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Hurricane Katrina: Recommendations for Reform
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Restoring the National Response System

The US failed to adequately prepare for and respond to the catastrophic impacts of Hurricane Katrina and the flooding of New Orleans. We must recognize that we are no better prepared to deal with a catastrophic event today than we were last August and that if we fail to restore and re-energize our national response and recovery capability we will face even more tragic outcomes. Millions of Americans are as vulnerable today as the citizens of the Gulf Coast were on August 29, 2005. The 2006 hurricane season will begin in three months, we remain vulnerable to other natural hazards such as earthquakes, we do not have the ability to deal with pandemic flu or other public health crises, and most of us believe that the terrorist threat is real.

Two facts should guide our planning and preparation. First, the initial and most severe impacts of disasters are local. Citizens, communities and state and local governments have the primary capability to prepare for and to minimize the impacts of disasters. Second, catastrophic events are qualitatively different from even major disasters in scale, scope, and impact. I believe that the emergency management role of the Federal government is clearly and adequately defined in existing legislation. We have not yet created the systems and the capabilities necessary to adequately fulfill that role.

The Federal role

The response role of the Federal government is to provide resources and leadership in support of state and local governments, not to assert command and to control over all actions of the hundreds of organizations and thousands of individuals responding to an extreme event. The comparison of a multi-organizational response to a complex, catastrophic event to a military combat operation is inappropriate, inaccurate, and misleading. The creation of a National Response System based on the National Response Plan and the National Incident Management system was a necessary step, but doctrine and structure alone are not adequate to meet the challenge. We must now provide the capacity, capability and competence to execute this doctrine. We must be able to provide affirmative answers to the following three questions:

- Does the Federal government have adequate personnel and materiel resources available or immediately accessible to meet the needs caused by a catastrophic event? (capacity)
- Can the Federal Government rapidly mobilize and organize enough skilled personnel and can it deploy people supported by adequate resources to the places needed and coordinate their actions? (capability)

- Can the Federal Government provide the leadership, management ability, decision making ability and situational awareness necessary to manage the response to a catastrophic event? (competence)

Lessons from Katrina

Hurricane Katrina was a cruel auditor of the National Response System, showing that the answer to all three of these questions was negative. We are able to extract the following ten general lessons from studying the failed response to Katrina:

1. Infrastructure is critical —Katrina totally destroyed physical and communication infrastructure, everyone in New Orleans and other impacted areas required assistance, response forces were severely constrained if not self sufficient
2. Size matters --The response system was overwhelmed by scope and complexity of event and scale post event needs
3. Competence and leadership count —Individuals at critical system nodes did not have ability to make required decisions and take actions, and did not have the experience to anticipate or to communicate an appropriate sense of urgency.
4. Information is key to agility —Technology did not support situational awareness and decision making in distributed network, decision makers were unable to process incomplete or conflicting information.
5. Communications is more than interoperability —Responders were not able to transmit information within affected area and between the affected area and key decision nodes
6. Coordination must be seamless —Massive mobilization requires effective coordination with DOD, NGOs, state/local governments, other governments. This coordination did not occur.
7. Doctrine must be understood and followed—Many key leaders and participants had little understanding of the provisions of the National Response Plan and the protocols of the National Incident Management System
8. Logistics cannot fail —The government has to be able to move large amounts of people and materiel effectively and efficiently, it could not deliver in Katrina.
9. Resilience is a key design concept —Physical and organizational systems must be robust or easily recoverable, systems must be designed to “fail gracefully” not catastrophically.
10. Its not over until it is over—Transition to recovery and adequate funding of recovery cannot be ad hoc as has been the Post Katrina response. Pre-planning and focus on recovery during response is essential.

The National Response System—intended and unintended outcomes

In order to assist legislative policy makers, the multiple reviews of the Katrina response should provide an answer to the basic question:

Was the post 9-11 implementation of a National Response System (NRP and NIMS) part of the solution or part of the problem during the response to Hurricane Katrina?

The answer will be, I believe, that the adoption of NRP and NIMS had both intended and unintended consequences.

