Center for Biosecurity

UPMC

Resilience Research Workshop

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Policy Brief: Research Findings on Community Resilience and their Implications for Federal Policymaking – WORKING DRAFT

In anticipation of the December 10, 2009 conference, "Resilient American Communities: Progress in Practice and Policy," the Center for Biosecurity convened a group of 23 disaster scholars to survey existing research that could benefit federal policymaking on community resilience to disasters. The workgroup agreed, while some data gaps remain, a rich set of empirical evidence and informed judgments are available now to national decision makers as they work to formulate a strategy to enhance community resilience.

Resilience is the ability of a community – people rooted in a particular locality or region, with a shared economy, infrastructure, and set of health and safety institutions – to anticipate, withstand, and rebound from a disaster with minimal damage and disruption. This ability is not an accidental or random occurrence, but an acquired capacity. That is, a resilient community understands that its actions can either decrease or increase the chances and consequences of a disaster or epidemic, and it decides to reduce potential harm through society-wide interventions before, during, and after an event.

The following brief is organized into 5 basic elements of a community resilience strategy. It provides high-level judgments from workgroup members about what is currently known about priority aspects of each element, coupled with recommendations to the federal government on policy directions that could further strengthen local communities and their environment to withstand extreme events.

1. Capture and Convey the Value of Investments in Resilience

Observation: Community resilience is a low-priority goal for most people in the U.S. because disasters are infrequent, their societal costs go largely unmeasured and unquestioned, and more ordinary and urgent concerns press for immediate attention.

The nation has fragmented and incomplete data on hazard events and losses. Decision makers and their constituents do not know the how much disasters cost the nation on an annual basis, let alone the losses from natural and human-made disasters to local communities. Resilience to extreme events will continue to be an elusive policy goal without baseline information on when or where

losses occur, from what hazards, and more importantly the local impact in terms of property and crop damages, job loss/business interruption, or human losses (injuries or fatalities). In the absence of an evidentiary basis, the public demand and the political will for loss reduction and loss avoidance strategies will likely remain stagnant. In addition, comparative assessments of loss reduction/loss avoidance measures at local, regional, state, and national scales will be impossible without baseline metrics.

Recommendation: The federal government should establish a National Hazard and Disaster Loss Inventory that documents national and local costs of disasters and helps gauge the value of specific loss reduction and loss avoidance strategies.

An effective National Hazard and Disaster Loss Inventory would: 1) reconcile and integrate the fragmented federal sets on hazard events and losses; 2) serve as the data archive or repository for historic hazard event and loss data; 3) assist in the development of better loss metrics; and most significantly, 4) establish the baseline pattern that can be used to ascertain the effectiveness of community-based resilience efforts as well as federal and state risk reduction strategies.

2. Exercise Precaution; Mitigate Hazards in Advance of an Event

Observation: Hazard mitigation— pre-disaster actions to prevent or minimize injury, property damage, and interruption of critical societal functions—provides a proven return on investment and is a key contributor to community resilience.

A 2005 Congressionally-mandated, independent study concluded that each dollar spent in 3 FEMA-administered natural hazard mitigation programs saved society an average of $4 in future avoided losses: By investing $3.5 billion on mitigation between 1993 and 2003, the federal government averted $14 billion in estimated losses—disaster response costs, human injury and deaths, property damage and business interruption. Natural hazard mitigation typically involves 2 basic approaches to limit disaster-related damages: project mitigation, alteration of the built or natural environment to enhance protection, and process mitigation, changes in institutional and individual behavior to reduce risk. Project mitigation, for example, includes retrofitting buildings to withstand seismic hazards and relocating households from floodplains. Process mitigation, in contrast, involves less tangible items such as vulnerability assessments, land use planning, improved building codes, and education campaigns.

Observation: Resilience to disasters is more likely in a locality that implements comprehensive, community-wide mitigation planning in connection with broader development aims, rather than carries out ad hoc mitigation projects.

In resilient communities, residents recognize and understand local hazards and tie the goal of public safety to broader decisions about community development and environmental management. Hazard mitigation entails the mapping of existing hazard areas, unique to the locality—flood zones, fault zones, hurricane-prone areas, erosion zones, and wildfire-risk areas. On the basis of this vulnerability assessment, new development can be guided away from high-hazard areas, existing development relocated to less-vulnerable locations, and critical facilities (e.g., water and sewer systems, healthcare facilities, roads and bridges) sited outside high-risk zones. Structures and facilities that must remain in vulnerable areas can be designed or retrofitted to meet modern hazard code standards. Natural ecosystems can be preserved and restored to serve as effective defenses against natural hazards.

