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## Achieving Successful Long-Term Recovery and Safety from a Catastrophe: Recommendations from Hurricane Katrina- EXECUTIVE SUMMARY

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# Achieving Successful Long-Term Recovery and Safety from a Catastrophe

## RECOMMENDATIONS FROM HURRICANE KATRINA

### Executive Summary

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## **Introduction**

It is ironic that we come to you today with broad recommendations from our Katrina research that encourage a stronger federal recovery framework and more effective collaboration of federal representatives with state and local governments when a catastrophe occurs. The irony is due to the degree that each one of us believes in and is committed to the important role of local, engaged citizens and the governments who represent them growing in their capacity to achieve disaster resiliency and safe recovery when disasters do occur. We concur with FEMA Director Fugate's position that this capacity should be built at the local and state level.

However, in the recovery from Katrina, so many problems occurred, opportunities were missed, and suffering enhanced because of the lack of an organized, systematic response. These shortcomings are so profound that we feel we have no choice but to recommend the implementation of a comprehensive strategic **federal** framework for catastrophic recovery that includes all levels of government. Each sub study group—Public Assistance, Individual Assistance, and Mitigation came to the same conclusion independently: A stronger federal role is needed for recovery from a catastrophe because catastrophes are different from "regular" disasters—they happen too infrequently for any state and its local governments to have regular experiences with them and thus be able to develop an appropriate well-developed response, and they incapacitate the state and local organizational response and recovery systems that were in place before the event.

We do not recommend that the federal government "send more money." Our recommendations are for the federal system to make good on its commitments, in the Stafford Act and elsewhere, to develop the necessary organizational goals and implementation practices to support the state and local response. For any state in the country and the residents who are in the catastrophe "footprint" to make it through the experience and to recover well and more safely, the federal government cannot absolve itself from an important leadership role as the keeper of the knowledge of how to implement a recovery from catastrophe.

Recovery from future catastrophes in the United States must be compassionate. By this term we mean that recovery assistance must be delivered rapidly, efficiently and successfully. The spirit of the Stafford Act and the federal system is for the recovery to be managed by the lowest level of government possible. In the case of a catastrophe, we argue that the federal government cannot wait to see how much the state and local governments are able to do and then to fill in what is remaining. The delay is much too harmful. Assume there will be a need for significant federal involvement, prepare for it and put the implementation into effect immediately when such an event occurs. The federal government cannot be distant from the recovery; it must take an active, effective supportive role in every phase, beyond what occurred in Katrina. We have included an alternative proposal to adopt best systems-related approaches and practices in the event that the supportive role might be considered insufficiently capable or mature.

The remaining recommendations are wide ranging. We present them grouped in this summary: Public Assistance, Human Recovery (Individual Assistance), Mitigation, Systems Response to Critical Risk. We conclude with the issue of a Catastrophic Annex/Triggers, General/Cross Cutting Recommendations, with Research Methods of the Project and Acknowledgements. We have available

longer reports for the four—PA, IA, MIT and Systems Approach—that explain why we made the recommendations that we have made. A full report of the findings including others not related to the federal role will be available by June 30, 2010.<sup>1</sup>

## **Public Assistance Recommendations**

**Robert Montjoy, Monica Farris, and Joel Devalcourt**

*Currently, it takes too long and costs too much to put federal dollars into the hands of communities that need cash quickly to rebuild and recover* (Federal Coordinating Officer Scott Wells, 2005).

The key question is how to deliver massive public assistance quickly *and* ensure that it is used responsibly. The answer, we think, is much better preparation coupled with selective rule changes for catastrophes. The Public Assistance (PA) program starts community recovery through emergency protective measures and debris clearance, followed by restoration of facilities that provide the infrastructure for communities and their economies. After Katrina and Rita the need for comprehensive aid, rapidly delivered, was urgent because so many people and facilities were affected. In community after community there were no viable structures for schools, clinics, etc. without which many people would not return. We must now focus future preparations on this new level of disaster.

### **1. Outcome Orientation.** *What would decisive action after a catastrophe look like?*

*Issue:* The Public Assistance program operates primarily on bureaucratic norms that can delay recovery after a catastrophe.

*Recommendations:* Adopt an action orientation through forward funding (in catastrophes only), pushing decisions down the hierarchy, fixing responsibility and using outcome-based performance measures.

*Rationale:* Recovering from a catastrophe is more like fighting a battle than it is like running a bureaucracy. Battles demand thorough preparation, then prompt, decisive action under conditions of uncertainty.

### **2. Human Resources.** *Catastrophic threats require a broader view of human resource needs.*

*Issue:* FEMA's Strategic Human Capital Plan (SHCP) must be completed and staffed, but it does not cover all levels of government and private firms engaged in the management of the PA program.

*Recommendations:* Complete the SHCP, develop intergovernmental training, and certify private companies that manage PA projects (as opposed to those that actually perform the repair or rebuilding).

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<sup>1</sup> Contact: slaska@uno.edu to receive an electronic copy.

