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Achieving Successful Long-Term Recovery and Safety from a Catastrophe

RECOMMENDATIONS FOR MITIGATION

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Recommendations for Mitigation

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Sadly, catastrophes offer an incredible opportunity for hazard mitigation because often so much of the community's/region's physical infrastructure is destroyed in them. Not always, but usually, that massive destruction defines a catastrophe. Opportunities abound to rebuild more safely and to put into place more stringent building codes and land use plans that will support these goals. Combine these opportunities with the increased interest of survivors and society and you should have a winner for mitigation.

In a privileged society such as ours that is so unwilling to commit to reducing vulnerability to risk, few occasions offer such a chance. However, the same conditions that open the door for risk reduction also pose incredible challenges to achieve vulnerability reduction because of the social/political/economic disruption that accompanies the catastrophe. Confusion, the demands of emergency and immediate recovery needs and the chaos of much of the catastrophe response because the event is so large and the government's response inadequate, all contribute to the lack of sufficient communication, the lack of mitigation and the lack of learning after such an event. And everyone's focus is on a quick return to "normal," and a fear that residents won't return unless they are enticed with quick recovery. The mitigation recommendations in the following pages of this report emerge from observations made over the five years following Hurricane Katrina. They are intended to be used to resist the urge to return to normal without taking advantage of this incredible opportunity to mitigate storm/flood risk.

The knowledge base from which we each make the recommendations is more from the "expert" than the scholar although systematic research –content analysis of documents and numerous interviews of officials and residents – forms the data for many of the recommendations; the other knowledge derives from immersion by the authors in continual observations made as we performed professionally as applied academic professionals in the catastrophe response.

Some of the recommendations have already been made and supported by a chorus of others. We repeat them because we concur that they are relevant for the catastrophe we studied. We want to see them recognized. Other recommendations are new. They emerge from the rare opportunity of observing a catastrophe. And unfortunately, we have only a case of one event upon which to make them. And different communities within the "footprint" of the impact responded differently and had different experiences with the state and federal officials. We were only able to sample some of these responses.

Some recommendations you will dismiss as unnecessary because you believe the problems won't likely happen in the next catastrophe. We ask you to hold that thought and give it another consideration; you might be surprised how universal the challenges we observed will be in the "unique" situation of the next catastrophe.

A catastrophe is not merely a large disaster. Its magnitude requires special consideration. Especially because we have not yet "polished" our ability to deal with disasters, there is an immense

gap in many parts of the government structure between where we are in recovery response and where the society has to be for a catastrophe. While many of our recommendations are also appropriate for smaller events, we are trying to identify those that will be important for the next catastrophe.

You will find some of the specific recommendations not to be “appropriate.” We are not experts at the detailed policy or procedural level. Please consider the nature of our recommendations – what we are saying needs to be achieved -- and how it might be framed in policy or administrative implementation from your expertise. And, finally, some of our recommendations “push the envelope.” It was our intent. We appreciate that they may not be realistic within the current thinking and governmental framework that exists. We ask you to consider the impossible for what it might suggest within the possible. Catastrophes shake up the social system; we strive to contribute to a reorganization that will prevent future hazard events from becoming catastrophes – both by preventing their impact through mitigation and by preventing the second phase of the catastrophe, inadequate government recovery response when an extreme event occurs.

Recommendations

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. We strongly argue to make it more attractive, feasible, and required.

Recommendation 1a: Promote and support non-structural mitigation including storm water management similar to the way the “green” (resilience) industry is growing. To succeed make a stronger commitment to mitigation as a unified concept and make federal mitigation programs flexible enough to permit local communities to tackle the actual local risk profile and to engage fully in doing so.

