

Emergency Management The American Experience

Third Edition



Edited by Claire B. Rubin

“Claire Rubin’s third edition is essential reading for students and scholars in emergency management and an excellent introduction to the history of American emergency management for other interested readers. The earlier editions have served as core texts in introductory and advanced classes and the new edition brings the history of the field up to date with new chapters by leading scholars.”

—William L. Waugh, Jr., Professor Emeritus, Georgia State University

“*Emergency Management: The American Experience* is an essential book in the field. The updated third edition adds important analyses of recent disasters and policy trends. This book continues to be essential reading for scholars of disaster policy as well as for anyone who wishes to understand the historical and political contexts of emergency management and disaster policy in the United States.”

*—Thomas Birkland, Department of Public Administration,
North Carolina State University*



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Emergency Management

The spate of disaster events ranging from major to catastrophic that have occurred in recent years raises a lot of questions about where and why they happened. Understanding the history of emergency management policies and practice is important to an understanding of current and future policies and practice.

Continuing in the footsteps of its popular predecessors, the new edition of *Emergency Management: The American Experience* provides the background to understand the key political and policy underpinnings of emergency management, exploring how major “focusing events” have shaped the field of emergency management.

This edition builds on the original theoretical framework and chronological approach of previous editions, while enhancing the discussions through the addition of fresh information about the effects and outcomes of older events, such as Hurricane Katrina and the BP oil spill. The final chapters offer insightful discussion of the public administration concepts of emergency management in the U.S. and of the evolving federal role in emergency management.

Like its predecessors, the third edition of *Emergency Management* is a trusted and required text to understand the formation and continuing improvement of the American national emergency management system.

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Emergency Management: The American Experience

Third Edition

Edited by Claire B. Rubin

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Table of Contents

Preface	ix
Chapter 1	Introduction: 110 Years of Disaster Response and Emergency Management in the United States
<i>Claire B. Rubin</i>	1
Chapter 2	Focusing Events in the Early Twentieth Century: A Hurricane, Two Earthquakes, and a Pandemic
<i>David Butler</i>	11
Chapter 3	The Expanding Role of the Federal Government: 1927–1950
<i>David Butler</i>	49
Chapter 4	The Formative Years: 1950–1978
<i>Keith Bea</i>	81
Chapter 5	Federal Emergency Management Comes of Age: 1979–2001
<i>Richard T. Sylves</i>	113
Chapter 6	Emergency Management Restructured: Intended and Unintended Outcomes of Actions Taken since 9/11
<i>John R. Harrald</i>	167
Chapter 7	2005 Events and Outcomes: Hurricane Katrina and Beyond
<i>Melanie Gall and Susan L. Cutter</i>	191
Chapter 8	Systems Are Tested: Emergency Management and Legal Responses to the BP <i>Deepwater Horizon</i> Oil Spill
<i>Liesel A. Ritchie, Duane A. Gill, and John R. Harrald</i>	219

Chapter 9 The Evolving Federal Role in Emergency Management: Policies and Processes
Patrick S. Roberts, Jeffrey A. Glick, and Gary Wamsley 239

Chapter 10 From Painful Past to Uncertain Future
Patrick S. Roberts and Jeffrey A. Glick. 267

Suggested Readings 277

About the Authors 283

Index 289

Preface

When *Emergency Management: The American Experience, 1900–2005* was first published in 2007, several of the events detailed in this edition had yet to happen or unfold. The second edition included events to 2010. This third edition continues the basic goal of the earlier editions, presenting an updated overview of 110 years of major disasters and governmental responses in the United States. Included are case examples of selected natural and human-caused events, including earthquakes, hurricanes, droughts, floods, a pandemic, and explosions. Some of these disasters, such as the 1906 San Francisco Earthquake, the 9/11 terrorist attacks, and Hurricane Katrina, have become part of our cultural history. Others may be less well known, but nevertheless offer lessons for those in the field of emergency management. In this latest edition, the two most recent disaster events, Hurricane Katrina (2005) and the BP oil spill (2010), are updated to cover the longer-term outcomes of these focusing events. Additionally, the final chapters have been revised to feature major findings, observations, teaching points, and implications for future disaster response efforts.

Written by experts in the field, each chapter examines a specific period of time, focusing on the development of policies and organizations that deal with disasters at the national level. Through a discussion of the major disasters in the United States, the book provides answers to several pertinent questions, including

- Why did the federal government get involved in emergency management?
- Why and how has the federal government's role changed?
- What role should the federal government play in major disasters and catastrophes?¹

Unique Features of This Book

This is not a traditional history book. None of the authors is a historian; in fact, all are longtime, experienced subject-matter experts and academic researchers. For the major disasters that occurred in the early part of the twentieth century, reliance on secondary sources was a given. Moreover, information on topics that are of interest today—details about the recovery process or considerations about community resilience—were either not available or of little concern to earlier researchers and therefore could not be presented here.

The focus of this book is on the response phase of emergency management. The authors have selected detailed descriptions and case studies of historic disasters because such events contribute to the book's basic intention—to illuminate changes in public policies, administration, and organizations in response to major disasters and to identify the implications of those changes for emergency management today. Going beyond a summary of existing literature and case examples, the authors provide context, perspective, and meaning to the historic focusing events and the major legislation, programs, policies, and philosophies that resulted from them. In their analysis of key issues and actions, problems, needs, and unrealized expectations, they offer better understanding of their impact, but also provide the basic platform for making changes in emergency management in the days, years, and decades to come.

