INITIATIVES IN STRATEGIC STUDIES: ISSUES AND POLICIES

RESPONDING TO CATASTROPHIC EVENTS

Consequence Management and Policies

JEFFREY A. LARSEN

Responding to Catastrophic Events

Initiatives in Strategic Studies: Issues and Policies

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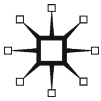

Softcover reprint of the hardcover 1st edition 2013 978-1-137-32677-5

First published in 2013 by
PALGRAVE MACMILLAN®
in the United States—a division of St. Martin's Press LLC,
175 Fifth Avenue, New York, NY 10010.

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ISBN 978-1-137-33641-5 ISBN 978-1-137-33643-9 (eBook)
DOI 10.1057/9781137336439

Library of Congress Cataloging-in-Publication Data

Responding to catastrophic events : consequence management and policies / edited by Jeffrey A. Larsen.
pages cm.—(Initiatives in strategic studies : issues and policies)
Includes index.

1. National security—United States. 2. Emergency management—Government policy—United States. 3. Security, International.
I. Larsen, Jeffrey Arthur, 1954–

UA23.R456 2013
363.34'80973—dc23 2012046979

A catalogue record of the book is available from the British Library.

Design by Newgen Imaging Systems (P) Ltd., Chennai, India.

First edition: May 2013

10 9 8 7 6 5 4 3 2 1

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Foreword

The United States faces a growing spectrum of natural and man-made threats. Hurricanes, tsunamis, earthquakes, and other naturally occurring disasters will continue to cause damage to infrastructure and loss of life. More states will have the capacity and intent to cause wide-scale lethality and damage. Increasingly, nonstate actors are being empowered in ways once limited only to states. Advances in biotechnology and chemistry, in particular, will lead to new and powerful beneficial advances in science and public health but will also provide, to those with hostile intent, new tools to attack populations and infrastructure. As new actors emerge with the capacity to create large scale lethal effects, traditional rivalries will not diminish; they will remain and perhaps even grow. The prospect of surprise—that we will not be able to anticipate or detect all the threats that are looming—is a reality in today's security environment. If "surprise is likely," it is critical that across the local, state, and national response framework the United States is prepared to manage the consequences arising from these natural or manmade threats. The purpose of this edited volume is to inform the broader response community about consequence management and stimulate thinking on how this community can improve response capabilities.

Nearly 20 years ago, the Center for the Study of Weapons of Mass Destruction at National Defense University started to think hard about the operational impacts of chemical, biological, radiological, and nuclear (CBRN) weapons on military operations. This effort evolved as the center realized the importance of understanding how CBRN weapons or the threat of their use would impact civilian populations and how civilian and military leadership would respond if these weapons were used. For years, the center conducted research and other activities such as simulations and tabletop exercises within the Department of Defense, on Capitol Hill, and throughout the other federal departments to understand the importance of how information was managed and used in making decisions in response to catastrophic events. Starting in 1999, the center began seriously looking at WMD consequence management. Following the attacks of September 11, 2001, this effort focused increasingly on consequence management in response to WMD terrorism (including bioterrorism). By the mid 2000s, it had grown to include large-scale domestic and international responses to naturally occurring events. During this time, center personnel supported response activities including those associated with the 2004 Asian tsunami, Hurricane Katrina,

the Haiti earthquake and the Fukushima nuclear crisis. As a teaching element of National Defense University, the WMD Center imbeds these experiences and the lessons from these and other cases into the curriculum.

Since 2006, with the support of the Defense Threat Reduction Agency, the center has been offering a new course on Catastrophic Response and Consequence Management. This class brings together in a classroom setting senior military and civilian leaders with the first response and emergency management communities to interact and learn from each other. The course draws on case studies (three of which are included in this volume), expert presentations and discussions, and at least two in-class tabletop exercises. Readings are drawn from earlier draft chapters of this edition and this book will form the core written material for the class beginning in spring 2013.

This edited volume is essential reading for civilian and military policy makers, emergency responders, students of crisis response, and all those potentially affected by a catastrophic event. Indeed, given the natural and manmade threats we face, I believe this volume offers something for everyone. Understanding how an emergency can become a crisis and a crisis a catastrophe is central to providing effective disaster relief and the life you save may be your own. Specifically, I urge faculty and staff involved in educating and training students in courses that involve homeland security, emergency management, crisis response, and risk management to adopt this book.

Finally, thanks are due to the editors and authors who spent four years developing, refining, and ultimately publishing this book. Thanks to Jim Wirtz, Jerry Barnhill, Greg Moser, Garry Briese, Richard Love, Pat Pentland, Rocky Gillette, George Haddow, Brian Lewis, Jessica Iannotti, Shane Smith, and Kerry Kartchner. I want to extend a personal note of thanks to Jeffrey Larsen and his team at Larsen Consulting who patiently and steadfastly remained committed to this book and to the principles of consequence management and catastrophic response. While more scholarship is sorely needed on the issue of consequence management and catastrophic response, Jeff and the authors of these excellent chapters go quite a long way in filling a critical gap in our collective understanding.