Discussion: Energy efficiency and greenhouse gas reduction initiatives are taking off with rapid momentum throughout the country. Within New Orleans since Katrina multiple efforts by local residents and young professional newcomers recognize the “blank slate” of opportunity to rebuild a massive housing infrastructure with green methods and materials. Their efforts are achieving significant outcomes in the rebuilding and in the creation of government infrastructure to implement a green city. Storm risk mitigation is hardly noticed. No momentum exists for it and the existing mitigation specialists must continually explain what it is. As they are doing with energy efficiency and the control of greenhouse gas emissions, the federal government in the form of FEMA and the related agencies with disaster response responsibilities must mimic the green movement with a mitigation thrust that is visible, robust and reflective of the federal government’s true commitment.

Recommendation 1b: Eliminate all local match requirements for mitigation after a catastrophe (HMGP and PA). 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.

Discussion: The HMGP is challenged by the fact that it only provides funds to entities that already have access to “start-up capital” – a robust community budget, thereby incorporating social exclusion into the program. As written, mitigation programs give the appearance of equity because the same local match is required of all communities. This disregards real differences in ability to pay, real differences in vulnerability levels, and real differences in need from one location to another. This may also violate the spirit of disparate impact law, whereby the differential impacts of federal policies and programs that superficially appear equal must be considered. To overcome these significant issues, when a catastrophe is declared it is important to incentivize at risk areas rather than to make it more difficult for them to mitigate, especially those that have not developed a robust mitigation commitment.

Recommendation 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 justifications.

Discussion: For properties already on FEMA’s repetitive loss and severe repetitive loss lists and for pre-scoped projects already identified in a FEMA-approved hazard mitigation plan, mitigation actions should be deemed “cost effective” instead of requiring further “cost-benefit” analysis. Properties that make it to these lists have already passed a litmus test in terms of a cost-benefit rationale. Requiring further cost-benefit justification only discourages local communities from voluntarily participating in mitigation. Deeming the mitigation of already listed and already approved at-risk properties “cost effective” would remove one of the heavy bureaucratic hurdles local communities face in implementing mitigation programs following a catastrophe. Similarly so for projects that are in the community’s Mitigation Plan.

Recommendation 1d: In catastrophes mandate federal responsibility for mitigation requiring FEMA to coordinate with the state to have FEMA work directly with local communities on HMGP mitigation 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. In this action provide additional support to communities with compounded economic vulnerabilities and synchronize state and federal approval. Katrina approval delays were extremely harmful to mitigation goals.

Discussion: In regions where planning, zoning, and building codes are weak or non-existent, and the bureaucracy to accomplish them inadequate, FEMA should work directly with local communities on HMGP to streamline the distribution of funds to stricken communities and survivors and to support the existing local staff when a catastrophe occurs. In effect the recommendation would make the federal government more responsible and accountable for recovery under the Stafford Act in the event of a catastrophe.

Given the lack of acceptance by the communities to prioritize risk reduction, FEMA and federal officials must take a stronger, not weaker, leadership role to implement a robust commitment to flood (all hazard) loss avoidance when the opportunity is so great. It is the time also to emphasize risk communication so that informed decisions can be made about whether to relocate or not.

Recommendation 1e: Add a Mitigation Support Function to the Natural Disaster Recovery Framework (NDRF).

Discussion: In order to reduce the gap between prospect and actual mitigation accomplished and to promote the recognition of Mitigation, a function devoted to it must exist in the NDRF. Mitigation lacks visibility. It is not a fully recognized, valued concept like Emergency Management, despite the current push for disaster resiliency. [See below in recommendation re: local Mitigation office.] Reducing vulnerability to storm/flood risk is key to reducing the cost of each disaster declaration and preventing future catastrophes.

Recommendation 1f: Reinstate the Interagency Hazard Mitigation Team (IHMT) with balanced membership from federal, state and local 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.

Discussion: Mitigation opportunities were lost throughout the Katrina recovery by a lack of clarity of goals and by slippage in implementation across government levels and from lack of successful interaction among them. A unit must exist that can transparently monitor and adjust these failures as they occur, not merely recognize them in a post-event analysis such as a GAO or IG report. Too much opportunity is at stake. And it depends on informed flood victims as well as effective government response.

Recommendation 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 a strong coordination function, just as an Emergency Management Office is now required by DHS. Use these offices as a pilot for a broad requirement.