What Is New to This Edition

Since the second edition was written in 2011 and published in 2012, several major events presented here warrant further examination. Thanks to feedback from both instructors and students using the second edition, we realized that some of the information had become dated. In addition, for two of the most recent disaster events described here—the 2005 hurricanes and the 2010 BP oil spill—some important ramifications continued for several more years. This is not surprising; oftentimes, the full outcomes of major-to-catastrophic disasters take years and sometimes decades to be realized.

This edition includes five revised chapters: Chapter 1 (Introduction), Chapter 7 (Hurricane Katrina and Beyond), and Chapter 8 (BP *Deepwater Horizon* Oil Spill) to update and augment their outcomes; the final two chapters—Chapters 9 on the evolving federal role in emergency management and Chapter 10 on the way forward for emergency management—have been revised in order to make the summary information more current and to reflect lessons learned and applied.

This new edition expands on the essential information covering more than a century of U.S. disaster experiences and their influence on the formation and continuing improvement of our national emergency management systems. It not only provides essential descriptions of focusing disaster events for the 110 years but also features reviews and assessments of the changes in those disaster events that have occurred in the United States in recent years to illustrate the growing number, magnitude, impacts, and implications of large to catastrophic disasters that have received a presidential disaster declaration.

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Claire B. Rubin, Editor
Arlington, Virginia
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Note

- 1 Emergency management professionals and disaster scholars define *catastrophe* as a very large event that surpasses local and regional capabilities for response or recovery, and *disaster* as a less severe event, although it, too, might require outside (i.e., federal government) assistance; see E.L. Quarantelli, "Emergencies, Disaster and Catastrophes Are Different Phenomena," Preliminary Paper 304 (Newark: Disaster Research Center, University of Delaware, 2000), <http://udspace.udel.edu/handle/19716/674>.



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Chapter 1

Introduction: 110 Years of Disaster Response and Emergency Management in the United States

Claire B. Rubin

*“Experience is good—it allows you to recognize a mistake
when you make it again.”—Anonymous*

In the seven years that have passed since the second edition of this book was published in 2012, many of the disaster events and outcomes described in that edition warrant reexamination because of their significance to our knowledge about disasters and to the systems in place in the U.S. to deal with them. This third edition also discusses the changing nature of the hazards and threats, as well as the modifications and adjustments made in public sector emergency management systems for responding to them. The increasing complexity of the response, extreme vulnerabilities of frequently impacted communities in coastal states, and concerns of public sector emergency management and leadership are just some of the issues that have come to the fore in the first decade of this century. We have seen a remarkable series of disasters—major to catastrophic in their impacts in the United States.

In the first decade of the twenty-first century, the United States experienced three major-to-catastrophic disasters,¹ providing milestone events for each of the three hazard categories usually used to characterize disasters in this country:

- **Human-caused deliberate.** On September 11, 2001, three terrorist attacks constituted the greatest intentional disaster that has ever occurred on the U.S. mainland. These events are usually referred to as 9/11.
- **Natural hazard.** In September 2005, three disasters caused by natural hazards—Hurricanes Katrina, Rita, and Wilma—resulted in the most

extensive and costly destruction seen to date in the United States in terms of area affected and impacts on people and property on the Gulf Coast. However, the Galveston Hurricane of 1900 still holds the record for the greatest number of deaths.

- **Human-caused accidental.** In April 2010, the explosion of the BP *Deep-water Horizon* oil rig and resultant oil spill caused the largest human-made, accidental event ever to occur in the United States, with the majority of damage affecting Louisiana and the Gulf Coast.

These events made the first decade of the twenty-first century a historic decade for disasters. Collectively, they demonstrated some unusually destructive characteristics, attracted significant international attention, and laid bare many deficiencies in the legislation, plans, systems, and processes used for all phases of emergencies and disasters at all levels of government. The 2005 hurricanes did for natural disaster response what the terrorist attacks of 9/11 did for counterterrorism. Both glaringly displayed the weaknesses and failures of certain emergency management systems, processes, and leadership. The emergency response to Hurricane Katrina, which was so inadequate that government officials at all levels were criticized at home and abroad, prompted the deepest and most sustained examination of U.S. emergency management functions and systems ever conducted. The passage of the Post-Katrina Emergency Management Reform Act in 2006 and the speed with which major changes were enacted at the national level reflect the urgency with which concerns were addressed. All of these events were massive and can be considered “focusing events” or “game changers.” Entire books have been written about each of them, and probably more will come.

The Evolution of Federal Emergency Management

During the second half of the twentieth century, the federal government’s role in emergency management gradually expanded. With virtually every new presidential administration, the organizational forms and functions of emergency management evolved. Changes have occurred not only within federal management systems and services, but also among state and local governments. In many instances, federal laws, programs, policies, and grant requirements have driven changes in state and local emergency management organizations and efforts, with both positive and negative effects.