DR. JOHN F. REICHART
Director, Center for the Study of
Weapons of Mass Destruction
National Defense University
Washington, DC
November 2012

Preface

The conceptual origins of this project came from the Center for the Study of Weapons of Mass Destruction at National Defense University. In particular, Director John Reichert and members of his senior staff, especially Richard Love, Forrest Waller, and Seth Carus, envisioned a textbook that would highlight the issues and approaches to consequence management that could be used in classrooms at the war colleges, military academies, and other joint professional military education (PME) programs. Rich teaches a course on consequence management at the National War College, and it was his vision to have a book dedicated to the subject that he could use at NDU and that would be available more broadly, as well. NDU contracted Larsen Consulting Group to develop the concept, find the best authors, and hold a kickoff workshop in Washington, DC in 2009. Some of the chapter authors were known commodities, having served as guest lecturers in Rich's NDU class. Others were friends or colleagues who knew the subject well. The draft chapters were written and edited, and then the project languished for a period while the Department of Defense conducted a security review of the manuscript and the slow wheels of the bureaucracy ground on. Eventually, NDU realized it would be unable to finish the book in-house, so Rich asked me to finalize the manuscript. This longer-than-normal book development process allowed us to produce this excellent collection of essays, all of which were updated in the summer and fall of 2012.

I would like to thank Rich and the leadership of the WMD Center for the opportunity to tackle this project. I also want to acknowledge the hard work of the editorial team that reviewed early drafts of the chapters, including Kathy Livornese and Jenifer Jessep of Larsen Consulting, James Smith of the Air Force Institute for National Security Studies, and Erin Mahan and Natasha Bajema at NDU. The latter two analysts also helped organize and manage the authors' workshop. For administrative support at Larsen Consulting, my thanks to Laurie Bossert for learning the complicated government contracting software, and to Seth Carus at NDU for dealing with the contracting world at his end.

I also want to acknowledge the support of Matt Kopel, Brian O'Connor, and Scarlet Neath at Palgrave Macmillan, and Deepa John and the copy-editing staff at Newgen Imaging Systems for their close attention to detail and their shared interest in producing a top-quality book. Finally, thanks to Kurt Klingenberger for applying his years of experience in homeland security

to a critical review of the manuscript during the copyediting phase, and to Carolyn Larsen for putting the index together.

While most of the chapters in this volume have been approved by a Department of Defense security review prior to publication, it remains nonetheless true that the opinions expressed by the authors of this book do not necessarily reflect the official positions of Larsen Consulting, National Defense University, the Department of Defense, or any other agency of the US government. Any factual errors that remain can be laid on my doorstep. Try not to wake the dog.

DR. JEFFREY A. LARSEN
Colorado Springs
February 2013

Part I

Background

1

Dealing with Disaster

Jeffrey A. Larsen

All disasters are local.

On a hot, dry afternoon, typical of the American West in early summer, with bright sunshine and humidity levels in single digits, the people living along the Front Range of the Rocky Mountains were enjoying another beautiful day in the high altitude prairie of eastern Colorado—the kind of day that makes the region so popular among those who have discovered its secrets. But those conditions also made it a prime day for fire. The people of Colorado Springs, while enjoying the hot, lazy afternoon, also knew that the city was in the middle of a historic drought, with tinder dry conditions in the woods and grasslands of their city. Worse, for the fourth day in a row they could see a column of smoke rising from the mountains to their west. The smoke was not on the far horizon, nor was it a scene on their television sets beaming in from some distant land. They could smell it. Fire was in the foothills of their city. And life was about to get very serious very quickly for the people who lived near those mountains.

On that Tuesday afternoon of June 26, 2012, as the thermometer hit an all-time high for Colorado Springs, the Waldo Canyon fire was gathering strength as it burned unchecked in the ponderosa pine, scrub oak, and sage covered hills on the outskirts of the city. The spokesperson for the National Forest Service had just finished her daily 4 p.m. news conference, stating that while the fire was not yet contained, it had been a good day on the fire lines and nothing surprising was expected. Suddenly the winds picked up, the result of thunderstorms 50 miles to the north that affected the local atmosphere of the Pikes Peak region. The hot wind gained strength and changed direction, gusting to 65 knots and driving the fire over the ridge and down the slopes on the west side of Colorado Springs—directly into an upscale neighborhood of residential homes known as Mountain Shadows. The fire jumped two containment lines as the firefighters in the foothills dropped their equipment, put their hands on the shoulders of their comrades so as not to lose them in the smoke, and marched single file out of the woods, regrouping down below along city streets that were already burning. Meanwhile, the city government quickly ordered the evacuation of 35,000 people who lived

in the path of the fire. In the false twilight of a city no longer recognizable in the heavy smoke, long lines of cars began heading out of the danger zone during the height of the evening rush hour. Interstate 25 was shut down in one direction so the evacuees could use all six lanes to get away—although where they were going, many had no idea. They had left the tangible manifestations of their lives behind as flames appeared in their rear view mirrors. And no one knew where or when this firestorm could be stopped.

