

# Beyond Katrina: Improving Disaster Response Capabilities

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As Hurricanes Katrina, Rita, and Wilma successively lashed the gulf coast starting in late August 2005, nature’s fury exposed serious weaknesses in the United States’ emergency response capabilities.

Not all emergencies pose this magnitude of challenge. In the United States, the initial—and usually major—responsibility for disaster response rests with local authorities. This “bottom-up” system of emergency management has a long history and continues to make sense in most circumstances.

## Core Challenges for Large-Scale Disaster Response

Quite clearly, however, the normal model was inadequate to handle the results of Katrina—and showed weakness in managing the fierce but less demanding challenges of Rita and Wilma. These shortcomings must be addressed if the country is to be ready for serious challenges that may lie ahead, whether severe natural disasters, outbreaks of emergent infectious disease, or renewed terrorist attacks. We see six core challenges.

### *Recognizing Novelty and Effectively Improvising Necessary Responses*

Emergency responders ready themselves for a wide range of urgent

circumstances, including hurricanes. Though quite demanding, many of these situations can be regarded as “routine” emergencies—not because they are in some sense “easy” but because the predictability of the general type of situation permits agencies to prepare in advance and take advantage of lessons from prior experience.

The capacity to treat a wide range of contingencies, including quite severe ones, as “routine” constitutes an enormous source of strength for emergency response personnel and organizations. They have thought through how to act. They are equipped. They have trained and practiced. Their leaders’ judgment has been honed by experience. In moments when delay may literally make a difference of life or death, they don’t need to size up the situation for an extended period, plan their response from scratch, assemble people and resources, and divide up roles and responsibilities. Responders are “ready” in multiple dimensions of the term.

Not all emergencies fit the mold.

“Crises” like Katrina are distinguished from the more common (though possibly very severe) routine emergencies by significant elements of *novelty*. These novel features may

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result from threats never before encountered (e.g., an earthquake in an area that has not experienced one in recent memory or an emergent infectious disease like SARS or avian flu); or from a more familiar event occurring at an unprecedented scale, outstripping available resources; or from a confluence of forces, which, though not new, in combination pose unique challenges. Katrina was a crisis primarily because of its scale and the mixture of challenges that it posed, not least the failure of the levees in New Orleans.

Because of the novelty of a crisis, predetermined emergency plans and response behavior that may function quite well in dealing with routine emergencies are frequently grossly inadequate or even counterproductive. That proved true in New Orleans, for example, in terms of evacuation planning, law enforcement, rescue activities, sheltering, and provisions for the elderly and infirm.

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By contrast with “routine” emergencies, therefore, “crises” require quite different capabilities. In crises, responders must first quickly *diagnose* the elements of novelty (e.g., in New Orleans, the widespread need for assisted evacuation, the likely consequences when the levees failed, and the unexpected use of the convention center for sheltering immobile refugees). Then they need to *improvise* response measures adequate to cope with the unanticipated dimensions of the emergency (e.g., quickly procuring vehicles for

evacuation, making emergency repairs to the levees, and providing food and law and order in an unprepared shelter). These measures, born of necessity, may be quite different from or exceed in scale anything responders have done before. They must be creative and extremely adaptable to execute improvised tactics. Equipping organizations to recognize the novelty in a crisis and improvise skillfully is thus a far different (and far more difficult) matter from preparing mainly to implement preset emergency plans.

### ***Scalability and Surge Capacity***

In many disasters, as Katrina well illustrated, responders must cope with far greater numbers of endangered people or more extensive damage than usual. To scale up operations to handle this surge of demand, emergency agencies require access to resources in larger quantities than normal and frequently to specialized equipment or personnel. If an emergency lasts for days or weeks, there must be enough people and resources to cope with exhaustion.

No local jurisdiction—or even state—could bear the expense of keeping these assets in reserve for a large-scale disaster that might never occur there. When such an event strikes, therefore, it is virtually inevitable that the jurisdictions affected will have to import and effectively absorb support from surrounding areas or—in very severe circumstances such as Katrina—from around the nation. In firefighting, most jurisdictions already have mutual aid agreements with neighboring communities that enable any of them to expand available manpower and equipment.

