The New World of Crises and Crisis Management: Implications for Policymaking and Research

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Introduction to the Special Issue

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Abstract

In recent years, we have witnessed a series of spectacular crises and disasters: 9/11, Madrid and London, the Asian tsunami, the Mumbai attacks, the implosion of the financial system—the world of crises and disasters seems to be changing. This special issue explores how these crises and disasters are changing and what governments can do to prepare. This opening article defines critical concepts, sketches a theoretical perspective, offers key research findings, and introduces the contributions to the special issue.

KEY WORDS: transboundary crises, Hurricane Gustav, crisis leadership, disaster and risk management, governance.

Introduction: A New World of Crises and Disasters

The world of crises and disasters is shifting. The frequency, nature, and consequences of these adverse events are changing (Missiroli, 2006; OECD, 2003; Posner, 2004; Quarantelli, Lagadec, & Boin, 2006; Robb, 2007). This shift in possible adversity poses new challenges to political-administrative elites. It also spurs a new research agenda for students of the public sector.

This opening statement should not be taken as an apodictic overstatement. Crises and disasters may be getting worse in some ways, but the capacity to deal with some of these adverse events is growing. It is, for instance, easily forgotten that some "traditional" disasters rarely occur in modern societies, where they used to be ubiquitous not so long ago (think of cholera, bridge collapses, and theater fires). In fact, there is ample evidence to suggest we are safer today than we have ever been before (Wildavsky, 1988).

Yet, the shape and dynamics of crises and disasters is changing. They have different causes, play out differently, draw different reactions, and affect societies in different ways. This special issue takes stock of this development. The contributors assess the changing nature of crises and disasters, explore existing and emerging challenges, and formulate research questions that demand our attention. In this introduction, I sketch a theoretical ideal type of the modern crisis, which I will refer to as the transboundary crisis.[1]

The contributions in this special issue strongly suggest that the crises of the future will be increasingly transboundary in nature. These events are likely to last much longer than contemporary crises, as they infect other sectors and functions, changing continuously. They are likely to cause more damage, but in a different way. Much more than before, they pose a critical challenge to the legitimacy base of public and private organizations.

The key to understanding the shifting nature of crises and disasters is deceptively simple: threat agents will look familiar (e.g., natural forces, violence, and technological failure), but the consequences play out very differently. To understand why

this is the case, I begin by outlining the characteristics of these transboundary crises (section 2). Section 3 identifies the political-administrative challenges posed by these crises and disasters. The article concludes by formulating a set of key research questions and introducing the contributions to this special issue.

The Transboundary Crisis: Characteristics and Consequences

We speak of a transboundary crisis when the functioning of multiple, life-sustaining systems, functions, or infrastructures is acutely threatened and the causes of failure or courses of redress remain unclear. This definition builds on the traditional notion of crisis with its core conceptual elements of threat, urgency, and uncertainty (Rosenthal, Boin, & Comfort, 2001; Rosenthal, Charles, & 't Hart, 1989). What sets it apart from the more traditional definition is its emphasis on the tightly woven web of critical infrastructures that characterizes modern society (see also the contributions of Wachtendorf and Santella et al. in this special issue).

The potential for crossing boundaries sets this new class of adversity apart from its traditional brethren. A transboundary crisis can easily cross geographical borders, threatening multiple cities, regions, countries, and continents. A snow storm in the southern and central provinces of China left hundreds of thousands stranded during the New Year holidays (February 2008), severely exposing the country's inadequate crisis management structures. The current financial implosion does not respect national borders, as it wreaks havoc across the world.

A transboundary crisis also jumps functional boundaries. For instance, it can cross from a financial system into an industrial system (the credit crunch putting U.S. car makers under siege); from private to public (the Chinese milk crisis); from one sector of industry to another (a crisis in the car industry affects the steel industry).

Finally, a transboundary crisis transcends traditional time boundaries. Whereas a traditional crisis has a clear beginning and an end, the transboundary crisis cannot easily be pinpointed in time. Its roots run deep (like in the 9/11 crisis) and its effects may be felt years down the road (Birkland in this special issue discusses the policy effects of Katrina and New Orleans).