Thus began a horrific night of burning houses, property triage, and valiant efforts by the combined forces of multiple local fire departments, plus the small number of Forest Service firefighters on the scene, to fight back against the flames. By the next morning, nearly 350 homes lay in ruins. The fire continued to burn north along the Front Range and threatened the US Air Force Academy, but the worst was over. Within days, the federal government had fully entered the fight, with nearly 1,600 firefighters on the lines and the entire national fleet of aerial firefighting aircraft involved. Colorado's governor called out the National Guard to help the city police protect the remaining homes in the ravaged neighborhoods. Private organizations opened shelters and began collecting donations to help their displaced neighbors. Even US Northern Command, which had not formally been asked for help till that point, found it impossible to sit on the sidelines when the fire was clearly visible from windows in the headquarters building on Peterson Air Force Base, just across town. Partly in response to public and media questions asking "Where is the military?" Northern Command activated the entire Military Airlift Firefighting System (MAFFS) fleet, consisting of 8 C-130 aircraft especially equipped to dump 16 tons of fire retardant in a single pass. Three days after the disastrous firestorm, while the fire was still devouring Pike National Forest, President Barack Obama made a trip to Colorado Springs to see the devastation and declare it a disaster area, opening the path to more federal support and relief funds.

As this episode showed, all emergencies and disasters begin as local events. When the episode is complete, and things once again settle down, they end as local problems of mitigation, cleanup, lessons-learned studies, and rebuilding. From the local perspective, federal resources often seem to arrive too late and leave too early. But in the past decade the United States has significantly improved its plans for dealing with terrorist attacks or natural disasters, including the creation of US Northern Command to handle military support to civil authorities when necessary, and the development of a national incident management system, with associated national level documents to support that plan.

Natural disasters are not the only concern for the US government when thinking about consequence management. While uncommon, terrorist events and accidents or incidents involving the materials or agents found in weapons of mass destruction (WMD) are certainly a viable threat, as seen in incidents as widespread as the Aum Shinrikyo attacks using sarin gas in the Tokyo subway, anthrax letters mailed to key media personalities and legislators in the United States, mass bombings of the Madrid and London transport systems,

and the threat of a radiological dispersal device in a Moscow park. With the global spread of technology and knowledge about these weapons and the ease of international travel, such threats are only going to increase. In addition, natural disasters such as Hurricane Katrina, which devastated New Orleans and the Gulf Coast in 2005, Hurrican Sandy in the northeastern United States in 2012, major blizzards that have hit the East Coast in recent years, spring tornado outbreaks that strike cities in the Midwest, and the annual onslaught of killer forest fires in the West will always be with us. As a result, we need government agencies and individuals that are not only prepared to deal with natural disasters and weather events, but who also understand WMD and what to do when an incident, accident, or natural disaster occurs. A WMD incident would have implications across the spectrum of communities found in modern society: medical, public health, policy, public affairs, and national security, among others. Cooperation is therefore necessary between the agencies in these arenas at all levels of local, state, and federal government. Local responders will be most crucial to managing the effects of such an incident, as well as the most vulnerable to the effects of the materials themselves. Law enforcement and military organizations are likely to be among those first responders. Many of the professionals in those organizations will pass through the DOD Joint Professional Military Education system, giving educators the opportunity to train and educate those groups prior to the next big surprise.

About the Project

The project that led to this book began as an effort to develop a reader on consequence management suitable for classroom use in the Joint Professional Military Education system. Such a book, the sponsors hoped, would highlight the challenges posed by WMD in executing consequence management operations, as well as other operations in the wake of catastrophic events. It would address the policy, organizational, and operational issues that confront local, state, and federal first responders and interagency members when they are faced with responding to a natural disaster or an incident involving chemical, biological, nuclear, radiological, or high explosive materials or weapons. Managing a WMD event requires cooperation and collaboration between multiple agencies across all layers of government, and possibly with foreign governments as well.

Such a volume would introduce students of consequence management to government plans and directives regarding WMD and consequence management, the National Incident Management System, the National Response Framework, the National Strategy to Combat WMD, the means employed to handle foreign consequence management, public affairs and media considerations, legal issues, homeland security, and US interagency considerations. There is a large body of literature available to the student of consequence management, from academically oriented, broad-based approaches such as Bruce Bennett and Richard Love's *Initiatives and Challenges in Consequence*

Management after a WMD Attack (Air University Press, 2004),[1] to more narrowly defined government documents such as the US Department of Homeland Security's "Command and Management," a chapter in *National Incident Management System* (DHS, 2004).[2] There are good reference materials, such as Roland Langford's *Introduction to Weapons of Mass Destruction* (Wiley-Interscience, 2004)[3] and Eric Croddy, James Wirtz, and Jeffrey Larsen's *Weapons of Mass Destruction: An Encyclopedia of Worldwide Policy, Technology, and History* (ABC-Clio, 2005).[4] And there are categories of books and articles in each of the subfields that make up the large realm of WMD and consequence management. What was missing, however, was a textbook for graduate level students who may find themselves actually dealing with a WMD disaster someday. This book addresses that need.