As Katrina revealed, however, it is a far more complex matter to address the need for reserve or “surge” capacity in large-scale disasters, in which many kinds of emergency response functions, equipment, and personnel must be mobilized. The sudden need for many vehicles to evacuate auto-less, elderly, or handicapped

people from New Orleans indicates the critical need for the right kind of resources, in sufficient amount, to be available in timely fashion.

There are political dimensions to the problem as well. By definition, surge capacity is likely to be unused most of the time. What some see as a “strategic reserve,” others regard as “waste.” Difficult tradeoffs must be made between local (and thus more rapid) availability of resources and the high costs of sustaining them when no emergency is visible on the horizon.

Some of these resources can be provided for in advance. Whether or not the emergency plans of local, state, or federal response agencies are adequate for even severe routine emergencies, however, the novel circumstances of a crisis may also generate unexpected demands for resources (or predictable demands for which supply remains inadequate) for which improvised scale-up is essential. That involves a further set of considerations.

### ***Maintaining Situational Awareness***

In any crisis, responders (both individuals and organizations) must maintain “situational awareness.” That is, they need to gather and assimilate key facts—often under conditions of great confusion and uncertainty. Press and official comment on Katrina has focused on whether or not key officials received or reached out for timely and sufficient information about these conditions. Who knew what—and when—about the developing crisis?

As important as good intelligence about an emergency is, however, robust situational awareness involves far more. Decision makers must also be able to project forward the implications of the information they have gathered, so they can anticipate the likely consequences of a still-moving situation. With anticipation comes at least some possibility of changing the future before it arrives. Projecting

likely consequences also provides responders with a way of tracking what actually results against what they expected, thus providing a check on how well they understand what is truly happening. Finally, situational awareness involves being able to generate possible alternative courses of action and assess which holds the most promise of dealing with emergency conditions.

As more accounts of decision making during Katrina become part of the public record, it becomes apparent that major shortcomings of situational awareness resulted less because information about conditions was unavailable or did not reach senior officials. Instead, leaders failed to project the likely consequences of the developing situation or generate feasible measures to counter the impacts of the storm and levee failure—thus falling short in different dimensions of situational awareness.

### ***Integrated Execution in Real Time***

In a major disaster, as local agencies confront extraordinary operational demands, emergency responders from adjoining jurisdictions, the state, and far-flung locations are likely to converge on the scene. This demands skillful coordination of aid workers, equipment, and organizations across professions, agencies, jurisdictions, levels of government, and the public and private sectors—even though many of these people and organizations have had little or no prior experience working together. This need has been recognized by Congress in the 2002 statutory requirement for a National Incident Management System (NIMS), a flexible template for leading crisis operations which enables organizations to frame and rapidly implement response actions under enormous pressure.

However, as Katrina revealed, even basic diffusion of NIMS has not been completed in many jurisdictions that have not previously used the system or to professional disciplines that have been unaware or unenthusiastic. Nor

were the procedures for federal operations, on one hand, and intergovernmental collaboration, on the other, that were nominally in place adequate or effectively applied to coordinate federal agencies with each other or with state and local responders. These gaps in conception, adoption, and implementation must be addressed in expedited fashion if the potential benefits of NIMS are to be realized.

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***Operational vs. Political Leadership***

Widespread deployment and skillful use of NIMS is a necessary but not sufficient condition for integrated crisis response. The NIMS template has proved a highly effective technical system when the goals to achieve are relatively unambiguous. For example, in dealing with the typical urban structural fire—even a very severe one—there is generally firm consensus on the priorities and constraints of action: save lives, protect property, but don't unduly risk the lives of responders.

By contrast, where goals are unclear or in conflict—when difficult, controversial trade-offs must be made—NIMS lacks the political and moral authority to make the hard choices that present themselves. If a pandemic flu, bio-terrorist attack, or nuclear plant disaster occurred, do the responders in command of NIMS—whether police commanders, fire chiefs, or public health directors—have legitimate authority to decide which areas should get resources and which not, perhaps even to make choices that in effect determine who will live and who will die? Do they have

the community standing and ability to mobilize public support behind a difficult decision? Can they—should they—hold to their decisions if elected leaders challenge them?

We invest elected leaders with the authority to make key decisions about values and priorities for society and expect them to rally their communities behind their choices, much as President Bush and New York's Mayor Giuliani did in the 9/11 crisis. But in a future emergency that cuts across organizational, jurisdictional, and level of government boundaries—particularly if government has been partially disabled by the crisis as it was during and after Katrina—it may be unclear who has this authority and difficult to assemble them in the heat of the moment.