Discussion: “Non events” become disasters and disasters become catastrophes because of the lack of a commitment to risk reduction or risk avoidance. Since 9/11 FEMA diminished its commitment and continues to do so, even with the change of administrations. Additionally, there is a strong need to integrate at the local and state level the various elements of mitigation: Floodplain Management for NFIP compliance, Mitigation Plan creation, federal grant application (PDM, FMA, and Severe Rep Loss) and disaster response (HMGP, CDBG, SBA, ICC and PA 406). The local organization of these activities is likely scattered throughout the government and unconnected if a Hazard Mitigation office/director does not exist. Besides reducing the overall risk that could be accomplished through an integrated system, having these initiatives in separate silos reduces the visibility of mitigation as a holistic concept worthy of recognition. In Louisiana, an extremely at risk state, levees and coastal restoration have broad visibility and acceptance. Non structural mitigation has almost nil visibility and thus low advocacy. The federal silos extend into the state and local government structure and reduce a cohesive implementation and image.

Additionally, it may be that the silo of the Mitigation Plan removes mitigation from a more integrated response location with the other elements of recovery offered by FEMA to local

communities. Why was mitigation never emphasized in ESF #14? Why is it not emphasized in the draft NDRF-Recovery Support Functions?

2. Recovery Chaos and Unimaginable Delay: “Homeowners received funding to repair/build their second floor before their first.”¹

Recommendation 2a: In collaboration with state officials experienced in catastrophes and/or multiple disasters, FEMA officials should 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.

Discussion: Policy should emphasize procedures that encourage speedy, orderly implementation and that achieve highest level of mitigation while it is taking place. Promulgate the policy and prepare federal staff to implement collaboratively with state officials. **The lack of effective procedures caused a third catastrophe for Katrina victims (the first being the hurricane and the second being the levee failure) and resulted in little mitigation.**

Because of the low frequency of catastrophes, a high level of organization cannot be sustained at the state level. Delay in determining eligibility, delay in determining what mitigation funds are going to be available and how much, delay in developing implementation procedures and implementing them led to incredible suffering by the residents and far, far less mitigation than could have been possible. The homeowner had to contend with additional personal living expenses, job loss threat because of temporary relocation, personal and family stress and dysfunction, and health challenges all for lack of a home. The homeowner just could not wait any longer to rebuild; therefore mitigation opportunity was lost.

Recommendation 2b: Conduct 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.

Discussion: Consider using SBA to develop a distribution process that handles funds from all the sources (both recovery and mitigation) for which homeowners are eligible, determines their relationship (order of implementation, duplication of benefits issues) in the recovery repair process. These include ICC, CDBG repair program, CDBG disaster elevation, HMGP catastrophe, SBA repair and SBA mitigation and link to the possible distribution of regular post-disaster HMGP funds. Don't leave whether and at what level of success the integration occurs to post-event decision making in a chaotic catastrophic situation.

While the delays in implementation of SBA were highlighted both by internal and by external reviewers, the relative successes vis a vis the state administered program suggests SBA as a possibly more effective avenue for implementation of the homeowner remuneration portion of a catastrophic recovery response. SBA has the organizational and technical specialty skills to implement such a program and could develop the additional catastrophic response procedures that would be needed beyond what they already have. Finally, by using SBA it may be possible to

¹ See Diagram depicting implementation timeline at end of the document.

provide a monetary advance, another serious challenge for the way in which the funds were distributed.

Recommendation 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 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.

Discussion: There is no latitude for leaving most of the program development to “learning as implementing” with such a large task and the harmful outcome that confusion and delay cause. The process was tortuously stretched out for the homeowners and the communities. Right now, except in the footprint of hurricane Katrina, achieving a successful response is uncharted territory for the next locales and homeowners who will experience a catastrophe.

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.

Recommendation 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.

Discussion: Imagine a community comprised of only one type of structure--private homes. The imbalance of federal advocacy for mitigation of private homes gives the impression that those are the only structures that need mitigation from disaster events. Structures other than private homes are **more important** to the functioning of a community as a whole than are the homes.