In recent years, Americans have come to regard emergency management as the quintessential public service; and they, along with state and local officials, expect the federal government to play a greater role in responding to a disaster than it has in the past. Unfortunately, many of the public’s expectations are simply

unrealistic. As a result, government at all levels has fallen short of meeting the expectations not only of those affected by the catastrophic hurricanes in 2005 and the BP oil spill in 2010, but also of many concerned citizens and public officials throughout the United States. Moreover, as Platt notes in *Disasters and Democracy*, “The process of federalizing disasters has changed the public’s perspective from compassion to entitlement.”² One wonders when compassionate measures enacted by the federal government on behalf of citizens and localities harmed by disasters became an entitlement for state and local governments and disaster victims.

The events of 2005 and 2010 revealed that those with reservations about emergency management capabilities in the United States had good reasons for concern. In fact, all the major disaster events experienced so far in the twenty-first century have cast doubt on the adequacy of the emergency management system and have given greater urgency and prominence to the ongoing debate about fundamental emergency management principles and practices. Among the issues raised are those dealing with the responsibilities of each level of government, along with the notable lack of smooth and effective interrelationships among all levels of government and all sectors of society after a disaster strikes. Other issues relate to the organizational as well as logistical problems inherent in responding to a catastrophic disaster and to the quantity and quality of personnel and resources needed to address such an event.

The editor of this book is at work on another book that will focus on the major and catastrophic events that occurred from 2011 through 2018—*The U.S. Emergency Management System in the Twenty-first Century: From Disaster to Catastrophe* (Routledge, 2019). This new title uses a different framing mechanism that includes not only consideration of response-phase actions but also issues of short-term recovery and resilience.

Characteristics of Focusing Events

The hypothesis of both books is that changes in emergency management laws, policies, processes, and authority are event-driven. Therefore, major focusing events provide an opportunity to explore their effects on emergency management principles and practices. Focusing events have some, but not necessarily all, of the following characteristics:³

- **Magnitude.** Focusing events often affect a large geographic area or a large number of people. Natural disasters, such as catastrophic earthquakes, hurricanes, and tsunamis, tend to affect a broader area than do human-made accidents or terrorist events although a successful terrorist attack may ultimately affect a greater number of people. Hurricane Katrina became a focusing event in terms of the extent of the

damage—the number of homes destroyed or damaged as well as the number of vulnerable people who were displaced or lost their lives.

- **High visibility.** An obvious example of high visibility is the 9/11 attacks targeting the World Trade Center in the heart of New York City's financial district and the Pentagon headquarters of the U.S. Department of Defense and an iconic symbol of U.S. power.
- **Unusual location.** Some locations are less prepared than others for high-impact events, resulting in a greater likelihood of poorly managed, ad hoc response and recovery. For example, Hurricane Katrina in New Orleans (2005).
- **High impact.** If the duration and impacts of the event are widespread and damaging to physical, economic, environmental, social, and political structures, the disaster is more likely to become a focusing event. Hurricane Katrina is also an example of a high-impact event, particularly for the city of New Orleans, as well as the rest of the Gulf Coast.
- **A unique threat agent.** The use of an unusual threat agent—for example, commercial aircraft or common materials such as garden fertilizer—to inflict devastation increases the likelihood that an incident will become a focusing event. Similarly, the low-probability but high-impact BP oil spill, which stemmed from a commercial deepwater drilling operation that exploded, gave way to a major oil spill in which almost 5 million barrels of oil contaminated the Gulf Coast and its wildlife and seriously impacted businesses and residents.
- **Surprise.** Surprise was the use of commercial airliners in the 9/11 attacks on an office building in New York City and the unknown destination of the plane that crashed in Somerset County, PA. In the context of emergency management, surprise is often defined as unprecedented.⁴
- **Eligibility for disaster declaration.** A Presidential Disaster Declaration, which relies on the federal government's threshold for determining which events warrant federal assistance, is used as a measure of the magnitude and impact of a disaster event.

There is great disagreement among authorities identifying the worst disasters in U.S. history, in part because of the lack of quantitative criteria for what makes one disaster worse than another in terms of lives lost, damage inflicted, area affected, or costs. Moreover, there are also often discrepancies in the reports regarding the number of lives lost or the severity of damage. The disasters discussed in this book are cited primarily because of their significance, their impact on our national emergency management system, and their lasting impression on the nation.



In 2005, Hurricane Katrina devastated much of the Gulf Coast, drawing attention to gaps in the emergency management system. Shown here is destruction to New Orleans's Lower Ninth Ward. Photo courtesy of the Federal Emergency Management Agency/Andrea Booher.

Although disaster researchers continue to lead the way in analyzing significant historical events, a few nonfiction writers have ably brought major disasters to life. Erik Larson's account of the 1900 Galveston Hurricane, *Isaac's Storm: A Man, a Time, and the Deadliest Hurricane in History*, and John Barry's *Rising Tide: The Great Mississippi Flood of 1927 and How It Changed America* are but two examples of popular books that not only capture the attention of a general readership, but also offer important insights into disaster response and recovery.⁵ In addition, the body of scholarship developed by disaster researchers during the past several decades offers keen insight into the impact of disasters and depicts the reactive nature of emergency management.⁶ Another contribution to the knowledge base about disasters is the Time Line Charts of key disaster events in the United States,⁷ which provide a conceptual model for selective focusing events and identify subsequent developments and changes that have typically followed them.⁸ You can find these time lines at disaster-timeline.com.