It is the combination of these characteristics that informs the character of an ideal-typical transboundary crisis. These crises have no clear beginning, escalate suddenly, and, in unforeseen directions, exploit linkages between functional and geographical domains. A transboundary crisis has no, or at least not one, Ground Zero. The SARS epidemic is a good example. Its characteristics or causes were ill understood when the disease rapidly proliferated from the southern provinces of China to at least 37 countries. While the number of known fatalities was relatively low (less than a thousand), its effects were widespread. The disease affected the travel and tourism industry, tarnished the reputation of Toronto (as the disease mysteriously lingered in the city), and forced Chinese authorities to revamp China's crisis management system.

The combination of geographical and functional "spread" can easily create a power vacuum as it is not clear who "owns" the crisis and who must deal with it. This authority vacuum allows familiar tensions to play up and feed off each other: nation states versus international organizations; central authorities versus local first

responders; public organizations versus private interests; state concerns versus citizen fears. While there is nothing unique about these tensions ('t Hart, Rosenthal, & Kouzmin, 1993; Rosenthal et al., 1989), the interplay between these tensions makes the transboundary crisis very hard to manage (I will return to this point in the next section).

These characteristics also affect the damage potential. A transboundary crisis causes damage in an insidious way: in addition to direct personal damage, it cripples or undermines critical infrastructures, which is expensive and dangerous. Moreover, these crises tend to undermine the legitimacy base of governance structures and processes, which are shown to be inadequate in the face of crises that cross boundaries. Even when the threat agents are familiar and seemingly "modest," these crises can cause damage to a surprising degree.

All this will have consequences for the way we "qualify" disasters and how we assess the response to these events. Consider the example of Hurricane Gustav, which lashed Louisiana exactly three years after Hurricane Katrina destroyed New Orleans. Gustav made landfall on September 2, 2008 (Labor Day, a national holiday in the United States). The first major hurricane threat after Katrina and Rita, Governor Jindal and his administration seemed to manage the situation well. New Orleans was quickly (and efficiently) evacuated. Only a handful of deaths were attributed to the storm.

Gustav will not enter the history books as a killer storm. Yet, the transboundary impacts were huge. Gustav caused billions of dollars worth of damage in a wide variety of sectors (electrical system, crops, houses, personal property, and commercial structures). It left southern Louisiana and its capital Baton Rouge in the dark for nearly two weeks. As a result, all critical infrastructures were paralyzed, turning Baton Rouge into a ghost town. Nothing worked: hospitals, gas stations, stores, schools, banks, and essential government services were out of power. Food, water, and hospital services soon became an issue. With New Orleans evacuated, and the capital down, south Louisiana (two million people) ground to a halt. A storm that nobody outside Louisiana will remember brought an entire region to its knees.

The Escalatory Power of Transboundary Crises: Trends and Drivers

The potential damage of these transboundary crises becomes a point of concern in light of the underlying drivers, which, academics predict, make these crises increasingly likely to occur. These drivers are well-known and have been extensively analyzed. It is the interactive relation between these drivers that make them a particular source of concern.

First, societies are becoming more vulnerable to relatively small disturbances. Modern societies have become tightly linked to other societies (Albrow, 1996; Castells, 1996). Travel has become cheaper and easier. Supply chains reach across the globe and change constantly. The Internet has penetrated many aspects of everyday life. A fishing boat in the Mediterranean can pull a cable that paralyzes Internet communications in the Far East for days. A Dutch kid can create a computer virus that attacks millions of PCs. Hackers can paralyze a nation's defense organization. Globalization has made the world "flat" in a wide variety of ways (Friedman, 2005).

In our just-in-time societies, small disturbances propagate rapidly through the dense networks that connect them. The complexity of the networks makes it hard to understand where the disturbance has originated and how it is working through the chains (Perrow, 1999). Modernization has created "highways for failure" that leverage the effects of emerging threats (be they man-made or natural).

Traditional government agencies have a hard time keeping up with these developments. These agencies are simply designed nor prepared to deal with the dynamics and escalating effects of transboundary crises (Kettl, 2003). Citizens may be even less prepared. The growing economic disparity in modern society saps its resilience capacity.

