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*The ANNALS of the American Academy of Political and Social Science* 2006; 604; 228

DOI: 10.1177/0002716205286044

The online version of this article can be found at:  
<http://ann.sagepub.com/cgi/content/abstract/604/1/228>

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# The Primacy of Partnership: Scoping a New National Disaster Recovery Policy

By  
JAMES K. MITCHELL

Hurricane Katrina is widely perceived as a threshold-crossing event, capable of bringing about changes in public policy comparable with those that followed the terrorist attacks of September 11, 2001. Headline-grabbing proposals for improving the leadership of disaster-management organizations divert attention from a task of greater importance: the nourishment of partnerships among different stakeholder groups. Such partnerships have previously been organized around common material interests. Stronger and more enduring partnerships might better be based on ideas that capture shared ambiguities of hazard, as well as material interests. Lay publics need to be engaged with contradictory concepts that exist across the full range of environmental and societal contexts in which hazards are embedded. The process of recovery from Katrina presents social scientists with an opportunity to extend inquiry and partnerships into new arenas that have the potential to sharpen intellectual understanding as well as to address needed policy reforms.

*Keywords:* Katrina; leadership; partnership; national project; urban functions; interpretation; surprise; contingency

The terrorist attacks of September 11, 2001, precipitated a revolution in U.S. disaster policy making and hazards management (Demuth 2002; Kershaw 2005). On one hand, they propelled public concerns about the safety of Amer-

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NOTE: This article integrates and extends a critique of hazards management that has been developed in recent oral presentations, some of which have also been published in summary form (Mitchell 2004, 2005a, 2005b, 2005c, 2005d).

DOI: 10.1177/0002716205286044

TABLE 1  
 SHIFTS IN THE BALANCE OF U.S. HAZARDS POLICIES AFTER 9/11

From	Toward
Hazard events and causal contexts	Hazard events
Risk agents and vulnerability factors	Risk agents
Reaction and anticipation	Reaction
Technological and behavioral fixes	Technological fixes
Centralized and decentralized decision making	Centralized decision making
Experts and laypersons	Experts
Emergency management and hazard mitigation	Emergency management
Transparency	Secrecy

ican communities firmly onto the national policy agenda (Eisinger 2004; Savitch 2003) and impelled a major governmental reorganization that created the Department of Homeland Security. On the other hand, these same changes profoundly unsettled the existing systems for managing natural, technological, and social hazards by abruptly reversing beneficial trends in policy and management that had been gathering momentum for decades.

In the latter part of the twentieth century, shifts in the emphasis of public policy had increasingly favored a broad engagement between society and hazard. Lay populations were encouraged to take more responsibility for protecting themselves against environmental threats, especially through anticipatory long-term measures directed against context-driven forces that increased human vulnerability. But in the wake of 9/11, there was a sudden return to older and narrower approaches that reinforced reactive emergency responses by specially trained experts, whose first preference was to apply technological controls to the immediate physical agents of risk (see Table 1).

Much has been written about this transformation by researchers in the social sciences as well as by professional hazards managers (Flynn 2004; Mitchell 2003; Perrow 2005; Tierney 2005; Waugh and Sylves 2002; Waugh 2004). That literature is occasionally optimistic, as when analysts look toward the potential benefits of heightened public attention to safety, but mostly it conveys a sense of disappointment and disapproval about the regressive changes that were adopted. This is not the place to revisit the literature or the debates that it sparked, except as a point of departure for the present article. Many critics of the post-9/11 policy shifts expected that serious flaws in the contemporary hazards management system would be revealed by subsequent non-terrorism-related disasters. Hurricane Katrina provided a test of those beliefs.

Unfortunately, those who perceive Katrina as a wake-up call that will dispel the illusions of recently adopted hazards management policies and set us on the road to more realistic alternatives may find that this unprecedented disaster is an unreliable harbinger, not least because it has opened the door to proposals that would undermine carefully built systems of partnership without which any future hazard

management system is unlikely to succeed. These partnerships exist in a myriad of forms that bring together different levels of government, bridge the divide between public and private sectors, merge the contributions of disciplines and professions, and seek to close the gap between experts and laypersons.

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To some observers, Katrina was a general indictment of existing arrangements that were supposed to provide safety and assuage loss, most especially the failure of public institutions to discharge their mandated responsibilities. Influential critics have promoted visions of no-nonsense leaders imbued with new authority to cut through the inherent messiness of disasters and clear the way for centrally controlled, rapid response teams of experts from the military and other action-oriented institutions, who will implement measures that are simultaneously prompt, effective, efficient, and just. Beguiling though such man-on-horseback solutions might seem to be, they divert attention away from notions of partnership that have proven their value in reducing hazards and are particularly well suited to the complexities of contemporary American life. Amid the societal and environmental uncertainties of the new century and the emergence of new threats that are generated by international forces, as well as national and subnational ones, such partnerships may also hold the keys to human survival. It will be important for Americans to pay close attention to the construction of new partnerships as they embark on the process of recovery from one of the country's epic natural disasters (Etkin 2005).

### Katrina: An Exceptional Disaster

When a final accounting of its impacts and consequences becomes available, Hurricane Katrina is likely to be without peer among the sudden onset disasters of North America. Other extreme events have killed more people,<sup>1</sup> have more radically transformed physical landscapes,<sup>2</sup> and have obliterated more settlements,<sup>3</sup> but there has been nothing quite like the scope, scale, and combination of effects

that followed in Katrina's wake. For an affluent developed society like the United States, this event is truly exceptional, whether measured by the size of the impacted population,<sup>4</sup> the dimensions of the affected area,<sup>5</sup> the degree to which buildings and infrastructure were destroyed or rendered unusable,<sup>6</sup> the dispersion of displaced people,<sup>7</sup> the range and scale of the economic costs,<sup>8</sup> the number of jobs lost,<sup>9</sup> the duration of the emergency period,<sup>10</sup> the starkness of the vulnerability and loss gaps that separate more privileged victims from less privileged ones,<sup>11</sup> or the extent of public interest in mass media coverage.<sup>12</sup> Taken together, the combination of problems and consequences is unprecedented. New Orleans, one of America's most distinctive and cherished major cities (Colten 2005), has been so heavily damaged as to be uninhabitable by most of its people for months to years, maybe permanently for a majority. Sober analysts have suggested that a rebuilt New Orleans might have to be a much smaller place, in light of the inherent vulnerabilities of its site and the cost—as well as the complexity—of making it safer. Lesser cities like Biloxi and Gulfport have also been grievously stricken, together with a much larger number of towns and rural communities in an extended coastal arc that cuts across three of the poorest U.S. states.<sup>13</sup> Now, in Katrina's aftermath, Americans face a recovery job of heroic proportions.

To that task they bring a considerable fund of knowledge about disasters and the process of recovery. It might be said that the United States possesses one of the world's most disaster-intimate cultures, as remarkable in its own way as those of countries like China, Japan, and the Netherlands whose engagements with natural hazards are widely acknowledged (Elvin 2004; Reuss 2002). Despite a relatively brief history of urbanized settlement, Americans have compiled an impressive record of rehabilitating, replacing, and extending communities devastated by earthquakes, fires, floods, and storms.<sup>14</sup> In addition to New Orleans, the histories of many U.S. cities pivot around major natural disasters that turned out to be regenerative events, including among others Charleston, South Carolina (1886 earthquake); Johnstown, Pennsylvania (1889 dam-burst-related flood); Galveston, Texas (1900 hurricane); San Francisco (1906 earthquake); Pueblo, Colorado (1921 flood); Santa Barbara, California (1925 earthquake); Pittsburgh, Pennsylvania (1936 flood); Bar Harbor, Maine (1947 forest fire); Hilo, Hawaii (1960 tsunami); Anchorage, Alaska (1964 earthquake); and Grand Forks, North Dakota (1997 flood and fire).<sup>15</sup> When (man-made) urban fires are included, the list of regenerative urban disasters includes most of the East Coast metropolises (e.g., Boston, New York, Baltimore) as well as other large cities like Chicago and Seattle, Washington. However, compared with Katrina, in none of these cases were so many people directly affected, nor such large costs incurred, nor was the spread of impacts so pervasive and prolonged.

