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Introduction and Background

I wish to thank the Committee for giving me this opportunity to prepare testimony on issues related to FEMA's ability to respond to disasters nationally. I currently serve as director of the Natural Hazards Center at the University of Colorado. The Center, which was founded in 1976, is the nation's repository and clearinghouse for knowledge on the social, economic, and policy dimensions of hazards, disasters, and risk. The Hazards Center is funded by grants from the National Science Foundation and contributions from other agencies, including NOAA, NASA, FEMA, USGS, and other agencies whose missions focus on reducing losses from extreme events. More information on the Hazards Center can be found at <http://www.colorado.edu/hazards>.

I am also a co-principal investigator for the DHS academic center of excellence grant that focuses on the social and behavioral aspects of terrorism and terrorism's impacts. That center, the National Consortium for the Study of Terrorism and Responses to Terrorism (START), is headquartered at the University of Maryland. I serve as the leader of the START working group on societal response to terrorism, and conduct research on local preparedness networks for terrorism and other extreme events (see <http://www.start.umd.edu>).

I am a member of the American Sociological Association, the Research Committee on Disasters of the International Sociological Association; the Earthquake Engineering Research Institute; and the Advisory Committee on Earthquake Hazards Reduction. I am a recent member of the National Academy of Sciences Committee on Disaster Research in the Social Sciences and of NIST's National Construction Safety Team Advisory Committee, which oversaw NIST's investigation of the World Trade Center attacks. My publications include *Facing the Unexpected: Disaster Preparedness and Response in the United States* (Tierney, Lindell, and Perry, 2001) and dozens of articles, book chapters, technical reports, and other publications on topics related to hazards, disasters, and emergency management. I currently serve as co-editor for the second edition of the International City and County Management Association's "green book" on *Emergency Management: Principles and Practice for Local Government*.

My testimony is organized in terms of three points in time. First, I discuss observations made by some researchers and practitioners concerning the ways in which post-September 11 policy and programmatic changes were adversely affecting FEMA's ability to respond in future major disaster events. Second, I briefly review assessments of FEMA's performance during hurricane Katrina, as well as post-Katrina reforms. Third, I

suggest changes that have the potential for enhancing FEMA's ability to reduce losses in future disaster events. With little notice in terms of developing testimony, I have relied a great deal on my own experience and writings. Nonetheless, I believe that my comments accurately reflect what many in the research and practice communities have observed over the past six years.

Before Katrina: Concerns Regarding Negative Effects of Post-September 11 Changes on FEMA's Ability to Respond to Major Disasters

Prior to Hurricane Katrina, along with other emergency management scholars, I wrote about and discussed post-September 11 institutional and organizational changes that were negatively affecting the nation's ability to respond to major disasters—changes that coincided in particular with the creation of the Department of Homeland Security. Those changes include the following: (1) a retreat from the longstanding concepts of “all hazards” disaster management and “integrated emergency management” (IEM), in favor of a “one hazard” and disjointed approach; (2) a failure to incorporate into new homeland security programs lessons learned from decades of research and practice related to extreme events and their management; (3) new terrorism-related initiatives that focused exclusively on that single peril, eclipsing other threats the nation faces from natural and technological disasters; (4) the marginalization of emergency management professionals and the rise of law enforcement and defense-related agencies—changes that brought about clashes among different organizational cultures; (5) the transfer to DHS of key programs, such as preparedness planning and the Metropolitan Medical Response System, accompanied by the development of a justice and law-enforcement and terrorism-oriented preparedness unit within DHS; (6) the decision to embark on a new planning effort—the National Response Plan—rather than improving the existing and well-tested Federal Response Plan, which had served the nation following the 9-11 attacks; (7) FEMA's loss of autonomy, authority, and resources after its merger with DHS; and (8) the brain drain that affected FEMA following September 11, with a concurrent loss of FEMA's institutional memory and leadership and management capabilities.