It is precisely for such complex situations that NIMS is designed, but the model does not include an effective way to coordinate political leaders and operational commanders, especially when multiple jurisdictions are involved. The United States has not yet confronted this need, let alone fully thought it through and invented the emergency policy making institutions it requires.

***Handoffs Across Boundaries***

As action in a crisis scales up and becomes more complex, leadership or certain responsibilities may need to be transferred from those initially in charge to others with different skills or broader authority and resources. Yet frequently this evolution of crisis response produces substantial friction between organizations or jurisdictions, even when emergency plans or statutes theoretically provide for such transitions. In the midst of crisis, the leaders of individual agencies or political jurisdictions may find it personally or politically difficult to recognize or acknowledge that exigent events surpass their ability to cope with the crisis; they may, in fact, resist turning full or partial responsibility over to others better situated to deal with circumstances.



While no advance preparation can fully mitigate such reactions, addressing the possibilities inherent in disaster scenarios can reduce the chances of hesitation or paralysis. Institutionally, within jurisdictions and across levels of government, senior officials should address the conditions and procedures under which handoffs would be made. Key officials must also consider their *personal* as well as institutional preparedness. Newly elected or appointed officials need to think through their substantive functions and moral responsibilities as crisis leaders in advance, rather than addressing their obligations for the first time in the midst of catastrophe.

### Improving Disaster Response

Addressing the core strategic problems identified above means moving forward effectively in four realms: capabilities, structures and systems, people, and coordination.

**Capabilities.** Successful disaster response critically depends on sufficient equipment, supplies, transportation, and trained responders with the capacity to sustain themselves in the field for the necessary length of time. In the United States, lack of resources is not the principal constraint. The main challenge, particularly to provide adequately for surge capacity, lies in being able to locate, mobilize, and move them swiftly—and to coordinate their use effectively upon arrival at a disaster scene.

**Structures and Systems.** Making the National Incident Management System truly operational at the local and state levels, as well as clarifying and effectively integrating it with the National Response Plan at the federal level is a critical step. At all levels of government, moreover, it is important to develop enhanced mutual aid agreements that authorize and make operational a wider range of cooperative arrangements between communities, states, and within regions for all emergency response

functions. NIMS and mutual aid agreements must not be mere “paper” arrangements, moreover, but “live” procedures against which personnel are trained, exercises are conducted, and routine implementation, to the greatest extent possible, serves to test procedures operationally.

**People.** Both first responders and emergency managers throughout the emergency response system have a general need for increased training and exercising—not only for traditional emergencies but also for new contingencies, such as terrorism and emergent infectious disease, that were not seriously on the preparedness agenda a few years ago. This training must be regular and varied, to keep skills sharp and to prepare new members of these professions for the threats they may encounter. In addition, there is a need to develop a cadre of senior disaster managers—in cities, states, and at the federal level—who develop proficiency and deep experience in managing emergencies. It is particularly important that they get experience in dealing with situations that cut across emergency response professions, agencies, jurisdictions, and levels of government.

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**Coordination.** As Katrina demonstrated, crises demand levels of coordination of governmental and non-governmental resources, including many that are not part of the normal configuration of emergency agencies, which

the response system is not currently able to provide. The American federal system does not centralize command in the hands of a single entity. As a result, crisis coordination inevitably depends heavily on voluntary collaboration across agencies, jurisdictions, levels of governments, and between the public and private sectors. The task of collaboration, moreover, has both a *technical* and *political* component—which necessitates construction of an infrastructure of coordination along both dimensions. One key is to develop an “infrastructure” of coordination in advance. The NIMS system is an important step in that direction, as is the deepening web of mutual aid agreements among jurisdictions. Second is to ensure that the formal infrastructure is given life by exercising it regularly—through simulated and real action—and by building personal relationships among the people who will be involved. Both practice and relationship formation are crucial.

The tasks identified face serious obstacles more complex than can be addressed here. These include the division of authority in the American federal system of government, conflicting constellations of stakeholders at different levels of government and within jurisdictions, “feast or famine” budgeting for emergency preparedness, the independence or near autonomy of different functional or policy domains, and insufficient integration of the private sector in the emergency response system. As the response to Katrina revealed, however, the costs of failing to act in time are real and great.

## RELATED PUBLICATIONS

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