Despite the country's intimacy with natural disasters and its record of successful recovery, the size and complexity of post-Katrina recovery tasks is daunting, combining a signal urban catastrophe with general regionwide devastation. This helps to explain why some commentators have labeled Katrina a "megadisaster" or a "megacatastrophe" (King 2005; Sylves 2005; Litan 2005), in other words, a phenomenon that calls for public engagement on a wholly different plane from the

floods and storms of the past.<sup>16</sup> Perhaps the most appropriate models for such a new departure might be found outside the United States in responses to disasters like the 1953 floods in the Rhine delta region of the Netherlands and the 1959 typhoon that struck Nagoya, Japan. Both of those events became the focus of *national* campaigns to lower the threshold of acceptable losses by fundamentally reconfiguring each country's hazard management system.<sup>17</sup> Within the larger Gulf Coast region, the more focused reconstruction problems that face New Orleans are perhaps on a par with the postearthquake plight of Tokyo-Yokohama, Japan, in 1923; Tangshan, China, in 1976; Kobe, Japan, in 1995; or with the post-World War II reconstruction tasks of European and Japanese cities (Mitchell 1996, 1999, 2004; Vale and Campanella 2005; Inam 2005; Schneider and Susser 2003). In these cases too, recovery generally became a national, rather than a state or local, priority. It was also a task that remained in the public spotlight for a decade or more after the destructive events.

In the pages that follow, recovery issues pertinent to New Orleans are highlighted because it faces the biggest and most complex recovery problems of any Katrina-impacted community. The New Orleans experience has exposed a major gap between knowledge and praxis that calls for thinking outside the box of existing policy and conventional practice. This facilitates a generic discussion about innovative conceptions of recovery. The prospect of a global future that will likely contain more megadisasters and other surprises requires no less.

## Recovery

Recovery is the process by which a stricken community binds up its wounds, reasserts order, and acquires or reacquires preoccupations beyond those of the disaster itself.<sup>18</sup> Paradoxically, therein lies a danger, for the further the disaster experience recedes from present consciousness, the more likely its lessons will be neglected or lost, thereby paving the way for another disaster. For hazards professionals, the trick has always been to promote community sensitivity to risks and vulnerabilities without unduly stifling actions that serve other valuable goals.

As knowledge about appropriate adjustments to hazard has grown and management skills have increased, conceptions of recovery have changed. Early in the twentieth century, recovery was a hoped-for state whose attainment might be sought by public leaders, in a loosely organized way, but without any guarantees of success. Thereafter, it gradually became an activity managed by professionals who sought to return communities to "normal" as quickly as possible. (This was also the thrust of broader national recovery policies instituted during the Great Depression in the United States and in the years immediately after World War II for Europe and Japan.) Later still, the objective became achievement of a "new normalcy" because it was recognized that there was no going back to a predisaster state. During the 1990s, the characterization of recovery as a series of discrete but overlapping stages was replaced by the notion of recovery as a continuing opportunity-seeking process (Mileti 1999, 229-30). Finally, as hazards theorists and managers

sought to link their work with the movement for sustainable development, a new concept of “holistic disaster recovery” emerged. Such is the reigning policy orthodoxy in New Zealand, where it is now enshrined in a national recovery strategy (New Zealand, Ministry of Civil Defence and Emergency Management 2005). There, recovery is viewed as one element in a comprehensive framework for managing disasters that also includes mutually supportive activities of risk reduction, increased readiness, and improved response. Recovery is further subdivided into five separate components that address the physical environment, infrastructure, psychosocial dimensions, attributes of community, and the economy, respectively.

If Hurricane Katrina had affected New Zealand rather than the United States, it would have triggered a comprehensive national policy on disaster recovery that lays out a broad clear path for the stricken area, and the nation as a whole, to follow. Since Americans lack such a policy, they have the additional burden of sorting out how to approach the task of recovery as well as what to do when appropriate procedures have been agreed to. In practice, this has been a matter of local-scale initiatives undertaken by municipal governments working in collaboration with private sector institutions and the federal government. If typical historical precedents are followed in the wake of Katrina, there will be a period of more or less frenzied improvisation amid conflicts about legitimacy, authority, jurisdictions, interests, values, and visions of the future interspersed with calls for an epochal figure (or his institutional equivalent) to appear and sort matters out. While it is entirely possible that a program of informed, efficient, and just action might arise out of this process—and that its outcome might be exemplary—much more likely is a process of muddling through that is not informed by the best available knowledge, does little to mitigate future risks, and adds to the burdens of those who suffered the most during the disaster. In light of these deficiencies, it may now be time to institute a formal national policy for disaster recovery. This might take account of super-disasters, as well as those of lesser magnitude, and it might include policies that address impacts that are national—perhaps even global<sup>19</sup>—in scope as well as those that affect local communities. Such a discussion has largely been missing from public discourse in the wake of Hurricane Katrina.

## Leadership

After Katrina there have been many suggestions both for how to proceed with the tasks of recovery and for how to change societal arrangements for coping with the threat of future disasters. Prominent among these are calls for improved leadership during emergencies. Such calls tend to emphasize certain qualities of crisis leaders (e.g., courage, vision, steadfastness of purpose, willingness to take risks when information is uncertain) and certain attributes of optimal emergency decision-making systems (e.g., unambiguous centralized authority, clearly designated areas of responsibility, agreed chains of communication and command, etc.) A typical example is a recent speech by Tom Kean, former governor of New Jersey and cochairman of the National Commission on Terrorist Attacks. In it, Kean remarked

that the nation's preeminent need, after Katrina—as it was in the wake of 9/11—is for a single person or entity that would be clearly in charge during emergencies and through which all of the important decisions would flow.<sup>20</sup>

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*The potential for a crisis to elevate a competent leader to a position of eminence among peers can produce a lack of congruence between the interests of the public and the interests of the leader, perhaps with disastrous results for both.*

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Governor Kean is not alone in calling for strong centralized leadership as a *sine qua non* of disaster management. The same notion is shared by many who have offered opinions about Katrina in the mass media, in public opinion polls, and elsewhere. For example, a recent Pew Center national poll (released September 6, 2005) showed that leadership by U.S. President Bush, Louisiana Governor Kathleen Blanco, and New Orleans Mayor Ray Nagin was a focal point of criticism by sizeable majorities of respondents (see <http://people-press.org/reports/display.php3?ReportID=255>). Editorials and opinion columns in many U.S. newspapers offered similar assessments, sometimes—as in the case of a *Washington Post* article on the U.S. Coast Guard—using the performance of emergency-response agencies that were deemed to have done well in Katrina, to highlight the failures of others—like the Federal Emergency Management Agency (FEMA).<sup>21</sup> The overseas press was even more trenchant about flaws in leadership during Hurricane Katrina.<sup>22</sup> Representatives of varied U.S. interests from nongovernmental organizations to emergency response professionals to erstwhile national political notables also weighed in with critiques of leadership and calls for the replacement of key personnel.<sup>23</sup>

While skillful leadership is undeniably helpful in the often-confused circumstances of an ongoing emergency, its significance is easy to misinterpret and to overstate. This is so for several reasons.

