

Unedited Excerpts from Questionnaire Responses

Question #1: For years, even decades, experts have seen this disaster coming, not just in broad terms, but in some detail. Why were these warnings unheeded?

The main reason, I think, is that the decision makers are either politicians or strongly influenced by the political process. Politicians look as far as their next election, seldom beyond. This makes long-term planning very difficult.

A more minor reason is that the decision makers felt that the odds were so small and costs of mitigation and preparedness high. Again, this relates to the political "saleability". There is little constituency for natural disasters, but there is for the terrorism hazard.

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Warnings may not have been seriously considered or heeded owing to a variety of reasons including the following:

- a) a "failure of imagination" and far-sightedness on the part of persons in key roles of responsibility to conceive that an event of catastrophic proportions could occur
- b) a "failure of imagination" to envision and comprehend in a realistic way what the nature and scope of an event of catastrophic proportions might be like
- c) a "failure of imagination" even within the field of emergency management to consider worst case catastrophic scenarios, unprecedented in the recent US history
- d) a tendency to assume even in an event of catastrophic proportions that major elements of the critical infrastructure would either remain functional or be relatively unscathed, including the availability of communications, emergency services, public health and safety services, and the basic necessities of life, and the capability of governing entities to continue to function
- e) a failure to fully comprehend the differences between moderately severe emergencies in which infrastructure has not been severely damaged or destroyed and catastrophic emergencies in which major elements of the critical infrastructure have ceased to function effectively or ceased functioning altogether. (See The Typology of Emergencies included below for a description of emergencies of varying levels of severity.)
- f) a tendency to assume that the social fabric would not be seriously impacted or placed in jeopardy, that civil disorder and lawlessness would not break out, and that those in roles of responsibility in government would and could continue to govern effectively

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Some combination of narrowness of experiences and interests among decision-makers along with failures of information flow and leadership. To some degree, it also reflects decisions made by the larger population, albeit decisions made without complete information or understanding.

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The short answer is, because it hadn't happened before, and even if it had, it wasn't likely to happen today, or this month, or this year. So, why spend the money and effort on my watch?

To a limited extent, planning to respond to this situation could have been done in advance. The military routinely prepares contingency plans for a wide range of unlikely scenarios; but civilian governments don't seem to have this practice as part of their culture. In the case of Katrina, planning could have taken the form of pre-positioning survivable communications equipment, coordinating with bus services or even trucks to be able to arrange transportation quickly and smoothly, arranging for shelter and food for evacuees at inland locations, etc. All this could have been done at relatively little cost.

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I believe that a reason those warnings went unheeded is b/c natural disaster prevention/mitigation has never been an administration's priority. Additionally, people generally don't like planning for bad things. Our government has always been reactive not proactive.

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Basic human nature to believe it won't happen. Because we haven't seen an event to that extent, it lulled folks into complacency.

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The magnitude of the problem -- the sheer size of the potential disaster -- was incomprehensible to most decision makers and to a large majority of the public. Those who could accurately describe the nature and scope of the problem left listeners overwhelmed. The decision makers opted to see this as a game of dice, and hedged bets with modest actions (e.g., raising some of the levy system).

Meanwhile, population pressure and growth needs -- immediate and unavoidable -- weighed most heavily on development decisions.

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Emergency response in the United States is based on the principal that emergency response begins at the lowest jurisdictional level. Our Federal system allows for fifty sovereign states, which can all make separate decisions on how they will respond in a disaster. The Federal government stands ready to assist when requested. Alabama, Florida, Louisiana, and Mississippi all made decisions about preparation prior to Hurricane Katrina landfall. It can be argued that Alabama, Florida, and Mississippi managed the disaster well. Louisiana, and New Orleans in particular, failed. The unique vulnerabilities of the city were well known, but were not mitigated properly. There are several reasons for this failure:

- More than a century of Mississippi River politics (includes cross-jurisdictional rivalries)
- Corruption (includes organized crime)
- A large low-income and disaffected population unable to prepare and/or evacuate
- A prevailing city government attitude that “if we can manage a Mardi Gras, we can manage a hurricane”

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The term “unheeded” implies that no one paid attention to the warnings. I think this is an incorrect assumption. I think policy makers were very cognizant of the warnings but made conscious decisions not to address them adequately. This is not a case of ignoring the warnings but not allocating sufficient resources to deal with the dire consequences of potential disasters.

