# Planning for Postdisaster Resiliency

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The focus of this article is planning for resiliency in the aftermath of a catastrophe. First, the authors offer their conception of planning for resiliency as a goal for recovering communities, and the benefits of planning in efforts to create more resilient places. Next, they discuss major issues associated with planning for postdisaster recovery, including barriers posed by federal and state governments to planning for resiliency, the promise and risks of compact urban form models for guiding rebuilding, and the failure to involve citizens in planning for disasters. Finally, they discuss lessons from prior research that address these issues and policy recommendations that foster predisaster recovery planning for resilient communities.

*Keywords:* community resiliency; disaster relief; recovery planning; grassroots organizing; risk reduction; insurance; urban planning

The catastrophic aftermath of Hurricane Katrina and Hurricane Rita presents an enormous challenge of rebuilding along the Gulf Coast. Within days after these events, government officials, residents, real estate developers, business owners, architects, and urban designers became engaged in an intense debate about how rebuilding should occur. Critical questions are at the core of the debate: How can we plan for more resilient places that are socially just, economically vital, ecologically compatible, and less vulnerable to future disasters? How can the hundreds of thousands of displaced residents be given a voice in determining the future of their communities? What reforms are needed to federal and state policies that facilitate rather than impede intensive development of hazardous areas?

## Predisaster Recovery Planning for Resiliency

Achieving resiliency in a disaster context means the ability to survive future natural disas-

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ters with minimum loss of life and property, as well as the ability to create a greater sense of place among residents; a stronger, more diverse economy; and a more economically integrated and diverse population (Vale and Campanella 2005). Resiliency also applies to the process of recovery planning in which all affected stakeholders—rather than just a powerful few—have a voice in how their community is to be rebuilt.

Hurricane Katrina opened a window of opportunity for creating more resilient communities. Windows are moments of opportunity when a problem has become urgent enough to push for change of entrenched practices (Birkland 1997). But windows typically do not stay open for long after a disaster. The urgency of residents to get back to their homes coupled with pressure by business owners to return to normalcy builds quickly after a disaster and is amplified by a substantial inflow of capital for reconstruction. A community should be ready with solutions when a window opens while the importance and priority that local officials assign to hazard threats are temporarily elevated.

To take advantage of an open window, a community should have a recovery plan in place long before a disaster strikes. A recovery plan is a policy document that guides short-range emergency and rehabilitation actions (temporary housing, damage assessment, debris removal, restoration of utilities, reoccupancy permitting, reconstruction priorities) and long-range redevelopment decisions (building moratoria, replanning of stricken areas, relocation of housing to safer sites). A well-conceived plan conveys a sense to the public that local officials with recovery responsibilities are organized and in charge because they had the foresight to carefully consider the issues and contingencies throughout the recovery process. Furthermore, by involving and consulting residents in all phases of planning, the predisaster recovery planning process helps create a knowledgeable constituency that is more likely to support redevelopment policies and programs that take effect once a disaster strikes.

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The core purposes of a disaster recovery plan are to (1) offer a vision of the future after a disaster; (2) provide a direction-setting framework (strong fact base, goals, and policies) to achieve the vision; (3) inject long-range resiliency considerations into short-term recovery actions that promote redevelopment that is socially just, economically viable, environmentally compatible, and less vulnerable to hazards, and (4) represent a "big picture" of the community that is related to broader regional, state, and national disaster response and reconstruction policies. To stay relevant, the recovery plan must build in flexibility and be adaptable to the dynamic and changing conditions presented by the recovery process.

In the case of mitigation, a predisaster recovery plan can identify potential sites free of hazards that could serve as relocation zones for developments in hazardous areas that are likely to be significantly damaged during a disaster. Where hazard areas have significant cultural or economic advantages for redevelopment that cannot be foregone, a well-conceived recovery plan can reduce potential losses by including provisions that guide redevelopment to the least hazardous parts of building sites and modify construction and site design practices so that vulnerability is minimized.