Where's Waldo? A Tale of Interagency Response

The Waldo Canyon fire was the single most expensive disaster in Colorado history. Total costs, including the firefighting effort itself, the cost of rebuilding homes, and lost personal property, was estimated to be close to $400 million. While that amount pales in comparison to the larger Oakland or San Diego fires in California, or the damage to New Orleans from Hurricane Katrina, or to New York and New Jersey from Hurricane Sandy, it was nonetheless a serious economic shock to the city, and is representative of the type of natural disaster that can befall nearly any community. Natural events such as fires, hurricanes, blizzards, tornados, tsunamis, earthquakes, and floods are regular occurrences in one part or another of our continent-size country nearly every year. But the United States is also concerned about the possibility of a major terrorist attack, perhaps one that takes place in a flashy way, such as an explosion, or more worrying, one that is unleashed in a more discrete form, such as a biological contagion. In many ways, the firestorm that rolled off the mountain into Colorado Springs that hot June evening was very similar to the effect on a city of a small nuclear explosion: vicious winds, blowing embers, thermal heat (at one point a firefighter radioed that he was witnessing "spontaneous structure to structure combustion"). The only thing missing was the radiation and fallout one would expect from an atomic explosion, although the remaining ash and debris in the basements of what were formerly homes was considered a potential health hazard due to the large amount of heavy metals and unknown chemicals remaining in the rubble. An atomic explosion would have hit more quickly, and been over much faster than a forest fire, with greater loss of life as a result. (The Waldo Canyon fire directly led to only two confirmed deaths.) And the psychological effect of a nuclear attack would certainly be far greater. Still, the fire turned nasty very quickly, with most people having less than half an hour's notice to gather their valuables, pets, and whatever they could fit into their cars before evacuating. This represents the type of natural disaster that can come upon a community quickly and overwhelm even the most prepared and resilient local first responders.

The Waldo Canyon fire involved a host of players. It began with local firefighting departments from multiple jurisdictions, as well as police from city, county, and state bureaus. The Colorado Springs Office of Emergency Management activated its mandatory evacuation plan as the fire transitioned from a forest blaze to an urban catastrophe. Firefighters from the National Forest Service and the US military (such as the dedicated military Hot Shots team from Vandenberg Air Force Base, California) joined the effort. More traditional military support forces arrived from nearby Fort Carson, using their heavy equipment to cut fire lines through the southern end of the Air Force Academy. More military forces fought the flames that reached Academy property. The National Guard provided additional support to the local police in traffic control, checkpoints, and patrols to stem sightseeing or looting. The Air Force Reserve activated its MAFFS firefighting fleet and deployed it to Peterson Air Force Base for local use. The media took interest in the story as it became international news and sent teams to cover the fire and its aftermath. Local and national private organizations mobilized to provide support and aid to the homeless and dispossessed among the evacuees. These groups included the Red Cross, United Way, and the Humane Society, as well as local churches and philanthropic organizations. As the fire moved on, the Federal Emergency Management Agency (FEMA) arrived to provide additional help. Remediation and cleanup efforts were handled by local construction firms, organized by the city government to ensure legitimate companies were involved and to pursue some economic efficiency for those who needed help. The Federal Bureau of Investigation added its expertise to local law enforcement agencies in trying to find the source of the fire, attribute the cause, and, if necessary, find the persons responsible.

All of this effort required cross-discipline interagency cooperation and consultation, involving nearly all elements of a robust consequence management response structure as described in this book. Thanks to the efforts of the US government in the decade since 9/11, the city of Colorado Springs, the state of Colorado, the Department of Defense, and other involved federal agencies were better prepared to handle this situation and deal with the consequences than they would have been ten years earlier. In particular, the Forest Service and the military benefited from a previously untested joint command system that had been put in place since Katrina. Still, things could have been handled better. For example, the city's evacuation plan had communication problems and was activated too late—although a fire gives one a much shorter time frame to consider evacuation than does, for example, a slow moving hurricane that gives one days to prepare. And, despite recognition of the problems of communication between federal and local agencies for the past decade, the two primary groups involved in fighting the fire were still using incompatible radios. The Forest Service uses low frequency, long range analog radios that operate well in remote wilderness areas, whereas El Paso County had some years earlier selected high frequency digital radios with shorter range that work well in urban areas and inside buildings, but are worthless in the mountains. The practical solution for the firefighters

was to swap radio sets between teams working in the mountains and those in the city.[5]

The chapters in this book examine those issues and those agencies, as well as the plans that have been developed for dealing with this sort of incident in the future. The contributors hope that this knowledge will help students better adapt to stressful situations involving natural disasters or terrorist or military attacks on the country when they are in future positions of responsibility.