The changing nature of threat agents constitutes the second driver. Threat agents change in many ways, of course, but several trends stand out (Rosenthal et al., 2001). *Technology* is developing at an accelerating and often astounding speed, which is creating revolutionary possibilities to engineer and interfere with human life as we know it (Baer et al., 2005; Garreau, 2005). This will create opportunities but also threats that are hard to imagine.[2] Another trend is the rapidly evolving nature of international *terrorism*. We have seen the rise of suicide terrorism, but the Beslan school siege (2004) and the Mumbai attacks (2008) show that terrorists will invent new and more effective tools (Laqueur, 2003). Furthermore, *climate change* is happening. There is no way to predict how it will impact the various regions in the world, but there is little doubt that it will. *Demographic shifts* have already begun to do that. Finally, we should mention the tectonic *shifts in global power arrangements* (the rise of Asia) that will create new opportunities and threats.

Challenges for Crisis Management and Policy Making

The prospect of large-scale crisis typically gives rise to three types of challenges. First, there are the political-administrative challenges of preparing government agencies to deal with sudden adversity (see Lodge, this issue). Second, crises test the fabric of society—its citizens and institutions must demonstrate resilience if a society is to "bounce back" after a crisis and reestablish some sense of normality (Roe, this issue). Third, crises and disasters pose challenges for policy-makers; they require "deep thinking" (Dror, 1986). I will briefly touch upon the first set of challenges, ignore the second, and return to the third in the final section of this contribution.[3]

This article is mainly concerned with the challenges that crises and disasters pose to public leadership. These events are relatively rare, but they typically present leaders with the hardest challenges they have ever encountered. Crises typically come as a surprise to leaders and their agencies. In a crisis, leaders will find that complex bureaucracies are not designed or ideally suited to deal with nonroutine events (Wilson, 1989). Yet, despite these constraints, political-administrative leaders will be held accountable for any failures that occur on their watch (Boin, McConnell, & 't Hart, 2008). Crisis management is thus somewhat akin to an "impossible job" (Hargrove & Glidewell, 1990).

The impossible job of crisis management can be broken down into five executive tasks, which will be outlined in the next sections (Boin et al., 2005). Each task is important and requires different skill sets, organizational strategies, and resources.

I will illustrate and explore the difficulties of each task through the aforementioned case of Hurricane Gustav.

Task 1: Preparing in the Face of Indifference

Public leaders need to prepare themselves and their organizations for the occurrence of a crisis or disaster, which will require rapid, coordinated, and often improvised action to ensure an effective response. There are many ways to prepare for crises, including training, simulations, and wholesale cultural change (Weick & Sutcliffe, 2001). Such preparations generally run into three obstacles.

First, crisis preparation is relatively expensive. The allocation of permanent staff and resources, in combination with continuous training, planning, and exercise efforts, in preparation for an event that *may* happen, takes away scarce resources from problems that are already happening. Only in the immediate wake of a time-defining disaster (think of 9/11 or Katrina) is it politically feasible to divert money away from such perennial concerns as crime, education, unemployment, defense, and critical infrastructures (compare with Birkland, this issue).

Second, planning and preparing for unknown events is intrinsically hard. It is hard enough to plan for disasters that are likely to happen (think of hurricanes in Louisiana and earthquakes in California). Yet, even known disasters always play out differently than previous or seemingly similar events in other locations. It is much harder to plan for "inconceivable" events. Planning for the unimaginable easily becomes generic to the extent that it is merely symbolic (Clarke, 1999).

Third, crisis preparation is fraught with political tension. It cuts to the essence of politics, evoking the question: *Who will be protected against what, when, and where?* The inevitable follow-up question is: *Who will pay for it?* Should U.S. taxpayers assist house owners who want to live on the Gulf Coast and find their house damaged after a hurricane?

Louisiana provides a case in point. After being heavily criticized for its performance before, during, and after Hurricane Katrina, Louisiana has recently stepped up its preparations for the hurricane season. Five days before Hurricane Gustav was predicted to come ashore, Governor Jindal declared a state of emergency. The population of New Orleans was evacuated well before the storm came ashore. Louisiana had learned its lesson, or so it seemed.

Hurricane Gustav revealed that the aforementioned obstacles had not been fully circumvented. The shelters proved woefully inadequate, prompting the resignation of Ann Williamson, the secretary of social services. The state had prepared for massive flooding, but Gustav caused a very different disaster: the paralysis of Baton Rouge (where the state has its crisis-management center). The evacuation of New Orleans may have been politically expedient, but it turned out to be unnecessary, which, in turn, may well hinder future efforts to evacuate a population notoriously unwilling and unable to leave.

