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What Katrina Means for Emergency Management

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Abstract

Taken alone, the aftermath of Hurricane Katrina does not reveal much about the capacity of the federal government to address the usual disasters that occur each year, but it does point to the limits of the government's current capacity to address catastrophe. Policymakers should use the window of opportunity following Katrina to deliberate about how much responsibility the federal government, and therefore taxpayers, will bear for major disasters. Surely the government must step in when states and localities are overwhelmed by catastrophe. But disaster preparation and response also requires cooperation between states, localities, and the private sector. Strengthening the disaster profession will help provide a common language of preparedness to be shared by the diverse public and private authorities who prepare for and respond to disasters.

KEYWORDS: Disaster, homeland security, federal emergency management agency, Katrina, risk homeostasis

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Facing a death toll of more than 1200 and a cost of recovery in the hundreds of billions, shocked observers of the destruction wrought by wind and water wanted to blame something more than an anthropomorphized force of nature named Katrina. Could fault lie with inadequate plans, or perhaps with unresponsive bureaucrats? In reality, the obstacles to reducing the death and destruction caused by major disasters go beyond organizational and management issues to questions about social values. What role should the federal government have in helping communities prepare for and respond to low probability, high-cost events? Katrina was a worst-case scenario, a hurricane more severe than any ever before faced by the Federal Emergency Management Agency. Though both expert reports and folk wisdom assumed that someday much of New Orleans would be submerged, this worst-case was at best a possibility for the distant future, part of a hundred year cycle, and unlikely to enter the calculus of most politicians or local bureaucrats concerned with their tenure in office.

Taken alone, the disaster does not reveal much about the capacity of the federal government to address the usual disasters that occur each year, but it does point to the limits of the government's current capacity to address catastrophe. Policymakers should use the window of opportunity following Katrina to deliberate about how much responsibility the federal government, and therefore taxpayers, will bear for major disasters. Surely the government must step in when states and localities are overwhelmed by catastrophe. But disaster preparation and response also requires cooperation between states, localities, and the private sector. Strengthening the disaster profession will help provide a common language of preparedness to be shared by the diverse public and private authorities who prepare for and respond to disasters.

Over the past 50 years, the number of disasters has increased along with the threat they pose. Natural disasters cause ever greater destruction because of the increasing interdependence of the natural and constructed environments; industrial or technological disasters increase because of the proliferation of sophisticated and potentially dangerous technologies; terrorist and other deliberate disasters increase because of the power of non-state groups and greater lethality of their weapons.¹ Attempts to reduce damage may be short-lived because of risk homeostasis, or the propensity for the degree of risk-taking and the magnitude of loss to remain the same over time (Wilde 1982, Wilde 1994). As safety technology improves, for example, so do demands on production, returning the degree of risk to a high level. We build dams and levies to protect against floods only to crowd more development into floodplains protected by barriers that were

¹ Many scientists believe that the world is in the midst of a natural 60-70 year cycle of greater hurricane activity. In addition to the cycles of nature, increasing investments in the constructed environment--cities by the sea for instance--makes human populations more vulnerable. Charles Perrow (2004) warns of the danger all kinds of disasters pose for increasingly complex systems.

never intended to be invincible. One could also imagine developing safeguards to reduce the probability that a terrorist plot would succeed—better border security for example—while at the same time pursuing a more aggressive foreign policy that fosters an even larger pool of terrorists. Better security at home combined with a more aggressive posture abroad may result in the same level of risk that existed before the security improvements.

Risk homeostasis, though, is a tendency, not a law. Some endeavors have become increasingly complex and less risky at the same time. The dramatically increased safety of air travel over the past half century, despite the frequency and speed of aviation today, is one of the success stories of regulatory cooperation between government and industry.² In addition, nuclear power has become safer while becoming more complex in its technologies and regulation processes. After Three Mile Island, professional associations and industry cooperated in a decentralized web to perform complex and evidently successful safety routines (Rees 1994). The task, then, is to continue to reduce risk ahead of the production curve that inevitably increases it.