Local governments have used two approaches in preparing a predisaster recovery plan. One involves preparing a recovery plan as a stand-alone plan. A stand-alone plan can be easier to revise, has more technical sophistication, is less demanding of coordination, and is simpler to implement. The second entails a recovery plan as one element integrated into a broader comprehensive plan for an entire municipality, county, or region. An integrated plan brings more resources together for implementation, broadens the scope of understanding about interactive effects of recovery issues with other local issues (e.g., transportation, housing, land use, environment), and provides access to a wider slate of planning and regulatory tools. An integrative plan also has the advantage of linking recovery to the broader economic, social, and environmental sustainability concerns of achieving a broader conception of community resiliency. The most effective choice is likely to be preparation of a stand-alone recovery plan in collaboration with preparation of a comprehensive plan, so that their databases, policies, and procedures are compatible.

Evidence is emerging that supports the idea that well-conceived stand-alone plans and elements of comprehensive plans prepared prior to a disaster have a positive influence on facilitating more robust local mitigation practices and reduction in property damage in natural disasters (Berke and Beatley 1992; Burby and May 1997; Deyle and Smith 1994; Mader 1997; Nelson and French 2002; Olshansky and Kartez 1998). These studies also found that stand-alone plans and plan elements are frequently of low quality. Even more problematic, many communities have not given any attention to disaster recovery and mitigation as part of their planning programs. Research findings from multiple surveys of local planners, building inspectors, public works engineers, and residents indicate that respondents are aware of hazards but put a low priority on taking action and have little concern for doing so (Berke 1998). Respondents consistently view natural hazards, especially the long-shot ones posed by low-probability/high-consequence events, as facts of life and acts of nature that are often inexplicable and completely

unavoidable. The importance of preparing for a disaster in the distant future and risk-averse action is likely to be eclipsed by more immediate and pressing concerns (street potholes, waste disposal, and crime) that affect people almost daily.

The evidence suggests a need for strong federal and state actions to stimulate local planning for postdisaster recovery and mitigation. As we will discuss, however, the legacy of federal and state policies is seriously flawed in providing support for effective local planning.

## Planning for Resiliency: Key Issues

In this section, we discuss three key issues that must be addressed in planning for resiliency on the Gulf Coast: (1) state and federal land use and development policies that have fostered improper rebuilding back in hazardous areas and impede prospects for sensible local predisaster planning; (2) compact urban form models that could enhance resiliency or pose greater risks than prior to the disaster; and (3) the broken promise to involve those citizens most affected by the disaster—the poor—in planning for response and recovery.

### *State and federal barriers to planning for resiliency*

There are significant barriers to effective local planning for mitigation and resiliency in the United States, and especially in the Katrina impact region. As of the late 1990s, only twenty-five states mention that natural hazards should be accounted for in local comprehensive plans in state planning enabling legislation (Schwab 1998). Of these states, only eleven mandate some sort of predisaster and postdisaster planning for natural hazards, either in the form of a hazards element in a comprehensive plan or in the form of hazards-related content in the plan.

Furthermore, the idea of planning as a means for creating more resilient places in the Gulf Coast states is practically nonexistent. In an article included in this special issue, Burby (2006) indicates that except Florida, all Gulf Coast states (Alabama, Georgia, Louisiana, Mississippi, and Texas) have not passed local comprehensive planning mandates. This inaction has deterred adoption of sensible controls on development in high-hazard coastal areas that may have prevented much of the destruction from Katrina. In contrast, Florida has had a strong local planning mandate since the 1970s and has placed considerably more emphasis on requiring local and regional recovery and mitigation planning since Hurricane Andrew in 1992.