*Rationale:* There were clearly insufficient numbers of trained people at all levels for Katrina/Rita. The PA program is intergovernmental and requires knowledgeable people at all levels with a shared understanding of rules and procedures. At the same time, it is not cost-effective for communities to maintain sufficient trained staff to handle large numbers of cases concurrently. They must be able to expand capacity for all phases of the process, including: application, contracting, and monitoring. A cadre of FEMA staff is essential, but most communities must also rely on private firms to assist with contract management, including the prevention of fraud, waste, and abuse. Certification can help to ensure standards.

**3. Community Preparation.** *Plans are nothing; planning is everything.- Dwight Eisenhower*

*Issue:* Communities and organizations were not prepared for recovery. As the quotation above recognizes, it is impossible to predict exactly what will happen in chaotic events, such as battles or catastrophes, but the process of planning is essential because it forces leaders to face possibilities and build capacity.

*Recommendation:* FEMA should provide technical assistance, measure progress, and incentivize participation. A catastrophic insurance program may have many advantages and should be studied.

*Rationale:* Inadequate preparation by affected communities hinders recovery. Pre-disaster preparation requires knowledge, resources, and often the political will to face difficult issues. The federal government can put the issue on local agendas, provide technical assistance, and reward preparation.

**4. Initial Estimates of Scope and Cost.** *Low or zero-cost estimates led to disagreement and delay in project approval.*

*Issue:* Initial cost estimates are critically important because they determine eligibility for repairing or rebuilding, and they set caps on alternate and improved projects.

*Recommendation:* Create a program to improve cost estimation through pre-disaster documentation, training of field personnel and regular evaluation of cost-estimation procedures.

*Rationale:* Distinguishing pre-disaster condition from disaster-related damage was a major challenge after Katrina/Rita. In many cases PWs were begun with unrealistically low or "0" estimates, leading to multiple versions, appeals and delays. In addition even carefully applied cost-estimation procedures may not work well after a catastrophe because of changed market conditions. At present there appears to be no program to regularly evaluate the accuracy of cost- estimation procedures under varied circumstances.

**5. PW review and approval.** *Many applicants lacked confidence in the review and approval process.*

*Issues:* Following Katrina/Rita many applicants complained that they could not determine the status of PW submissions, that documents were lost, that FEMA changed position on project approvals, and that there was no independent appeal process, all of which led to a lack of confidence in the program.

*Recommendations:* Create a user-friendly system for tracking PWs, require FEMA to explain denials and create an independent appeal process.

*Rationale:* Transparency increases confidence, and independent reviews can also resolve impasses.

**6. Building Back Better.** *For successful recovery to occur, communities should implement mitigation and resilience strategies that minimize their risk to hazards and strengthen their ability to withstand and recover from future disasters (National Disaster Recovery Framework).*

*Issues:* In many cases mitigation was not encouraged as part of the PA program after Katrina/Rita.

*Recommendations:* See the mitigation section of this report.

## **Recommendations for Human Recovery: Case Management, Mental Health and the Role of Non-Profits**

**Pamela Jenkins, Branda Nowell and Michelle Gremillion**

Since August 2005, individuals and families in the Gulf Coast area face enormous challenges to recovery. After a catastrophe, individuals and families have to build back nearly every facet of their lives. The multi-dimensionality of their recovery involves a myriad of resources: housing, health care, employment, schools and day care.<sup>2</sup> In this section, we discuss recommendations for the management of the human recovery. Specifically, we outline recommendations for case management after a catastrophe, ongoing mental health issues that arise in a long-term recovery and the role of non-profits (both national and international) in recovery. These topics all address human recovery in some fashion and are related; yet, we approach each topic as a single issue.

### **Case Management**

Prior to the response to Hurricane Katrina, very little of the case management was documented or significantly funded (Phillips, 2009). The following recommendations highlight the role of the federal government in managing lives after a catastrophe. The federal response is improving, but case management remains a critical issue for long-term recovery.

#### **1. Connecting with the People Who Need Help**

*Issue:* Information about evacuees and their situation (location, health, housing, transportation) was difficult to obtain. Further, a lack of coordination among case management providers resulted in some victims not receiving case management and others receiving services from multiple agencies.

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<sup>2</sup> Housing remains central to recovery. While this section of this report does not include specific recommendations about housing, the need for housing and the issues of rebuilding are intertwined with the all of recovery issues.



*Recommendations:*

- 1a. Best practices are defined by collaborating strategies and policies, procedures, and other methods for communicating and working across multiple agencies.
- 1b. The process of requesting and receiving program/client data from federal partners must be planned for in advance. As some case data now exist (through multiple sources), it might be possible to maintain those networks built during Katrina. In the future, data management should have necessary resources.

*Rationale:* In the chaos of a catastrophic event, it was very difficult to find evacuees to know for which program they qualified for. The outreach across the country, but especially in flood ravaged areas, was not consistent.

## **2. Navigating Without a Map**

*Issue:* Initial confusion about funding and purpose of case management programs delayed local case management development. Local agencies had difficulty knowing the parameters of the case management system to collaborate on the process. The confusion about which clients qualified for what program and how to obtain that information was staggering.