Task 2: Making Sense of an Emerging and Evolving Crisis

Before a crisis or disaster becomes manifest, public leaders and their staffs usually find it hard to recognize (from vague, ambivalent, and contradictory signals) that

something out of the ordinary is developing. During a disaster, they often find it problematic to develop a so-called "common operational picture." It is hard to collect, analyze, and comprehend the necessary information to make sense of a crisis situation (Rosenthal et al., 1989; Snook, 2000; Turner, 1978).

Crisis scholars have identified a variety of reasons that explain why officials so often fail to "make sense" of information that in hindsight appears painfully obvious. The bewildering pace, ambiguity, and complexity of a crisis tends to overwhelm normal modes of situation assessment. Stress may further impair sense-making abilities ('t Hart, 1994).[4] The organizations in which crisis managers typically function produce additional barriers to crisis recognition. In fact, research shows that most organizations are unable to detect threats that involve only a few causal factors, follow a predictable pattern, and have a long lead time (Kam, 1988; Turner, 1978; Wilensky, 1967).

Some researchers point to organizations that have developed a proactive culture of "looking for problems" in their environment. These so-called high reliability organizations have somehow developed a capacity for thorough yet fast-paced information processing under stressful conditions (LaPorte, 1996; Roe & Schulman, 2008). The unresolved question is whether organizations can design these features into existing organizational cultures (Weick & Sutcliffe, 2001).

The case of Hurricane Gustav, an anticipated and closely monitored threat, illustrates the complexities of sense making. Once Gustav had made landfall, safely away from New Orleans, the shared sense was that a disaster had been avoided. New Orleans was indeed spared, but Baton Rouge suffered badly. Both the local and state authorities were taken by surprise (quite literally, as they were all operating from the state capital). It took days before the full picture of a paralyzed city emerged, its critical infrastructures severely damaged. Moreover, it took a long time before state authorities realized that the shelters were ill-equipped to house evacuees (who were not allowed to return to New Orleans because the power was still out).

Task 3: Managing Large Response Networks

Once a threat has become manifest, leaders are expected to mount an effective response. Much of crisis research concentrates on this response phase of crisis management (Rosenthal et al., 1989, 2001). This research has demonstrated how difficult it is to make critical decisions and coordinate large-scale networks (Brecher, 1993; Janis, 1989).

Interestingly, many pivotal crisis decisions are *not* taken by individual leaders or by small informal groups of senior policy-makers. They emerge from various alternative loci of decision making and coordination ('t Hart et al., 1993). In fact, the crisis response in modern society is best characterized in terms of a network comprising a wide variety of response organizations that usually do not work together during "normal" times.

An effective response therefore requires interagency and, increasingly, intergovernmental coordination (Dynes & Aguirre, 1979; Kettl, 2003). Coordination is not a self-evident feature of crisis-management operations, however. Getting public bureaucracies to adapt to crisis circumstances is a daunting—some say impossible—

task. Most public organizations were originally designed to conduct routine business in accordance with such values as efficiency, fairness, and lawfulness (Wilson, 1989). The management of crisis, however, requires flexibility, improvisation, redundancy, and the occasional breaking of rules.

All this is compounded by the fragmentation of authority that is inherent to crises and disasters. A crisis brings unique problems that rarely fall neatly within the domain of one agency or leader. A crisis thus typically has multiple "owners"—or no owners at all.[5]

An effective crisis response is to a large extent the result of a naturally evolving process.[6] It cannot be managed in a linear, step-by-step, and comprehensive fashion from a single crisis center, however full of top decision makers and equipped with state-of-the-art information technology. There are simply too many hurdles that separate a leadership decision from its timely execution in the field ('t Hart et al., 1993). An effective response depends on such variables as previous interaction and trust between network parties.

The response to Hurricane Gustav illustrates these findings. After the hurricane made landfall, wreaking havoc across Louisiana, the governor and his staff faced very few critical decision moments. The prepositioned response network deployed to the coastal area and performed their duties as envisioned in the planning phase.

Crisis decisions had to be made by Baton Rouge city authorities. Caught by surprise (hurricanes rarely reach Baton Rouge), the local government faced many urgent problems that required decisions: traffic lights were out; hospitals had no power; citizens faced gas shortages, empty supermarkets, and closed banks. In addition, the crisis response required the instant formation of a network consisting of private sector players (the power companies, supermarkets, hospitals), faith-based organizations, state agencies (National Guard), and federal response agencies (FEMA). Each coping strategy, however, required that power be restored. For this to happen, the government was fully dependent on Entergy, the private power utility, which appeared unprepared to deal with the task of restoring power to two million people.