First, humans have a well-documented tendency to commit the “fundamental attribution error” by attaching disproportionate importance to individuals as causal agents and by downplaying the role of structural or contextual factors (Jones and Harris 1967; Ross 1977). This is particularly true when a complex problem that was long in the making and global in scope is crystallized in a particular place during a moment of crisis. Problems, and responses to problems, become personified

in prominent individuals or salient groups, though many other factors may be just as important. After 9/11, the demonization of Osama bin Laden and the enhanced stature of Mayor Rudolf Giuliani, as well as the “heroes” of New York City’s police and fire departments, are cases in point.<sup>24</sup>

Second, crises tend to constrain decision choices that are available to leaders. Challenges are often reduced to immediate issues, but a shorter agenda with a narrower range of alternatives does not guarantee a better outcome. This problem is familiar to students of hazard, who realize that anticipatory hazard mitigation is not only a bigger, slower, and less glamorous process than reactive emergency management but also one that offers greater payoffs for society as a whole. Yet mitigation has proven to be a hard sell for hazards researchers and managers to political leaders. Few leaders appear willing to look past emergencies to tackle the causes of disasters before they gestate rather than the impacts after they occur. Progress toward mitigation has often come in the form of pressures that arise outside government in the civic sector of society or in the scientific community. In other words, an emphasis on (political) leadership as the key to effective hazard management is likely to bias the scope of problem solving toward measures that can be accomplished quickly and with maximum public visibility but not necessarily optimal results.

Third is the matter of luck; planning for improved leadership during crises is highly problematic, given the unpredictability of extreme events. In crises, leaders stand out from their peers in part because they were lucky enough to have been presented with a challenge that was denied to the others. Many politicians, who know just how important it is to confront a great crisis if one wishes to be considered a great leader, appreciate this point (Clinton 2004). The potential for a crisis to elevate a competent leader to a position of eminence among peers can produce a lack of congruence between the interests of the public and the interests of the leader, perhaps with disastrous results for both. Moreover, the criteria for evaluating leadership are difficult to anticipate in advance of an emergency. Individuals who prevailed in past emergencies might perform significantly better or worse under a slightly different set of circumstances.

Fourth and finally, while leadership is not the same as mastery, emergencies have often generated pressures to adopt “command and control” procedures that encourage centralization and standardization of disaster norms. In these circumstances, militarized models of leadership are often promoted as substitutes for civilian alternatives (Wright 1997). With recent renewed calls for increased military supervision of disaster relief and recovery tasks, they are once again up for broader consideration. Yet disasters are inherently fluid situations that, severally, resist control, carry with them the contextual baggage of the local predisaster society, and throw up emergent new social formations that may or may not become permanent (Drabek and McEntire 2002; Wachtendorf and Kendra 2005). They also generate many kinds of victims with different needs and interests that require help that can only be provided by a vast range of civilian organizations, few of whom are either familiar with (or necessarily sympathetic toward) military-style

management. The weighing and balancing of multiple demands—both for immediate action and long-term plans—are more apt to require satisfying negotiation and mediation skills than optimizing commands.

Without belaboring the point, these examples suggest that the capacity for sound leadership during emergencies is a provisional attribute whose mobilization and application are deeply contextualized and therefore hardly a reliable basis on which to establish policies for coping with future disasters. While it would be foolish to ignore the importance of leadership, it is both facile and thoroughly misleading to view leadership as a panacea for what is already—and for other reasons—a faltering American public engagement with natural hazards and disasters.

## Partnership

The welter of criticisms about leadership flaws during Katrina may blind us to the even more important role of partnership as a policy instrument for addressing natural hazards and disasters. Partnership is at the heart of American hazards management policies, and it is also the pivotal concept in reforms of those policies that have been proposed—though less often implemented—for many years (Etkin 2005).

In the United States and other parts of the world, some of the biggest barriers to improved policies for the reduction of hazards have been the modest size and impermanence of the supporting political constituencies. After major disasters, calls for immediate public actions are commonplace, and the will to undertake them is abundant. But at other times, there is usually no great public clamor for more effective programs to prevent, avoid, or reduce risks and vulnerabilities. As a result, hazards management has usually been the preserve of a relatively small range of people who are permanently and directly involved with the study or implementation of programs that regulate risks and assist victims. Typically these include experts in government agencies, academia, humanitarian organizations, and non-governmental entities as well as a limited range of others in private institutions such as electrical utilities, real estate development firms, or insurance companies. It is one of the signal achievements of this modest constituency that they have managed to persuade public leaders to work toward the adoption of anticipatory hazard mitigation programs in place of reactive disaster relief ones.<sup>25</sup> In this task, they have been mightily assisted by formal or informal partnerships that permit these interest groups to combine and lever their separate contributions and to reach out to others who were previously uninvolved. In less than two decades, the notion of partnership has become deeply embedded in the hazards community, and it is now commonly accepted that policy making and management should involve representation of all so-called stakeholders.

Partnership, in its broadest sense, refers to mutual cooperation and shared responsibility among individuals or groups that pursue a common goal. It is a powerful concept that informs many aspects of human life and stands as a central metaphor of governance in the United States and many other democracies.<sup>26</sup> For exam-

ple, the need for partnership is stated or implied in founding documents of the U.S. republic and reaffirmed in national myths and societal traditions. The assertion of rights to diverse national goals (e.g. life, liberty, and the pursuit of happiness) encourages mechanisms of mediation and compromise that open the constitutional door to partnership.<sup>27</sup> The federal structure of national, state, and local governments; the division of powers among legislative, executive, and judicial branches; and the principle of checks and balances all imply a need for bridges between different political constituencies. Institutional cooperation is also required because of the vast size, heterogeneity, and dynamism of the country.

Recently, the importance of partnership as an institutional operating principle has been underlined in domestic debates about federalism, immigration, multiculturalism, and civic society as well as international debates about climate change, sustainable development, the restructuring of nation-states into supranational economic and political associations, democratization, and human rights, among other topics. Burgeoning trends in globalization also reveal a need for collective solutions to shared problems that transcend narrow jurisdictions or interests, while in the realm of intellectual inquiry the die seems cast ever more strongly in favor of team research, interdisciplinary thinking, and collaborative enterprise. None of these endeavors is conceivable without partnerships, albeit of differing kinds.

Partnership has long been a central motif of U.S. public policies formulated in response to natural hazards, disasters, and catastrophes.<sup>28</sup> The fragmented nature of societal responsibilities for the making and implementation of hazards policies virtually compels the use of partnership mechanisms (May and Williams 1986). Just by itself, the role of the federal government is enormously complex. As one prominent analyst has noted,

Over the past fifty years the United States Congress has created a legal edifice of Byzantine complexity to cope with natural disasters. The federal disaster apparatus includes laws, agencies, programs, policies, and strategies, many of them intended to operate in "partnership" with state and local governments, non-governmental organizations, and the private sector. Federal assistance is provided under approximately fifty different laws and executive orders to households, businesses, farms, states, municipalities, special districts, and non-governmental organizations. (Platt 2000)

It is no accident that FEMA's Strategic Plan was titled "Partnership for a Safer Future" or that FEMA entered into "Performance Partnership Agreements" with other organizations (Godschalk et al. 1999, 59) or that the notion of partnership has been central to many of the programs for managing specific hazards (e.g., tsunamis, landslides, floods) or to programs dealing with cross-cutting sectoral responsibilities like hazard mitigation, disaster relief, and emergency management (Bernard 2005; Byman et al. 2000; Mileti 1999, 159; National Research Council 2000, 25; National Research Council 2004). Partnerships are also central to the broad field of natural hazard insurance, especially the path-breaking National Flood Insurance Program (Changnon and Easterling 2000; Grossi and Kunreuther 2005; Kunreuther 2000; Meyer 1997), and they are considered central to any future system for the financing of recovery from megadisasters (Comerio 1998, 252). Like-

wise, beginning in the late 1990s during an era of governmental restructuring, *public-private partnerships* have been widely touted as a path-breaking institutional innovation that brings a wide range of stakeholders into a policy-making apparatus that once was dominated by political leaders, bureaucrats, disaster management professionals, and scientists.