I also discussed what I called the “9-12 syndrome,” which refers to the belief that the world changed so much on 9-11 that pre-9-11 knowledge, practices, and institutional arrangements could no longer apply in a world dominated by the terrorist threat. The 9-12 syndrome included a myopic focus on terrorism as the only physical threat of any significance to the nation. It was marked by a militaristic, command and control mindset that encouraged secrecy rather than transparency in extreme event preparedness. These and other aspects of 9-12 thinking ran counter to the manner in which emergency management had been evolving in the U. S., as a collaborative and inclusive multi-disciplinary field. During the 1990s, the nation had been developing a balanced approach to mitigating, preparing for, responding to, and recovering from extreme events of all types, arising from all sources. The governmental response to the events of September 11, 2001 reversed that trend. (For more lengthy discussions, see Tierney 2006, originally written in 2004, and Tierney 2003).

Rapid and massive legal, policy, and programmatic changes came about as a result of the terrorist attacks of September 11, 2001. As these changes were taking place, experts expressed concern about what their ultimate consequences would be. For example, in September, 2002, *Public Administration Review* published a special issue on topics relevant to terrorism and homeland security. One article in particular, by Richard Sylvès and William Waugh and Richard Sylvès, entitled “Organizing the War on Terrorism,” argued that the creation of new bureaucracies and hierarchies could well be counterproductive from the perspective of effectively responding to terrorism-related events. The authors expressed concern that there would be too much secrecy, too little collaboration with the wide range of organizations that participate in responses to extreme events, and too much rigidity built into the nation’s crisis response system. They argued that

If the war on terrorism inadvertently undercuts or distorts an emergency system designed to deal with so-called routine disasters, it may well weaken current capabilities to manage conventional hazards *and* the hazards posed by terrorism (2002: 147).

In hindsight, this appears to be exactly what happened with respect to the ability of the intergovernmental emergency management system to respond effectively to Hurricane Katrina.

In March, 2004, former FEMA director James Lee Witt pointed out that post-September 11 agency realignments would weaken our nation’s ability to respond to disasters of all types. Foreshadowing the Katrina disaster, Witt told Congress that “I assure you_ that we could not have been as responsive and effective during disasters as we were during my tenure as FEMA director, had there been layers of federal bureaucracy between myself and the White House” (Witt 2004). More recently, John Harrald (2007) has outlined the ways in which institutional arrangements and planning efforts designed to combat the terrorist threat, including the roll-out of a new emergency response structure outlined in the National Response Plan, had unintended negative consequences for the nation’s ability to handle the hurricanes of 2005.

At the same time, members of the hazards research community warned about disasters to come. In 2003 and 2004, for example, my own center’s newsletter ran a series on “disasters waiting to happen,” which included scenarios on potential catastrophic events and their impacts. The last article in that series, by sociologist Shirley Laska of the University of New Orleans, was published less than a year before Katrina (Laska, 2004). It involved a scenario of a major hurricane striking New Orleans that eerily anticipated what did happen when Katrina struck.

Many researchers and practitioners considered a direct hit by a Category 3 or larger hurricane to be among the most likely deadly and destructive catastrophes threatening our nation. Hurricane Katrina came as a surprise only to those who did not understand how natural forces would inevitably interact with fragile natural and built environments and with societal vulnerabilities to produce a major catastrophe.

After Katrina: Critiques and Reforms

Hurricane Katrina was a disaster of catastrophic proportions. The United States has fortunately only experienced a few true catastrophes. Events that match Katrina's scale include the 1900 Galveston hurricane, the 1907 San Francisco earthquake, and the 1927 Mississippi River floods. Catastrophes differ from disasters in important respects: scale and severity of impacts; deaths, injuries and economic losses; and the extent to which catastrophes destroy or cripple disaster response systems and critical infrastructure and civil society institutions that are necessary for disaster response. In all these respects, Katrina was orders of magnitude more severe than other large disaster events, including major disasters such as the Loma Prieta earthquake, Hurricane Andrew, the 1993 Midwest floods, and the terrorist attacks on the World Trade Center and the Pentagon. While not a "worst case" for the Gulf Region—that would have involved a larger hurricane directly striking New Orleans—Katrina ranks among the most devastating disasters (and the most expensive, in terms of monetary losses) the nation has ever experienced.