*Recommendations:*

- 2a. Best practices for case management and other strategies should be in place and readily available as a contingency. The federal government could identify case management agencies in advance and include them in emergency response planning.
- 2b. FEMA should facilitate the creation of a central clearing house for information on assistance programs and services both locally and federally.

*Rationale:* The service-delivery challenges may have prevented some from receiving consistent help because of lack of understanding of multiple agencies' roles and responsibilities. Service providers lacked a central repository of information that would help them guide clients through the confusing array of assistance programs and services available both locally and federally.

## **3. Bureaucratic Constraints to Getting People the Help They Need**

*Issue:* Case managers faced challenges in meeting client needs due to federal funding rules on direct assistance. Program eligibility requirements were also a barrier to providing disaster case management. Some funds were restricted to victims of a specific hurricane. Other guidelines restricted case management services to residents of FEMA housing only.

*Recommendations:*

- 3a. Access to material resources is essential to post-disaster recovery. Case management programs should have discretionary funds for low-cost unmet recovery needs and allow local decisions on the use of these funds.

- 3b. Eligibility requirements should continue to be reviewed. This is an ongoing discussion of who should receive case management and the ability to meet the diverse needs of the population.

*Rationale:* Case management agencies saw the need for direct financial assistance; yet such assistance was not always available. Some programs were not allowed to make direct assistance payments, yet without direct service funds, short-term needs become long-term issues.

#### **4. Closing the Door before Closing the Deal**

*Issue:* The federal government supported Disaster Case Management, but delays, breaks in funding and time limits hindered assistance. Throughout the response and recovery, there was variability in application, implementation and outreach to diverse populations.

*Recommendation:*

- 4a. Consistent ongoing case protocols should be developed and provide adequate program periods.

*Rationale:* Some cases were closed not because clients' needs had been met, but because the program was ending.

#### **5. Working in a Context of Overwhelming Need with Limited Capacity**

*Issue:* Numerous sources noted the high staff turnover among case managers. This workforce problem creates great instability as clients didn't know the name of their current manager. Large caseloads were barriers to meeting client needs.

*Recommendation:*

- 5a. Best practices for case management and other strategies should be in place continuously as part of sustainability for human recovery in vulnerable areas. The federal government could identify case management agencies in advance and include them in emergency response planning.

*Rationale:* Effective case management requires service providers with adequate and stable staffing to create consistency and ensure clients receive adequate attention. It also requires agencies that have the capacity to serve as a bridge horizontally as well as vertically, connecting to both state and federal systems as well as with local level service providers in order to identify and connect people to the help they need.

### **Mental Health**

The psychological impacts of extreme disasters include a broad range of symptoms ranging from simple reactions to serious post traumatic stress disorder. Much of the literature is based on disasters; the data is emerging slowly about the long-term effects of the recovery from a catastrophe. It is important to note that in a catastrophe, those supports (for example, family, neighborhood, and faith based organizations) are greatly diminished.

## **1. Finding and Keeping Resources for Mental Health in all Stages of a Catastrophe**

*Issue:* Because the issues of mental health in long-term recovery in a catastrophe are not clearly known, the issues in funding for long-term mental health care are problematic.

*Recommendation:*

- 1a. Amend the Stafford Act to allow states the financial flexibility to allocate funds for continuing treatment of individuals beyond immediate crisis management after disasters.

*Rationale:* SAMSHA, Medicaid and other funding was confined to certain aspects of the disaster, so that long-term outreach and counseling are still difficult to provide.

## **2. Defining an Effective Mental Health System**

*Issue:* After Katrina, an already under-resourced mental health system had to be rebuilt with fewer people and fewer systems in place.

*Recommendation:*

- 2a. Create provisions within the Stafford Act for catastrophic disasters that allow for longer term outpatient treatment of conditions clearly related to the exposure and recovery issues associated with the catastrophic event.

*Rationale:* The reaction to Hurricane Katrina and the recovery created long term stress that goes beyond the stress of a disaster. Vulnerable populations, especially families with children, faced a myriad of social stressors that may persist during the long-term recovery phase.

## **3. Linking Mental Health Recovery to Other Recovery and Social Service Efforts**

*Issue:* Many of the mental health services before the storm were not coordinated well within the community.

*Recommendation:*

- 3a. Facilitate network development and referral protocols among mental health agencies and other social service agencies before the event.

*Rationale:* Attempting to collaborate during a catastrophe was too late and too difficult. The protocols of each individual agency were often difficult to coordinate with those of the other agencies.

## **Non-Profits, Foundations and ‘Help’**

Non-governmental organizations (NGOs) were a critical part of New Orleans prior to the flooding, serving as a source of community and neighborhood strength and employment. International, national, and local NGO's were an integral part of the response and ongoing recovery.