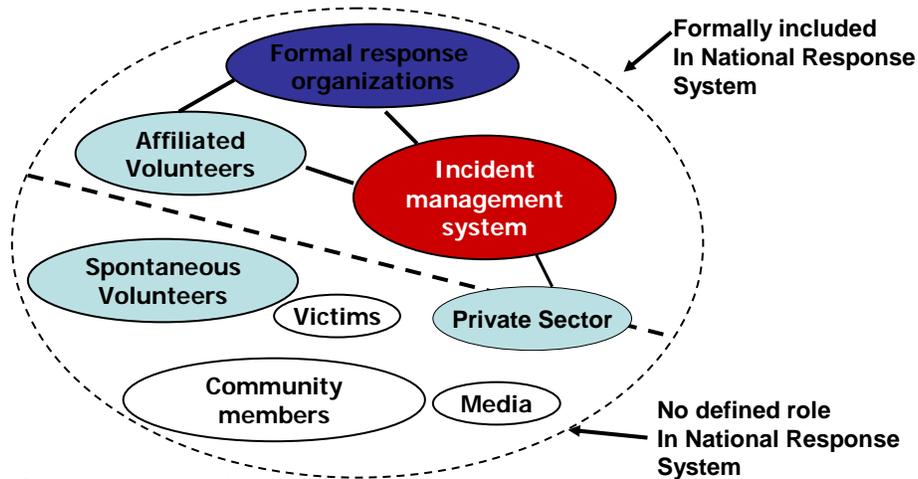
Hurricane Katrina struck while the nation was in transition to a new, and more complex framework.

The response to the hurricanes of 2004 were the last major effort conducted under the framework of the Federal Response Plan (as preserved by the Interim National Response Plan). The final National Response Plan was signed in December, 2004 and all Federal agencies were directed to become NIMS compliant during 2005. A significant change had been made to the way the nation prepares for and responds to extreme events. This change had made the system much more of a closed, bureaucratic system; less capable of the creative, agile response necessary to deal with the unexpected consequences of extreme events.

As shown below, the new National Response system is a relatively closed system, restricting access to only those trained and certified in NIMS, excluding the local volunteers, enabled victims, and emergent groups that have historically played a very large role in the response to disasters. The NRP and NIMS sets up an artificial barrier between the formal and informal response systems, a barrier enforced by complexity of doctrine, process, and language.

The National Response System: Is it a closed system?

A system is a collection of inter-related components that work together to accomplish a common goal. Where is the system boundary? The national Response System excludes critical groups.



Source: Lauren Fernandez

Figure 1

The development of doctrine and structure after 9-11 was an extension of a 30 year trend. Since the 1970's, the U.S. emergency management community has been increasing its ability to structure and manage a large response through improved plans and by the adoption of the incident command system. The result of this evolution is the National Response System created and directed by the Department of Homeland Security based on the National Response Plan and the National Incident Management System. Over the same period, social scientists and other disaster researchers have been documenting and describing the non structural factors such as improvisation, adaptability, and creativity that are critical to coordination, collaboration, and communication and to successful problem solving. These two streams of thought are not in

opposition, but form orthogonal dimensions of discipline and agility that must both be achieved. The post 9/11 evolution of the U.S. national response system has focused almost exclusively on building discipline in a closed organizational system, and has neglected preserving the open system, agile attributes of historically successful response efforts.

It was inevitable that the restructuring of the national response system would produce both intended and unintended outcomes. Both would become apparent during the response to Hurricane Katrina in 2005. Intended outcomes include the following:

1. One structure and doctrine was provided for all organizations (however, it was not yet implemented by some federal agencies and by key state and local organizations)
2. System discipline had been increased through training and credentialing (however, insistence upon NIMS compliance and proper credentials was a problem for volunteer organizations)
3. Federal government had created new positions of authority and coordination mechanisms. The DHS Secretary became the cabinet officer responsible for all incident management, the Primary Federal Official became the lead presence on scene, Homeland Security Operations Center became the primary information coordination center for the federal government. (The authority of the PFO was not clearly specified by the NRP, nor understood by state officials)
4. The process of obtaining DOD resources was modified and Northern Command (NORTHCOM) became the key coordinating command for military assistance.

The restructuring of the National Response System also had unintended consequences that would prove to be critical during the response to Hurricane Katrina:

1. The specification of detailed doctrine (NRP), structure and process (NIMS) reduced system agility, creativity and flexibility, and increased the tendency toward bureaucracy.
2. The NIMS structure implied, but did not define an information flow that would assure a common situational awareness at all levels of the distributed decision network (e.g. Joint Field Office, National Response Coordination Center, Homeland Security Operations Center, White House)
3. The new structure increased the layers between operational and political leaders. Where the Director of FEMA once had cabinet rank with direct access to the President, he was now three levels down in a very complex departmental structure. The FCO in the Joint Field office had to communicate through the PFO, the NRCC, the HSOC, and the DHS Secretary to pass time sensitive information to the White House.
4. Primary Federal Official (PFO) became the key on scene decision maker. The intent of the NRP was that the PFO would be a coordinating official, and decision making would continue to reside with the Federal Coordinating Officer. However, the PFO, as the representative of the President, would clearly be viewed as a leader, not a coordinator.
5. DHS and DOD had created parallel planning and preparedness efforts (DOD, 2003). The boundary between homeland defense and homeland security was not clearly drawn. The procedures for engaging NORTHCOM and utilizing DOD assets under DHS control were not clearly defined.