About the Book

The first part of the book examines a series of scenarios that develop for the reader several possible terrorist threats and natural disasters that may require a national level consequence management response. In his chapter entitled "What Just Happened? Situational Awareness, Threat Characterization, and Effective Consequence Management," James Wirtz discusses hurricanes, fires, floods, airplane crashes, and terrorist attacks, possibly including the use of one or more weapons of mass destruction. His chapter begins by emphasizing the importance of situational awareness in properly understanding and identifying major events from localized incidents or false alarms, which will help first responders better respond to the more serious situations. Is the incident natural or man-made? Was it caused by a state or non-state actor? Was there an international element? What were the underlying motivations? Is it potentially catastrophic in effect, or relatively minor and localized? Did it involve commonly available materials and well known threats, or exotic substances, possibly in ways that were unanticipated? He then addresses three scenarios that might trigger consequence management requirements—all of them possible, yet none of them caused by a foreign adversary: the discovery of anthrax in the food supply, the collapse of a major dam, and a chemical release in an urban setting.

In "The Tyranny of Time: The Challenge of First Response," Jerry Barnhill highlights one of the themes of this book: that all disasters are local. He reviews the requirements for first responders arriving at a disaster site; considers the tradeoffs of standardizing local and state responses to likely disaster or terrorist scenarios that would require consequence management; and assesses alternative approaches to current national guidance. These may include, for example, taking a bottom-up understanding of consequences regardless of the cause of the disaster, considering the tradeoffs inherent in a world of constrained resources, and recognizing the necessity to balance flexibility and standardization.

In Part II we begin looking more closely at the federal and local response to a catastrophic event, and the relationship between government organizations at those two levels. Richard Love lays out the general relationship of the Department of Defense to other federal agencies that are responsible for preparing for and dealing with these types of incidents. His chapter on "Homeland Security and Homeland Defense" highlights the importance of not overemphasizing homeland security or consequence management to the

detriment of DOD's ability to handle traditional threats to national security. Following this brief introduction, Greg Moser and Garry Briese continue the consideration of first response and the role of the federal government in supporting local civil authorities. In their chapter, "Federal Response: Assisting without Overwhelming," the authors introduce the National Incident Management System (NIMS), the DOD consequence management program, the National Response Framework, and the public health system as paths for assessing the federal government's roles, responsibilities, and in-place plans for dealing with natural disasters or terrorist attacks. They identify strengths and weaknesses in US government planning and recent responses to catastrophes.

Turning to the Department of Defense, Pat Pentland addresses the specific military responsibilities, plans, and capabilities for providing support to consequence management efforts in "Department of Defense Response: The Evolving Mission." He points out that despite the increased role of federal military forces in otherwise civil response situations since 9/11, there still remains a requirement for fully understanding authorities and limits to federal involvement. This includes a host of complicated laws and regulations to which the reader is introduced in an attempt to clarify this challenging bureaucratic spaghetti bowl of intersecting and overlapping responsibilities. In domestic situations, the Defense Department provides support through the lead federal agency, normally the Department of Homeland Security, but it is DOD that has the lead for defense support of civil authority missions. Still, the Pentagon is never in charge of consequence management operations. Its job is to provide support. As Pentland writes, the Defense Department "can 'lean forward,' it can preposition, it can train, it can plan, and it can respond faster, but it never runs the show." PME students come from the federal government and the DOD side of the equation, and must be familiar with these laws and limits if they are going to be able to act efficiently in future catastrophic situations.

Part III of the book focuses on important related issues, including the role of the media, legal issues, and the importance of being prepared to assist in foreign consequence management situations. In "Legal Issues Associated with a Catastrophic Domestic Incident," G. Roderick "Rocky" Gillette reminds us that the legal issues surrounding a natural disaster or terrorist attack will be a critical aspect of consequence management. Such issues with legal manifestations may include quarantine, surveillance and reconnaissance, and the role of the military. He looks at issues of civil liberties and individual rights in a military situation through an examination of the historic and constitutional theories used in developing the fundamental principles of US plans for responding to a catastrophic incident. He considers the potential requirement to change or abrogate certain aspects of the law, with a focus on the Department of Defense responsibilities in consequence management.

George Haddow follows with his chapter on "Communications: The Critical Function." He makes clear the importance of a government having a plan for assuaging the public's fear following a natural disaster or terrorist

attack. Such a plan would address the behavioral and psychological effects of such an incident. In addition, the national media (and local affiliates) will be instrumental in distributing timely, accurate, and understandable information and guidance to the public. The author addresses the media's role, as well as constraints on using the media or public affairs for such purposes, highlights the importance of social media in providing modern information flow, and suggests an effective disaster communications strategy in a way that can be used as a template for planners

Brian Lewis looks at the role of the Department of State in leading America's response to overseas catastrophes in his chapter on "Foreign Consequence Management." The United States has made a commitment to help friends and allies dealing with terrorist attacks or other incidents that require consequence management in those countries. The National Strategy to Combat WMD lays out a responsibility to respond to CBRNE incidents overseas in order to protect US citizens and armed forces abroad. This chapter addresses the challenges of providing foreign consequence management support to host nations.