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To some extent, the need for partnership is a function of increasing societal complexity. This puts a premium on coordinating the actions of many different institutions and formal or informal groups. For example, since its inception FEMA has been tasked with the preeminent role of coordinating the responses of other agencies that have their own more limited spheres of action. The need for improved coordination has also been a theme of both the 9/11 terrorist attacks and Hurricane Katrina. The Final Report of the National Commission on Terrorist Attacks upon the United States (the 9/11 Commission) contains forty-one different recommendations, of which at least sixteen focus on coordination, sharing, connectivity, consolidation, integration, joint or common action, and other synonyms for working together in partnerships. Similar kinds of issues have also figured prominently in the aftermath of Hurricane Katrina. For example, thirteen of thirty essays that appear on the Social Science Research Council's Katrina Web page highlight issues of coordination (Alexander 2005; Dynes and Rodríguez 2005; Frymer, Strolovitch, and Warren 2005; Fussell 2005; Graham 2005; Hurlbert, Beggs, and Haines 2005; Krause 2005; Lakoff 2005; Mitchell 2005b; Molotch 2005; Quarantelli 2005; Tierney 2005; Wachtendorf and Kendra 2005). The prominence that is accorded to coordination and the associated need for improved collaboration reflect the difficulties that are experienced by a complex large society during a period of rapid change, when existing institutions are stressed by unfamiliar problems and by demands for action that press against the limits of their capabilities.

For all its potency, the notion of partnership is all too often interpreted in a prosaic way that robs it of the potential to be a sustaining instrument for change. It is

most often conceived as a union of people who share common interests in the management of hazards. However, interest-centered forms of partnership tend to last only as long as the groups that come together share those interests. Once the circumstances that favor a convergence of interests no longer exist—whether due to a switch of parties in power, or a grassroots shift in political ideology, or a surprising external shock that destabilizes taken-for-granted assumptions, or for some other reason—then the dependent partnerships are likely to weaken and disappear. In short, partnerships that are solely marriages of interests are easily sundered by events; those based on something more substantial—like expansive, compelling ideas—are likely to prove more durable.

Consider, for example, the enduring vitality of the concept of *hazard*. It is a union of two separate but interrelated ideas, namely, risk and vulnerability—each of which has spawned its own tributary disciplines, professions, institutions, and user groups. To grasp the dynamism of the underlying interaction is not only to find common ground among the diverse interest groups but is also to perceive the potential for a vastly expanded range of managerial responses around which nuanced policies can be constructed and adjusted, irrespective of the interests at stake. *Sustainable development* is another idea with legs. It synthesizes the concerns of two fundamentally important fields of endeavor—ecology and economics—while also offering the notion of transgenerational equity as a counterweight to short-term decision making that ignores long-term constraints on survival. Though no panacea, sustainability has become a concept that few leaders can now afford to ignore, whatever their political inclinations. These two examples of complex but elegant ideas illustrate how contradictions and ambiguities that would otherwise be causes for division among interest groups can be captured and harnessed to serve unifying generative purposes. Partnerships based on this kind of divergent but synthetic thinking are likely to be more resilient than those that rest on simpler notions of self-interest. The hazards community would be well served by encouraging movement in that direction.

### Beyond Sustainability: Partnerships of Knowledge and Ideas

The concept of sustainable development addresses one pair of human goals that have frequently been in tension, namely, the desire for environmental stability and the desire for economic growth. Under the sustainability rubric, safety from hazard is implied, insofar as long-term survival means that short-term perturbations can be borne without permanent destruction. However, such perturbations still occur, and they can inflict substantial losses; absolute safety in the face of all extreme events is not guaranteed. Indeed, small-scale perturbations are necessary for the greater, longer-term good. In accord with theories of complex adaptive change, small-scale shocks may be useful both as tests of societal resilience and as events that build capacity for absorbing or rebounding from bigger shocks. Principles of

self-organization, emergence, and vulnerability are characteristic of such systems (Comfort 1999; Holling 2001; Kates et al. 2001; Turner et al. 2003).

Hazards mitigation is the strategy by which safety considerations have been introduced into sustainability planning protocols (Mileti 1999). But the post-9/11 shift in U.S. hazards policies that brought emergency management to the forefront of public attention also marginalized mitigation as a preeminent policy instrument, thereby jeopardizing the usefulness of sustainable development policies as tools of hazard management. At some point in the future, national leaders may again promote mitigation policies, but until then, it may be worthwhile to look elsewhere for alternatives that are capable of comprehensively engaging society with hazard. Moreover, sustainable development is only one conceptual stop on the way to a better fit between society and nature. In the paragraphs that follow, several possibilities for thinking beyond sustainability are suggested. These are organized around four different themes: (1) linking recovery to other national policy goals, (2) opening a dialogue between sustainability and surprise, (3) taking account of multiple functions that hazardous places must serve, and (4) accommodating contradictory interpretations of hazard. They are in no way intended to diminish the desirability of sustainability as a public goal but are viewed as logical extensions and corollaries that need to be assessed and debated now, in the context of recovery from Katrina and in preparation for future megadisasters.

### *Recovery in the context of national projects*

The first strategy for creating partnerships of ideas about recovery is already being followed in a variety of countries around the world, though—at least explicitly—not in the United States. In China, Canada, New Zealand, and other places, disaster recovery is being linked with broader national and international projects of governance. In each of these cases, the approaches that are under way go well beyond adopting new public policies to encouraging deep-seated shifts in the way people think about—and act—toward hazards. Public institutions are being re-invented to better cope with future hazards and disasters, and new programs or policies are being negotiated within larger frameworks of public choice.

For example, in Canada there is a continuing debate about shifting the emphasis from postdisaster relief to anticipatory hazard mitigation. Like the similar debate that began in the United States about a decade ago (and is now—seemingly—in cold storage), there is much discussion about horizontal collaboration among departments and agencies as well as new institutional arrangements that involve public-private partnerships. But unlike the prior U.S. debate, Canadians are not just focusing on arguments about reducing government spending, increasing the economic efficiency of hazard control measures, and protecting critical infrastructures; many are also paying significant attention to larger constitutional and moral issues raised by a shift toward mitigation (Henstra and McBean 2004).

New Zealanders have gone considerably further down the road toward institutional innovations than Canadians. For example, in Wellington the national government has adopted a “holistic” strategy for disaster recovery, one that recognizes

the need for combined attention to the recovery of ecosystems and the recovery of economies as well as infrastructures, buildings, and human victims. The mere fact that New Zealand has a strategy for disaster recovery puts it ahead of most countries; its commitment to a holistic strategy sets it even further apart from existing international norms. Moreover, because sustainability is the guiding principle of all public actions taken during the recovery phase of disasters, hazards policy making is now in the vanguard of a broad movement to reframe the entire spectrum of New Zealand governance around the notion of sustainable development.

