the consequences should that event occur.

Rockfall: Occurs when masses of rock or other material detach from a steep slope or cliff and descend by freefall, rolling, or bouncing.

Safe room: An area within a larger structure that is designed to withstand the wind and debris forces of a major tornado.

Severe winter storm: Occurs when extremely cold atmospheric conditions coincide with high airborne moisture content resulting in rapid and heavy precipitation of snow and/or ice.

Situation report: A report that provides information regarding the nature and scope of an incident, the estimated human and economic damages, and what recovery measures are underway.

Social media: The means of interactions among people in which they create, share, and exchange information and ideas in virtual communities and networks. A term used to collectively describe a set of tools that foster interaction, discussion and community, allowing people to build relationships and share information.

Sovereignty: The recognition of political authority characterized by territory and autonomy.

State coordinating officer: When the president makes a major disaster declaration, he shall request that the governor of the affected state designate a state coordinating officer for the purpose of coordinating state and local disaster assistance efforts with those of the federal government.

Storm surge: A mass of water that is pushed towards the shore by the force of an oncoming storm or other force.

Structural controls: Physical constructed measures taken to control the impacts of hazards such as levees, culverts, groins, and seawalls.

Tabletop exercise: A discussion-based activity wherein officials practice components of or the full activation of the emergency response plan within the confines of a controlled, low-stress meeting environment.

Technological hazard: Hazards that exist as a result of technological innovation and human development.

Terrorism: The use of force or violence against persons or property for purposes of intimidation, coercion, or spreading faith in order to attain political, religious, or ideological goals.

Thunderstorm: A meteorological event generated by atmospheric imbalance and turbulence caused by unstable warm air that rises rapidly, heavy moisture, and upward lift of air currents that can bring a combination of heavy rains, strong winds, hail, lightning, and tornadoes.

Tornado: A rapidly rotating vortex or funnel of air extending groundward from a cumulonimbus cloud.

Tropical cyclone: A low-pressure area of closed-circulation winds that originates over tropical waters.

Tropical storm: A warm-core tropical cyclone in which the maximum sustained surface wind speed ranges from 39 miles per hour to less than 74 miles per hour.

Tsunami: A wave or series of waves generated by a mass displacement of sea or lake water.

Unified Command: A process that all participating agencies can use to improve overall management whether their jurisdiction is of a geographical or functional nature.

Volcano: A break in the earth's crust from which molten rock exits from below the surface.

Wildland fire (or wildfire): A large, often out-of-control burning of trees, fallen wood, detritus, and other debris in uninhabited or sparsely inhabited forest or grasslands.

Zoning: Involves the regulation of the use and development of real estate. Zoning regulations and restrictions are used by municipalities to control and direct the development of property within their borders.



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