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Ideas: “stove-piping” of information, lack of political knowledge/skill in disaster relief/emergency planning community, distractions from “GWOT”

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A cat 4 or 5 storm sufficient to breach the levees was seen as a low probability event

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Probabilities not clear; short-sighted elected officials

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In many respects, the lack of action is endemic to the Gulf Coast mindset. Sad but true. “Laissez les bontemps roulez” (let the good times roll) is not just at saying at Mardi Gras – it is a way of life on the Gulf Coast. The dangers were discussed every tropical season. Every time a tropical made landfall in the Gulf region, concerns about the levee and the pumps’ ability to stay ahead of flooding would resurface, even during heavy rains. With exception of the levee breach, much of the damage outside of New Orleans proper would likely have occurred, regardless of preparations. Perhaps a sea wall along the entire Gulf Coast could have reduced the surge somewhat. Perhaps healthier wetlands could have provided a buffer. The topography is typical of a delta, from sea to land it is gradually sloping and very flat. A strong storm would generate a high set for waves to ride over and push flooding far inland.

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The cost of real preparedness was too high. Political decision makers gambled that it would not happen on their watch- and lost.

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Warnings went unheeded because we do not put much money into prevention in this

country and only react in a crisis mode. It seems that it is difficult for politicians and other leaders to convince people to put funds into infrastructure and preventive maintenance until something like these hurricanes create a crisis and point out the very obvious problems.

Question #2: The Katrina scenario is not unique. Many other cities and regions of the United States face natural hazards and future calamities of comparable or greater consequence, which are just as inevitable. What can and should be done to lessen both the scope and impact of these slowly brewing disasters?

First, the recent natural disasters, both domestic and globally, provide a potential window of opportunity that may close in about 12 months, barring any additional major natural disasters. In fact, I think that a major terrorism act in this country within the next 12 months will make the politicians and the public immediately forget natural hazards. At this moment, natural hazards have a constituency. If we had the coordinated plans, we could act. We do not have these plans, so most of the mitigation will be state and local with small budgets.

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To address this, a national plan should be enacted that provides general guidance for things of this nature. This plan can then be tailored to meet individual needs

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- We need risk based hazard assessments of major cities and regions and then we need to act on these assessments.
- We need to end earmarking/political influences that are continually pulling money away from science based planning.

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To lessen the scope and impact of slowly brewing **as well as rapidly occurring disasters, natural or manmade**, the same general steps need to be undertaken.

The following list of recommendations is based on a list that originally was a part of "Improving Homeland Security - Continuing Challenges and Opportunities," a presentation by Paula Gordon to the EIIP Virtual Forum, 3/24/2004 (<http://users.rcn.com/pgordon/homeland/eiipdhs.htm> and <http://gordonhomeland.com>)

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States and municipalities cannot stop airing the assessments and predictions -- no matter how scary -- that must be considered in any and all planning and development actions. Tougher laws are needed to protect those environmental buffers (e.g., the Louisiana marshes) that are essential to conserving the lands we intend to inhabit. However, a cultural awakening is really necessary so that the hubris that allows us to rationalize building in flood plains and in fire-prone forest ranges is reckoned with.

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Educate voters and decision-makers about risks. How anyone chooses to balance those risks is a complex and value-laden question that influences decisions made by individuals, local officials, and state and federal governments. Ideally, everyone should know what tradeoffs they are making with their decisions but they don't.

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Emergency managers must adopt an attitude of risk management not risk avoidance. Vulnerabilities must be identified and risk subsequently assessed. Frederick the Great once said, "If you protect everything, you protect nothing."

In this risk assessment, emergency managers must identify "centers of gravity," those things that must be accomplished in order for an emergency preparedness plan to be successfully executed. One of these centers of gravity would be emergency preparedness of families and communities. Families and communities have a civic responsibility to prepare to be on their own for at least 72 hours while resources are mobilized.

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Pre-disaster mitigation and exercises to work out post-disaster recovery are most helpful. What you need is a fiscal commitment by communities to invest in their future wellbeing.

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This is a long-term problem political and infrastructure program. Difficult to address because a long-term problem whose effects are unlikely to occur during any given election cycle. Need to clearly lay out a cost-benefit analysis. Risk models are the best way to develop loss estimates. Although lots of human suffering, you need to put consequences into a dollar cost so that cost and impact can be incorporated into budget planning process.