In Part IV of the book we examine two case studies of particular importance in the development of US consequence management policy and plans: the 1995 sarin gas attacks on the Tokyo subway, and the 2005 hurricane that devastated New Orleans. In the first case study, Erin Mahan examines lessons learned from one of the first large international cases of terrorism, the sarin attacks on the Tokyo subway system by Aum Shinrikyo, and the subsequent medical and counterterror responses by Japanese authorities. This attack was followed three years later by the Oklahoma City bombing, which led to the first US executive order on counterterrorism policy. Bill Clinton's Presidential Decision Directive 39 first introduced the term "consequence management" as an official aspect of policy. As Mahan shows, the confusion and lack of preparedness seen in the 1995 Tokyo attacks make this a good example of how *not* to respond to a terrorist attack.

The second case study, by Jessica Iannotti, looks at Hurricane Katrina. She examines lessons learned from the largest domestic natural disaster to ever affect the United States, the August 2005 hurricane and subsequent flooding that destroyed much of New Orleans and the Gulf Coast of Mississippi and Alabama. This catastrophe killed over 1,300 people, damaged or destroyed some 250,000 homes, and forced nearly 1.5 million people to evacuate. Her chapter considers the slow and widely criticized response of FEMA, the Department of Homeland Security, and the federal government at large. Her findings support those of earlier chapters, highlighting the crucial importance of situational awareness and good communications, particularly in the first days of a catastrophe.

Shane Smith's chapter, "Fractured Response: Lessons for WMD Consequence Management from Hurricane Katrina and the Tokyo Subway Attack," analyzes the two preceding cases and provides general findings, themes, lessons, and other factors relevant for the study and teaching of consequence management. His main point is that while Katrina exposed the

challenges of developing a national response to a natural disaster, the Aum Shinrikyo case showed the dangerous potential impact that the introduction of WMD would have on such an event, thereby exacerbating and compounding the vulnerabilities faced by responders. Smith concludes with some proposals for bridging key gaps in the structure of the nation's plans for consequence management.

The final section of the book contains one chapter: "Consequence Management and National Security," by Kerry Kartchner. In lieu of a formal conclusion to the book, Kartchner's chapter takes the key themes from earlier chapters and weaves them into lessons for future consequence management scenarios. He makes the case that consequence management, as a national policy, is more important than ever, on par with the other two key pillars of prevention and response. In that capacity, he argues, a robust consequence management program can serve the nation's national security interests more broadly, providing a bulwark for America's deterrence strategy, as well as in support of its responsibility to assure allies, dissuade potential adversaries, and defend against external threats. He closes with recommendations for building a robust consequence management posture, one that focuses on reputation and capabilities, using a nine-part checklist of factors necessary for such a posture that mirror the requirements for successful nonproliferation or counterproliferation policies. Kartchner's theme is that consequence management should be a central feature of the government's efforts to fulfill its constitutional charter to provide for the safety and security of the American people.

Conclusion

Within a month of the Waldo Canyon Fire, the cleanup was well underway. The final costs of the fire and the property losses had been calculated. People who had lost their homes filed their insurance claims and thought about where to rebuild. A handful of US Forest Service firefighters remained, keeping an eye on hot spots in unburned sections within the fire perimeter in the high country. Block after block of the Mountain Shadows neighborhood was nothing but gray rubble and blackened skeletons of trees. Several miles of the 1500 foot vertical face of the Front Range, which provided such a beautiful green backdrop to Colorado Springs, were blackened and devoid of vegetation. This led to the next big fear: Would the daily summer thunderstorms cause flash flooding downhill from the denuded landscape?

The second guessing was also well underway, by the citizenry, in the media, and at all levels of government responders. What could the homeowners, the city, or the Forest Service have done differently that might have prevented this disaster? Could the response have been handled more quickly or efficiently? Were there plans in place that considered this scenario? How could other parts of the city, equally vulnerable to future fires, be better prepared? Should the city enact new zoning codes regarding construction materials, or setbacks for vegetation? Should there be a better communication

system to warn of pending evacuations? Does the federal government need more firefighting aircraft? Could the Department of Defense have intervened more quickly? Do such situations call for better civil-military cooperation and coordination?[6]

Multiple government agencies had arrived in Colorado Springs, raising additional questions among the generally self-sufficient and independent-minded population. Would FEMA do a better job here than it had done in New Orleans? Could the FBI and other law enforcement agencies really uncover how this fire started, and attribute the cause?

The media had moved on to the next big story, ironically just 60 miles up the road, where two weeks after the fire a lone gunman shot 70 moviegoers in a theater in Aurora, Colorado. That horrible situation raised many of the same questions as had the fire: How could this have been prevented? Was the response appropriate? And the nagging underlying question that did not come into play during the natural disaster of the fire was raised after this terrorist attack: what if the shooter had used WMD or chemical agents? How much worse might the tragedy have been, and how well would local first responders have dealt with it?