The Impact of Disasters on Emergency Management

As can be seen from the Time Line Charts, certain focusing events have driven changes in laws, regulations, plans, systems, and practices.⁹ In fact, virtually all major federal laws, executive directives, programs, policies, organizational

changes, and response systems have resulted from major and catastrophic disasters. Some of these changes, such as the reorganization and creation of new federal agencies that occurred following 9/11, were instituted fairly quickly, but many others have taken decades to implement.

A surprising number of misconceptions persist about the advent of emergency management. For example, many people believe that emergency management did not develop until the 1950s, arising in conjunction with civil defense programs. In fact, emergency management as a profession has evolved gradually over the past century, with the most notable changes occurring since 1950. The Time Line Charts demonstrate these incremental steps.

A Brief Review of History

For many decades, emergency management functions were performed primarily at the local level. The main national organization involved in providing humanitarian assistance to disaster victims prior to 1950 was the American Red Cross although some federal government and military agencies (such as the U.S. Coast Guard) have been involved with disaster responses for more than a century. For example, the National Weather Service predicted the 1900 hurricane in Galveston, Texas, and the U.S. Army Corps of Engineers was active in the response efforts during the Great Mississippi Flood of 1927. However, federal government involvement by and large was ad hoc and reactive until the latter half of the twentieth century.¹⁰

The descriptive accounts of some of the major disasters that occurred in the early 1900s reveal several chronic issues that plagued response efforts, including:

- Centralized versus decentralized decision making by the federal government and/or military agencies
- The equitable distribution of relief to victims
- Confusion about the role of the American Red Cross vis-à-vis federal agencies
- Ad hoc disaster response and assistance plans
- Domination of powerful local business interests and civic leaders over local elected officials with respect to local mitigation and recovery efforts
- Variations in the capacity, capability, and public will of state governments regarding assisting communities affected by a disaster and serving as intermediaries between the federal and local governments.

Lamentably, many of these obstacles to disaster preparation, mitigation, response, and recovery still exist in the field of emergency management today.

Since the 1950s, organizational and intergovernmental arrangements related to emergency preparation and response have been shaped in large measure by ever-increasing federal requirements and funding. As more funding for researchers has become available, research and practice have contributed to the body of knowledge, creation of theory, and professionalism in emergency management. The National Science Foundation has been an important source of funding support for research and for fostering researchers in the hazards and disasters fields.

In the 1960s and 1970s, a series of major disasters led to the ongoing involvement of the executive branch and to the creation of the Federal Emergency Management Agency (FEMA). Many people make the mistake of equating historical federal emergency management with FEMA, but FEMA had many predecessors, such as the Office of Emergency Preparedness in the White House (1968–1973) and the Federal Disaster Assistance Administration in the U.S. Department of Housing and Urban Development (HUD) (1973–1979), before it took the lead responsibility for emergency management in April 1979. Moreover, FEMA is just one agency involved in emergency management. Several other federal departments and agencies, including the U.S. Army Corps of Engineers, the U.S. Department of Housing and Urban Development, the Department of Agriculture, the Federal Highway Administration, the U.S. Environmental Protection Agency, and the National Oceanic and Atmospheric Administration, which includes the National Weather Service, have also played critical roles in emergency management preparedness, mitigation, response, and recovery.¹¹

About This Edition

For this new edition, half of the existing chapters (Chapters 1, 7, 8, 9, and 10) have been revised to include additional information about past events and to provide some refinements and insights gained since the second edition was published.

As already noted, 2005 was a monumental year for emergency management. In **Chapter 7**, Melanie Gall and Susan L. Cutter discuss “2005 Events and Outcomes: Hurricane Katrina and Beyond.” From an emergency management perspective, these hurricanes and the initial responses to them provided a startling indication of the problems and deficiencies of the local, state, and national systems that many people assumed had been enhanced in the four years since 9/11. Considering the many developments that have occurred in the ensuing years, the authors have substantially revised this chapter and also offer their perspectives on changes that have and have not taken place during that time.

In **Chapter 8**, authors Liesel A. Ritchie and Duane A. Gill update the earlier chapter written by John R. Harrald, “Systems Are Tested: Emergency Management and Legal Responses to the BP *Deepwater Horizon* Oil Spill.” They analyze the BP

oil spill in the years since the accident and update it to the present. The response and recovery efforts were different from those usually undertaken for presidentially declared disasters and managed by FEMA under the Stafford Act. Some of those differences include:

- The decision to handle the federal response by means of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) rather than the Stafford Act's presidential declaration powers and the involvement of FEMA as the lead agency.
- The designation of the BP Corporation as the "responsible party," thereby giving it a major role in management and requiring it to assume most of the costs (direct and indirect).
- A focus on the long-term environmental and ecological damages, the full extent and costs of which will probably not be determined for several years or decades to come.

In **Chapter 9**, authors Patrick S. Roberts and Jeffrey A. Glick update the earlier chapter that included authors Gary Wamsley and Robert Ward. "The Evolving Federal Role in Emergency Management: Policies and Processes" provides a summary of and commentary on the previous chapters and offers a perspective on what the history of disasters means for the future of emergency management.

Finally, in **Chapter 10**, Roberts and Glick update the earlier chapter entitled "From Painful Past to Uncertain Future." They discuss the field of emergency management in the larger context of public administration, highlighting key teaching points and extracting essential lessons that offer insights into emergency management practices.