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First, there are some critical infrastructure components that must be developed and expanded to provide surge capacity. The clearest example of this need is the lack of hospital facilities for anything more than a slight increase in demand due to a public health emergency. Hospitals are run as businesses, and there's no incentive to maintain empty wards and beds, and to have more staff than are needed to get through a normal day. The solution could be to have federal funding for surge facilities, which will be near the primary hospital but not ordinarily used except during exercises, with stockpiles of supplies. Another step in the right direction would simply be to coordinate for local buildings (school gymnasiums, armories, even the interior of shopping malls) to be available, with pre-positioned supplies, for quick standup to handle the surge of people. Also there's no reason why retired or non-practicing health care personnel couldn't register with a local emergency operations board so at least we'd know who might be available to step in during an emergency. We could also train officials at the schools and malls what to do to activate the pre-positioned materials, so the health care workers don't need to waste time with logistics and can get straight to work.

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- Clearly delineate responsibility for emergency management between local, state and federal agencies.
- Ensure emergency responders can communicate with each other – interoperable communications.
- Better prediction of storm intensity and track (ideally more than 2 days warning to facilitate evacuations). N.B., Katrina track was well predicted.

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We need local regional state and national vulnerability and risk analyses.

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From a forecast perspective, we have been lucky that Katrina, Rita, etc, were well-behaved storms with fairly straightforward tracks. Had the steering pattern not been so clear, the economic threat would have been significantly larger. We need the ability to measure mesoscale parameters and improve both track and intensity forecasts. In this regime of increasing cyclone frequency and intensity, we must make reassess the value of persistent electro-optical and microwave soundings from geostationary orbit and technologies that will provide upstream in situ measurements. The next generation GOES satellites will be our primary tools for the next 30 years. Given the improvements in forecasting and NWP of the past 30-years, the decision to put the right tools in orbit has tremendous implications on the future of forecasting.

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The federal government must take a much more active role in disaster preparedness. No locale can afford to pay for this, yet major disasters affect the entire country. Just like national defense, disaster response is a national problem that requires national leadership and funding.

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The U.S. needs to have a national dialogue about how we build homes and businesses in coastal regions of the U.S. and where we build them and if we should build in certain areas. There should be a kind of “Manhattan Project” where leaders and regulators, builders, developers, architects, emergency managers, academics and business leaders come together to look seriously at the problems that need to be solved and make recommendations on actions that needs to be taken to help lessen such tragedies in the future.

Question #3: On a considerably shorter time frame – the few days immediately before, during, and just after Katrina’s landfall – decision makers and policy officials operated in an information deficit. What actions are needed to build the decision support infrastructure required for emergency response and recovery on

this scale?

The layers of red-tape i.e. bureaucracy need to be lessened. That way the people who need to feed the information up the chain of command can do so without all the unnecessary levels of oversight. Additionally, there needs to be improvements that allow the people to have more direct communication with decision makers, so that the people on the front line are able to report directly to their higher-ups, maybe via two-way radios.

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I do not buy the premise of an “information deficit”. There was plenty of information and most of it was timely and accurate. The problem was how the decision makers responded to the information. (See my answer to Question 1 above.) It is up to the constituents to make sure that the “politics” are such that the decision-makers do, indeed, make the correct decisions. Having and following an emergency response plan is a necessity.

I don't believe, in the chaos of response, that a single, unified command-and-control system can be stood up and operated as effectively as many suspect. The damage, the destruction, the victims themselves are distributed and can only be serviced by a distributed emergency response system.

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- We need to build a true information network for emergencies with an associated protocols for coordination/communication.
- We need compatible data sets

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In my view, this was first and foremost a crisis in federal leadership. The information was available, the competence to use that information was lacking.

###

Clearly delineate responsibility for emergency management between local, state and federal agencies.

Ensure emergency responders can communicate with each other – interoperable communications.

Better prediction of storm intensity and track (ideally more than 2 days warning to facilitate evacuations). N.B., Katrina track was well predicted.

Enforce federal building codes for earthquake cities, codes for levees etc.

Federal government should mandate what DHS \$\$ grants to the states and local authorities are used for, e.g., communications systems.

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This question is part of the first. Decisions are made at the lowest level and need to communicate with higher levels in order to be successful. If a local jurisdiction's communications infrastructure is not hardened prior to a disaster, it will fail. In turn, the infrastructure above it will also fail.

The ability to quickly make an assessment is critically important. National level assets, such as satellite imagery and U2 reconnaissance aircraft, must be used in response to a catastrophic incident to make an assessment accurately and in a timely manner. These are critical national security assets and their use must be planned well in advance.