Task 4: Offering Credible Answers

One of the most crucial leadership tasks during a crisis is to explain what is happening and what leaders are doing to manage the crisis. They must offer a convincing rationale, which generates public and political support for their crisis management efforts. As we have seen, however, leaders do not always know exactly what is happening. Efforts to impart accurate, accessible information, which can be used as the basis for appropriate action, may encounter an anxious and even fearful audience. Stress and arousal can easily lead to the messages of leaders being misinterpreted and distorted—especially among those parts of the audience who do not see government as their ally.

Public leaders do not have a monopoly on framing the crisis ('t Hart, 1993). Other actors and stakeholders will offer credible but alternative interpretations of the causes of the crisis, its consequences, and the specific actions that are needed. Their success may undermine the capacity of public leaders to maneuver and make authoritative decisions.

In the aftermath of Hurricane Gustav, public authorities were remarkably successful at performing this executive task. The mayor of Baton Rouge, Mr. Kip Holden, maintained an upbeat tone throughout the crisis, celebrating small steps, offering stern warnings against looting, and emphasizing the need for a patient but joined approach. A month after the crisis, the mayor was reelected with a sweeping 70 percent of the vote.

Governor Jindal was also very effective. He consistently repeated a very simple message: New Orleans was saved, everything was under control, Louisiana knows how to manage disasters. In two daily press conferences, Jindal provided a very detailed overview of available resources and initiated activities, which were designed to impress upon the public that the governor was fully in charge, and could rely on the support of the federal government. Jindal barely mentioned the situation in Baton Rouge, focusing exclusively on New Orleans and the coastal areas. He did not hesitate to lash out against FEMA or his own department heads when things went wrong. He received high marks for his leadership, both within and outside the state of Louisiana.

Task 5: Learning Under Pressure

After a crisis, governments are expected to fix what went wrong before and during the event. A crisis can thus create a window of opportunity for policy reform, institutional overhaul, and even leadership revival (Keeler, 1993; Kingdon, 1995). Research findings suggest this is very difficult, for a wide variety of reasons (Birkland, 2006; Dekker & Hansén, 2004; Lagadec, 1997).

Organizations tend not to be good learners, and certainly not in the aftermath of crises and disasters. One crucial barrier is the lack of authoritative and widely accepted explanations of why and how the crisis happened. The trajectory of a crisis usually involves a mix of individual, organizational, technological, and societal shortcomings, but how these factors interrelate and play out is the subject of intense debate (Boin & Schulman, 2008). Even if commonly agreed-upon explanations emerge, many organizational factors can prevent sensible reform.

In addition to cognitive and institutional influences on learning lessons after crisis, political and social aspects can be crucial. A dominant political depiction of a crisis as the product of failures of prevention or lack of foresight in contingency planning can set the agenda for reform. However, other actors will try to exploit this opportunity to advocate very different types of reforms, which serve their own political agenda.

It is too early to judge what lessons, if any, Louisiana will draw from Gustav. The temptation may be to emphasize the successes, especially in light of the Katrina fiasco, while ignoring the failures. One would expect the state to learn the lessons that Baton Rouge has in store with regard to managing a city that is without power for weeks. The state could ponder what would have happened if Gustav had breached the levees and flooded New Orleans again. The political reflex, however, may be to attempt rapid closure of a rare success case.

A Transboundary Research Agenda

The contributors to this special issue address three research challenges. The first challenge is to dissect the transboundary crisis in order to learn whether this is truly

a new species of adversity and to identify its specific characteristics and dynamics. The second challenge is to identify theoretical angles or perspectives that will enable researchers to ask pertinent questions and conduct empirical research that can answer them. The third research challenge is to identify effective coping strategies that public leaders and policy-makers may employ in the face of transboundary threats.

This special issue kicks off with two articles further exploring the idea of transboundary crises and disasters. Tricia Wachtendorf explores the concept of "trans-system social ruptures," which she discusses in the context of U.S.-Canada border-spanning systems. Martin Lodge investigates the relation between risk, crises, and the public management. He makes use of grid group cultural theory and shows how different discourses can lead to different risk management approaches.