Until we know what systems and methods have been developed, what learning has occurred, and what works and doesn't, we cannot successfully create the body of knowledge and professional practices needed for the events and demands of the twenty-first century. This book is designed to provide emergency management professionals with information about the foundation of our emergency management approaches. Better understanding of the basis on which common assumptions are made, as well as of the problems and mistakes that have occurred over the past century, can provide these professionals with the tools they need to improve the system and its many parts.

The Limitations of Writing about Recent History

Finally, a few words about the inherent limitations of writing about recent history. We have bravely attempted to explain major events of recent years, knowing that in actuality it takes many years—perhaps even a decade or two—to gain a broad

perspective on past major disasters and their far-reaching consequences. We have done our best in this short time frame.

For recent disaster events, the usual sequence of information resources is news media accounts, agency and organizational reports, magazine and journal articles, and finally—perhaps a year or two later—books. Generally, the authors in this book have relied heavily on secondary sources, augmented where possible by personal contacts and experience.

Readers should view the recent events and outcomes described here as an effort to capture the experiences, both positive and negative, involved in emergency management. These events underscore the need to think and plan more expansively about emergency management. In short, to function effectively in the twenty-first century, public officials and others responsible for emergency management will have to think in bolder, broader, and more comprehensive terms than they have in the past. Critical thinking and decision-making skills need to be enhanced, and more attention must be given to strategic thinking and foresight. The goals must be to anticipate rather than react to future disasters, and to develop the leadership skills, talents, and training for future emergency managers.

Notes

- 1 Without getting into an involved discussion of the definition of a catastrophic event, suffice it to say that all three of these events were quite unusual—with many surprising aspects—and also very costly—each estimated to have caused at least \$20 billion in damage.
- 2 Rutherford H. Platt, *Disasters and Democracy: The Politics of Extreme Natural Events* (Washington, D.C.: Island Press, 1999).
- 3 Claire B. Rubin and Judith Colle, *Major Terrorism Events and Their U.S. Outcomes (1988–2005)* (Fairfax, Va.: Public Entity Risk Institute, 2006).
- 4 In his analysis of industrial disasters, James K. Mitchell defines *surprise* as “unprecedented” and writes, “Nothing quite like [the surprise has] ever occurred before in the same or similar contexts”; see James K. Mitchell, *Long Road to Recovery: Community Responses to Industrial Disaster* (New York: United Nations Press, 1996), 11.
- 5 Erik Larson, *Isaac’s Storm: A Man, a Time, and the Deadliest Hurricane in History* (New York: Random House/Vintage Books, 1999); John M. Barry, *Rising Tide: The Great Mississippi Flood of 1927 and How It Changed America* (New York: Simon and Schuster, 1997).
- 6 Examples include Platt, *Disasters and Democracy*; William Waugh, *Living with Hazards, Dealing with Disasters* (New York: M. E. Sharpe, 2000); and Richard T. Sylves and William L. Waugh Jr., *Disaster Management in the U.S. and Canada: The Politics, Policymaking, Administration and Analysis of Emergency Management* (Springfield, Ill.: Charles C. Thomas, 1996).
- 7 See the time lines developed by Claire B. Rubin & Associates at disasterbookstore.com.
- 8 In his 1997 book *After Disaster: Agenda Setting, Public Policy, and Focusing Events* (Washington, D.C.: Georgetown University Press), Thomas Birkland was among the first people to use the term *focusing events* to refer to disasters that had an impact on emergency management policy or practice; the term has been further developed in the Time Line Charts and related reports developed by Claire B. Rubin & Associates.
- 9 Claire B. Rubin, Irmak Renda-Tanali, and William Cumming, *Disaster Time Line: Major Focusing Events and U.S. Outcomes (1979–2005)* (Arlington, Va.: Claire B. Rubin & Associates, 2006), at disasterbookstore.com; Claire B. Rubin, Irmak Renda-Tanali, and William Cumming, *Terrorism Time Line: Major Focusing Events and U.S. Outcomes (2001–2005)* (Arlington, Va.: Claire B. Rubin & Associates, 2006), at disasterbookstore.com; and Rubin and Colle, *Major Terrorism Events and Their U.S. Outcomes*. See also Birkland, *After Disaster*.

- 10 See Michele Landis Dauber, *The War of 1812, September 11th, and the Politics of Compensation*, Public Law Working Paper No. 74 (Palo Alto, Calif.: Stanford Law School, 2003), papers.ssrn.com/sol3/papers.cfm?abstract_id=480703; and David A. Moss, "Courting Disaster? The Transformation of Federal Disaster Policy since 1803," in *The Financing of Catastrophe Risk*, ed. Kenneth A. Froot (Chicago: University of Chicago Press, 1999).
- 11 There also are other federal response plans, such as the National Contingency Plan, for dealing with oil spills, industrial accidents, and hazardous materials incidents. These are beyond the scope of this book.