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Preplanning and live exercises with the local, state, and federal agencies to work out responses are most helpful. The disaster should not be the first time that agencies attempt to work together.

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I believe (without really knowing for certain, perhaps it is a delusion) that the decision support structure used to exist, it has been short-circuited through budget cuts, DHS reorganization, and political exigency.

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You can't pull a rabbit out of your hat, and you can't gear up an effective response plan at the last minute. The solutions involve the pre-planning steps I listed before, with regular exercises of the full range of scope, up to and occasionally including exercises involving the entire community. When the balloon goes up, effective response requires people to work together who know each other and understand their own role and what everyone else does as well.

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Interoperable, secure communications systems.

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NASA and NOAA are working on a modest program to instrument UAVs or rigid balloons with imaging capabilities to monitor post-disaster conditions. The potential benefits of airborne platforms in persistent surveillance mode high above a disaster site are tremendous. On station time could vary from a few hours to months. Payloads could include communications nodes, high-resolution vis/IR imaging, synthetic aperture radar, hyperspectral and microwave sensors. Benefits would clearly extend to disaster and consequence management processes, industry and property owners. It could help focus triage, search and rescue, ingress/egress route planning, personal property damage awareness, insurance claims, etc. There are rapid-deployable, tactical military communications systems that could be employed. One major problem is lack of interoperability between military and civil communications systems.

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Every local, State and federal emergency management organization should be tied together in a Satellite based communication system with adequate emergency power back up. There need to be web based electronic command centers in all locations, so that, for example, the New Orleans EOC could evacuate to Baton Rouge and log on and replicate their own EOC remotely.

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First of all, we need to implement the lessons learned from previous disasters. For example, poor communications and the resulting information deficit were explicit contributors to the 9-11 disaster in NYC. The 9-11 Commission was clear in its recommendations to rectify this problem, and yet Congress failed to act. In addition, we need to find someone to help FEMA and local and state emergency managers and responders coordinate their response actions and communications mechanisms. Perhaps having people like Bill Gates and other leaders in Internet services and communications assist in helping the nation with these issues is one idea. We also need to include something like a social vulnerability index into the decision-making for all states. Human vulnerability, or those circumstances that place people at risk while reducing their means of response, and its links to the physical and natural environment need to be made integral in the development of disaster policies.

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Better hardware and software for emergency communications

Question #4: Private enterprise – both the large corporations and the small businesses in this region – represented not only a major vulnerability (hundreds of thousands in the region lost their jobs; worldwide, energy prices spiked; international access to U.S. grain exports was interrupted), but also a great, largely untapped asset for rebuilding and recovery – and for a host of disaster reduction actions far prior to any catastrophe. In the short run, how can private enterprise best be given the tools it needs to rebuild? Over the longer term, how can the private sector engage more fully, and more effectively, in disaster prevention, preparedness, and recovery actions nationwide?

Private enterprise needs to be given incentives to participate and become active in the recovery instead of passive as in waiting for government handouts. Maybe if federal and state tax incentives are given to private enterprise that directly take part in the rebuilding/recovering from a disaster. Partnerships need to be developed that are more broad in nature; that take into account risk mitigation, environmental impacts and economic impacts. Partnerships need to be broad across all three areas for the best return on investment.

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First, rebuilding of public infrastructure (not necessarily publicly owned, such as cell towers) such as transportation, power and communication infrastructure is the responsibility of government (a combination of federal, state and local). We cannot expect the private sector to pay this bill. They will be and are being used as contractors

using government funds to do the rebuilding. Rebuilding private infrastructure must be done by the private sector through insurance payments or government loans.

Over the longer term, the business community must be part of the disaster planning process working with all levels of government as equal partners. They must take the responsibility for increasing the resilience of their infrastructure, such as cell phone and TV towers, following upgraded local codes.

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However we do this, we should be rewarding actions that contribute to “hazard resilient communities”

In addition, we have a final question that relates to a follow up action plan. **What actions should be taken to implement or follow through on the findings and recommendations that will be developed at the forum?** (This plan could include a list of targeted report recipients, public outreach events, publication opportunities, and other additional follow on events and seminars, etc.)

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In the short run, individual businesses, especially small businesses, are stuck until a real supply economy emerges in New Orleans. Large businesses, energy and agriculture, can be aided, perhaps, by a more solid assessment of environmental risk for long-term logistics planning, etc.