States are not the only barrier to local planning. The federal government has had a long history of weak support for planning and strong support for encouraging intensive development in areas exposed to natural hazards. In a penetrating critique of federal hazards policy, Burby et al. (1999) concluded that subsidies for high-hazard development are fostered by greater federal emphasis on risk-reduction and risk-sharing strategies than on risk-avoidance strategies that are premised on proactive land use planning that guide development away from hazard-

ous areas to safer locations. Risk reduction involves fostering high-risk development through federally constructed seawalls, dams, and levees as well as costly beach renourishment schemes that may not provide protection from powerful hazard events. This approach justifies increased levels of development that might not otherwise take place without protective structures. The likelihood of catastrophic losses increases when the structures fail to protect development in the event of a cataclysmic storm like Katrina. Risk sharing involves high-risk development encouraged by generous disaster relief payments; income tax write-offs for lost property; and the thirty-seven-year-old National Flood Insurance Program, which often does not charge high enough premiums to cover storm losses—and now faces a massive deficit due to Katrina and Rita.

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A fifty-state study by Godschalk et al. (1999) further highlights the limitations of federal hazard mitigation policy. The study concluded that state and local hazard mitigation planning under the Federal Emergency Management Agency's hazard mitigation program needs stronger national policy that supports proactive planning for reconstruction and predisaster mitigation initiatives. Federally supported mitigation efforts at the state and local level tend to be driven by plans hastily prepared during the disaster recovery period rather than before the event when there is time to prepare well-conceived plans. As a result, mitigation efforts were most often scattershot and not based on clear and consistent mitigation priorities.

Given the nonsupportive federal and state mitigation policy context, prospects for high-quality local recovery plans are low in many parts of the nation. It is not surprising that plans for recovery are nonexistent in the disaster-stricken cities and counties of the Gulf Coast.

### *New Urbanism: A model for creating more resilient communities?*

In the wake of Katrina and Rita, there has been increasing attention to how best to rebuild devastated communities. Given the lack of planning in Gulf Coast states, it is no surprise that the coastal areas in these states are poorly planned with limited consideration of development patterns in high-hazard areas. The dominant devel-

opment pattern has been associated with sprawling, low-density developments caused by expansion of commercial strip development along coastal highways and the outward growth of suburban-style development into rural areas. The increased spread between land uses puts increased pressure to build in environmentally sensitive open spaces (e.g., hazardous areas). Other negative effects include greater auto dependence, more linear feet of roads and sewer and water lines, and possible exacerbation of social inequities by draining fiscal and human resources from older core areas (e.g., New Orleans) to the suburban fringe (Berke, Godschalk, and Kaiser forthcoming).

Compact urban form concepts under the banner of Smart Growth and New Urbanism have emerged to counter the outcomes of this development process. Between its inception in 1986 and 2003, New Urban developments have rapidly expanded throughout the nation with 647 projects completed, under construction, or planned, which include 559,836 dwelling units and 1.56 million residents (Song et al. 2005). New Urbanism has its roots in the dense pedestrian scale towns of the nineteenth century. This compact development pattern mixes different land uses, including homes, shops, schools, offices, and public open spaces. Streets are narrow and pedestrian-friendly (encourages bicycling and walking in place of driving automobiles). Homes punctuated by front porches and short setbacks from streets (not garages and long driveways) encourage street frontage spaces that are designed for people, not automobiles.

A major benefit of New Urbanism is to maximize open space without reducing the number of dwelling units that can be built. The aim is to concentrate development in return for more open space. The high density provides more opportunity to guide development into safe sites while protecting sensitive areas (e.g., wetlands, sand dunes, and riverine floodplains) and avoiding hazardous locations. Other goals include bridging the socioeconomic divides through mixing different housing types that have a wide range of prices, increased access to mass transit, and enhancing overall urban livability and sense of place.