In China, the central government is actively upgrading its disaster relief and mitigation apparatus so that some of the benefits of very rapid economic development can be channeled into making possible a transition from the country's customary high disaster death tolls to low ones. Scientific and technological innovations are expected to play an important role in this transformation via improved instrumentation of hazard monitoring, enhanced forecasts and warnings, and faster—and better-targeted—disaster relief, among others. But the central concern of Chinese hazards managers is how to come to terms with the vast societal transformation sweeping the country. Unlike the United States, they recognize the need to redesign the delivery of government-provided disaster services because patterns of risk and vulnerability and perceptions of acceptable risk are being changed both by the process of economic globalization and by the appearance of a widening gap that separates poor and underprivileged citizens from everybody else.

In Europe the challenges are different, but the approach is no less ambitious. Here the basic task is to initiate a continent-wide integrated hazards response strategy for a vastly expanded European Union whose members had previously felt no need to go beyond the existing programs of national governments. Improved education and communication about hazards is at the heart of the new policy process because European leaders have very much embraced the notion of a "Risk Society" where the first task of governance is to manage various kinds of threats to human welfare. A very prominent role is being accorded to electronic information technologies. These include GIS and remote sensing systems, networked and digitized atlases, information clearing houses, Internet sites, online conferencing, e-mail discussion groups, peer-to-peer messaging, and real-time computer-assisted emergency management systems. Part of the attraction of these technologies is that they are not burdened by a conflicted history of previous uses in different national jurisdictions that would now have to be laboriously renegotiated in the new pan-European setting. In this case, improved information exchange is not just an end in itself; it is the main mechanism for encouraging a sense of common identity and purpose among a large and diverse range of organizations and governments that share wide-ranging concerns about hazards.

All of these examples suggest a common trend toward very broad analyses of emerging disaster problems, analyses that situate hazards management in the context of wider debates about appropriate policies for environment and society during an era of fundamental change. By framing hazards variously within expansive contexts of constitutionality, morality, sustainability, sociocultural change, techno-

logical revolution, and geopolitical transformation, the countries just mentioned are also pointing the direction in which hazard-focused partnerships might evolve most effectively in the future. The way lies open for disaster recovery specialists to

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*[P]artnerships that are solely marriages  
of interests are easily sundered by events;  
those based on something more substantial—  
like expansive, compelling ideas—are  
likely to prove more durable.*

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make common cause with groups that are already part of these broader contexts, thereby expanding the constituency for improved management of hazards.

#### *Surprises complicate recovery*

The second strategy for creating a partnership of ideas about recovery extends the dialectical principle that is at the core of sustainable development thinking by adding other interacting variables that compete with the notion of sustainability. For example, *surprises* bring the relationship between sustainability and hazard into central focus. Disaster recovery cannot be solely a matter of building toward a sustainable future; it must also address unexpected contingencies.

History contains many examples of disaster recovery plans that were upset by subsequent events unconnected with the disasters. Often the outcomes were ambiguous; sometimes they were deleterious or felicitous. For example, in 1976 when the city of Tangshan was destroyed by the twentieth century's most deadly earthquake, the socioeconomic transformation of China that began with Premier Deng Xiaoping's administration was not yet on the horizon. After it arrived in the mid-1980s, the resulting boom helped speed the physical reconstruction of Tangshan and made possible the provision of long-term aid to victims. More important, it also encouraged leaders to readjust the city's initial economic recovery targets upward to previously unimagined heights. In the process, Tangshan became an award-winning model of innovative postdisaster recovery and one of the most vibrant urban centers of the new China (Mitchell 2004). Without the larger socioeconomic transformation, it is questionable that Tangshan's recovery would have proceeded either as fast or as successfully as it did.

TABLE 2  
SURPRISES THAT CHANGED HAZARDS POLICIES

Type	Locus	Dates	Impacts
Economic transformation	China	Post 1972, especially after 1980	Accelerated recovery of Tangshan
Sustainable development	Global	Post 1987, especially after Rio Declaration and Agenda 21 (1992)	Increased salience of land use change and behavioral fixes
Global climate change	Global	Post 1988, especially after Kyoto Protocol (1992)	Increased salience of physical risks
Political restructuring	Europe	Post 1951, especially after fall of Berlin Wall (1989) and publication of Agenda 2000 (1997)	Increased preferences for electronic decision-support systems
War on Terror	Subglobal	Post-9/11	Narrowed range of choice and increased salience of emergency management

Other post-1980 surprises have had contrasting impacts on the context of hazard management and disaster recovery (see Table 2). Since 1988, the emergence of global climate change as a policy issue has boosted the salience of planning for increasing atmospheric risks, among them the prospect of more numerous, stronger, or longer-lasting hurricanes, like the kind that affected the United States during 2004 and 2005. Conversely, from the late 1980s onward, the sustainable development movement has fostered environmentally sensitive designs for living that would reduce societal vulnerabilities and mitigate new risks. The sudden end of the cold war also had unanticipated fallout for hazards managers. A spate of requests for membership in the European Union arrived from states that were accustomed to relatively frequent natural disasters.<sup>29</sup> As described above, leaders of the EU rushed to craft a continent-wide hazards management system where none had previously existed. In an attempt to quickly ramp up awareness and coping capacity, the emerging system now places a premium on risk education and real-time electronic-information-based decision support systems. Finally, the post 9/11 international War on Terror has brought emergency management back to center stage and fed new concerns about the vulnerability of society to human-created environmental hazards.

Other surprises have also jostled the locus of hazard management. These include the Chernobyl and Bhopal technological disasters, global pandemics (e.g., HIV-AIDS, SARS, avian flu), emergent social movements (e.g., human rights,

feminism, environmental justice), and the IT (information technology) revolution. Taken together, such surprises suggest an important principle for the design of disaster recovery policies and programs. Recovery cannot be thought of simply as a managed process that moves society toward a desired state; recovery is also likely to be affected by disjunctive changes that are both unprecedented and pivotal for the success of the recovery strategy. Hence, it will be necessary for recovery planners and managers to hone their capacities for managing surprising contingencies as well as their skills for achieving sustainability goals. The bifurcated task of seeking sustainability while managing contingencies that challenge assumptions about recovery is another example of the dualistic thinking that epitomizes a partnership of ideas.

*Diverse functions need to be recovered*

The third strategy for partnering ideas about recovery pivots on the concept of place and recognizes that hazardous *places where people live serve many different functions* that are vulnerable to risks in different ways. The manner in which these functions are addressed and the degree to which they meet human needs creates a unique context within which issues of hazard and disaster recovery are negotiated.

New Orleans amply illustrates the multifunctional nature of large cities. Just as it occupies a site and structures that provide a modicum of security in an uncertain hazardous environment, New Orleans also inspires musical and culinary creativity that nourish a unique culture. In other words, the city of New Orleans functions as both a shelter and a muse. Performance is also a signal characteristic of New Orleans life. Vernacular lifestyles as well as celebrity ones are confirmed, expressed, and renegotiated through performances, sometimes ritualized (e.g., Mardi Gras, second lining) but often more casual. Unscripted performances of everyday life in buildings, parks, and streets vie with the scripted behaviors on which the city's tourist industry so often relies. More than most others, this is a city that has tested the limits of social control and cherishes an ebullient, wayward self-image. It is also a city with a flawed learning relationship to hazard. Whereas some other communities (e.g., San Francisco [Platt 1999]) have pioneered a continuing series of institutional adjustments to hazard and become laboratories for developing new ones, New Orleans has had a fitful engagement with incident natural risks. Sometimes the city has developed effective adjustments such as drainage and pumping stations during the late nineteenth and early twentieth centuries or the evolution of raised housing that took account of ground subsidence and flooding (*Times-Picayune*, October 30, 2005)