Even more so than disasters, catastrophes reveal fundamental weaknesses in societal response capabilities. Regardless of the readiness status of disaster management regimes, Katrina would have posed almost insurmountable challenges for local, state, and federal response organizations, particularly in the first few days after impact. Unfortunately, however, Katrina had its greatest impact in a local jurisdiction (New Orleans) and a state (Louisiana) that lacked the capacity to even begin to cope with its scope and severity. The threat to Greater New Orleans was well understood, as were the likely consequences of a large hurricane landfall—including the catastrophic levee failures that caused the most loss of life in the Katrina disaster. Yet local and state agencies had no effective plans, preparedness initiatives, or resources to cope with those consequences.

Again unfortunately, Katrina occurred in the context of the federal-level changes discussed above. Terrorism was seen as the one peril that could have catastrophic consequences for the nation. FEMA had been significantly weakened, and its autonomy compromised. Those in charge of key agencies and response management units were not experts in emergency management, nor were they able to appreciate the challenges presented by a catastrophic event. The National Response Plan had been signed in December, 2004 but was far from being implemented. Roles and responsibilities under the plan were not well understood. In any case, the NRP, with its emphasis on incident command, unified command, and the national incident management system (NIMS), did not address key policy and strategic aspects of disaster management. To make matters worse, the Katrina catastrophe occurred at a time when key decision makers were on vacation or traveling. Particularly during the impact and immediate post-impact periods, there was an absence of situation awareness, a paralysis of the intergovernmental response system, and a lack of understanding of organizational roles and responsibilities—all compounded by bureaucratic rigidity and an overall inability to envision the consequences and response-generated demands that catastrophes produce.

Following Katrina, many hazards researchers and practitioners called for an independent, non-partisan commission—like the Kemeny Commission that was convened after the Three Mile Island nuclear accident—that would study the Katrina response. Such a commission was not created, but nonetheless, Hurricane Katrina now rightly ranks among the most-scrutinized crisis events in U. S. history. The many institutional, organizational, and strategic failures that contributed to the Katrina response debacle have been analyzed in congressional testimony, White House and congressional reports, scholarly papers, reports by professional associations and government agencies such as the Government Accountability Office, popular books, and the mass media (see, for example, Daniels, Kettl., and Kunreuther, 2005; House Select Bipartisan Committee, 2006; Senate Homeland Security and Governmental Affairs Committee, 2006; The White House 2006; *Annals*, 2006; Cooper and Block, 2006; McQuaid and Schleifstein, 2006; van Heerden and Bryan, 2006; Government Accountability Office 2007a; 2007b)

Numerous errors of judgment and system inadequacies have been identified and numerous recommendations made. Different analyses converge on key points relating to the need for a greater focus on the threats all types of hazards, not just terrorism, pose for the nation, its people, and the economy; clarification of the roles of different organizations and levels of government in comprehensive emergency management; the mobilization of resources sufficient to the task of preparing the nation for extreme events and responding to such events; the need for both flexibility and accountability in disaster response operations; and the reversal of longstanding governmental practices that hamper the nation's ability to respond effectively during disasters, such as appointing non-experts and inexperienced personnel to key positions for which they are unqualified.

The Post-Katrina Emergency Management Reform Act seeks to correct conditions that compromised FEMA's ability to respond effectively to disasters. DHS offices and divisions that logically should have been (or had been) located within FEMA—including in particular part of the Preparedness Directorate and the Office of State and Local Government Coordination—are being moved there. The authority of the Secretary of Homeland Security and the FEMA administrator are being clarified. Other reforms center on the need to better understand and prepare for various types of catastrophes the nation will face in the future. The assessment of preparedness and training efforts is being given a high priority. FEMA has recently taken on lead responsibility for mass care during disasters, a role formerly played by the Red Cross. Various post-September 11 programs, such as the National Response Plan and the National Preparedness Goal (NPG) are being more closely vetted and hopefully improved.