The next two articles attempt to bridge the proverbial bridge between research and practice. Nicholas Santella, Laura Steinberg, and Kyle Parks report on efforts to create software-based tools for policy-makers who are trying to prepare for transboundary crises and disasters. Tom Birkland, in his article, maps policy developments in the United States since two transboundary crises—the 9/11 attacks and Hurricane Katrina—shook up the homeland security system.

The next set of articles offers distinct theoretical perspectives that may further research in this area. Mark Rhinard argues that transboundary crisis management capacity should be viewed as a collective good, which begins to explain why it is so hard to design that capacity. Emery Roe provides a fresh perspective on the classic prevention question with his idea of "setback management."

Taken together, these contributions move the study of transboundary crises and crisis management to the next level. The authors offer a first answer to Patrick Lagadec's passionate plea for innovative thinking that concludes this special issue. The area of transboundary crisis is *terra incognita*—it is a task for social scientists to create the maps and tools that will allow our leaders to navigate these unknown waters.

Notes

1 This concept builds on the idea of "trans-system social ruptures," which was coined by Henry Quarantelli (see Quarantelli et al., 2006) for an early statement; see also Tricia Wachtendorf's article in this special issue).

2 Technological jumps have, of course, greatly increased the capacity to manage crises. Consider hurricanes: surprises have been limited, communication has been improved, and response capacity (think of evacuation or massive staging of supplies) has been improved.

3 The study of societal resilience is a fascinating topic of study that has recently generated much attention (e.g., Paton & Johnston, 2006; Vale & Campanella, 2005; Walker & Salt, 2006).

4 Some people manage to keep their cool and to stay clearheaded under pressure. They have developed a mode of information processing that enables competent performance under crisis conditions (Flin, 1996; Klein, 2001).

5 Rhinard (this issue) usefully reconceptualizes crisis management in terms of a collective action problem.

6 See for instance the improvised response in New York City to the 9/11 attacks on the Twin Towers (Kendra & Wachtendorf, 2003).

About the Author

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References

't Hart, P. (1993). Symbols, rituals and power: The lost dimensions of crisis management. *Journal of Contingencies and Crisis Management*, *1*(1), 36–50.

't Hart, P., Rosenthal, U., & Kouzmin, A. (1993). Crisis decision making: The centralization thesis revisited. *Administration and Society*, *25*(1), 12–45.

't Hart, P. (1994). *Groupthink in government: A study of small groups and policy failure*. Baltimore: Johns Hopkins University Press.

Albrow, M. (1996). *The global age*. Cambridge: Polity.

Baer, M., Heron, K., Morton, O., & Ratliff, E. (2005). *Safe: The race to protect ourselves in a newly dangerous world*. New York: HarperCollins.

Birkland, T. (2006). *Lessons of disaster: Policy change after catastrophic events*. Washington, DC: Georgetown University Press.

Boin, A., 't Hart, P., Stern, E., & Sundelius, B. (2005). *The politics of crisis management: Public leadership under pressure*. Cambridge: Cambridge University Press.

Boin, A., McConnell, A., & 't Hart, P. (Eds.) (2008). *Governing after crisis*. Cambridge: Cambridge University Press.

Boin, A., & Schulman, P. (2008). Assessing NASA's safety culture: The limits and possibilities of high-reliability theory. *Public Administration Review*, *68*(6), 1050–1062.

Brecher, M. (1993). *Crises in world politics: Theory and reality*. Oxford: Pergamon Press.

Castells, M. (1996). *The rise of the network society*. Oxford: Blackwell.

Clarke, L. (1999). *Mission improbable: Using fantasy documents to tame disaster*. Chicago: University of Chicago Press.

Dekker, S., & Hansén, D. (2004). Learning under pressure: The effects of politicization on organizational learning in public bureaucracies. *Journal of Public Administration Research and Theory*, *14*, 211–230.

Dror, Y. (1986). *Policymaking under adversity*. New Brunswick, NJ: Transaction.

Dynes, R., & Aguirre, B. E. (1979). Organizational adaptation to crises: Mechanisms of coordination and structural change. *Disasters*, *3*, 71–74.

Flin, R. (1996). *Sitting in the hot seat: Leaders and teams for critical incident management*. Chicester: John Wiley.