Doubtless there are many urban functions, but for the purposes of this analysis, the most important fall under a half-dozen headings. *Material and economic functions* involve the accumulation of resources and subsequent conversion into products or services that sustain the physical fabric of the built environment and the livelihoods of human populations. *Metabolic functions* involve natural and human-modified life-support systems (i.e., ecosystems) including—among others—those that generate, nurture, circulate, and absorb air, water, biota and wastes. *Learning*

TABLE 3  
URBAN FUNCTIONS, MODELS/METAPHORS, AND VULNERABILITY

Function	Model	Vulnerability
Material-economic support	Machine	Design and performance failures
Metabolism	Organism	Threats to life-support systems
Learning	Information network, brain, mind	Lack of stimuli; barriers to knowledge acquisition and exchange
Performance	Theater, carnival, sport	Rejection or breakdown of accepted behavior norms
Creativity	Muse, palimpsest	Rigid repressive conformance with narrow expectations; sanctions against experimentation and risk taking
Regulation	Command, control, negotiation, and incentive systems	Failures of trust, authority, and coercion; neglect of alternative courses of action

*functions* stimulate citizens and challenge them to adopt behaviors that are appropriate for the continuously shifting mix of urban experiences, expectations, inducements, and constraints. *Performance functions* are served by actions undertaken for purposes of role clarification, identity confirmation, novelty, and experimentation rather than for purposes of direct adaptation and survival. Communities allow humans to enact, inscribe, confirm, and test identities and roles as well as to probe the limits of permissible action. By means of such experiences, new norms and other emergent attributes of urban culture are incubated for the future. *Creative expression functions* are associated with the cultivation of intellectual, artistic, and spiritual values. *Regulatory functions* seek to order the complexity of urban living so that a vast range of competing activities and objectives can be accommodated within the same limited territorial space.

Each type of function is linked with a characteristic metaphor or model. In urban contexts, material and economic functions are usually associated with models of *cities as machines*. Metabolic functions are reflected in models of *cities as organisms*. Learning functions find expression in models of *cities as information exchange networks*. Performance functions are addressed via models of *cities as performances* (e.g., theaters, carnivals). Creative expression functions are associated with the notion of *cities as muses*. Regulatory functions are addressed through models of *cities as power structures and regulated places* (e.g., characterized by different mixes of hegemony, autonomy, dependence, and territoriality).

Sustainable development accommodates a dialogue between models of cities as machines and cities as organisms. But this does not take account of the other functions, all of which are vulnerable to risks that arise in nature as well as society. Table 3 summarizes the main relationships between functions, models, and vulnerabili-

ties in urban communities. The vulnerability of cities as machines is signaled by the failure of their physical components to perform according to design specifications. The vulnerability of cities as organisms involves threats to life-support systems rather than to technologies. The vulnerability of cities as information exchange networks is mobilized by impaired learning about ongoing and forthcoming changes, on the part of their inhabitants, managers, and leaders. These include barriers that affect knowledge acquisition and communication, gaps that separate decision makers from the consequences of their actions, and failures to develop institutional memories and reflexive feedback mechanisms, among others.

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*Disaster recovery cannot be solely a matter of building toward a sustainable future; it must also address unexpected contingencies.*

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The vulnerability of cities as performances is more difficult to measure, but it implies propensities toward the reduction of societal experimentation, the discouragement of nonnormative behaviors, and restrictions on the range of publicly permissible actions in common urban spaces. Performances that are tolerated rather than embraced, or are contested, controversial, deviant, liminal, or otherwise marginal, are likely to be vulnerable in this sense. Tendencies toward routinization, surveillance, pejorative labeling/scapegoating, censorship, and rigid orthodoxy are clues to performance vulnerability. The vulnerability of cities as muses is also difficult to measure. Changes that disconnect and isolate intellectual creativity from policy making are particularly damaging. On one hand, cities are repositories of irreplaceable cultural treasures whose societal value is out of all proportion to their monetary worth. Many societies go to extraordinary lengths to safeguard such heritage objects. On the other hand, analysts cannot assume that physically disruptive global changes will necessarily place a damper on future artistic and intellectual creativity. The opposite may be more likely. Creative responses—both practical and symbolic—are often at the core of public policies for the memorialization and recovery of disaster-stricken communities. Finally, in the present era of vast socio-cultural and political ideological changes, the vulnerability of cities as regulatory systems is not just a theoretical abstraction. No longer can it be assumed that existing systems of governance provide stable and effective frameworks for coping with wrenching global changes. The palette of alternatives is broad. Within the past century, social movements and political revolutions have promoted many species of

public regulation including imperialism, nationalism, liberalism, fascism, socialism, communism, welfare-stateism, and neoliberalism. Different systems have attempted to reorganize basic relationships between individuals, economies, politics, and societies, thereby altering the process of urbanization and bequeathing legacies that are likely to persist for decades to centuries thereafter. All such regulatory systems are vulnerable to the extent that they are not capable of accommodating surprises and/or resolving the multiple contending demands of increasingly heterogeneous urban constituencies. In the wake of a catastrophe like Katrina, it is to be expected that most or all of these vulnerabilities will be mobilized, if not directly by the extreme event, then indirectly by cascading consequences.

It is time for disaster recovery specialists to add other functions to the material and metabolic ones that are currently the focus of sustainable development and to explore the context of vulnerability as it pertains to these functions. This will provide the knowledge base that must precede the crafting of new public policies for disaster recovery that address the full spectrum of urban habitability and governance issues.

*Forging common actions  
in spite of different interpretations*

The fourth strategy for partnering ideas in support of recovery policies builds upon the notion that individuals construct a coherent picture of the world by synthesizing many different, often-contradictory, interpretations of perceived reality. This shifts discourse away from an exclusive concern for reducing uncertainty to also address issues characterized by ambiguity. We should not expect that ambiguity will be removed; rather it is the recognition and accommodation of enduring ambiguities, incommensurables, and paradoxes that is at the very heart of the human experience. This is as true for hazards as it is for other societal phenomena. The various means by which interpretations are formed and defended against alternative meanings will not be explored in this article, but a brief introduction to this theme is appropriate.

Multiple interpretations of hazard events may be held by a single individual or by different groups or institutions. For example, among others a hurricane like Katrina may be simultaneously regarded as a disaster, a natural experiment, an aesthetic spectacle, a manifestation of divine power, an indicator of anthropogenic climate change, a mechanism of societal differentiation, a test of societal resilience, a device for redistributing economic and political resources, a fortuitous opportunity for mischief making, and an entertaining or cathartic diversion. Although multiple interpretations have probably always existed, they now take on added importance because this is an era when challenges to the legitimacy and/or domination of science and other sources of intellectual authority occur with increasing frequency. Hence it becomes much more difficult to put one exclusive reference frame around a situation that might once have been unambiguously labeled a hazard.

At present, the attention of hazards researchers and management professionals is monopolized by the notion of disasters as public policy problems that need to be managed or resolved. Yet this is only a sometime concern of most laypersons. Furthermore, this focus ignores the fact that different interpretations create different constituencies that may become allies if areas of conceptual overlap, convergence, or mutuality can be identified and exploited. In a few cases, tacit cooperation exists across these kinds of interpretational divides. For example, disaster victims are primary sources of information for hazards researchers, and the knowledge that scientific researchers acquire is often shared with victims or applied to victim-support programs. But the potential for making common cause between groups that view hazard through the lens of science and those that employ paradigms of aesthetics has not been explored to any significant degree. Nor have overlaps and interactions between hazard viewed as entertainment and hazard viewed as stimulus to risk-taking behavior, or as cathartic therapy or any of the other interpretative tropes that are employed by laypersons. The way lies open for a major constituency-building effort by proponents of hazard management if the managers grasp the potential for new partnerships between different interpretive paradigms.

