



Introduction to



EMERGENCY MANAGEMENT



FIFTH EDITION

George D. Haddow Jane A. Bullock Damon P. Coppola





Introduction to Emergency Management



Introduction to Emergency Management

Fifth Edition

George D. Haddow
Jane A. Bullock
Damon P. Coppola



ELSEVIER

AMSTERDAM • BOSTON • HEIDELBERG • LONDON • NEW YORK • OXFORD
PARIS • SAN DIEGO • SAN FRANCISCO • SINGAPORE • SYDNEY • TOKYO

Butterworth-Heinemann is an imprint of Elsevier



Acquiring Editor: Pamela Chester
Senior Editorial Project Manager: Amber Hodge
Project Manager: Punithavathy Govindaradjane
Designer: Maria Inês Cruz

Butterworth-Heinemann is an imprint of Elsevier
225 Wyman Street, Waltham, MA 02451, USA
The Boulevard, Langford Lane, Kidlington, Oxford, OX5 1 GB, UK

First Edition 2005
Second Edition 2006
Third Edition 2008
Fourth Edition 2011

Copyright © 2014 Elsevier Inc. All rights reserved.

No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage and retrieval system, without permission in writing from the publisher. Details on how to seek permission, further information about the Publisher's permissions policies and our arrangements with organizations such as the Copyright Clearance Center and the Copyright Licensing Agency, can be found at our website: www.elsevier.com/permissions.

This book and the individual contributions contained in it are protected under copyright by the Publisher (other than as may be noted herein).

Notices

Knowledge and best practice in this field are constantly changing. As new research and experience broaden our understanding, changes in research methods or professional practices, may become necessary.

Practitioners and researchers must always rely on their own experience and knowledge in evaluating and using any information or methods described herein. In using such information or methods they should be mindful of their own safety and the safety of others, including parties for whom they have a professional responsibility.

To the fullest extent of the law, neither the Publisher nor the authors, contributors, or editors, assume any liability for any injury and/or damage to persons or property as a matter of products liability, negligence or otherwise, or from any use or operation of any methods, products, instructions, or ideas contained in the material herein.

Library of Congress Cataloging-in-Publication Data

Haddow, George D.

Introduction to emergency management/George Haddow, Jane A. Bullock, Damon P. Coppola. – Fifth edition. pages cm.

Includes bibliographical references and index.

ISBN 978-0-12-407784-3 (hardback)

1. Emergency management. 2. Emergency management—United States.
3. Communication in management. I. Bullock, Jane A. II. Coppola, Damon P. III. Title.

HV551.2.H3 2013

363.34'80973—dc23

2013025722

British Library Cataloguing-in-Publication Data

A catalogue record for this book is available from the British Library

ISBN: 978-0-12-407784-3

Printed and bound in the United States of America

14 15 16 17 18 10 9 8 7 6 5 4 3 2 1

For information on all Butterworth-Heinemann publications
visit our website at <http://store.elsevier.com>



Working together
to grow libraries in
developing countries

www.elsevier.com • www.bookaid.org



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.



Acknowledgments

The authors wish to thank the following individuals for their continued help and insight: Jack Harrald, Greg Shaw, Joseph Barbera, Irmak Renda-Tanali, Ollie Davidson, Sarp Yeletaysi, Garrett Ingoglia, Ryan Miller, Rene van Dorp, Erin Maloney, Wayne Blanchard, Sanjaya Bhatia, Liz Maly, Gerald Potutan, Gulzar Keyim, Pam Chester, Amber Hodge, Paul Gottehrer, Brad Gair, Ehren Ngo, Fran McCarthy, Pem McNerney, Ines Pearce, Steven Carter, Betsy Millett, David Gilmore, Jack Suwanlert, and Don Goff.

We also thank the many professors, students, and practitioners who gave us valuable feedback on different aspects of the book and provided suggestions to make the text more relevant and useful.

Finally, the authors wish to thank their respective spouses, Dick Bullock, Kim Haddow, and Mary Gardner Coppola, for their enduring good humor and patience.



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

Thank you for selecting Butterworth Heinemann's *Introduction to Emergency Management, Fifth Edition*. To complement the learning experience, we have provided online tools to accompany this edition. Students can find additional learning materials on the companion site, including the full text of the Stafford Act, at <http://booksite.elsevier.com/9780124077843>.

Please consult your local sales representative with any additional questions. You may also e-mail the Academic Sales Team at textbook@elsevier.com.

Qualified adopters and instructors can access valuable material for free by registering at <http://textbooks.elsevier.com/web/manuals.aspx?isbn=9780124077843>.



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

2 INTRODUCTION TO EMERGENCY MANAGEMENT

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

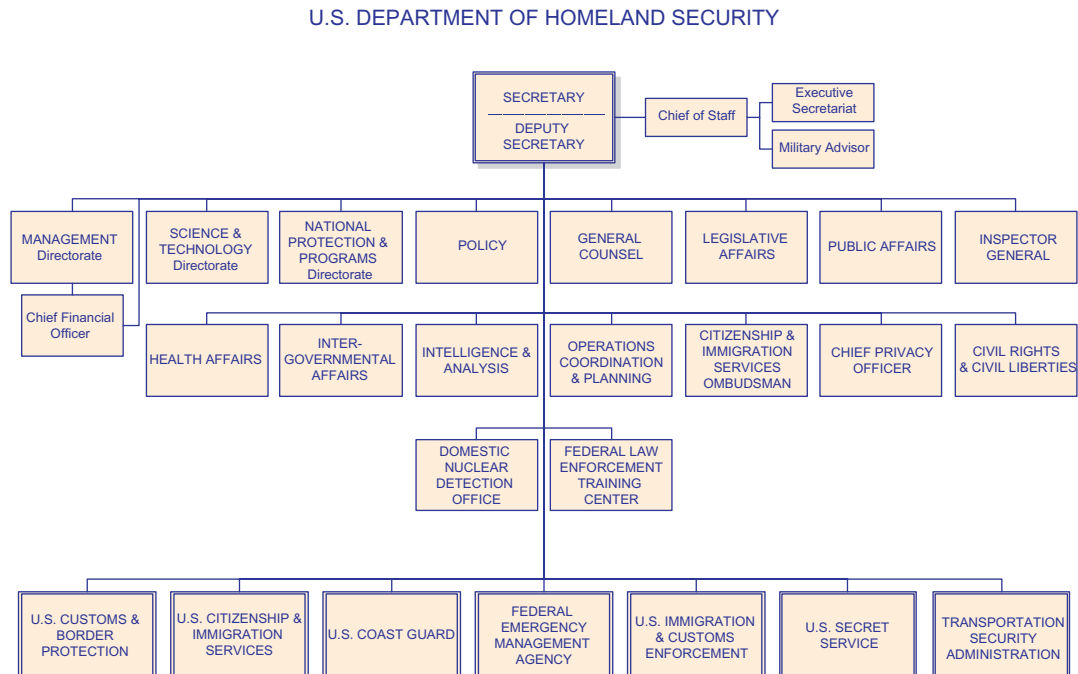


FIGURE 1-2 DHS organizational chart.

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 south-east 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