Chapter 2

Focusing Events in the Early Twentieth Century: A Hurricane, Two Earthquakes, and a Pandemic

David Butler

Prior to World War II, there was no overarching legislation or policy at any level of government driving emergency and disaster management in the United States. Rather, policy, legislation, and practice typically were created in response to individual disasters. The federal government's involvement was almost always disaster specific, usually delayed, and varied in the services provided. Sociologist Gary Kreps writes that prior to 1950 "there was no permanent federal program of disaster assistance to states and localities in the United States. Private voluntary agencies, such as the American National Red Cross, the Salvation Army, and many others, bore the primary responsibility for disaster relief; and state and local governments coped as best they could with disaster impacts."¹

Federal disaster relief was also inconsistent. Political scientist Peter May writes, "The guiding criterion for deciding an appropriate [federal] relief level was the precedent established by previous disaster relief provisions."² Indeed, "between 1803 [when Congress first provided any kind of disaster relief] and 1947, Congress enacted 128 pieces of special disaster-specific legislation. . . . When army (or beginning in the 1880s, Red Cross) representatives arrived on the scene of a disaster, they generally found ad hoc local or regional relief committees collecting funds and relief supplies, and performing recovery efforts."³ May provides an analysis of the 128 pieces of legislation prior to 1947 and notes that their aims and approaches changed over time, with disaster assistance becoming increasingly generous.⁴

Despite the frequency of event-specific federal legislation, the government did not view disaster response and relief as a federal responsibility. "More often than not, the federal government provided no assistance at all in the aftermath of disaster,"

concludes David Moss in his analysis of the federal government's disaster policy.⁵ Like other domestic social needs, disaster assistance was considered the responsibility of the states or, more often, local governments, charities, and other social institutions such as churches. Geographer and legal scholar Rutherford Platt also notes that the "reduction of vulnerability to natural hazards ('mitigation') was accomplished, if at all, through actions taken individually or at the local level prior to the 1930s."⁶

Platt further comments that government was not involved in providing direct assistance to disaster victims. "Before 1950, disaster assistance was viewed as the moral responsibility of neighbors, churches, charities, and communities—not the federal government," writes Platt. "Furthermore, disasters tended to be viewed as unavoidable 'acts of God,' which, by definition, transcend the power of government to prevent."⁷ Federal legislation was enacted and programs created for mitigation of only one type of hazard: floods (especially on the Mississippi River). As early as the mid-eighteenth century, the federal government, through the U.S. Army Corps of Engineers, was involved in flood control and the maintenance of navigable waterways.

Given the lack of any overriding federal mandates in the first half of the twentieth century, studying the evolution of emergency management during this period requires examining landmark incidents rather than surveying federal legislation or policy. Specifically, such an examination should look at (1) the precipitating physical event, prior planning and preparedness (if any), response, and recovery; (2) the long-term effects on society, policy, and practice; and (3) the resulting changes in American consciousness and attitudes toward disasters and their management. This includes examining the questions and lessons each disaster poses for modern emergency management.

While there were numerous disasters in the early twentieth century, only a few stand out as historic events affecting the course of American emergency management—or, as discussed in Chapter 1, as *focusing events*. The ones examined in this chapter are the 1900 Galveston Hurricane, the 1906 San Francisco and 1933 Long Beach earthquakes, and the 1918–1919 flu pandemic. The Great Mississippi Flood of 1927, the dust storms of the 1930s, and the 1947 Texas City explosions are discussed in Chapter 3. Careful study of these events reveals issues, successes, mistakes, and lessons to be learned, which are elucidated for the benefit of current and future emergency managers, as well as for researchers and consultants who share their concerns. Collectively, the studies of these disasters could make up their own textbook in emergency management.

Nineteenth-Century Disaster Response

Of course, the United States experienced many natural disasters prior to 1900.⁸ Perhaps most common were floods along the major waterways that formed the backbone of the nation's transportation network. As the country became increasingly

urban and the populace more concentrated, floods and other natural occurrences became more destructive to both people and the built environment. The two best-known disasters of the late nineteenth century were urban catastrophes: the Chicago Fire of 1871, in which approximately 300 people died and 90,000 were rendered homeless, and the Johnstown (Pennsylvania) Flood of 1889, which resulted in more than 2,000 deaths.⁹ Another notable event, the Great Peshtigo Fire of October 1871, raged across northeastern Wisconsin and upper Michigan at the same time as the Chicago fire. Both fires resulted in part from the same meteorological conditions—heat and dryness—that pervaded the upper Midwest at the time, but the Peshtigo fire took an estimated 1,500 lives—five times as many as the more famous Chicago conflagration. Additional notable disasters of the late nineteenth century include the forest fires that raged through Michigan in 1881;¹⁰ the flooding of the Ohio and Mississippi Rivers in 1884; the hurricane that hit the Sea Islands, South Carolina, in 1893; and the Great Blizzard of 1888, which left between two and five feet of snow across much of northern New Jersey, eastern New York, and western New England and resulted in roughly 400 deaths.¹¹



The sheer magnitude of events, such as the 1889 flood of Johnstown, Pennsylvania, shown here, raised awareness of the potential devastation to communities and influenced some government officials to begin to reconsider the ad hoc approach to disaster response. Photo courtesy of E. Benjamin Andrews, *History of the United States*, volume V. New York: Charles Scribner's Sons, 1912.

All these disasters are historically important for at least three reasons. First, these natural disasters marked the first American Red Cross response, resulting in a formal charter by the federal government to provide disaster response and recovery.¹²

The American Red Cross

Founded by Clara Barton in 1881, the American Red Cross (ARC) was chartered by Congress in 1900 and again in 1905 to carry out responsibilities delegated by the federal government. Among other things the original charter called for the ARC to manage a system of national and international relief in time of peace; to apply the same system in mitigating the sufferings caused by pestilence, famine, fire, floods, and other great national calamities; and to devise means for preventing disasters and “to promote measures of humanity and welfare of mankind.” At the time, these mandates for domestic aid and disaster prevention were unique to the ARC. Red Cross organizations in other nations were typically concerned only with aid to victims of combat.