This is not the first time such recommendations have been made. Following Hurricane Andrew, for example, Congress asked the National Academy of Public Administration to conduct a study on the factors that contributed to the mismanagement of that disaster. The following are among the key findings reported in the NAPA study report (2003), which was entitled *Coping With Catastrophe: Building an Emergency Management System to Meet People's Needs in Natural and Manmade Disasters*:

- The President should have a domestic crisis monitoring unit to assure that federal responses to major disasters are timely, effective, and well coordinated;
- FEMA was like a “patient in triage” that should either be treated or left to die;
- FEMA could only play its appropriate role in disasters if the White House and Congress took appropriate steps to make it a viable institution;
- The only political appointees in FEMA should be the director and deputy director, and FEMA should have a career executive director, and the agency should develop a competent and professional career staff;
- An all-hazards approach should be taken to managing disasters; and
- FEMA and emergency management are overseen by too many congressional committees

After Hurricane Andrew, steps were taken to strengthen and professionalize FEMA and to allow the director of FEMA greater direct access to the President during major disasters. New programs were initiated, particularly in the area of pre-disaster mitigation and community capacity-building. Issues of short- and long-term disaster recovery also received greater emphasis. During that same period in the 1990s, emergency management began to emerge as a profession requiring a broad range of educational, training, and on-the-job experiences. Critical skill-sets were identified, professional associations grew in size, and credentialing mechanisms were put in place. Unfortunately, many of these positive changes were reversed or crippled following the terrorist attacks of September 11, 2001.

In the aftermath of Katrina, the nation again finds itself at a crossroads with respect to strategies for achieving comprehensive emergency management—that is, a set of institutional and organizational arrangements and a culture of safety that is capable of addressing issues related to mitigation, preparedness, response, and recovery for all hazards, including both more-familiar and emerging threats (e.g., CBRN weapons, pandemic influenza, bioterrorism).

It is of course too soon to tell what the ultimate outcomes post-Katrina reforms will be. My professional assessment is that the nation’s emergency management system has been compromised to a degree that the road back will be very difficult. Strong leadership, new resources, and vigilant oversight will be needed. It may take years to see positive outcomes from post-Katrina reforms—years that will unfortunately be marked by more and perhaps even more severe disasters.

The Future: Enhancing FEMA’s Ability to Function Effectively in Extreme Events

The “New FEMA” is in the process of being created. However, at this time almost no information exists on how proposed and in-process changes will affect the agency’s ability to respond in the future, particularly to catastrophic events. Nor do we know how FEMA is likely to function in the future with respect to *disaster loss reduction*, as opposed to *disaster response*. There are a number of key areas that in my view must be addressed now. Major changes must be instituted, the necessary resources must be applied to help solve glaring deficiencies in our intergovernmental system of emergency

management, and those given responsibility for the implementation of new reforms must be held accountable through strong oversight at various levels of government. Not necessarily in order of priority, these are my own personal recommendations:

1. Ensure that the nation develops a fully-functional intergovernmental emergency management system, placing a priority on the nation's most vulnerable urban areas.

The nation does not currently have an effective intergovernmental system for managing hazards and disasters. What now exists is a patchwork or lily pad arrangement within which some entities have the knowledge, resources, and political clout to deliver effective programs, but the majority do not. This “leaders and laggards” phenomenon of course applies in all areas of governance, but it is particularly noteworthy in the area of emergency management. As many investigations have shown, lack of state and local capacity was a key factor in the Katrina catastrophe.

Members of the American public should not be put at greater risk merely because of the states and communities in which they reside. Targeted efforts are needed to keep leaders strong while simultaneously improving the capabilities of states and local jurisdictions that lag behind.