Recommendation: The federal government should expand grant assistance and technical guidance to local governments for comprehensive pre-event mitigation—principally to strengthen their capacity for land use planning, deliberative process and coalition-building.

The federal government should consider shifting a greater proportion of its disaster-related assistance to pre-event mitigation rather than after-the-fact responses. The benefits of mitigation are measurable in terms of improved disaster performance of built structures and protective works, reduced deaths and injuries to building occupants or protected populations, and decreased losses (direct and indirect) due to business interruption through physical damages. More importantly, however, comprehensive mitigation approaches strengthen a community's ability to withstand an extreme event without incurring devastating losses and without requiring large amounts of external assistance. A proactive plan to avoid and reduce disaster-related losses enhances self-sufficiency; it limits the likelihood of repeated damage and repeated requests for federal disaster relief.

3. Fully Integrate All Community Sectors into Preparedness & Response

Observation: Communities well poised to withstand an extreme event have included all sectors in preparedness and response planning, including the general public, non-government organizations, and the private sector.

Preparedness and response systems are essential because society cannot possibly afford to build human settlements to resist the rarest and strongest of earthquakes, hurricanes, tornados, floods and fires, nor anticipate and avert every outbreak of infectious disease. Disasters—in contrast to routine emergencies—are complex events with widespread and serious effects, to which health and safety professionals and trained volunteers respond out of duty, but to which self-organized groups and spontaneous volunteers are proven to react—before officials arrive on the scene and when officials are overcome by extreme conditions. Resilient communities acknowledge the problem-solving capacity of the broader community alongside that of uniformed and sworn officers, and they support advance planning and training initiatives that improve upon residents' ability to respond and engage in self-help. In addition, resilient communities forge pre-event partnerships between formal response institutions and community- and faith-based organizations and businesses. These collective actors can develop their own continuity plans, represent constituents in official emergency planning, tap into pre-event public education and crisis communication campaigns, provide mutual aid in a disaster, and offer logistical support to professional responders.

Observation: Low income and minority communities fare poorly in disasters and epidemics, but they also have social networks and resources that enable them to weather routine stresses and that can be incorporated into a wider preparedness and response system.

Hurricane Katrina's disproportionate impact on poor and working class people, and on ethnic and racial minorities, confirms a more widespread finding that broader social and economic inequalities make certain sub-groups within affected populations more vulnerable to the effects of a disaster. Similarly, there is emerging evidence that minority populations already burdened by socially-induced health disparities are experiencing a greater impact of disease in the 2009 H1N1 influenza pandemic. Yet these same groups that bear the brunt of extreme events also have social networks and identifiable assets that enable them to weather the normal threats and stresses of daily life. A range of resources feed community competence and strengthen the social capital within vulnerable communities—from natural leaders who foster cohesion, to local businesses such as barbers and beauticians, to faith-based organizations and ethnic radio and media. Partnerships between these civic networks and health and disaster agencies—and the mutual learning it affords—can better enable formal institutions to meet the needs of a diverse population, promote mitigation and preparedness behaviors in more households, and evolve the problem-solving capacity of grassroots groups for when major crises emerge.

Observation: Individuals and households that have mitigated their risks, are prepared, informed and connected, and have practiced their response have proven resilient in disasters and health threats, both domestically and abroad.

Household preparedness for disasters enhances resilience, reduces disaster impacts, and lessens human suffering; yet, the majority of Americans are not prepared for disasters of any kind. In addition, a great proportion of Americans who have taken some steps to prepare are underprepared. Present approaches to fostering household preparedness—namely, broadcast media and macro-level social marketing techniques—are not working by themselves. Lessons

learned from the public health field of health promotion, however, suggest that more direct, interactive, community-based interventions might motivate the adoption of preparedness behaviors to a greater extent. Proven participatory approaches—such as those to promote greater seat-belt usage and smoking prevention and cessation—include collaboration with community-based organizations as well as the use of lay workers, peer-to-peer education, and social networks.

Recommendation: The federal government should provide grant assistance and technical guidance that enables state and local response agencies to increase their public involvement activity, most notably in building partnerships with grassroots groups and businesses, and in engaging the public in planning for disasters and health emergencies.