In the wake of Katrina, a variety of national professional organizations like the Congress of New Urbanism and Smart Growth America have called for Gulf Coast states and communities and the federal government to adopt "smart growth" policies that reflect New Urban principles. Mississippi has gone furthest to embrace a vision of redevelopment premised on New Urbanism. The Mississippi Governor's Commission on Recovery, Rebuilding, and Renewal (MGCRRR; 2005) employed a design team to conduct a week-long forum (October 12-17, 2005) to produce New Urban community planning and design tools to guide local and state officials in rebuilding eleven cities in three counties along the entire length of the Mississippi Gulf Coast. The MGCRRR (2005) Web site includes a set of New Urban goals and objectives that cover transportation, affordable housing, land use, resources protection, and utilities that guide rebuilding, as well as maps of local land use design plans that incorporate New Urban concepts.

However, in the rush to prepare recovery plans and design tools, officials may overlook the shortcomings of New Urban development codes involving the lack of attention to conservation and hazardous areas (Berke et al. 2003). New Urban

codes support the basic goals of community character, sense of place, and pedestrian movement (Calthorpe 1993; Congress of New Urbanism 2002; Duany Plater-Zyberk and Company 2001) but do not include design standards for natural hazards mitigation as well as other environmental protection concerns (e.g., wildlife habitat and wetland protection, watershed-based zoning, headwater street geometry, and the dimensions of stream buffers) (Berke 2002).

There may be real concern about placing high-density, compact urban forms in harm's way as New Urban developments can lead to greater risk to loss of life and property than low-density development. The MGCRRR (2005) Web site reveals that many of the municipal land use design plan maps illustrate that redevelopment will avoid the highest-risk zones, notably velocity zones on FEMA's flood insurance maps. However, high-density nodes of development that conform to New Urban land use, street, and architectural standards are still placed in flood-prone areas that sustained significant damage from Katrina. These areas will likely be at even greater risk given evidence that the Mississippi coast will be increasingly threatened by sea level rise (Titus and Richman 2001).

Evidence from other locations points to concern with potential increased risk generated by New Urban developments. In a survey of the local planners in charge of permitting for 319 New Urban projects that were identified as under construction or completed, Song et al. (2005) found that 113 (or 35 percent) have some portion of their total footprint in the one-hundred-year floodplain. While this figure indicates the sites that contain floodplains but not whether structures are in the floodplain, the percentage of projects that must deal with flood hazards is significant.

Another case deals with the Envision Utah regional planning effort along the one-hundred-mile-long Wasatch region, which is riddled with earthquake faults, liquefaction prone soils, and landslides. The region currently holds 1.7 million people (including Salt Lake City) and has been experiencing rapid expansion of sprawl. The Envision Utah initiative channels future growth into a series of New Urban developments along the entire region that are denser than conventional developments. However, given the higher densities, these New Urban developments may be at higher risk. Only twelve of the twenty-four major local governments in this region currently use U.S. Geological Survey maps that delineate fault, liquefaction, and landslide hazards in their land use regulations, with the remainder not accounting for the threat in their land regulatory framework, says Gary Christensen, Geologic Manager of the Utah Geologic Survey (interview, September 26, 2003).

Our critique does not mean that we should abandon New Urbanism as the cure of a range of urban issues. In fact, New Urbanism holds considerable promise. Prior research revealed that New Urban developments are considerably more successful than conventional developments in protecting sensitive open spaces (including floodplains), reducing impervious cover that adversely affects watersheds, and using low watershed and wildlife habitat impact design practices (Berke et al. 2003). These successes, however, were dependent on effective local implementation of planning practices that accounted for protection of environmentally sensitive areas. Thus, our concern is with the poor track record of ineffective plan-

ning for postdisaster recovery and mitigation in Gulf Coast states that has permitted unbridled coastal development in hazardous areas.

*A broken contract: Involving disadvantaged communities*

As noted by *Time* magazine (September 2, 2005, 49), "Katrina was in the cards, foreseen and yet still dismissed. That so many officials were caught so unprepared was a failure less of imagination than will." Indeed, the Katrina catastrophe laid bare the deep inequalities of American society. While these inequalities may have been news to some, they were not news to the displaced people at the New Orleans convention center and elsewhere. What was bitter news to them was that their claims of citizenship mattered so little to the institutions charged with their protection. What makes the failure over Katrina so objectionable is the failure of government that should protect them.