Friedman, T. L. (2005). *The world is flat*. New York: Farrar, Straus and Giroux.

Garreau, J. (2005). *Radical evolution: The promise and peril of enhancing our minds, our bodies—And what it means to be human*. New York: Random House.

Hargrove, E. C., & Glidewell, J. C. (Eds.) (1990). *Impossible jobs in public management*. Lawrence, KS: Kansas University Press.

Janis, I. L. (1989). *Crucial decisions: Leadership in policymaking and crisis management*. New York: The Free Press.

Kam, E. (1988). *Surprise attack*. Cambridge, MA: Harvard University Press.

Keeler, J. T. S. (1993). Opening the window for reform: Mandates, crises and extraordinary policymaking. *Comparative Political Studies*, *25*(4), 433–486.

Kendra, J., & Wachtendorf, T. (2003). Elements of community resilience in the World Trade Center attack: Reconstituting New York City's emergency operations center. *Disasters*, *27*(1), 37–53.

Kettl, D. F. (2003). *System under stress: Homeland security and American politics*. Washington, DC: CQ Press.

Kingdon, J. W. (1995). *Agendas, alternatives and public policies* (2nd ed.). New York: HarpersCollins.

Klein, G. (2001). *Sources of power: How people make decisions* (7th ed.). London: The MIT Press.

Lagadec, P. (1997). Learning processes for crisis management in complex organizations. *Journal of Contingencies and Crisis Management*, *5*, 24–31.

LaPorte, T. R. (1996). High reliability organizations: Unlikely, demanding, and at risk. *Journal of Contingencies and Crisis Management*, *4*, 60–71.

Laqueur, W. (2003). *No end to war: Terrorism in the twenty-first century*. New York: Continuum.

Missiroli, A. (2006). Disasters past and present: Challenges for the EU. *Journal of European Integration*, *28*(5), 423–436.

OECD. (2003). *Emerging risks in the 21st century: An agenda for action*. Paris: Organization for Economic Cooperation and Development.

Paton, D., & Johnston, D. (Eds.) (2006). *Disaster resilience: An integrated approach*. Springfield, IL: Charles C. Thomas.

Perrow, C. (1999). *Normal accidents: Living with high-risk technologies*. Princeton, NJ: Princeton University Press.

Posner, R. (2004). *Catastrophe: Risk and response*. New York: Oxford University Press.

Quarantelli, E. L., Lagadec, P., & Boin, A. (2006). A heuristic approach to future disasters and crises: New, old and in-between types. In H. Rodriguez, E. L. Quarantelli, & R. Dynes (Eds.), *Handbook of disaster research* (pp. 16–41). New York: Springer.

Robb, J. (2007). *Brave new war: The next stage of terrorism and the end of globalization*. Hoboken, NJ: John Wiley & Sons.

Roe, E., & Schulman, P. (2008). *High reliability management: Operating on the edge*. Stanford, CA: Stanford University Press.

Rosenthal, U., Boin, A., & Comfort, L. K. (Eds.) (2001). *Managing crises: Threats, dilemmas, opportunities*. Springfield, IL: Charles C. Thomas Publishers.

Rosenthal, U., Charles, M. T., & 't Hart, P. (Eds.) (1989). *Coping with crises: The management of disasters, riots and terrorism*. Springfield, IL: Charles C. Thomas Publishers.

Snook, S. A. (2000). *Friendly fire: The accidental shootdown of U.S. Black Hawks over northern Iraq*. Princeton, NJ: Princeton University Press.

Turner, B. A. (1978). *Man-made disasters*. London: Wykeham.

Vale, L. J., & Campanella, T. J. (Eds.) (2005). *The resilient city: How modern cities recover from disaster*. Oxford: Oxford University Press.

Walker, B., & Salt, D. (2006). *Resilience thinking: Sustaining ecosystems and people in a changing world*. Washington, DC: Island Press.

Weick, K. E., & Sutcliffe, K. M. (2001). *Managing the unexpected: Assuring high performance in an age of complexity*. San Francisco, CA: Jossey-Bass.

Wildavsky, A. B. (1988). *Searching for safety*. New Brunswick: Transaction.

Wilensky, H. L. (1967). *Organizational intelligence: Knowledge and policy in government and industry*. New York: The Free Press.

Wilson, J. Q. (1989). *Bureaucracy: What government agencies do and why they do it*. New York: Basic Books.