The federal government should provide grant assistance and technical guidance that (1) augment the capacity of local, state, and regional health and disaster agencies to build partnerships with community-based organizations, educational institutions and businesses at the local, regional and state level, and (2) enable community-based organizations, educational institutions and businesses, especially those who represent vulnerable populations, to collaborate more easily with emergency professionals. Health and disaster agencies require dedicated staff and administrative capacity to carry out the labor- and time-intensive work of building partnerships. Community groups, too, with limited resources need incentives to join the emergency planning table.

4. Apply Foresight in the Recovery/Reconstruction Process

Observation: A disaster-resilient community is one that recovers quickly and effectively, while at the same time it seizes the opportunity to rebuild for greater resilience to future events and for sustainable community development.

As conveyed in the Greek roots of the words “catastrophe” and “cataclysm,” a disaster produces a violent rupture in the status quo, fracturing everyday expectations about life, personal safety, and the proper order of things. Recovery is the process through which a sense of safety, order, and vitality are restored in a community and the shorter the period of time, the better. The post-event period also represents a chance not just to return to “normal” but to improve overall conditions in the community—to achieve economic vitality, social equality, ecological compatibility, and less vulnerability to future disasters. (In fact, researchers have found that in the post-event period, people are more amenable to adopting changes that would reduce the chances and consequences of

a future event. Actual experience of a disaster challenges the idea that disasters are things that happen to "other people.") The window of opportunity for creating a more resilient community is a short one, however, as the urgency of re-establishing one's home and business mounts and as capital for rebuilding begins to flow.

Recommendation: The federal government should provide grant assistance and technical guidance to augment the capacity of state and local governments to engage in pre-event post-disaster recovery planning.

Because recovery takes place under extreme conditions, the federal government can help state and local governments improve both the rapidity and quality of their post-disaster decisions by greater support for pre-event recovery planning. Speed of recovery is essential to rebuild infrastructure, provide temporary and permanent housing for survivors, and bring businesses back to life. Deliberation, however, is essential for assuring that short-term recovery actions also reflect long-range resiliency concerns. A pre-disaster recovery plan, for instance, can identify the least hazard-prone sites for relocating settlements and facilities that are severely damaged in a disaster. Successful advance planning will have involved and consulted diverse stakeholders in the process; an inclusionary approach derives the benefit of local knowledge, balances real estate development against other community goals, and creates a knowledgeable constituency that is more likely to embrace redevelopment policies and programs that come into play after disaster strikes.

5. Ensure Federal Systems for Catastrophic Breaches in Community Resilience

Observation: A catastrophe is not simply a "big" disaster, but a qualitatively different event that outstrips and outpaces a large region's ability to respond and recover; federal assets are critical when the limits to community resilience are breached.

As has been driven home by the Hurricane Katrina experience, catastrophic events represent not only a larger scale of destruction and disruption than disasters, but a much greater level of complexity in terms of response, recovery and reconstruction challenges. The magnitude of need in a catastrophe is immense. Response and recovery are not simply a matter of scaling up systems designed for smaller disasters. The majority, if not all, of an area's built structure is compromised, including the facilities and operational hubs of emergency organizations. Emergency responders and elected and appointed leaders are victims themselves and face major hurdles, some insurmountable, in fulfilling their professional obligations. Assistance from near-by communities is

drastically impaired, due to the broad reach of destruction. Everyday community functions—work, worship, commerce, recreation, education, domestic life—are abruptly derailed, and lifeline infrastructures are so disrupted that the "basics"—electricity, water, mail services, medical care, phone connections, open roadways—stop altogether or are in short supply. Impacts are cascading and widespread, and they radically complicate the process of recovery. Current federal, state and local plans and policies do not address the unique demands posed by these infrequent but high consequence events. Moreover, it would be very difficult for localities that had not experienced a catastrophe to anticipate the special challenges that evolve in its wake.

***Recommendation*: The federal government should engage with states in advance planning, staffing, and drilling for response and recovery/reconstruction operations tailored to catastrophic events.**

The federal role in facilitating effective response and recovery/reconstruction processes in the event of a catastrophic is indisputable. A focused effort to enhance federal capacity for dealing with the extreme demands of catastrophes is necessary, however, because these events are too few to have fostered much prior experience and because the present aid system is designed largely for small-to-moderate disasters. In order to develop sound catastrophic plans, the federal government should partner with state and local governments that have experienced a catastrophe, to co-produce technical and organizational guidance and drills for recovery/reconstruction, including coordination with nonprofit agencies and the business sector. Federal funding should also support federal/state collaborations for the needed "surge" staffs of technically sophisticated, drilled and committed personnel knowledgeable about catastrophes to permit a quicker, more effective response.

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Documents consulted in the preparation of this policy brief:

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