## **1. Government Remains Ambivalent about the Integration of NGOs in a Coordinated Response to Disasters**

*Issue:* Broad scale integration of local, national and international NGOs as part of a coordinated governmental response to catastrophic disasters requires administrative architecture and capacity that does not currently exist at the Federal and State levels. While there is a formalized structure in local and national VOADs, much of the government integration of NGOs in disaster response and long term recovery of the Gulf region is *ad hoc* without adequate planning before the storm. This has exacerbated gaps in coordination and ultimately service provision. Growing expectations for nonprofits and NGOs' to assist and even play a leadership role in disaster response must be balanced against their own shortcomings and complexities.

*Recommendations:*

- 1a. Further clarify the role of NGOs as part of a coordinated governmental response to catastrophic disasters in the Stafford Act.
- 1b. Identify roles that appreciate and reflect the inherent strengths and limitations of NGOs and are accompanied by provisions for integrated planning and capacity building to ensure these roles can be fully executed.

*Rationale:* Because catastrophic disasters which overwhelm the resources and capacity of local, state, and federal government are infrequent, the capacity for broad scale inclusion of others such as local, national and international NGOs has not been adequately developed. Relief agencies both national and international continue to fragment services. NGO roles have not been formalized or integrated into local and state planning and recovery efforts.

## **2. Advocacy in a Catastrophe**

*Issue:* Advocacy is a critical element for the individuals and families to negotiate their recovery. Many of the non-profits and foundations could not find mechanisms to provide resources for advocacy on behalf of individuals and families.

*Recommendations:*

- 2a. Recognize the importance of advocacy organizations in representing the voices of vulnerable populations and support their inclusion in relief and recovery planning and decision-making forums.
- 2b. Identify and support organizations that have existing expertise and legitimacy as advocates of vulnerable populations.

*Rationale:* The depth of the need for advocacy was not realized after Hurricane Katrina; there were many different definitions. Advocacy, however, was needed for many to receive the most basic of services including housing, food, and health services.

### **3. Knowledge about Disaster among Non-Profits and Foundations**

*Issue:* Foundations and national non-profits have the ability to draw national and international attention to the catastrophe, but many of these groups do not have the knowledge about disasters, especially recovery that will allow them to utilize best practices in their funding and their services.

*Recommendations:*

- 3a. Because vulnerable areas are waiting for the next storm, government programs, national non-profits and foundations should work with local agencies to provide a set of programs that will be able to bridge the gap between normal times and those during a disaster.
- 3b. Provide technical assistance in needs assessment and integrated planning to assist with social, cultural and structural reconstruction. Create forums for issues of social justice in the reconstruction process to be addressed.

*Rationale:* Recovery from catastrophe has a different trajectory than recovery from disasters. Rebuilding a community after a catastrophic disaster requires unique expertise that many NGOs and local government agencies likely lack. A great deal of funding was designated for immediate relief, but funds for recovery are not so available.

### **4. To Whom and How to Give in a Catastrophe**

*Issue:* With so many different types of groups involved in providing assistance, funders and organizations were often 'stepping over each other.' Further, as funders struggled to find 'whom to fund,' the knowledge that funders relied on often came from a few sources.

*Recommendation:*

- 4a. Identify organizations that are positioned to serve as bridging/coordinating entities between national and international NGOs, state and local NGOs to aid in linking local needs to state and national resources. Foundations need to have multiple links on the ground in vulnerable areas before a major disaster.

*Rationale:* Too often, the funders found themselves "in a hurry" to do something and funding was channeled through their existing—and often sparse—networks of local NGOs. Because these service delivery networks had structural holes, assistance was not adequately distributed.

## **Recommendations for Hazard Mitigation**

**Shirley Laska, Earthea Nance, K. C. King & Joel Devalcourt**

**1. Mitigation as Recovery "Stepchild":** A well-off culture (that believes that it can "absorb" disaster impact) dismisses safety as no one's responsibility. States, local communities and individuals can readily avoid doing anything real about risk and fail when they really want to mitigate it. We strongly argue to make mitigation more attractive, feasible, and required.

*Recommendations:*

- 1a. Promote and support non-structural mitigation including storm water management as a growing "green" (resilience) industry including by making a stronger commitment to mitigation as a unified concept and making federal mitigation programs flexible enough to handle the actual local risk profile.
- 1b. Eliminate all local match requirements for mitigation after a catastrophe (HMGP and PA programs). Couch this in recognition of community contribution to maintenance of acquired land and consider the requirement to develop a pre-disaster post-disaster redevelopment plan to reduce risk further.
- 1c. In a catastrophe, deem the mitigation of already listed/already approved at-risk Repetitive Loss properties and approved projects in a community's Mitigation Plan "cost effective," needing no additional calculations or justification.
- 1d. In catastrophes, mandate federal responsibility for mitigation requiring FEMA to coordinate with the state to have FEMA work directly with local communities on disaster-based mitigation programs similar to the commitment that currently exists (and recommendations to enhance it) to assist communities after a catastrophe in damage assessment, another key action for risk mitigation. Provide additional support to communities with compounded economic vulnerabilities and synchronize state and federal approval. Katrina delays were extremely harmful to mitigation.
- 1e. Add a Mitigation Support Function to the Natural Disaster Recovery Framework in order to take full advantage of the mitigation prospects post a catastrophe and to promote image of Mitigation. It is not a fully recognized, valued concept like Emergency Management, despite the current push for disaster resiliency.
- 1f. Reinstate the Interagency Hazard Mitigation Team (IHMT) with balanced membership from federal, state and local membership or require states and counties/communities to establish their own IHMT for a catastrophe. Have it continue over the duration of the catastrophe recovery conducting regular assessments of performance of all levels of government involved, measure achievements and require adjustments to the mitigation efforts while the recovery is ongoing.
- 1g. After trigger of a catastrophe or after multiple disaster declarations, require in such designated counties and large communities that FEMA create a permanent Hazard Mitigation Office, with strong coordination function, just as an Emergency Management Office is now required by DHS. Require reporting of mitigation progress. Use these offices as a pilot for requiring such offices in all communities.