Communities are put at extreme risk for recovery when the buildings that house the public, social and commercial services and rental units are also widely damaged or destroyed and thus these core activities are not able to be restored fully for a long period of time. In addition, working class renters are more vulnerable to being unable to return than the middle class when their housing is destroyed. The inability of businesses to open or function fully because the apartments of this group of workers could not be re-occupied was extensive in Katrina. The percent of commercial buildings that were in the one-foot water footprint of Katrina on September 2, 2005 in Orleans Parish was 43% (3821).² Although some businesses would have been above the first floor, it is especially likely that many of the small businesses were impacted by the flood waters.

Recommendation 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

² Richard Campanella, Center for Bioenvironmental Research, Tulane University.

achieving comprehensive community structure risk reduction should be involved, especially HUD funding of Public Housing and Section 8.

Discussion: The most comprehensive method of achieving storm/flood risk reduction is for the building codes to be improved for all structures. However, because the political process to achieve this beyond the requirements required by the federal government has been difficult to achieve, we are recommending greater protection for general use buildings. Because the EO already exists as does the guidance for it, strong enforcement of it can make the difference immediately and act as a model for expanding the requirement.

Recommendation 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.

Discussion: Incentives. Remove any local cost share commitment for PA mitigation as was mentioned above. Allow PA mitigation to occur for the entire structure that is less than substantially damaged, not just those elements that are required by code. If a community does not yet embrace mitigation, requiring a personal or community commitment to achieve it makes it difficult to communicate and is a disincentive. Interpreting mitigation eligibility in a narrow way discourages the learning curve about mitigation. Achieving the vast mitigation opportunities in a catastrophe should be a paramount goal. The benefit in savings from future flood damage should be compared against how much having the federal government pay the whole mitigation effort costs.

Discussion: Implementation. In the overwhelming PA process that occurs after a catastrophe, local officials are not experienced enough to appreciate the need to consider mitigation in the first application steps. Mitigation started to occur in the third or fourth phase of PA implementation because neither the locals nor the FEMA staff knew the importance of considering it early in the process. Repairs had to literally be “undone” and redone again in order to implement mitigation.

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

Recommendation 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.

Discussion: New residents to the flooded neighborhood who buy homes from the government (who have purchased them from flood victims) are not currently eligible for federal elevation funds. If a neighborhood (group with shared flood vulnerability) is to have a viable future after experiencing a catastrophe, it must have enhanced safety on the neighborhood scale, rather than on the individual house scale. The degree of safety for the neighborhood/community shrinks if only pre-disaster owners are eligible. In addition the owner flood victims who remain in the flooded area are put at risk financially through property value diminishment via the threat of future flooding of the other homes.

The concept of compensation should not be the predominant policy as it was with CDBG funding of Katrina flooded homeowners. Compensation may very well be a fair solution to residents who decide to relocate. For those who chose to stay or to move into at risk areas, safe recovery and recovering neighborhood value must be the goal rather than mitigating one home at a time. **The scale of safe recovery must be the driver.**

Recommendation 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. Inter Agency Hazard Mitigation Teams could assist on this.

Discussion: The state mitigation plan and the local mitigation plans outline the emphases and the mitigation projects the locale wishes to accomplish with the HMGP funds when a disaster strikes. The plan, however, is the hypothetical, not the actual mitigation prospects that arise when a disaster or catastrophe occurs. This recommendation encourages FEMA to support a decision-making process of determining the use of the HMGP that will achieve the broadest vulnerability reduction benefits when a catastrophe occurs. To do the contrary discourages innovation and a local active role in mitigation in what should be a growth industry. Local communities should have maximum flexibility in selecting the mitigation options necessary to reduce risk, for example for neighborhood based storm drainage. [Also see page 11 of this report.]

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. The public's right to know about environmental risk should extend to free and open access to environmental data and risk modeling software.