## Conclusions and Implications

The central argument of this article is that partnerships are essential to the American system of hazard management and are also increasingly important components in the hazard management systems of other countries. Moreover, partnerships will become more important to humankind everywhere as a diverse and interdependent world confronts new kinds of threats, old risks that are resurfacing (because they have been left unattended for too long), new vulnerabilities driven by globalization, and the accelerating dynamism of contemporary society, as well as surprises that can only be imagined at present.

To address these challenges, it will be necessary to increase the size and permanence of hazard as an item on the human agenda. At the moment, leaders attempt this by drawing on public anxieties about new threats and failures in existing risk management systems to craft more powerful public institutions that specialize in the management of certain risks (especially terrorism) and employ narrowly targeted policies for that purpose. By itself, that approach is unlikely to meet with much success because it segregates engagement with hazard to the realm of professional experts, because an atmosphere of crisis cannot be maintained indefinitely, and because too many of the institutions that we rely on to protect us against risks—or to recover from disasters—are heterogeneous, nonspecialized entities that address multiple goals on a broad front. They are, in effect, mirrors of the increasingly global society that Americans—and many others—inhabit.

Far from narrowing and specializing, we need to maintain and expand the range of alternative coping measures available to humans. Humans owe an enormous debt to the cumulative availability of more and more means of managing hazards

over the past century. As a result, we can now put together many different combinations of ways to prevent, avoid, and reduce disasters. One of the most disturbing trends of the years since 9/11 has been the tendency to turn away from that heritage and put more of our eggs in fewer baskets, especially baskets that are concerned with terrorism risk reduction. Social scientists should be concerned to encourage the use of all proven alternatives wherever possible. In the twenty-first century, many of the new hazards that we will face will take a long time to reach maturity and will be subject to numerous reinterpretations as we learn more about them. This is as true of terrorism as it is of risks connected with human-driven climate changes or megadisasters like Katrina. Moreover, if—as our national leaders suggest—we are in for a long War on Terror, one that will likely span several presidential cycles, there will be every reason to keep the mix of alternative disaster management approaches as rich and variable as possible because we will have no way of knowing when presently neglected ones will become useful.

What is most needed is a way of broadening the discourse about recovery and bringing more people into it. We can wait for catastrophes and hope to prolong public involvement in hazards management decisions that are taken in their wake, or we can begin to lay the basis for an alternative approach that would permanently expand the calculus of decision making and call into play unorthodox constituencies, different kinds of knowledge about hazards, and different meanings of hazards.

In support of these ends, much greater effort should be directed toward harnessing the enormous potential for collective action against hazard that is available through the medium of partnerships. What is proposed herein is a strategy that broadens the notion of partnership by fostering new concepts that involve the linking of reciprocal—often contradictory—*ideas and ideals*, as well as by optimizing human *interests* that are likely to be more ephemeral. Four sets of principles are suggested as bases for this endeavor. These involve (1) coordinating community recovery with important projects on the national policy agenda, (2) building contingency management for environmental hazards into sustainable development strategies, (3) expanding the number and variety of community functions served by recovery programs, and (4) incorporating groups that hold different (and at times contradictory) interpretations of hazards that transcend the rubric of hazard as a public policy problem.

All of these activities call for greater investment in scientific knowledge about the human engagement with hazards and the larger context of relationships between societies and environments. None of them can be accomplished quickly, but several are already under way; there is little doubt that the knowledge base will grow substantially in the near future. At least in one respect, the lesson of Hurricane Katrina seems clear: changes to existing policies for the management of acute environmental hazards and disasters are necessary, and the momentum to bring them about is present. The question that remains to be answered is whether Americans will abandon the flexible, broad-based, partnership-based approach that has served so well and is so promising for the future and retreat to narrower,

expediency-driven alternatives that neither reduce uncertainty nor transcend the ambiguities that are an increasing part of the hazards that will challenge us in the twenty-first century.

## Notes

1. Hurricane Katrina inflicted fewer deaths (c. 1,300 in Louisiana and Mississippi) than several American disasters, including the 1900 Galveston hurricane (c. 8,000 dead), the 1906 San Francisco earthquake (3,000-6,000 dead), the 2001 collapse of the World Trade Center (c. 2,750 dead), the 1928 Lake Okeechobee (Florida) floods (c. 2,500 dead), and the 1889 Johnstown flood (c. 2,200 dead). Although an estimated 6,644 people are listed as missing after Katrina, about 1,300 of whom lived in the hardest-hit areas, it is believed that a majority of the missing are likely to be alive (*USA Today*, November 21, 2005).

2. Earthquakes, volcanic eruptions, landslides, and coastal erosion probably have greater capacity than floods to irrevocably change the physical landscape and deny the use of sites previously occupied by humans. The Alaska earthquake of 1964 deformed about fifty thousand square miles of (mostly unpopulated) land in the state's southern districts. Detectable amounts of ash from the 1980 eruption of Mount St. Helens covered about twenty-two square miles, some to a depth of hundreds of feet.

3. Many small towns and villages (none containing more than 1,000 people) were abandoned or relocated after the 1964 Alaska earthquake, including, among others, Valdez, Girdwood, Portage, Chenega, and Afognak. During the past sixty years, the largest settlement in the United States abandoned after a natural disaster is believed to be Vanport, Oregon, a dormitory community occupied by war industry workers and their families that succumbed to floods on the Columbia River in 1948. At its peak, Vanport held about 40,000 people, but only 18,500 were still in residence when its protective dyke failed.

4. At least 4.4 million lived in areas covered by federal disaster declarations 1603 (Louisiana), 1604 (Mississippi), and 1605 (Alabama), issued on August 29, 2005. A much larger population throughout the United States experienced indirect effects as a result of sheltering victims or paying higher fuel costs triggered by damage to Gulf Coast oil refineries, for example.

5. Approximately 31,000 square miles of territory in 49 counties of Louisiana, Mississippi, and Alabama were covered by federal disaster declarations 1603, 1604, and 1605. By comparison, the celebrated 1927 Mississippi floods affected about 27,000 square miles. Neither event comes near to the record-setting Midwest floods of 1993, which covered 270,000 square miles of (mostly agricultural) land in 534 disaster-designated counties spread across nine states. In that event, federally designated disaster areas included all of Iowa, 62 percent of Missouri, 58 percent of Wisconsin and North Dakota, 52 percent of South Dakota, 46 percent of Nebraska, 40 percent of Minnesota, 25 percent of Illinois, and 22 percent of Kansas (Lott 1994).

6. The National Association of Home Builders estimates that 350,000 homes were destroyed and around half a million are damaged but repairable. This is twelve times the number destroyed in any previous U.S. natural disaster (*Nation's Building News*, October 10, 2005).

7. A month after Katrina, more than 450,000 evacuees remained in Red Cross shelters or hotel rooms paid for by the Red Cross in twenty-four states (*National Geographic* 208, no.6 [December 2005]: 10). A map of Katrina's diaspora published in the *New York Times* (October 2, 2005) shows that of 1,356,704 applications for aid submitted to FEMA by September 23, 2005, 86 percent came from people who had relocated to places in Louisiana, Mississippi, Texas, and Alabama. But more than 35,000 families had relocated more than one thousand miles from the impacted Gulf Coast region, including a small number in Alaska and Hawaii.

8. Recent estimates by government agencies and the insurance industry indicate that the costs of immediate relief may be as much as \$60 billion and of long-term reconstruction and recovery in the vicinity of \$150 billion (Associated Press, October 6, 2005). It seems likely that this will be the largest payout for losses incurred due to a single disaster in the history of the global insurance industry.