**2. Recovery Chaos and Unimaginable Delay:** "Homeowners received funding to repair/build their second floor before their first."

*Recommendations:*

- 2a. In collaboration with state officials experienced in catastrophes and/or multiple disasters, FEMA officials develop best practices for creation of a state homeowner recovery program for a catastrophe. The impacted state, especially if it is a smaller state, is a victim of the catastrophe and is unable to create a successful massive response post event.
- 2b. Conduct a study to consider using SBA to calculate benefits and distribute recovery funds (from all federal recovery and mitigation sources) for homeowners in catastrophic disasters in lieu of creating new state-level process for each catastrophe.
- 2c. Recognize the incredible trauma of the funding application/ repair/rebuilding process for homeowners in a catastrophe and support them much more adequately to implement the application process and the repair/rebuilding steps. Nothing can prepare a homeowner victim for the experience. Fully acknowledge that and deliver information about the process they will experience in a usable manner with well-trained professional assistance. Use mature processes of adaptive management to assure that the information being communicated and staff knowledge is fully up to date to fit the changing process. This recommendation is not trivial.<sup>3</sup>

**3. Scope of Structures Protected:** FEMA's aggressive mitigation advocacy and implementation is focused heavily on owner-occupied homes while a community is comprised of a range of structures, all important for its functioning.

*Recommendations:*

- 3a. Formulate equally aggressive mitigation advocacy for public buildings, commercial apartments, commercial buildings, public housing and buildings occupied by social services such as day care, schools, medical clinics and domestic violence shelters.
- 3b. Require full enforcement of Executive Order No. 11988 for 1/500 year protection of critical structures and work to achieve this requirement for other public/commercial and commercial housing structures. All federal agencies that can play a role in achieving comprehensive community structure risk reduction should be involved, especially HUD funding of Public Housing and Section 8.
- 3c. Revamp Public Assistance implementation to incentivize and guarantee implementation of mitigation provisions after catastrophes. This includes adequate training of staff to know when mitigation must be introduced and how to do so effectively. Also the match should be dropped (see above) and elevation should be permitted (within reason) above the BFE.

**4. Scale of Residential Structures Protected:** As currently implemented HMGP narrowly emphasizes reducing the future risk of the pre-storm owners of the homes in the flooded area.

*Recommendations:*

- 4a. In a catastrophe allow all homes in flooded areas to qualify for federal elevation funding, not just those that continue to be owned by the pre-storm owners.

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<sup>3</sup> See K.C. King's "Systems Approach" report as well for more recommendations on this topic.

- 4b. To achieve a broader scale of risk reduction (not just one owner-occupied house at a time) FEMA should encourage use of a combination of eligible HMGP mitigation measures for risk-reduction benefits in conjunction with home elevation , i.e. support flexibility of post-disaster mitigation efforts to achieve best safety. Interagency Hazard Mitigation Teams could assist on this.

**5. Risk Communication and Mitigation:** Lack of adequate access to risk data by the public and by local public officials.

*Recommendation:*

- 5a. Provide local communities with better information about their local risk profiles including areas affected by dam and levee failures. The public’s right to know about environmental risk should extend to free and open access to environmental data, risk-informed stakeholder decision options and risk modeling software.

**6. Pre-Disaster Risk Reduction Goals and Implementation for Post-Disaster Redevelopment**

*Recommendation:*

- 6a. Require communities to develop post-disaster redevelopment plans pre-disaster in a manner similar to the currently required mitigation plans.

## **A Comprehensive Systems Approach to Putting Safety First**

**K. C. King**

**Introduction:** This topic offers a significantly more radical yet comprehensive path to dealing with the broader issues uncovered by the Katrina catastrophe. Each issue corresponds to patterns that have been observed in other domains and each recommendation is based on proven, world class practices. In many respects this approach applies to both structural and non-structural mitigation and argues that a single integrated system to address prevention, response and recovery is justified by the consistent patterns of dysfunctionality and poor performance we found in the current, non-integrated approach. We believe the focus should be on serving individual residents and their communities to make them safer from future catastrophes, and to help them respond and recover so that people and communities survive and prosper.