The purpose of this book is to tackle those tough questions and provide some possible solutions, or at least suggestions for considering how to deal with future catastrophes and natural disasters. The authors hope that by addressing those tough problems, they might help today's students of consequence management become better planners and responders in the face of future catastrophes.

NOTES

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2. Donald W. Walsh, Hank T. Christen, Christain E. Callsen, Geoffrey T. Miller, Paul M. Maniscalco, Graydon C. Lord, and Neal J. Dolan, *National Incident Management System*, 2nd ed. (Washington: Department of Homeland Security, 2004).
3. R. Everett Langford, *Introduction to Weapons of Mass Destruction: Radiological, Chemical, and Biological* (Hoboken, NJ: John Wiley and Sons, 2004).
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5. Ryan Maye Handy, "Challenge of Communication in the Heat of the Moment," *Colorado Springs Gazette*, August 12, 2012, p. 1.
6. See "City of Colorado Springs Waldo Canyon Fire: Initial After Action Report," October 23, 2012, at http://richmedia.onset.freedom.com/colgazette/mccpuy-waldocanyonfireafteractionreport.pdf.

2

What Just Happened? Situational Awareness, Threat Characterization, and Effective Consequence Management

James J. Wirtz

When one considers the range of scenarios that confront tribal, local, state, and federal officials in planning for consequence management, the magnitude of inherent challenges can easily be perceived as overwhelming. Because of their potential to inflict significant damage and casualties, hurricanes, fires, floods, chemical spills, airplane crashes, and the actions of terrorist groups often top lists of planning scenarios. These operations require an extensive amount of planning and preparation in order to ensure that lives are saved and damage to critical infrastructure is minimized. However, government officials must also plan for more mundane events that can significantly disrupt the important daily activities of civil society. For instance, a hazardous materials incident that shuts down important transportation networks could paralyze a major city for several days.

The growing complexity and interdependence that characterizes today's social and economic activity does not necessarily increase the frequency of disasters or accidents, but it does increase the possibility that relatively localized incidents will have far reaching consequences. The term "cascade effect" refers to an initial disaster or a response to a disaster that causes a chain reaction of events and expands the scope of the original incident, thus taxing or likely overwhelming resources and personnel, and leading to a plethora of unintended negative consequences. Cascade effects can be produced when a critical infrastructure node fails, leading to failures in other elements of urban or national infrastructure. On August 5, 1996, for instance, a faulty emergency valve in a major gas pipeline in Singapore stopped the flow of natural gas to seven electric power plants, leading to a national power outage and critical situations at several chemical production facilities.[1] In such circumstances, prompt mitigation is necessary in order to contain an incident before it can lead to a regional or national disaster.

The threat posed by domestic and transnational terrorist groups is a reality. The September 11, 2001 terror attacks against the World Trade Center and the Pentagon demonstrated that mass casualty terrorism is more than just a hypothetical problem. Similarly, the subsequent anthrax attack, resulting in five deaths, demonstrated that not all "white powder" incidents are hoaxes. Individuals in the United States have been discovered carrying the biological toxin ricin,[2] while others have been found stockpiling radiological materials in an effort to construct a "dirty bomb."[3] Federal, state, and local governments must now plan for the possibility of terrorist cells and/or lone individuals launching attacks on US soil with chemical, biological, radiological, or even nuclear weapons.

This chapter is comprised of two main sections. The first section is designed to aid the reader in understanding the key characteristics of terrorist threats and natural disasters, and how effective consequence management can help mitigate their effects. I begin by explaining the important role played by *situational awareness* as the guiding principle behind consequence management, as the majority of the incidents confronted by first responders will be false alarms or truly localized incidents with limited impact. The first rule of consequence management is to ensure that these events are accurately characterized. I then discuss the utility of an "all-hazards" approach to scenario planning—an approach that has emerged as the predominant system of characterizing threats in the years following Hurricane Katrina. I also identify several key continuums that can be employed as metrics of analysis for threat characterization.

The second section of the chapter contains three scenarios that are designed to assist the reader in thinking through the practical implications of situational awareness, threat characterization, and response operations. The reader should use these scenarios as a tool for challenging prior assumptions, conceptualizing effective plans and operations, and applying the theoretical continuums from the previous section. By doing so, the importance of properly characterizing man-made and natural disasters should be evident.