9. At least 363,000 jobless claims related to Katrina were filed by the beginning of October 2005. (Associated Press, October 6, 2005). Unemployment rates among the 800,000 evacuees identified by the U.S. Bureau of Labor Statistics were 24.5 percent overall during October 2005 with higher rates recorded among blacks (41.5 percent) and Hispanics (42.1 percent) than whites (17.5 percent). See [http://www.epi.org/content.cfm/webfeatures\\_snapshots\\_20051109](http://www.epi.org/content.cfm/webfeatures_snapshots_20051109).

10. At the time of writing (late November 2005), some aspects of the first (emergency) phase of this disaster have been completed (e.g., search and rescue, emergency medical care) but others (e.g., debris clearance, emergency feeding and housing) are not yet at an end nearly three months after the hurricane struck. The second postdisaster phase (repair and rehabilitation) is under way for some damaged buildings and infrastructure, but the task is far from complete. Only one in seven of New Orleans's residents have returned to the city; a full accounting of the dead and missing has not yet been completed.

11. Social Science Research Council, "Understanding Katrina: Perspectives from the Social Sciences," <http://understandingkatrina.ssrc.org/>.

12. During the past twenty years when systematic surveys of public interest in mass media reporting have been compiled, Hurricane Katrina has been outranked by stories about five other events. In declining salience, these are the *Challenger* space shuttle (July 1986), the 9/11 terrorist attacks (September 2001), the San Francisco earthquake (November 1989), the high price of gasoline (September 2005), and the Rodney King verdict and riots (May 1992) (Pew Center for People and the Press 2005).

13. Among the fifty U.S. states, Mississippi ranks fiftieth in per capita income and forty-ninth in median household income, while Louisiana ranks forty-seventh on both of these indicators, just ahead of West Virginia and Arkansas. Alabama is somewhat better off (thirty-eight and forty-second, respectively). However, with a few exceptions (e.g. Wilkinson and Greene Counties, Mississippi), the coastal municipalities that bore the brunt of Katrina's losses are not as poor as parishes and counties located further inland. Fishing and the oil and gas industry are heavily concentrated in coastal regions of Louisiana, while the gambling and resort industries have benefited coastal Mississippi during the past two decades.

14. There is also a fund of experience with other hazards. Although drought is not a sudden-onset hazard, there has been a long-term American engagement with the semiarid edges of the ecumene (inhabited earth). From Frederick Jackson Turner's "frontier thesis" (Block 1980) to Frank and Deborah Popper's notion of the "Buffalo Commons" (Popper and Popper 2004), the theme of colonization and abandonment of risky places in the Great Plains' fluctuating environment has been a prominent element of cultural ecology. In this respect, the national experience with natural hazards bears comparison with those of other "settler societies" like Australia, New Zealand, South Africa, and Canada and perhaps even Israel or the USSR during Nikita Khrushchev's "Virgin Lands" program. Engagement with wildfires in temperate zone forests also constitutes a part of the American experience with natural hazards that is shared with other countries—in this case northern parts of Scandinavia, Russia, and China (Manchuria) as well as places characterized by Mediterranean vegetation and climate regimes (e.g., Iberia, southern France, Greece).

15. Some of these places were also repeatedly stricken by lesser events, and many other U.S. cities suffered heavy losses to particular neighborhoods.

16. The term "megacatastrophe" entered the literature of hazards management during the 1990s, especially after hurricane Andrew (1992) produced record-setting insurance losses in Florida (Kunreuther and Roth 1998). Since then the global reinsurance industry has been particularly concerned about the likelihood that such a disaster will exceed its capacity to provide subscribers with adequate reimbursement, and some experts have identified financing as the main obstacle to ensuring recovery (Comerio 1998, 239).

17. However, neither of these events is a perfect analogue for Katrina's combination of a big city catastrophe (New Orleans) set within vast regional devastation. No large cities were overwhelmed in the 1953 Dutch floods, and the worst effects of the Ise Bay typhoon were largely confined to the immediate vicinity of Nagoya.

18. Among hazards professionals, recovery is usually portrayed as a series of overlapping stages that begin with managing the ongoing emergency and end with memorialization and betterment projects that may not conclude until decades after the disaster.

19. For discussions about the increasingly geographic scale and global reach of disasters, see Walker (2005); Feinstein International Famine Center, "Disaster Globalization: Evaluating the Impact of Tsunami Aid," Tufts University (2005), [http://nutrition.tufts.edu/pdf/research/famine/disaster\\_globalization.pdf](http://nutrition.tufts.edu/pdf/research/famine/disaster_globalization.pdf); and the forthcoming Third Annual MaGrann Research Conference, "The Future of Disasters in a Globalizing World," to be held at Rutgers University, New Brunswick, NJ, April 21-22, 2006.

20. "Terrorism: Are We Safe Yet?" lecture by Tom Kean, 2005 Clifford P. Case Professor of Public Affairs, Rutgers University, Piscataway, NJ, October 24, 2005.

21. Stephen Barr, "Coast Guard's Response to Katrina a Silver Lining in the Storm (September 6, 2005), <http://www.washingtonpost.com/wp-dyn/content/article/2005/09/05/AR2005090501418.html>.

22. See especially comments reported by the British Broadcasting Corporation (September 5, 2005), <http://news.bbc.co.uk/1/hi/world/americas/4216142.stmby>; and the news digest magazine *World Press* (September 3, 2005), <http://www.worldpress.org/Americas/2142.cfm>.

23. See John Graham, "It's All about Leadership," <http://www.sierraclub.org/pressroom/speeches/2005-09-11johngraham.asp>; "Boston Homeland Security Chief Stresses Leadership," Harvard School of Public Health (September 30, 2005), [http://www.hsph.harvard.edu/now/sep30/homeland\\_security.html](http://www.hsph.harvard.edu/now/sep30/homeland_security.html); and Al Gore, "The Time to Act Is Now: The Climate Crisis and the Need for Leadership" (November 4, 2005), <http://www.salon.com/opinion/feature/2005/11/04/gore/>.

24. The tendency to focus on the behavior of certain individuals or groups in disaster has a parallel in the social amplification of selective information about disasters (Pidgeon, Kaspersen, and Slovic 2003).

25. It was not always thus. In the United States, the emphasis on partnership began as an offshoot of a campaign to reinvent government that started twenty years ago under the Reagan administration, accelerated in the 1990s during Bill Clinton's presidency, and culminated in a series of Public-Private Partnership 2000 Forums held in Washington, D.C., between 1997 and 1999 (Kettl 1994; see also <http://www.usgs.gov/ppp2000/>).

26. Meanings that attach to the word "partnership" vary among states and—even more so—among nations. Partnership might refer to amity and brotherhood (as in the French constitutional imperative of *fraternité*), or efficiency-through-cooperation (as in the Canadian constitutional dedication to "good government"), or what some psychotherapists call self-actualization (as in the American "pursuit of happiness"), or even to a synthesis of all these ideas.

27. The sometimes incompatible national aspirations of other Western democracies such as France (liberty, equality, friendship) and Canada (peace, order, good government) also ensure a role for partnership as a constitutional instrument.

28. Nor is the principle of partnership confined to U.S. hazard management systems. It has also been adopted by international hazards management agencies and developing countries (El-Masri and Tipple 2002; Kreimer and Arnold 2000; Pelling 2003, 89-90).

29. Several Eastern European states were subsequently admitted to the EU, including the former German Democratic Republic, the Czech Republic, Slovakia, Hungary, Poland, Romania, and Bulgaria. The possibility that Turkey, Ukraine, and other territories of the former USSR may also be admitted to the EU has raised the stakes for hazard policy making even further.

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