### **1. Flood Protection, Response And Recovery Did Not Perform As Systems**

**Issue:** The Corps’ Interagency Performance Evaluation Team (IPET) found the most egregious short coming of the pre-Katrina flood protection system was that it was a system “in name only” where a system is defined as “a combination of interacting elements organized to achieve a stated purpose”. The IPET strongly recommended a comprehensive systems approach as well as to avoid calling something a system when it wasn’t. In contrast, the Dutch have experienced success with local Water Boards responsible for all aspects of flood protection supported by a national framework based on a systems approach where real safety is critical.



*Recommendation:* Adopt resilience systems engineering practices to create appropriately organized, empowered, integrated all-hazard, safety teams

## **2. Safety is Not a Shared Goal for Life-Critical National Flood Protection Programs**

There is no experience of success in any safety critical arena when these conditions are not achieved.

*Recommendation:* Create a national hazard safety policy that places safety first.

*Rationale:* Katrina and now Haiti, illustrate that conventional, non-systems approaches to safety-critical issues tend to yield brittle "systems" that can fail catastrophically. Successes in the development and sustainment of systems-engineered solutions are models of success under the stress of combat, space and extreme natural disturbances. Systems engineering features holistic practices that achieve elusive integration and resilience properties essential where safety is at risk. Its aim is to establish, operate and continuously improve a system that speaks to 100% of interdependent safety risks where all decisions by all stakeholders are informed by the total risk for all preparations, failures and restorations at all scales. It ensures integration and resilience by providing structure and visibility to all interactions, interfaces and involvement of all stakeholders and all components over the system's life.

## **3. There Was No Focus On Key Stakeholders**

All dimensions of Katrina hazard avoidance, survival and recovery shared a broad lack of focus on key stakeholders.

*Issue:* With the exception of SBA, there was little evidence that participants in any of the Katrina-related activities were aware of or followed best stakeholder-focused practices such as the "voice of the customer" concepts adopted by world-class practitioners of total quality management. These other quality-oriented practices, which are widely successful in other public and private sectors where they are used, were not being used by the Corps, state and federal agencies or local authorities. The direct consequences of this were: fatally exposed residents; tens of thousands of victims who were placed in personal nightmares; and residents that consistently made and are making bad decisions about their safety.

*Recommendation:* Adopt international standard resilience systems engineering practices to ensure that stakeholders are identified and their legitimate valued results are delivered by all hazard safety institutions.

*Rationale:* Global advances in productivity have resulted in a large part from the innovations introduced by the total quality community such as the imperative of understanding that quality is measured by stakeholders. These practices are strongly embedded in the Malcolm Baldrige National Quality Awards and pervade modern systems engineering.

## **4. Unacceptable Performance Under Catastrophic Stress**

Process performance by most Katrina-related public sector activities failed to deliver results of value to stakeholder residents such as minimally adequate protection, acceptable levels of chaotic survival and adequately rational and timely recovery.

*Issue:* Stakeholders observed that Katrina-related process performance was not repeatable, nor qualitatively managed, nor defined, nor quantitatively managed nor optimized. On top of this, there were gaping omissions and errors in the sorts of processes that would have contributed to success. Errors and unstable policies were the norm rather than the exception.

*Recommendation:* Direct that institutions engaged in hazard safety achieve performance excellence against established and objective criteria.

*Reasoning:* Because of the inherent stress of catastrophic events, it is essential that institutions be capable and ready to perform at high levels of quality. The Malcolm Baldrige National Quality Award criteria from the Department of Commerce and Capability Maturity Model, Integrated (CMMI) from Carnegie Mellon have led to dramatic performance improvements in public and commercial sector. Baldrige and CMMI predict the types and impacts of problems experienced across the spectrum of Katrina preparation, response and recovery. Preparation that takes into account failure modes and effects, comprehensive risk assessment and mitigation management, and establishing a fully shared vision first are hallmarks of a systems approach and key focuses of resilient systems engineering. These properties are particularly important in safety critical risks and crisis conditions such as are found in military doctrine and protocols.

*Overall Reasoning:* The proposed set of recommendations constitutes adoption of a radical and sweeping change to current practices relating to hazard safety. This scope of change is justified by the similarity of faults seen across virtually all Katrina-related agencies ranging from the Corps to FEMA to HUD to the State and local authorities. All of these faults dramatically affected each and every victim at a time when they were displaced and confused. These impacts have and continue to be stretched out over half a decade with lasting effects that will span a lifetime.

There is no easy, painless solution to problems of this depth and scale. Transitioning to a comprehensive, stakeholder-focused systems approach isn't the simplest thing, but it has been done successfully by world class commercial organizations as well as by the Department of Defense in its large scale acquisitions. It is common practice among world class enterprises that have safety as an essential element of competitive survival. Coupled with the other recommendations, only a comprehensive systems approach will get at the full root causes of the Katrina nightmare.