Future actions must be based on needs, not doctrine

Better planning based on potential catastrophic event scenarios is essential if we are to build adequate capacity and appropriate capabilities. This planning must be needs based, not doctrine based. More strategies, plans, and coordinating mechanisms are not going help us understand the task before us. The catastrophic planning scenarios developed by FEMA and DHS provide a good starting point, but they must now be used to determine the wide range of needs that could result from a catastrophic event. Analysis of these scenarios will generate specific examples of questions such as:

- Can our disaster medical system deal with tens of thousands of seriously injured people after a catastrophic earthquake?
- What is the best way to provide temporary and long term shelter and housing for hundreds of thousands of people whose homes have been destroyed by a natural disaster?
- How would we evacuate, shelter, feed, and relocate hundreds of thousands of people and businesses from a major urban center in the aftermath of a dirty bomb attack?
- What does it mean to say that state and local emergency management forces are “overwhelmed” and how does the Federal Government intercede in a way that rebuilds, not replaces local capabilities?

Once such questions have been asked and the needs defined, we may generate some creative answers involving increased roles of private sector, non government, and volunteer organizations. We may look to better ways of mobilizing local volunteers rather than to expanding the Federal civilian or military bureaucracy. We must define our goals based on an understanding of the needs in order to determine the investment, planning, acquisition, coordination and training that will be required.

Recommendations

The following actions should be taken by policy makers to ensure that we develop the national capacity, capability and competence to respond to and recover from the extreme events that will occur in the future:

1. Ensure that Federal leaders tasked to direct emergency management activities have access to the knowledge and skills required. Professional emergency management leadership must be present at the highest level of the government. We will face catastrophic events in the future. Preparing for and managing through these events is one of the most important functions of the Federal government.
2. Worry less about developing more doctrine and structure and focus on the ability to support agility, creativity, and improvisation. We must be prepared to react based on past experience and plans based on scenarios of the future. We know, however, that the next event will bring totally unanticipated challenges. We must be agile enough to recognize and to manage the unexpected.
3. Bring states and local governments back into their appropriate role in the national emergency management system. Bring the private sector into the planning and preparedness process in a meaningful way. Modify the top down approach to include bottoms up direction, information, and guidance. The experts in this field are not in Washington.

4. Ensure that the National Incident Management System is an open not a closed system. This cannot be a military command and control system capable of directing resources under its direct control, it must be a system capable of coordinating the actions of and communicating with hundreds of organizations and hundreds of thousands of individuals.
5. Recognize that the real objective is to increase our resilience to extreme events. We must be able to reduce our vulnerability and to recover our economic and social systems, not just provide emergency support to disaster victims.
6. Recognize that reorganizations do not solve problems. We must identify what we need to do and build the capability to do it, using DOD resources where appropriate, retaining civilian leadership of emergency management.
7. Support emergency management education and training, recognizing that this is a national, not a Federal issue. Programs, such as the FEMA higher education initiative, that reach people working in state, local, corporate and non government organizations are essential.
8. Provide an independent, non government review of the preparations for, response to, and recovery from Hurricane Katrina. This review is not about who to blame, it is essential to ensure that we identify and address the systemic problems in our National Response System. It is not success if we change people and organizational roles, but still fail.

The current debate is framed in terms of solutions: e.g. should emergency management responsibilities remain in DHS or should an independent FEMA be created? I believe that, depending on the leadership and support provided, either alternative could work or could fail. If the function remains in DHS, the minimally disruptive alternative, the responsibilities for implementing and integrating comprehensive emergency management must be assigned to and accepted by the highest levels of the department. Before an independent emergency management agency is recreated, we should thoroughly understand the causes of the historical shortcomings and limitations of FEMA as well as the reasons for its more recent successes. Your committee is addressing issues critical to the survival and livelihood of millions of American citizens. We must learn from the failures of Hurricane Katrina and build a true National Response System that coordinates all the resources of the Federal government to support our state and local governments and ensures that our communities and citizens can recover from even the most catastrophic events.

Biography of John R. Harrald, Ph.D.

Dr. John Harrald is the Director of The George Washington University Institute for Crisis, Disaster, and Risk Management (www.gwu.edu/~icdrm) and a Professor of Engineering Management and Systems Engineering in the GWU School of Engineering and Applied Science. He is the Executive Editor of the Journal of Homeland Security and Emergency Management (www.bepress.org/jhsem), and is a member of the National Academy of Sciences, National Research Council's Disaster Roundtable Advisory Committee. Dr. Harrald has been actively engaged in the fields of emergency and crisis management and maritime safety and port security and as a researcher in his academic career and as a practitioner during his 22 year career as a U.S. Coast Guard officer, retiring in the grade of Captain. Dr. Harrald received his B.S. in Engineering from the U.S. Coast Guard Academy, a M.S. from the Massachusetts Institute of Technology where he was an Alfred P. Sloan Fellow, and an MBA and Ph.D. from Rensselaer Polytechnic Institute.