The aftermath of Hurricane Katrina evidences the tension between safety improvements and the pace of development, and yet the severity of Katrina stands out for reasons particular to the disaster. State and local officials, the news media, and many disaster victims blamed the Federal Emergency Management Agency for a weak and ill-coordinated response. A year earlier, however, FEMA's responses to hurricanes Charley and Ivan in Florida were well-regarded, as was the agency's response to the terrorist attacks of September 11. If anything, FEMA had been criticized for being too quick to respond and not careful enough in determining whether aid recipients really needed the help.

Katrina's unusual severity complicates efforts to compare FEMA's performance in 2005 with its performance under previous directors since none had to face a disaster of Katrina's magnitude. Nevertheless, we can expect more urban disasters in the future, and it makes sense to prepare for catastrophes of the severity that befell New Orleans. We learn more about our capabilities by preparing for the worst. New Orleans conducted disaster drills in 2000 and 2004, but these did not involve a levee failure or other contingencies.³ Disaster simulations should include surprises, such as a communication system failure, because emergency responders learn by improvising and working through challenges – an inevitable task when a real catastrophe strikes. Arlington County,

² For data on the steady improvements in airline safety, see: Barnett (1979, 1989).

³ Some grants to plan for catastrophe never fulfilled their original purposes. "As far back as eight years ago, Congress ordered the Federal Emergency Management Agency to develop a plan for evacuating New Orleans during a massive hurricane, but the money instead went to studying the causeway bridge that spans the city's Lake Pontchartrain." Rita Beamish, "Money Earmarked for Evacuation Redirected," *Associated Press*, 9/17/05.

Virginia emergency services responded efficiently to the attack on the Pentagon in 2001 because they had been preparing for terrorism since the 1995 sarin gas attacks in Tokyo. After-action reports found that simulating disaster responses helped firefighters, police, doctors and nurses, and other responders build trust and improve communication that proved crucial amidst the chaos of 9-11.⁴ To be sure, we should prepare for the worst but not plan to *eliminate* the worst case. Preparation provides the benefits listed above, but attempting to lower the risk of the worst case to zero can lead to a misallocation of resources that results in greater overall damage. If all resources are devoted to a worst case, by, for example, surrounding a city in levies and sea walls, planners might neglect to prepare for a partial evacuation prompted by an industrial accident.

The death and destruction caused by Katrina was particularly severe for three reasons. First, the hurricane hit an economically depressed urban area. The poor and isolated always bear the brunt of a disaster, and the crowded and interdependent character of urban areas makes them more vulnerable. One of the worst natural disasters in American history went unrecognized for weeks because its victims were poor and isolated. When indoor thermometers inside high rises plagued by brownouts topped 120 degrees in Chicago in the summer of 1995, people without air conditioning and, fundamentally, those without social support networks suffered the most. The heat wave resulted in 700 deaths in the city and, when other Midwest states are included, the death total surpasses 1000 (Klinenberg 2002). The United States is not structured to provide for the needs of the most vulnerable in disasters, and the problem goes far beyond FEMA. Disaster relief is targeted toward compensating property owners, not to addressing the needs of those without much property to begin with. Former FEMA director Michael Brown admitted as much in testimony before Congress. “And while my heart goes out to people on fixed incomes, it is primarily a state and local responsibility,” he said.⁵ “And in my opinion, it’s the responsibility of faith-based organizations, of churches and charities and others to help those people.” Rightly or wrongly, the federal government does not take responsibility for people who lack sufficient resources.

Second, weak state and local government responses slowed preparation and response. Louisiana is a relatively small and poor state, and it lacked the resources to handle a catastrophe on its own.⁶ Louisiana officials’ *belief* that they lacked resources—a key advisor to the governor admitted as much one month before

⁴ Arlington County after-action report, prepared by Titan Systems, 7/02, accessed 9/20/05 at <<http://www.911investigations.net/IMG/pdf/doc-1004.pdf>>

⁵ Michael Brown, Testimony to US House, Washington DC, 9/27/05.

⁶ The 2000 census shows that 27% of New Orleans households, or approximately 120,000 people, lacked privately-owned transportation. In addition, New Orleans has one of the highest poverty rates in the United States, at 38%.