In the long term, individual industries need to examine the economies of developing cooperative programs at the community level, from which employees are drawn, for maintaining environmental awareness and perhaps going as far as conducting preparedness drills. Once again, bottom lines will be the driving factor by which the level of engagement in such community programs will be determined.

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What tools does private enterprise need? I believe recovery is best managed at the community level – it does take a village to reestablish a sense of community and a sense of direction. Recovery plans must be conceived with vision and foresight to make the post-recovery community better than before. There are already community-based organizations (Rotary, Lions Club, Elk Lodge, VFW, Scouts, faith-based, etc.) around which to create a structure for recovery. The issue is to help without dictating. Perhaps grants to local Universities to develop recovery plans, fiscal relief through tax breaks, grants or low interest loans. Ensure outside assistance is in a supporting role. Limit tax breaks and scale them as the economy returns. Federal and State funding for critical infrastructure would free local governments to focus all resources on rebuilding. In a disaster of Gulf Coast scale, local governments are likely to have no available resource except leadership. Federal / State funding for critical infrastructure empowers local governments to exercise leadership. Focus oversight at the Local and State levels by augmenting them with the expertise to secure and execute contracts without fear of getting tripped up in the “Washington Post test”.

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Private enterprise should be helped in rebuilding only to the extent that doing so serves the public good.

Some companies and individuals may act altruistically, but the goal of private enterprise is to pursue its own narrow interests in the form of maximizing profit. When the best interests of society are served by profit maximizing enterprise, it is an extremely efficient way to achieve social objectives. Two very broad guiding principles I see are: 1) make it profitable to perform socially beneficial activities (e.g., pay companies more for better performance) and 2) make it unprofitable to engage in socially detrimental activities (e.g., hold companies liable for activities that are damaging).

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Economic incentive zones, and creation of private disaster response elements: supply and demand

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There are three variables that matter. First, company location – whether the company has offices or stores in one or more locations. Second, inventory location – whether the company gets its raw materials and stores its final inventory locally or out of the area. Third, customer locations – whether customers are local or spread out across the country or the world. Very simply, the more variables that show the company is dependent on a single location, the greater the probability that it will be severely affected by a major disaster in that location. Survival is dependent on reducing a company's dependence on a single geographical location for outlet, customers, and inventory.

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Short-term: perhaps provide tax breaks to companies that support employee rebuilding
Long-term: initiate a program that makes retrofits to employee housing a tax and employee benefit

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The network of business and personal contacts that private enterprise relies on contains more knowledge and experience than any government program, so if private businesses knew what the needs and opportunities would likely be, they could have in mind actions they might take at some time in the future.

Second, there should be a network of regional emergency management contracting offices established, so funds could be distributed immediately to bring in needed private help. Businesses could register and have on file the necessary paperwork to be approved for contracts, to avoid delays during an emergency.

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Educate the public, policy makers, etc.; publish a list of the top ten vulnerable communities and what local politicians are doing to mitigate a disaster.
(This plan could include a list of targeted report recipients, public outreach events, publication opportunities, and other additional follow on events and seminars, etc.)

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1. Existing community-based hazard mitigation planning models should be expanded to include not only the risk to the built environment but also business, social and natural resource or ecosystem risks and vulnerability.
2. Existing Building Codes must be strengthened and enforced.
3. Businesses could offer small cash grants, interest-free loans, and other assistance (such as liberal leave) to employees adversely affected by a disaster.
4. Large and small businesses in coastal hazard areas should have a disaster plan and stock up on bottled water, ice, paper plates, and making tools such as chain saws and generators available on loan to employees.
5. Businesses can help achieve a continued sense of community spirit in such crises for themselves and their employees by being prepared and having disaster plans.

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The response to Katrina was hampered by an inefficient, highly vertical command structure wherein all decisions had to go up and down the chain of command. Unexpected input from volunteers, businesses and organizations could not be processed efficiently. What is needed is a horizontally organized structure wherein willing contributors can be efficiently matched with the needs. Business should be encouraged to register in advance as possible volunteers/ partners in a disaster. A database of assets that each business potentially has to offer could be created. They would then be partners in planning. In addition the work of management was far too great for the limited FEMA resources. A system should exist to call on backup personnel to help manage the crisis. These people could be drawn from both federal and private sources (a national guard of managers)

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Big businesses, like Walmart and Home Depot did well, but small businesses need a lot of help