Discussion: Physical and social scientists agree that local communities in general have difficulty understanding and dealing with hazards. Although information on hazard risk is not perfect or complete and technical debates do continue, longitudinal data show that the severity, frequency, and consequences of hazard events are increasing. Research also shows that local development decisions and settlement patterns are largely disassociated from the local "riskscape." There are exceptions, but local communities in general fail to deal with risk and fail to respond to increases in risk. While wealthier individuals may deal with risk as a private property matter, local officials in general do not do enough to deal with risk as a matter of public policy. Economic development pressures tend to override concerns about risk. The status quo has become unacceptable and policy leadership is overdue. The fundamental rationale for action is the increasing toll of disasters in terms of life and property losses.

FEMA's current Repetitive Loss and Severe Repetitive Loss lists do not adequately represent or cover the actual range of risk, and FEMA flood maps tend to gloss over actual risk. As a result, the programs that rely on these sources of risk information (HMGP and NFIP) tend to focus on individual properties that are listed or zoned. This encourages local communities to ignore non-listed or non-zoned properties that are still at risk. Better risk information is needed to encourage

innovation and give local officials a better possibility to be engaged in understanding their risk. Just getting the end product – the maps – is not sufficient. It is important to couple information to the community with feedback and data gathering effort to assess current vulnerabilities based on actual mitigation achieved or not achieved. A GIS-based information system that captures mitigation measures could answer the question: How safe is my neighborhood? Feedback could also be used for outgoing communications of mitigation results.

Smart decisions about safety cannot be made until governmental leadership credibly communicates real risk and real alternatives to resident decision makers to deal with that risk following a catastrophe (or any flood disaster).

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.

Discussion: In general a safer redevelopment of New Orleans has not been achieved. Unfortunately, this outcome is not idiosyncratic to Katrina. Urban development ignores risk; and redevelopment after a catastrophe is not likely to reduce risk unless the community commits to risk reduction before a catastrophe occurs. Risk reduction in the abstract does not drive development decisions even after a catastrophe. It is beginning to be argued that an opportunity to achieve these decisions comes in between disasters (catastrophes) not immediately after.

Negotiations for critical risk reducing land use changes among contesting stakeholders and values cannot be accomplished in the chaos of post catastrophe decision making. The differential power of groups within a community and the vulnerability to risk of the poor and minorities, challenge these political and economic processes after a catastrophe. In addition the “victims” of unsafe residential development will not become such until the next disaster and thus do not even know that they are to become victims.

In the case of Katrina, the principal issues were the right to return and the distrust that relocation to a substitute location within the city would fail to give those with less political power a quality of life equal to what they experienced where they lived before the catastrophe. Other issues are the consideration of redevelopment of newer suburban areas that were badly damaged and the development into areas that were not damaged but are assessed as having a high probability of risk. Planners are proposing pre-disaster negotiations using incentives to prepare for safer redevelopment after the next disaster. A pre-disaster post-disaster redevelopment framework could also be linked to a sizeable benefit to the Community Rating System score.

Analysis: Achieving Mitigation

The Community Rating System eligible activities and the Enhanced State Hazard Mitigation Planning requirements contain many of the positive recommendations that have emerged from this study of the “mitigation gap” –prospective mitigation versus achievement – of the catastrophe of

Katrina. It is encouraging that the actions are recognized as important and that they receive the incentives connected with the NFIP flood insurance rates (community-wide reduction rates) and HMGP post disaster funding opportunities (significant increase in mitigation funding when a disaster is declared). It is, however, discouraging that we found commitment to these activities lacking in some Katrina-impacted communities despite their being rewarded in the two above mentioned programs.