Katrina struck—might have encouraged state and local officials to rely on the federal government in their disaster plans more than they should have.⁷ During the actual disaster, however, federal officials criticized state and local leaders for not requesting federal aid sooner. Inadequate state and local resources combined with federal help that was too slow to arrive left New Orleans without sufficient capability to respond.

One reason the federal government exists, however, is to support states and localities that are overwhelmed by a rare event. The federal government, and especially FEMA, was caught unprepared for a major urban catastrophe. The danger hurricanes posed to New Orleans was well known, and the Department of Homeland Security had encouraged states and cities to file emergency preparedness plans. New Orleans had such a plan, but it was never subject to strict scrutiny by federal officials. As a result, the plan failed to anticipate the damage that could be caused by a large and intense hurricane at landfall.⁸ It also lacked guidelines for dealing with additional failures, such as the levy break, radio and cell phone breakdowns, and lawlessness. A plan cannot ensure a perfect response but it can prompt serious thought about how to cope with the unexpected contingencies that accompany a major catastrophe. The Department of Homeland Security needs an office responsible for providing constructive criticism about state and local preparedness plans and training exercises. The majority of funding and media attention goes towards disaster response, but disaster planning requires resources, too. Homeland security reorganization placed responsibility for preparedness strategy with the Office for Domestic Preparedness. If emergency management is to address the catastrophes of the 21st century, Domestic Preparedness must develop both a coherent strategy and good relations with states and localities.

Conventional wisdom holds that homeland security reorganization occurred in 2001, following the terrorist attacks, or perhaps in 2003 when the department opened its doors. If there is anything the literature on reorganization shows, however, it is that reorganizations take years if not decades to complete (Landy 1994, Radin and Hawley 1988, Zegart 1999). The 1947 National Security Act, which created the CIA, Joint Chiefs of Staff, and National Security Council while also strengthening the Department of Defense, did not begin to achieve its original goal of coordination among the armed services until the Goldwater-Nichols Defense Reorganization Act of 1986.

⁷ Bill Walsh, "Bush's take on energy bill helps La.," *New Orleans Times-Picayune* 8/4/05.

⁸ As of early October, experts disagreed on whether Katrina was a category 3 or 4 hurricane at landfall. In any case, it was an especially large hurricane. The eye of the hurricane was 32 miles wide; a storm of its intensity normally has an eye that is 10 miles wide. The size of a hurricane, and not just its intensity, affects the level of storm surge and power. *Associated Press*, "Mapping Katrina's Storm Surge," 10/8/05.

The Department of Homeland Security must continue to make organizational and policy changes to bring about its original goal of enhancing security. During Katrina, state and local officials complained that federal authorities waited for specific requests for help rather than sending in the cavalry when disaster struck. Federal officials countered that they were required by law to wait for states to request resources.⁹ In truth, the law is ambiguous, and the federal sluggishness goes against the spirit of the new National Response Plan, adopted last December with great fanfare. The plan gives the DHS broad authority during a catastrophe to deploy “key essential resources” such as medical teams, search and rescue, shelters, and supplies, even without a request from state authorities. In the event of a catastrophe on the scale of Katrina, the plan notes, “A detailed and credible common operating picture may not be achievable for 24 to 48 hours (or longer) after the incident. As a result, response activities must begin without the benefit of a detailed or complete situation and critical needs assessment.”¹⁰ The Secretary of Homeland Security has the legal authority to bypass normal disaster procedures to begin rescue missions and to deliver aid. The new plan had not been tested, however, and it will take time for authorities across government to recognize its force.

Even if existing federal, state, and local plans were followed to the letter, they fail to account for two issues in particular that will likely arise in future catastrophes: moving evacuees and restoring law and order. The poor and isolated who lacked personal transportation and the support of social networks were unable to evacuate without help. Authorities remarkably evacuated approximately 80 percent of New Orleans 480,000 residents before the hurricane made landfall—an excellent rate as evacuations go—but that left thousands of people who still needed a coordinated, planned public effort to evacuate. Inevitably, some people will remain throughout a disaster, and they would benefit from law enforcement during the recovery period.¹¹ Most disasters do not lead to looting and crime, but all result in some form of disorder (Quarantelli 1994).¹² Authorities failed to plan for maintaining order among the population that remained in the city during the disaster.¹³

New Orleans presented a combination of conditions—a high concentration of economically disadvantaged people, comparatively few resources at the state and

⁹ Chris Strohm, “Homeland Security had power to bypass states in hurricane response,” *Government Executive*, 9/8/05.