The ARC’s early work included aiding victims and workers in the floods of the Mississippi and Ohio Rivers in 1882 and 1884, the Texas famine of 1886, the Florida yellow fever epidemic in 1887, an earthquake in Illinois in 1888, and the 1889 Johnstown Flood.

The relationship between the government and the American Red Cross is unique. The ARC is an independent, nonprofit, tax-exempt, charitable institution, but unlike other congressionally chartered organizations, it has the legal status of “a federal instrumentality”; that is, it is bound by its charter to carry out responsibilities delegated to it by the federal government. These responsibilities currently include

- Fulfilling the provisions of the Geneva Conventions, to which the United States is a signatory, assigned to national societies for the protection of victims of conflict
- Providing family communications and other forms of support to the U.S. military
- Maintaining a system of domestic and international disaster relief, including mandated responsibilities under the National Response Plan coordinated by the Federal Emergency Management Agency.

On the national level, in the first half of the twentieth century the Red Cross—not the federal government—had the lead responsibility for emergency relief operations. The formal relationship between that organization and the federal government may have given Americans the impression that the federal government had responsibility for managing all phases of disaster, from pre-disaster mitigation to post-disaster recovery, but the ARC is not a federal agency, nor does it receive regular federal appropriations. It relies on public contributions and cost-recovery charges for most of its services, but it seeks federal funding when extreme costs surpass charitable contributions. According to former Red Cross official Roy Popkin, in recent years, “as government programs have expanded, the Red Cross role in individual family assistance has diminished, particularly in larger disasters receiving a presidential declaration and federal funds.”¹ Today, the ARC remains the only nonprofit organization identified in federal disaster legislation.

Source: American Red Cross website at redcross.org/museum/history/timeline.asp.

¹ Roy S. Popkin, “The History and Politics of Disaster Management in the United States,” in *Nothing to Fear: Risks and Hazards in American Society*, ed. Andrew Kirby (Tucson: University of Arizona Press, 1990), 105.

A second reason that these major catastrophes are significant is, quite simply, because they have become a prominent part of American history and cultural lore. As such, they inform modern American thought and attitudes regarding disasters. For example, modern fire suppression systems and urban design reflect lessons learned and fears reinforced by the Chicago Fire of 1871; current dam safety laws can be traced in part to the Johnstown Flood of 1889.

A third reason that these disasters have been singled out is that, when examined closely, each demonstrates, implicitly or explicitly, areas in which disaster management could be improved—in preparedness, warning, response, recovery, and/or long-term mitigation. Moreover, each demonstrates the many dimensions that combine to create a disaster: local geography, human settlement and activity patterns, political and cultural characteristics, and planning and response systems. Thus, these early disasters can help us to identify the corresponding areas of understanding that might enable us to better deal with disasters: physical science (e.g., hydrology, meteorology, and geology), engineering, organizational management, public administration, social structure and human behavior, and psychology.

The great catastrophes of the early twentieth century have shaped our cultural and governmental attitudes toward disaster even further. Beginning with the Galveston Hurricane of 1900, these events have demonstrated many ways and means of dealing with disasters—including experimentation, innovation, and improvisation—and draw attention to specific problems and areas on which government and society could focus resources and efforts to lessen their toll.

The Galveston Hurricane of 1900

The 1900 Galveston Hurricane, which made landfall on September 8, remains the deadliest disaster in U.S. history. The exact number of deaths was never determined, in part because bodies were buried on land and at sea or cremated en masse immediately following the storm. But at least 6,000 people and perhaps as many as 12,000—one of every six Galveston citizens—lost their lives in the disaster.¹³

The U.S. Weather Bureau in Washington, D.C., began sending to its Galveston office warnings of an approaching storm as early as September 4. Although the precise evolution of the storm is unknown, apparently the less severe tropical storm that swept over Cuba on September 4 and 5 exploded into a major hurricane as it passed over the warm water of the Gulf of Mexico. The storm moved north of Key West on September 6 and then, rather than turning to the northeast as the U.S. Weather Bureau had predicted, it continued on its westward path, gaining strength as it went. By the evening of September 7, large, slow swells were creating huge

surf along the beaches in and near Galveston. The next morning, people gathered to watch the sea. The early morning skies remained only partly cloudy and winds were not yet strong, so few people took heed of the storm warnings issued by the local weather bureau.

Floodwaters began to creep into Galveston early in the day on September 8, and by midmorning the train tracks into town were flooded. The rain began in earnest in the early afternoon, and a steady northeasterly wind was blowing. By 5:00 p.m., the Galveston weather bureau was recording sustained hurricane force winds. But it was water, not wind, that presented the greatest problem. The low-lying island of Galveston was inundated by a storm surge of over 15 feet. At one point, the sea rose 4 feet in just four seconds. The encroaching waters acted like a riverine or flash flood, compiling and pushing debris inland, each row of structures adding more mass to the mountain of wreckage as buildings were pushed off their foundations. By the end of the surge, more than 3,600 homes were destroyed. Although the actual magnitude of the storm is not known, the damage and a storm surge of 15.5 feet has led the National Oceanic and Atmospheric Administration to estimate that it was a Category 4 hurricane (defined as a storm with winds of 131 to 155 mph and a storm surge of 13 to 18 feet).