Such efforts must also be risk- and vulnerability-based. The potential for catastrophic losses from disaster events is well understood among researchers and practitioners. Metrics already exist to assess communities around the U.S. in terms of their hazards and their built environment and population vulnerabilities. We know where the likelihood of truly staggering losses is highest.

The Urban Areas Security Initiative attempts to use risk-based criteria in its homeland security funding allocations. Many argue that UASI investments have helped prepare the nation's cities to respond during disasters, but there is in fact no conclusive evidence that this is the case. There must be a parallel and coordinated national initiative to prepare our most vulnerable communities for all hazards—or perhaps UASI needs to be transformed in that direction, with needed modifications. I emphasize again that we have all the tools we need to understand our nation's vulnerability to hazards. What are lacking are comprehensive vulnerability-based loss reduction programs.

2. Ensure that an all-hazards approach to emergency management is implemented at all levels of government.

The federal government's official position is supportive of an all-hazards approach to disaster management—that is, an approach that takes into account the various perils that the nation and its communities face. At the same time, however, investments in terrorism-related programs far outstrip those centering on other hazards. The scenarios for which communities around the country are required to prepare as part of the National Preparedness Goal are still skewed toward terrorism-related threats and in many cases highly exotic threats. The 2006 hurricane season was a relatively quiet one, as is 2007 so

far. Perhaps the pendulum of concern is moving back toward terrorism threats, even as efforts are being made to implement post-Katrina reforms.

The strategy that promises to save lives and protect property is one in which the federal government, states, and local jurisdictions collaborate on the development of risk- and vulnerability-based emergency management solutions. Such approaches must be based on objective assessments of the nature, range, frequency, and expected severity of all hazards faced by U. S. communities, individually and collectively. State and local agencies that receive funding through terrorism-related programs will naturally focus on preparing for terrorism-related threats despite whatever efforts they may be making to plan for natural and technological disasters. Incentives must be provided for genuine all-hazards loss reduction efforts that consider terrorism in the context of the range of hazard-related problems communities face.

Implementation of a genuine all-hazards approach is only possible if it is supported by changes in institutional and organizational cultures and led by committed experts. Likewise, it can only be implemented if accompanied by vigorous efforts to overcome the stovepiped nature of current disaster and homeland security preparedness efforts.

3. Ensure that FEMA and other crisis-relevant organizations center their efforts on comprehensive emergency management.

The concept of comprehensive emergency management includes both the all-hazards orientation described above and a focus on actions and programs addressing the classic four phases of the hazard/disaster cycle: mitigation, preparedness, response, and recovery. This particular hearing centers on emergency preparedness and response issues, but a national strategy must place equal emphasis on longer-term pre-event and post-event loss-reduction activities. This disaster phase-based approach has been advocated since the late 1970s and was being implemented prior to the 9-11 terrorist attacks. It resembles in many respects the national strategy for combating terrorism, which focuses first on preventing attacks from taking place in the first place, mitigating the effects potential attacks (e.g., through blast-resistant design and other protective measures), then preparing for, responding to, and recovering from those attacks.

With respect to pre-event mitigation, just as it is better to keep people healthy than it is to cure disease, it is better to mitigate the effects of disasters before they strike than to suffer larger losses and attempt to pick up the pieces. Yet this is exactly what the nation's current emergency management system is structured to do: wait for a disaster event to occur, respond, and provide assistance to victims. Currently the best way for states and local communities to obtain funds for hazard mitigation is to experience a disaster and then apply for post-disaster mitigation dollars. This situation is changing, but not rapidly enough or on a large enough scale. This despite the fact that a congressionally-mandated five-year-long study recently showed that federal mitigation projects and programs reduce future disaster losses both to the nation and to the federal treasury (National Institute of Building Sciences, Multihazard Mitigation Council 2005).

Attention to short- and long-term recovery issues will again help ensure that the disruption and further losses caused by disasters do not extend into the future. A nationwide disaster management strategy must focus not only on response-related preparedness, but on pre-event planning for post-event recovery. This type of preparedness planning is not being addressed to any great degree at present. That the nation lacks a recovery strategy for large-scale disaster events is all too glaringly evident in the Gulf Region.