¹⁰ National Response Plan, Department of Homeland Security, Washington DC, 12/04, CAT-3.

¹¹ *Associated Press*, 8/31/05.

¹² Before Katrina, the last instance of looting during a US natural disaster was in St. Croix in the aftermath of Hurricane Hugo in 1989.

¹³ Clarke (1999) shows the limits of planning. In some cases, “experts” plan for events about which it is impossible to have real expertise. In these cases, the process of planning provides a false reassurance that problems can be easily ameliorated by existing expertise.

local level, and an unusually severe hurricane—that are not present during most disasters. Close analysis of the New Orleans disaster should help federal authorities prepare for a world in which disasters are increasingly dangerous. Many urban centers are threatened by disasters: coastal cities are hurricane and flood prone, Los Angeles and San Francisco sit on earthquake fault lines, and industrial hazards lie close to almost all major cities. The threats of terrorism and disease remains unpredictable: before 1995 no one would have predicted Oklahoma City to be the site of a major terrorist disaster. Evacuating a truly major urban center during a disaster will prove far more difficult than evacuating New Orleans. Since we should expect more catastrophic disasters of all types in the future, Katrina's aftermath should prompt policymakers to rethink four issues:

Federal subsidies for risk management

Who should fund disaster relief? As the federal government prepares to spend a projected \$100 billion on disaster relief for the New Orleans area, members of Congress again debate the crucial question of how much of the risk of building and living in a disaster-prone area taxpayers should subsidize.¹⁴ If the number and cost of disasters both increase over time, the current level of federal subsidies may be unsustainable. Federal awards from the September 11th Victims Compensation Fund to the heirs of those killed or seriously injured during the 9-11 attacks averaged \$2.08 million.¹⁵ Will the heirs of victims of future terrorist attacks or disasters receive similar payments? Politicians, not bureaucrats, must weigh how the government should balance relief to the victims of disaster who have nowhere else to turn, economic development in the wake of disaster, and restraints on the growth in disaster spending.

Cost-conscious disaster planners have increasingly relied on mitigation strategies. If the government encourages citizens to spend a little money to build structures to withstand a certain level of hurricanes, fires, floods, or terrorist attacks, then the government avoids spending much greater sums to rebuild after the disaster. In practice, however, disaster mitigation can invite moral hazard. Mitigation may reduce risk for a time, only to increase incentives for greater risk-taking later. Kirschenbaum (2004:32), writing before Katrina, provides an example of risk homeostasis in New Orleans:

¹⁴ Some members of Congress have suggested the cost to the federal government might be as high as \$200 billion. Kathleen Pender, "The True Cost of Katrina," *San Francisco Chronicle*, September 27, 2005, D1.

¹⁵ Lloyd Dixon and Rachel Kaganoff Stern, *Compensation for Losses from the 9/11 Attacks*. (Santa Monica, CA: RAND Corporation, 2004).

The classic example of this phenomenon is New Orleans, where engineers devised a series of dams and flood control systems (including massive pumps), originally to offset the flooding from the Mississippi and hurricanes to maintain its commercial harbor. This led to a deterioration of the natural defenses of the city against flooding, but provided more land for building residential homes, leading to an increase in the city's population and of course to a potential disaster. It was estimated that the city would be under twenty feet of water if a hurricane directly hit the city!

The true costs of mitigation include the kinds of behaviors that people engage in after the construction of dams, seawalls, and more durable buildings. Mitigation activities are undoubtedly sensible when they put some distance between humans and a natural, industrial, or deliberate threat. Flood plains and protected zones around chemical plants help populated regions absorb inevitable extreme events. Mitigation activities that lead to greater population density and greater interdependence between the natural and constructed environments, however, increase the potential costs of a disaster and therefore demand scrutiny.