CRS. Many of the communities in the footprint of Katrina are CRS communities. Attention to accomplishing the requirements for the CRS varied across these communities. Prior to Katrina New Orleans had made only a minimal commitment to the CRS mitigation activities and continues to make only a minimal commitment to them now. Other coastal Louisiana communities have improved their ratings. However, only 1,050 communities of the 20,000+ communities in the NFIP (about 6%) are CRS communities. This tells us that about 95% of NFIP communities have not been motivated by the incentive of reduced flood insurance rates and thus are not motivated to take actions recommended in the CRS. For many communities who are at risk to flooding the recommendations made in CRS go unheeded.³

Enhanced State Mitigation Plan. The state of Louisiana had not before 2005 received approval for their plan mitigation plan and it was not an Enhanced Plan. The update of the plan (required every 3 years) is currently being prepared. It will not be an Enhanced Plan. The incentive for receiving more mitigation funding after the next disaster is not an ‘appropriate’ incentive in this case. There is still too much unspent mitigation funding from Katrina, Rita, Gustav and Ike to have the motivation of additional mitigation funds encourage developing an Enhanced Plan. As we have discussed above, we speculate from our research that the amount of excess funding is due to the challenges of a Katrina catastrophe but also to insufficient response to the mitigation opportunities that Katrina brought. We speculate that the incentives that come with the Enhanced Plan may not trigger other states impacted similarly to consider converting their plan to an Enhanced. Again, the excellent recommendations included in the Enhanced Plan go un-adopted.

It is important for FEMA to go back to these programs, review the recommended actions specified in them and find other ways to incentivize communities, especially those at most risk to natural hazards to achieve them.

Toward Effective Mitigation: Integration Serially, Laterally and Incentivizing Successfully.

In order to be able to take full advantage of mitigation opportunities post catastrophe, the commitment and concomitant bureaucratic organizations must be in place at all government levels.

- The required mitigation plan must have mitigation actions clearly specified in response to carefully thought-through goals.
- The goals must be framed in terms of a comprehensive approach to risk reduction – priorities, methods to achieve those priorities, and integration of actions. When a catastrophe strikes, adequate expertise and “eyes” (mitigation caretakers) need to be committed to achieving the goals specified in the plan, i.e. a state multi-agency, multi-level working committee should be given significant responsibility. The local jurisdictions

³ CRS is currently undergoing a comprehensive review of its program.

would be required to give feedback to the committee and the committee required to address issues that the locals see as hindering their mitigation efforts. A true collaborative dynamic.

- When a catastrophe strikes, the mitigation plan projects and risk reduction framing needs to be carefully examined to ask if they are the means by which to achieve the goals specified in the plan during this particular event.
- The conversation about the focus (foci) of the current catastrophe mitigation efforts should be negotiated among levels of government. This is difficult to accomplish when all levels have been severely impacted, especially the state and local. It is critical to achieve this process of persistence in terms of defining goals and how to achieve them.
- Consider all of the ways in which HMGP funds can be used, and in collaboration with one another, not only elevation/buyout. In this process appreciate multiple outcomes of the mitigation effort. Whenever more than one function can be achieved, there will be more support to accomplishing the mitigation.
- Revise the mitigation activities as the realities of the catastrophic event unfold to be sure that successful mitigation is being achieved using the committee and the levels of government involved with attention to experiences and voice from impacted residents. Resistance to collaboration among the levels of government again slices away at the prospective mitigation that is possible. It should not be tolerated.
- As the mitigation funds become available and projects developed and begun to be implemented, the same committee must monitor the progress, including of those goals and projects specified in the State Mitigation Plan
- Monitor delays to determine means of quickly breaking the “log jam” that is causing them. As we have noted, delay is deadly for accomplishing mitigation. Mitigation must be integrated into the recovery repairs. Practice adaptive management to overcome the delays while they are happening, not simply describe them in a document for the next severe disaster.
- In the recovery period when residents and governments are receptive to improvements of the mitigation bureaucracy and the community’s involvement with it, foment the necessary improvements. Engage the residents to demand and support these changes. Have Community Mitigation Offices created, especially in those communities/counties subject to frequent disasters or the prospect of extreme events. The focus should be on capturing all mitigation opportunities and integrating them.
- In these activities target breaking down local disincentives, incentivizing in ways that work and clearly declare that mitigation is no longer an “option,” but a requirement.

The missed mitigation opportunities in Katrina cannot become the pattern for future catastrophes.