Put another way, along with enhancing *preparedness and disaster response*, the nation must focus its emergency management strategy on *disaster impact and loss reduction*. This means developing and implementing programs based on an all-hazards strategy that also includes effective interventions at all phases of the hazard/disaster cycle.

4. Explore organizational arrangements and authorities that de-politicize high leadership positions within FEMA, DHS, and other crisis-relevant organizations.

Former FEMA director James Lee Witt often said that disasters are political by their very nature, and this is clearly the case. Challenging leaders and institutions and often garnering enormous media attention, disasters can make or break political careers. They also constitute arenas in which political conflicts are played out and provide many opportunities for the exercise of political largesse.

However, the fact that disasters are inherently political does not mean that their management should be governed by partisan politics or that FEMA, DHS, and other crisis-relevant organizations should be politicized. Earlier I mentioned the 1993 NAPA report, which focused on the high proportion of political appointees in key positions in FEMA prior to Hurricane Andrew. Since Andrew, and in particular since the terrorist attacks of 2001 and Hurricane Katrina, even greater attention is being paid to both the politicization of disasters and to the need for disaster management by professionals.

The NAPA report argued that while the head of FEMA can be a political appointee, the agency should also have a career executive director. Katrina has again raised questions regarding how to make heads of FEMA—as well as other agencies in key response roles—both politically accountable and insulated from partisan politics. In a chapter in a recently-published history of emergency management in the U.S., public administration experts Robert Ward and Gary Wamsley (2007) suggest that FEMA and other key disaster response agencies follow the model of the Federal Reserve System and the Government Accountability Office “in which presidential and congressional oversight balance partisanship and expertise” (Ward and Wamsley 2007: 234). Such steps are warranted, they argue, because of the need to “assure citizens and partners in the emergency management network that competent and experienced professionals will direct federal emergency management activities” (Ward and Wamsley, 2007: 234).

Calls for accountability and professionalism stem from the recognition that emergency management efforts cannot succeed without the public’s trust. That disasters always

involve politics is inarguable. That disasters should be managed on the basis of political agendas is unacceptable.

5. Invest in and mobilize institutions that provide the “backbone” for effective emergency management.

This recommendation has two parts. Congress and the agencies must address the fact that many critical systems on which the nation will rely during future emergencies are already overstressed. This applies in particular to the health care and public health sectors. Current preparedness efforts—for example, pandemic flu and bioterrorism planning—mean little if critical crisis-relevant organizations are unable to function effectively when disaster strikes. As we all know, the critical infrastructure on which effective disaster responses depend is largely in private hands. Massive public-private partnership efforts are needed. Plans will become what sociologist Lee Clarke terms “fantasy documents” (Clarke, 1999) unless the nation invests in much-needed improvements.

The second part of this recommendation relates to the need to expand and strengthen the role of civil society institutions in the management of hazards and disasters. Research consistently shows that community residents and those directly affected are the true first responders when disaster strikes. While disasters like Katrina are national and even global events, disasters are first and foremost local. The nation has a rich and vibrant civil society composed of numerous and diverse organizations and groups that could perform critical functions during disasters but that are not yet equipped to do so. Disaster preparedness networks such as the National Voluntary Organizations Active in Disasters, Emergency Network Los Angeles, and other national and local organizations need to be strengthened and better integrated into public sector preparedness efforts. Programs such as Citizen Corps, Community Emergency Response Teams, and Neighborhood Emergency Response Teams are a step in the right direction but are grossly under-supported.

A logical strategy is to develop programs to enhance the preparedness of organizations that normally provide services to at-risk populations and that would be required to do even more during disasters. Investing in initiatives that target the critical civic infrastructure and organizations that comprise the nation’s social safety net during non-disaster times is a wise strategy.