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A duty of democratic governance is to consult citizens and involve them in decisions and plans that will affect them. This did not happen with evacuation planning in New Orleans. If the people in the poor wards of New Orleans had been consulted, they would have easily identified its significant weaknesses. Thus, in the wake of Katrina and Rita, one basic test of the rebuilding effort should be, Will the people be fully consulted about the future of their neighborhoods?

Research findings reveal that prospects for well-conceived local mitigation plans and successful implementation increase with broader participation and support of stakeholders who are affected by the outcomes of plans (Burby 2003). The wider the range of participants, the greater the opportunity for public officials to educate a wider array of stakeholders about poorly understood problems and potential solutions. Furthermore, early and ongoing involvement throughout plan making and implementation are important factors in influencing better outcomes (Berke et al. 2002). Residents are more likely to closely track plan implementation efforts when they are active in the early stages of planning and remain involved

through monitoring of the effectiveness of the plan. Early and continuous involvement generates increased commitment and a sense of ownership and control over policy proposals. Moreover, residents are more likely to be vigilant of ongoing deliberations and to pressure public officials to offset the influence of traditionally powerful groups with ties to the real estate industry. Strong participation will help to ensure that action is taken that is consistent with policy solutions raised in plans, avoiding a potential mismatch between plans and variances that might eventually be given during plan implementation.

Research findings also suggest that when issues like predisaster recovery lack involvement of local people, the formulation of plans and implementation strategies to guide local development decisions is often made without the benefit of local knowledge and capacities (Healy 1997; Zaferatos 1998). Planning processes devoid of local involvement often become dominated by technical experts like professional planners, engineers, and biologists (Burby 2003; Dalton 1989). As a result, the conditions imposed on developments by externally driven plans do not benefit from local knowledge and may be inconsistent with local values, needs, and customs. Fundamental questions are then raised about democratic governance, fairness, and citizen rights to be informed, consulted, and able to freely express views. Rather than fostering support for government action on disaster recovery issues, a planning process organized outside the community may create opposition to plans.

While restoring critical infrastructure and preserving and rebuilding a city's urban architectural fabric is critical to full recovery, citizen participation efforts must also be made to repair the torn social fabric—a process that "fundamentally entails reconnecting severed familial, social and religious networks of survivors," often on a grassroots level, neighborhood by neighborhood. Recovering a community in the wake of disaster involves "reconstructing the myriad social relations embedded in schools, workplaces, childcare arrangements, shops, places of worship, and places of play and recreation" (Vale and Campanella 2005, x). One of the most formidable challenges facing the disaster-stricken region is that so much of the communities' social fabric was shredded by the storm and its aftermath. For example, thousands of families who lived in badly flooded districts such as the Ninth Ward, Bywater, and New Orleans East were evacuated to places all across the United States in one of the largest internal migrations of Americans since the 1950s. With every passing day, it becomes less and less likely that these displaced Orleanians will return home, and that carries profound implications for the recovery of New Orleans as a robust and full-blooded metropolis rather than a kind of theme park celebrating its former self. Even for the estimated 60 percent of evacuees who have expressed a wish to go home, according to a CNN/Gallup poll conducted in early October 2005, doing so has been held up by a lack of temporary housing in the city, extensive contamination of neighborhoods, and a general shortage of goods and services.

In sum, while visions of rebuilt communities can generate inspiration for a better future, raise the level of discussion, and even offer very worthy solutions, the

best results will only come from a good planning process that is sensitive to the needs and aspirations of those affected by plans. Breaking the hardened cycle of poverty and despair is a major challenge in the postdisaster recovery effort. The real work of healing after Katrina and Rita must be done by residents, public officials, and businesspeople who must plan for the rebirth of their communities. To a large degree, the future confidence and trust in government will depend on local people with the help of supportive national and state governments. The critical issue with any local recovery effort is to get buy-in from the community. It is the community, not outsiders, that should be centrally involved in the recovery effort.