### **Catastrophic Annex or Triggers or Nothing?**

Hurricanes Katrina and Rita introduced us to a new level of disaster, one which observers are now labeling a "catastrophe." The Post Katrina Emergency Management Reform Act (PKEMRA) defines catastrophes in terms of "extraordinary levels of casualties or damage or disruption severely affecting the population (including mass evacuations), infrastructure, environment, economy, national morale, or government functions in an area." Such disasters are different from lesser incidents, not only because of the scope of damage and the amount of aid required, but also because the need for swift, decisive action extends well beyond the initial response into the recovery phase, including long-term recovery.

Many authorities have called for a fundamentally different approach to catastrophes, a catastrophic annex that would change the rules for federal assistance. We agree, in part, but the biggest changes have to come before a catastrophic incident—in the way we prepare for all disasters because we cannot know how big the next one will be. Essentially, **we must build capacity for catastrophes and then use it as needed depending upon the level of disaster**. This is the concept of a scalable response. The emphasis must be on preparation. We feel equally strongly about using a catastrophe to mitigate risk to prevent a future catastrophe.

Because recovery programs are intergovernmental, preparation must be intergovernmental, but roles will vary depending upon the type of preparation. Mitigation planning must take place at the community and state level—with varying degrees of support from other levels of government. On the other hand, the federal government has to lead in preparation to manage recovery programs after a disaster. In a catastrophe it is likely that state and local governments will be overwhelmed and unable to act effectively. In addition it is not cost-effective to maintain adequate capacity, especially in human resources, in each state and community. Catastrophes are rare events, and most jurisdictions will never experience one. The federal government continually gains experience from all disasters in the country which can be used to bear upon the catastrophe and can move assets where they are most needed. Thus, for example, FEMA needs a surge force capable of assisting massive numbers of governmental units concurrently seeking Public Assistance and each submitting large numbers of project worksheets at the same time.

Once a catastrophe strikes there will be a need for extraordinary assistance, rapidly delivered. **The speed and decisiveness that we expect in emergency operations have to carry over into the recovery phase**. The reason is not only that a great many people are suffering but that delay may jeopardize recovery itself. Bureaucratic norms with an emphasis on procedural conformity do not serve us well after a catastrophe. We do need special rules to speed the flow of assistance.

Here we return to the issue of a catastrophic annex. We do not favor a complete new set of procedures that will disrupt administration and may leave unanticipated gaps. We fear that an annex will appear to be a panacea and divert attention from the preparation that is needed. Rather, we will propose in our discussions of individual programs selective measures to push funds proactively into affected areas and hasten decision making. We also recommend that Congress define more precisely how a catastrophic declaration can be triggered. The PKEMRA definition is vague, leaving a great deal of discretion to the Administration and leading to pressures for overuse and inconsistencies over time as have happened with disaster declarations. There should be one or more triggers or thresholds based on observations, such as fifty percent damage and evacuation over a broad area. The difference between a trigger and a threshold is that the former would automatically produce a declaration whereas the later would simply open the possibility of a declaration, still allowing considerable discretion. A single trigger or threshold would apply to all programs while multiple triggers could be program-specific. Designing an appropriate trigger would be a challenge because no one can foresee the variety of events that might warrant catastrophic designation. For this reason a threshold might strike a better balance between the desire for clear rules and the need for judgment.

## **Cross-Cutting Recommendations**

### **Tom Birkland with team**

A theme running through all of our recommendations is that catastrophes are not merely "bigger disasters." The scope and scale of a catastrophe is much, much larger than the aggregation of several smaller disasters. Not every disaster will be a catastrophe, so we agree with the fundamental premise that preparedness, mitigation, and response to most disasters should be undertaken by local governments. Catastrophes, by definition, overwhelm these governments, so the federal government must be prepared to address the extreme problems that arise from the most extreme catastrophic events. Indeed, the creation of the Department of Homeland Security was recognition of this federal role, and FEMA's inclusion in that agency was recognition of the federal role in disaster management. The promises made to the nation when DHS was created included, implicitly, the idea that the federal government would serve to fill in gaps when local capacity was overwhelmed by catastrophic terrorism or a catastrophic natural disaster.

Yet, the following problems make the nation more vulnerable to catastrophic disasters, and place billions of dollars of property, and many thousands of people, at risk every day. Unclear and uncoordinated policies, the lack of focus on mitigation, the unwitting creation of risk through unwise state, local, and federal policies, all makes the likelihood of catastrophic disaster greater than it should be.

#### **1. Problem 1: The Creation of Risk**

*Issue:* Existing federal policy creates risk or promotes risk taking that works against national hazard reduction goals

*Recommendations:*

- 1a. Any legislation related to economic stimulus, infrastructure, land use, housing, commercial development, and similar policies should include an assessment of the nature and extent of any risks created or promoted by the legislation.
- 2a. Environmental Impact Statements should be required to include discussion of the relationship between projects, hazard mitigation, and the natural environment.
- 3a. The federal government should honor commitments to hazard mitigation.