Dispersed public action

Like many federal agencies, FEMA operates in an environment of “dispersed public action” or “the new regulatory state” (Parker 2004).¹⁶ A comprehensive disaster relief effort must bridge several divides: public and private; federal, state, and local; and the stovepipes across agencies at the same level of government. How can organizations designed to prepare for and respond to disasters bridge these divides? Dispersed public action has the advantage of allowing decentralized units to develop their own expertise that they can bring to bear on complex and changing problems. Decentralized disaster response units are thus more efficient than centralized ones and also less vulnerable. If one unit in the disaster response system fails, it need not limit the effectiveness of other units outside its hierarchy. At the same time, decentralized networks complicate efforts at coordination across authorities. Homeland security reformers should resist the temptation to place every function in a strict hierarchy and instead increase training and simulation to improve communication. Agencies need not be located in the same organizational unit to achieve coordination as long as they maintain regular communication. The National Response Plan included a supplement that defined the post-disaster roles and responsibilities of public and private agencies

¹⁶ The term “dispersed public action” was, to my knowledge, first used by Charles Goodsell.

outside the Department of Homeland Security including the Red Cross. Unfortunately, the supplement is limited to “official use only” and not easily available for review. The department needs to develop more such supplements and involve private entities in planning and review.

How to prepare for rare events?

Elected politicians, like most businesses, lack incentives to prepare for low probability events. Unless the consequences of a catastrophe are immediate, there are few reasons to sacrifice short term profits or reputation, the coin of the realm in political life, to avoid problems that may or may not arise in the distant future. The classic work on the failure of public and private organizations to prepare for future catastrophe is Lee Clarke’s (1999) *Mission Improbable*. True preparedness requires a device to convince policymakers to prepare for disasters that, individually, may be unlikely, but taken as a whole pose a significant threat. The “all hazards, all phases” idea may serve this purpose.

All hazards means that the majority of resources should be used for equipment and programs to prepare for all kinds of hazards—natural, industrial, and deliberate. Even where that proves impossible and more specialized resources are required, the all phases concept comes into play. In all cases, resources should be divided among all phases of emergency management. Disaster response and recovery attract the most attention and funding because they are the most spectacular phases. But emergency management also includes mitigation, preparation, and prevention, and each of these should be as much a part of the idea of emergency management as response and recovery.

Policymakers may be tempted to focus on the latest threat on the horizon, whether industrial accidents, Y2K, or Islamic terrorism. Decision makers need a goal that combines particular concerns such as these into a single framework to address all kinds of disaster threats. All hazards, all phases unites diverse concerns without ossification. Its adaptability arises from its nature as an organizing concept rather than a single mission. The concept gives emergency managers at all levels of government and in the private sector a comprehensible yet adaptable idea about the goals of their collective enterprise and, in doing so, enhances coordination without the need for strict hierarchy.

Strengthening the profession

Many of the successes of the highly touted tenure of James Lee Witt as FEMA director stemmed from the influence of the emergency management profession in

the agency. When Witt took over in 1993, he reorganized the agency along the lines suggested by expert commissions. Emergency managers developed the all hazards concept and, by the 1990s, institutionalized knowledge about disaster management practices in training programs and university courses. The maturation of the profession increased the knowledge of and coordination among emergency managers at all levels of government. The profession grew in private industry too, as industrial plants and major contractors began employing disaster specialists.

Is it possible to further increase the profession's ability to influence emergency management in practice? Policymakers could start by appointing more career professionals and by requiring professional credentials for top positions in state and local emergency management. Civil servants are serving shorter tenures in the federal government as workers' mobility increases across all industries. With a strong profession, emergency managers would have opportunities in both the public and private sectors. Rather than shifting into emergency management from another line of work, they could build a career and, collectively, a storehouse of expertise.

Conclusion

The crisis caused by Hurricane Katrina provides an opportunity to reshape emergency management to address the challenges of the 21st century. Meaningful reform must go beyond merely remedying shortcomings in response to the most recent disaster. Proposals to replace agency leaders or to restructure the Federal Emergency Management Agency to report directly to the president do not go far enough. The increasing threat all kinds of disasters pose for urban areas should lead policymakers to rethink what preparedness means and, in doing so, to consider who should bear the risk of disasters and how to respond to disasters in an environment of dispersed authorities. Increased professionalism may help policymakers balance fiscal responsibility with necessary preparation for rare but costly events.

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