## Lessons and Policy Recommendations

We can only hope that Hurricane Katrina, America's most devastating storm in a century, will wrench us to our senses in building more resilient places. In this article, we draw three conclusions. First, plans in place before a disaster make a difference in mitigating risk after a disaster, but many local governments have weak plans and are not committed to disaster recovery and mitigation planning. Weak commitment to planning is especially prevalent among communities struck by Katrina and Rita along the Gulf Coast that lack a supportive culture and tradition in planning.

Second, because communities are reluctant to take action, federal and state governments should play a stronger role to encourage or require local planning for postdisaster recovery and mitigation. However, Gulf Coast states in the Katrina and Rita impact region (Alabama, Georgia, Louisiana, Mississippi, and Texas) have not passed local comprehensive planning mandates and do not require local mitigation and recovery plans. The federal government has provided weak support for proactive planning. Federal policies have emphasized risk reduction (e.g., seawalls, dams, and levees) and risk-sharing strategies (e.g., disaster relief payments, income tax write-offs for lost property, and subsidized flood insurance) rather than risk avoidance strategies that involve land use. These strategies discourage local governments to adopt local controls on development in hazardous areas that may have prevented much of the destruction from Katrina and Rita.

Third, New Urbanism offers a model urban design framework for guiding rebuilding in ways that create more resilient communities. However, without proper planning, this high-density development pattern can lead to greater risk to loss of life and property than predisaster low-density developments. Given the poor track record of ineffective planning for postdisaster recovery and mitigation in Gulf Coast states, rebuilt communities following the New Urban model are likely to have more buildings and people in harm's way compared to predisaster conditions.

Fourth, while federal policy for disaster recovery and mitigation planning needs major reform, and state and local governments must play a more significant role in accepting the risks posed by development in hazardous locations, any change will

not be effective without meaningful consultation and participation of citizens in recovery decisions and plans that will affect them. This did not happen with evacuation planning in New Orleans. It may not be happening along the Mississippi coast. The MGCRRR (2005) Web site does not offer much in the way of citizen participation. It simply indicates that participants in Mississippi's New Urban design forum included "state designated representatives from local communities" who will somehow be "plugged in" to "communicate with other residents not present." Achieving grassroots participation is particularly problematic after the recent hurricanes, given the formidable challenge of reconstructing the myriad social relations embedded in schools, workplaces, child care arrangements, shops, places of worship, and places of play and recreation, as well as with outside aid delivery institutions (Vale and Campanella 2005)

We believe that federal disaster policy is in need of major reform. The aims of our recommendations are to encourage state and local governments to take on more responsibility in recovery and mitigation planning and to ensure that meaningful citizen participation is built into such planning.

### *Reform federal disaster policy*

The nation needs a more sustainable approach and a reformed federal-state-local relationship for recovery planning and mitigation. We offer several recommendations.

*First, federal policy should focus on performance-based environmental risk reduction targets*. The federal government sets performance standard targets for air and water quality—so why not critical environmental risks posed by natural hazards? In threatened drainage basins like the Chesapeake Bay basin, state and local governments are required to prepare nutrient reduction plans to achieve a specific pollutant reduction target within a specified time frame. Given that any community in America will demand aid in an emergency, the federal government should also require every community to produce a meaningful performance-based mitigation and recovery plan. Progress toward meeting the performance target should be monitored on a regular basis. Plans should be adapted if targets are not met. If a community persists in not meeting targets, then it would be ineligible for public disaster assistance aid and mitigation funds. FEMA and states could offer technical assistance to communities on how to conduct risk assessments and monitor changes in risk.