#### **2. Problem 2: The Nature of Hazards**

*Issue:* The nation remains more focused on **catastrophic terrorism** than catastrophic **natural disasters**.

*Recommendations:*

- 2a. To the greatest extent possible, emergency management activities—including preparedness, mitigation, response, and recovery—should be promoted under an all-

hazards framework that recognizes regional variations in risks and hazards. This risk profile will include terrorism, but we must understand that the risk of catastrophic terrorism is variable just like the risk of catastrophic disaster is variable.

### **3. Problem 3: Relief Versus The Other Parts Of The Disaster Cycle**

*Issue:* The federal government is much more committed to disaster relief than it is to mitigation, support for response, or recovery.

- i. Mitigation was a priority under Clinton/Witt. It is no longer a priority
- ii. Disaster relief is much more popular politically

*Recommendation:*

- 3a. The nation should spend at least as much attention (not money) on preparedness (including planning), mitigation, and recovery planning as it does to the provision of disaster relief. Doing so would save money in the long run by reducing relief and recovery expenditures, thereby helping to meet the president's resilience goals.

### **4. Problem 4: Confused Management and Oversight**

*Issue:* Responsibility for and oversight of federal disaster programs is fragmented and confusing, both in terms of management and congressional oversight.

*Recommendations:*

- 4a. Clarify responsibilities and accountability for particular programs
- 4b. Balance financial accountability with compassion: State that relief is a moral imperative as long as governments create or exacerbate risks
- 4c. Mandate that all disaster preparation, response and recovery actions be integrated across all agencies and governmental levels from the perspective of victims

*Rationale:* There are 86 congressional committees with oversight over DHS. There are at least 107 disaster relief programs under the Catalog of Federal Domestic Assistance (CFDA), of which over 50 are listed as "DHS" programs, even though they should probably be listed under FEMA to comply with the plain intent of the PKEMRA, which granted greater autonomy to FEMA. Streamlined and comprehensive oversight will improve coordination, while increased FEMA autonomy will yield better performance in disasters, as recognized by Congress in the PKEMRA.

### **Problem 5: Learning—or Not Learning—From Disasters**

*Issue:* Congress and the Executive Branch continue to make the same mistakes after disasters.

"Lessons learned" documents are not always based on actual learning. They are often little more than lessons "observed," or are congratulatory documents that emphasize what went well while not applying rigorous analysis to elements where performance can be improved. Furthermore, in disaster after disaster, and even after the catastrophe that was Katrina, relief received far more attention than did mitigation or recovery. And, indeed, the progress that had been made in emphasizing mitigation as a

federal priority after the 1993 Midwest floods was lost beginning in 2001, and was never regained even after the catastrophic failure of the systems that were supposed to mitigate floods in New Orleans.

*Recommendation:*

- 5a. To the greatest extent possible, Congress and the executive branch should learn from disasters, rather than merely reacting to them. All disasters should be studied by a post-disaster investigation team under FEMA or DHS. Models of such processes include the Earthquake Engineering Research Institute's (EERI) Learning from Earthquakes program funded by the NSF under the National Earthquake Hazards Reduction Program (NEHRP), the NTSB's investigations of major aviation and other transport accidents, and NIST's investigation of the collapse of the World Trade Center towers on September 11, 2001.

## **Appendix A: Research Methods**

**Methodology:** The design of the methodology for this report is a multiple methods design, using primary and secondary data. The first part of the design was to review the existing research on disasters in general and Hurricane Katrina specifically. Major themes were identified through the literature for all subsections. After the initial review of existing literature, a three day meeting was held with the advisory team where the initial themes were further discussed and refined. In the next phase, as many existing reports of Hurricane Katrina and Rita were reviewed in light of the themes developed.

In the second phase of this project, each subsection team conducted interviews, focus groups and participant observations with local leaders in each area. Content analysis was conducted on text from agency plans and reports. Additionally, key informants on disasters were also asked to review the initial findings. At the end of this phase this interim report was written. In a third and final phase, recommendations will be presented to all key informants to ensure reliability and validity of findings. After this review, the final report will be submitted.

## **Appendix B: Acknowledgments**

The research team wishes to acknowledge Katherine McFate, the Ford Foundation Program Manager, who believed in the need to pursue with more depth the important question of what must occur for there to be a successful, safe long-term recovery. Her belief in the project and encouragement to pursue the critical issues gave us confidence to undertake the work. We also acknowledge the Academic/Practitioner Advisory Committee who helped us frame the themes at the beginning of the project and who have been tapped by us for review responsibilities as it has gone forward. Practitioner members include former FEMA headquarters and region officials and former state officials from other states.

Finally, we acknowledge the contribution of the "subjects" of our research who patiently submitted to interviews in which they had to relive their Katrina experiences with painful detail. And they also had to locate data from these experiences. Whether the person was a homeowner, a non-profit organization director or a community or public organization manager responsible for some element of recovery—such as General Downer of the Louisiana Army National Guard, their working with us and the contribution they have made to the project are invaluable. We could not have done the research without them.