Situational Awareness

On October 11, 2006, New York Yankees pitcher Cory Lidle, along with his flight instructor, crashed his single-engine aircraft into an apartment building along Manhattan's Upper East Side. Neither pilot survived. Although the light plane caused fire damage to several floors of the structure, and inflicted about 20 casualties, this incident would be characterized as a minor accident, easily handled by New York City's emergency responders. Nevertheless, the accident, or more accurately the memories it rekindled of the September 11, 2001 attacks, caused a panic in New York City and a nationwide alarm. A nearby resident stated, "It crossed my mind that it was something bigger or the start of something bigger."[4]

Federal officials apparently shared her view. The North American Aerospace Defense Command (NORAD) scrambled fighter jets over New

York, Washington, DC, Seattle, Detroit, and Los Angeles. Airborne Warning and Control System aircraft were also sent aloft, along with supporting tanker aircraft, to take over the task of staging fighter intercepts. It took approximately 30 minutes for US Northern Command to determine that the United States was not under attack,[5] although officials in Manhattan continued to treat the event as a possible terrorist incident for some time. The New York Police Department sent hundreds of heavily armed officers to the vicinity of the crash and activated a counterterrorism response that "locked down" major portions of Manhattan. By contrast, the New York City Fire Department acted on the assumption that the incident was simply an accident, and focused its attention on issues stemming from a lack of accurate information regarding the exact layout and nomenclature used in the damaged building.[6]

The accident involving Lidle's aircraft illustrates several key factors that are likely to shape the nature of a federal response to major accidents, disasters, and catastrophic events. First, it demonstrates that situational awareness and an accurate interdepartmental consensus on what is happening are critical when it comes to consequence management. Theoretically, the more severe the event, the easier it should be to develop an accurate consensus on what has transpired (or what is transpiring) and reach agreement on the proper course of action.[7]

In a situation short of catastrophe, however, the difference between a major accident and the beginning of a slowly unfolding disaster will likely be difficult to discern. Under conditions of uncertainty, there is a greater possibility that a wide-ranging debate over policy, or responsibility for responding to the situation, will emerge. Indeed, as Jonathan Bendor and Thomas Hammond note, bureaucratic and intragovernmental discord over policy are often rooted in different assessments of the nature of a threat or incident. In their view, consensus on the nature of the incident is likely to yield consensus on the proper course and bureaucratic locus of action.[8] Thus, good situational awareness is critical because it is the first step in effective consequence management.

Second, attribution—identifying the exact cause of the event in question—is the critical issue at the heart of situational awareness. Whether an incident is an accident, natural disaster, or the product of some intentional act is often the foremost question on the minds of policy makers and first responders. Attribution allows policy makers to decide if they should put the bulk of their efforts into consequence management or focus on the prevention of additional incidents. If the I-35W bridge collapse in Minneapolis, Minnesota in August 2007 had turned out to be an act of terrorism, for instance, it would have forced a vastly different federal response. Instead of mobilizing resources to help in the cleanup and investigation of the structural causes of the bridge failure, local, state, and federal agencies would have been fully mobilized to inspect the entire US infrastructure for signs of sabotage. Additionally, once an incident is deemed either an act of God or an accident, the likelihood of public panic is greatly reduced. The situation is

more likely to return to normal if people generally go about their business as usual. And they are more likely to undertake business as usual if they believe that the incident is effectively contained.

Third, proper protocols to deal with potential challenges must be in place because the application of inappropriate measures to deal with an incident can aggravate a situation, potentially producing additional damage or cascade effects. This is the major lesson learned from the "white powder" incidents that occurred in Los Angeles in the late 1990s. Local officials first executed an extensive response to suspected anthrax attacks, despite the fact that warnings were disseminated that such incidents would probably turn out to be hoaxes. Hazardous materials teams donned full protective gear, stripped and decontaminated individuals who were at risk of exposure at the site, and then transferred them to a hospital for additional decontamination and a full course of antibiotics. This type of response cost over half a million dollars, and actually risked encouraging more incidents by playing into the hands of the individuals making the threats.[9] Los Angeles authorities soon learned that it was enough to simply identify individuals at risk of exposure so that they could be notified later if the incident turned out to be something other than a hoax.

Scenarios designed to test consequence management procedures need to present a complicated set of circumstances in order to engage the ability of local, state, and federal officials to develop situational awareness, especially when it comes to the issue of attribution. Additionally, scenarios that challenge existing protocols present first responders with a need to modify standard operating procedures in real time, and to craft responses to shifting circumstances. Most importantly, government officials and first responders must remember that their first obligation in crafting their crisis response is to do no further harm by taking action that can amplify the impact of a local accident or lead to a cascade effect. If the New York City fire or police departments had decided to begin to evacuate high-rise buildings in Manhattan, or if NORAD had decided to curtail commercial flights in the United States in response to the Manhattan plane crash, the economic and human costs of a local event could have spread across the rest of the city and the country.

Characterizing the Threat

In the immediate aftermath of the September 11 terrorist attacks, al-Qa'ida and transnational terrorism were generally considered to be the primary threat facing the United States in terms of homeland security. The Department of Homeland Security (DHS) was created to unify the efforts of the federal government towards preventing another such attack. Four years later, policy makers were surprised by another catastrophe stemming from a different source.

In August 2005, one of the five deadliest hurricanes in the history of the United States shifted the focus from terrorist catastrophes to natural disasters. Killing an estimated 1,330 people and causing nearly $200 billion