*Second, more emphasis should be placed on land use planning in hazardous areas*. The federal government sets standards for wetlands and air and water quality—so why not critical land use principles? To be eligible for federal disaster aid and mitigation funds, local governments must produce a land use element as part of their mitigation plans. The land use element must comply with a checklist of steps that specify risk avoidance opportunities that rely on land use planning. Examples include

- high-hazard sending zones where development is to be relocated to low-hazard receiving zones,
- risk avoidance opportunities linked with other local land use concerns such as greenway or beachfront acquisitions that overlap hazard zone areas, and
- stream buffer setbacks that could limit development for water quality purposes and at the same time extend development limits beyond the one-hundred-year floodplain (note that significant damages consistently occur outside the one-hundred-year flood boundary).

The last two examples also would allow for piggybacking mitigation onto more established and higher priority land use issues to be accounted for in local government decision making. Thus, by incorporating mitigation into other land use decisions, mitigation is advanced. States would also have a rule in setting land use standards that fit hazard conditions in each state, and in providing technical assistance to communities.

*Third, require local governments to pay a greater share of public infrastructure costs through insurance*. Currently, the federal government pays for 75 percent of all local infrastructure damages through public assistance funds. One option is for local governments to purchase infrastructure insurance. Just as private homes and businesses are insured, local governments could insure infrastructure. The premium should be aligned with the level of risk across hazard zones. Many communities have created stormwater utilities with fees based on the amount of impervious surface per residential and commercial property to pay for stormwater infrastructure and stream protection and restoration projects to meet EPA water quality standards under Phases 1 and 2 of the Clean Water Act. It is plausible for these communities to create new utilities or rely on existing ones as a means to cover disaster costs. Another option would be to establish special assessment zones that would levy property taxes in accordance with degree of risk. The additional taxes could pay for infrastructure insurance.

### *Facilitate a process of inclusion rather than exclusion*

We think a crucial recommendation to improve disaster recovery planning and advance more resilient communities entails the federal government requiring that communities take citizen participation seriously. When citizens start to grasp the more resilient and sustainable alternatives for living with hazards, they mobilize and begin to insist that elected officials make decisions leading to long-term resiliency. Active citizens who are deeply involved in planning are important so that aggrandizing real estate interests do not control the recovery process. Another crucial aspect of grassroots participation requires that outside aid delivery organizations (public and private) treat disaster-stricken people as participants in the recovery process, rather than helpless, poor victims. Specific approaches need to be employed in which those with a stake in recovery planning can help develop a bottom-up ability to take collective action.

To illustrate these approaches, we draw a recognized community-based disaster recovery planning effort in an underdeveloped island state of Montserrat in the

Caribbean between 1989 and 1994 (Berke and Beatley 1997). Although the setting is different from the Gulf Coast, parallels can be drawn given that both places have significant poor and disadvantaged populations that were disproportionately affected by the disasters. After hurricane landfall, a collaborative recovery effort evolved between an international nongovernmental organization from Canada, an intermediary nongovernment organization (NGO) from the region with long-standing external ties to foreign donor organizations, and a local community action group. The Canadian NGO sought to provide housing recovery assistance after Hugo by establishing a cooperative arrangement with the intermediary NGO, which had been involved in community development work in a local community

*The federal government sets standards for wetlands and air and water quality—so why not critical land use principles?*

for several years before the disaster. The arrangement involved the Canadian NGO providing funds to the intermediary for undertaking reconstruction activities in the community. The intermediary, in turn, worked with the community action group to initiate a new housing assistance program. The intermediary NGO trained local people and provided funds to temporarily employ local people to undertake reconstruction activities. The Canadian NGO also supplied the program with building materials and logistics for transporting the materials. The accomplishments of this program were substantial, with numerous training workshops on carpentry and structural strengthening techniques, twenty homes rebuilt, and many others repaired. Of greatest significance were the long-term development accomplishments. The local visibility and sense of importance of the community action group were raised considerably due to its reconstruction work. The voluntary participation of local people in group activities was also much higher. This strengthened the community action group's capacity to undertake several development projects not directly related to disaster recovery (e.g., new farming practices, building a community center, and improving potable water distribution systems).