The vulnerable location of Galveston, the denial of the hurricane hazard, and an inadequate warning and evacuation system all contributed to the devastation caused by the hurricane and storm surge that struck the city in 1900. Photo courtesy of the National Oceanic and Atmospheric Administration.

Prior History, Preparedness, Response, Reconstruction, and Mitigation

Prior to the hurricane, Galveston was a thriving city of more than 40,000, one of the wealthiest cities in the country and the most important seaport in Texas. More than 70 percent of the U.S. cotton crop passed through Galveston, and some 1,000 ships called on the port annually.¹⁴

The 1900 storm should not have been unexpected; “hurricanes had periodically raked the Gulf of Mexico coast—at least eleven times in the nineteenth century. Yet the inhabitants [of Galveston] denied the threat to their island community.”¹⁵ Indeed, since its founding in 1839, Galveston had weathered numerous storms and dodged many others, but in no case had it faced a direct hit. The result was widespread complacency among the city’s leaders and residents.

Erik Larson points out that in 1875 and 1886, through wind and storm surge, hurricanes destroyed the thriving port of Indianola on Matagorda Bay, approximately 120 miles southwest of Galveston.¹⁶ The first hurricane killed 176 people; the second compelled survivors to abandon the town.

The Indianola situation should have forewarned Galveston’s leaders. Whereas Indianola was in the corner of a protective bay and shielded by barrier islands, Galveston—an unprotected island with its highest point only 8.7 feet above sea level—was clearly more vulnerable. Indeed, Galveston’s leading citizens perceived Indianola as an object lesson and launched an effort to construct a seawall to protect the island, but the campaign languished. Soon, development increased Galveston’s vulnerability to storms as sand dunes along the shore were removed to fill low-lying areas in the city, removing what little barrier there was between the Gulf of Mexico and downtown Galveston. By 1900 Galveston was completely unprepared for a hurricane—both psychologically and physically.

By all accounts, the immediate aftermath of the hurricane was horrific. During the storm and immediately after, victims had only each other to rely on for medical care, shelter, food and clothing, search and rescue, and locating and burying the dead. There were many, many bodies amid the debris.¹⁷

Help soon arrived. The U.S. Army sent soldiers, tents, and food. Larson writes, “The train-ferry *Charlotte Allen* brought a thousand loaves of bread from Houston. The steamer *Lawrence* brought one hundred thousand gallons of fresh water.” When Clara Barton, the president of the American Red Cross, arrived on the scene, she telegraphed home, “Situation not exaggerated.”¹⁸ The recovery operations, particularly the recovery and disposal of bodies, continued for weeks.

As with disasters even today, the outpouring of donations sometimes proved as much a burden as a blessing. “The Red Cross gave out food and clothing, but found much of its supply of donated clothing unusable, either too warm for the

climate or too shabby, clearly the discards of distant souls who believed survivors were in no position to be picky,” writes Larson. “Someone donated a case of fancy women’s shoes, but all 144 shoes were for the left foot, samples once carried by a shoe-company traveler.”¹⁹

A Note from Galveston

John D. Blagden was a U.S. Weather Bureau meteorologist on temporary assignment in Galveston when the hurricane hit. This excerpt from a letter to his family in Duluth, Minnesota, was written one day after the storm.

“There is not a building in town that is uninjured. Hundreds are busy day and night clearing away the debris and recovering the dead. It is awful. Every few minutes a wagon load of corpses passes by on the street.

“The more fortunate are doing all they can to aid the sufferers but it is impossible to care for all. There is not room in the buildings standing to shelter them all and hundreds pass the night on the street. . . . The City is under military rule and the streets are patrolled by armed guards. . . . I understand four men have been shot today for robbing the dead. I do not know how true it is for all kind of rumors are afloat and many of them are false. We have neither light, fuel or water. I have gone back to candles. I am now writing by candlelight.

“A famine is feared, as nearly all the provisions were ruined by the water which stood from six to fifteen feet in the streets and all communication to the outside is cut off. . . . We had warning of the storm and many saved themselves by seeking safety before the storm reached here. We were busy all day Thursday answering telephone calls about it and advising people to prepare for danger. But the storm was more severe than we expected.”

Source: Casey Edward Greene and Shelly Henley Kelly, *Through a Night of Horrors: Voices from the 1900 Galveston Storm* (College Station: Texas A&M University Press, 2000), 15–19.

Unlike Indianola’s leaders, Galveston officials decided to rebuild after the hurricane. Just a decade earlier, the city had rejected the construction of a seawall, but it now adopted the idea. Considered a modern engineering marvel, the wall took almost sixty years to complete. It rises 15.5 feet above sea level and is constructed with an advance barrier of granite boulders 27 feet wide. Beyond constructing a barrier, Galveston’s engineers physically elevated the city, using dredged sand to raise the city by as much as 17 feet. More than 2,100 buildings were raised in the process.²⁰

There are limits to what can be achieved with such structural mitigation measures, however. In 1915, another hurricane struck Galveston. Its wind and 12-foot storm surge resulted in the deaths of 275 people. Although the death toll was significantly lower than it was in 1900, in dollar terms, the 1915 hurricane resulted in almost as much damage as the 1900 storm.²¹