6. Develop and implement a strategic emergency management workforce strategy for the nation.

In its May, 2007 report, the Government Accountability Office noted that FEMA “lacks a strategic workforce plan and related human capital strategies” (2007:11) and also noted that FEMA is making an effort to address this gap. Workforce issues are critical in the emergency management sector, not only within FEMA but across federal agencies, other levels of government, and the private sector. With respect specifically to FEMA, the post-9-11 brain drain has already been noted. Compounding this problem is a trend that

all governmental agencies face: the impending retirements of large numbers of senior staff. These challenges take place in the context of a growing need for knowledgeable, trained emergency management professionals.

Recruitment and retention strategies are needed, not only within FEMA and DHS, but also within other key crisis-relevant organizations covered by the NRP. Beyond the federal family, parallel efforts are needed at regional, state, and local levels.

Steps must be taken to strengthen the training and education pipeline to ensure the nation's ability to sustain emergency management capability over time. The next generation is keenly interested in fields related to emergency management and homeland security. There are now more than 100 different emergency management degree and certificate programs in U. S. higher education institutions. Many were established after 9-11 in response to the war on terrorism. Since Katrina, colleges and universities have become even more interested in adding courses on disaster research and emergency management to their curricula. FEMA's Higher Education Program coordinates knowledge transfer and curriculum development efforts in the areas of homeland security and emergency management. The DHS academic centers of excellence program also has a major priority the training of students who can move on to become members of the homeland security/emergency management workforce. These activities alone are not enough; more resources are needed to ensure workforce continuity. Taking into account both demographic trends in the U. S. and the characteristics of at-risk populations, the emergency management work force must also become much more diverse.

Intensified training efforts are also needed, not only for first responders but also for emergency management professionals. The contemporary field of emergency management spans a variety of disciplines, including public administration, public finance and policy, disaster law, risk and vulnerability analysis, risk communication, and management science. Certificates and credentials already exist for the field, but professionalization and training efforts for mid- and upper-level managers must be strengthened even more to ensure that those who have to make hard decisions in future disasters will be intellectually equipped to do so.

7. Build oversight, accountability, and evaluation into emergency management programs at all levels of government.

Many recommendations developed in the aftermath of Hurricane Katrina center on the need for greater transparency and accountability with respect to emergency management programs and personnel. It is too soon to say how these recommendations are being implemented, but clearly there is a need for careful, ongoing oversight in these areas. In that same vein, the federal government in particular needs to take the lead with respect to evaluating emergency management initiatives and programs. It is astonishing that so much has been invested and so many initiatives have been launched in the area of emergency management without systematic research on program effectiveness. I noted earlier that owing to a congressional mandate FEMA undertook a study on the cost-effectiveness of some of its post-disaster mitigation programs. Just this year, FEMA

released an assessment of its decades-old national flood insurance program. These efforts warrant mention because they are so rare.

Systematic program evaluation involves the application of scientific methods to the study of program processes, outputs, and outcomes. This type of evaluation can be distinguished from anecdotal, self-report, and compliance-oriented approaches to measuring program success. The fact that some people believe that a particular program worked well in a particular community context says nothing about the potential effectiveness of that program in other communities, or about whether experts would agree that the program has succeeded. As in other policy areas, emergency management programs quite frequently rely on self-assessments, as opposed to objective assessments of program effectiveness. There is also a tendency to take a checklist or compliance approach to assessment that lacks nuance and attention to local circumstances. Some aspects of emergency management doctrine have been accepted without systematically-collected evidence of effectiveness. Additionally, like many areas of inquiry and practice, emergency management is also susceptible to fads and fashions that are adopted wholesale without evidence or sufficient critical assessment.

At this time, the goal of *evidence-based emergency management* remains elusive, but the need for objective assessments of programs and practices is clearer than ever before. Reasonable people might well wonder which emergency management practices actually achieve their intended results, where emergency management programs are falling short, and which investments are likely to bring the greatest return. Likewise they might wonder whether the communities in which they live will be able to meet their needs during future disasters. Does the federal government not owe it to the nation to answer such questions?

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