According to Briggs (2004), efforts like this one suggest leverage principles for developing more effective participation in the recovery process. Serious application of these leveraging principles should be required in any local recovery planning process. Communities should demonstrate that they have complied with the principles to be eligible for disaster aid and mitigation funds from the federal government.

These principles are fourfold:

*First, apply classic lessons in grassroots organizing in new ways to encourage participating and leading new and renewed civic institutions that tackle critical disaster recovery problems*. In Montserrat, the local community action group was an important local institution, but it was somewhat limited in resources and capability to deal with the demands of recovery. The disaster opened a window for the local action group to engage local people, and the nonprofit intermediary created links to an outside organization with resources to provide aid. Disasters make clear that we need ways that connect people to immediate problems they need resolved and recognition that these problems are linked to wider social concerns.

*Second, help people acquire new civic skills, with special attention to those with low status in the communities*. The Montserrat effort included training and other support to help participants with little formal education to acquire and practice civic skills. In a current project supported by FEMA, MDC (a community-building nonprofit organization in Chapel Hill, North Carolina; see MDC 2005) and the Center for Urban and Regional Studies of the University of North Carolina at Chapel Hill (see CURS-UNC 2005) are partnering in an effort to work with seven disadvantaged communities after Hurricane Isabel, which struck the East Coast in 2003. The goal of this project is to support these communities to better cope with hazards and disasters through strategies that seize opportunities in the event of a disaster, reduce poverty, and build inclusive and collaborative ways of doing things. The intent is to create a "community building curriculum" designed to aid disadvantaged communities to cope with threats posed by hazards. The curriculum is designed to teach in ways that support adult learning. Key modules are to include how to build an emergency planning team; develop leadership capacity at the individual, interpersonal, organizational, and community level; conduct a hazard vulnerability assessment; carry out visioning exercises; and link visioning to planning and implementation.

*Third, build more extensive networks to accomplish disaster resiliency goals*. Formal organizational ties, such as those among nonprofit community groups like churches and self-help economic development cooperatives, and between those groups and external organizations (nonprofits and state and federal government agencies), are vitally important. Networks should relay important information and also be capable of endorsing (or vouching for) those with limited access to funds for rebuilding, political influence, and other disaster assistance resources. In the Montserrat case, the intermediary group provided a key set of links between a local action group and an external aid organization with no history of working together. The intermediary served as an active broker of attention, commitments, and agreement among key participants.

*Fourth, build new norms—a culture that values and enables collective action*. Actions to build community capability to take action must include cultivation of norms of mutual aid; broadly defined community responsibility and public engagement; and working through differences—helping to address the threads of mis-

trust, parochialism, and exclusion. In Montserrat, one of the most basic norms was that of cooperating and learning, rather than acting individually. The overarching thrust of the effort was to help build powerful new habits among individuals in the community that emphasized working to integrate community development efforts with long-range disaster recovery efforts. Another norm reflected the local action group's origins in grassroots engagement, which entailed engaging nonexperts in thinking through recovery and development needs and making resource allocations.

Building stronger norms of collective action does not necessarily mean making every decision by committee. Instead, incremental collective steps and steady progress in building networks can lead to a buildup of confidence needed to take bigger, more comprehensive actions aimed at recovery and mitigation planning over time.

In sum, restoring critical infrastructure and preserving and rebuilding a city's urban architectural fabric are critical to full recovery, but efforts must also be made to repair a community's torn social fabric—a process that fundamentally entails reconnecting severed familial, social, and religious networks of survivors at a grassroots level. In this article, we underscore the fact that cities, towns, and villages are more than the sum of their buildings and infrastructure. They are a tapestry of human lives and social networks that are essential to the heart and soul of the place. Peer into a truly resilient place and you are assured of finding resilient citizens, citizens have who forged bonds in the face of catastrophe and carried the day.

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