University of Delaware
Disaster Research Center

MISCELLANEOUS REPORT #52

SOCIAL SCIENCE RESEARCH:
PRIORITY AREAS FOR THE
NATIONAL PLAN FOR
RESEARCH AND DEVELOPMENT

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2005

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Priority Areas for the National Plan for Research and Development

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The terrorist attacks on the United States on September 11, 2001 (9/11) resulted in the costliest and deadliest disaster in the nation's history. These attacks manifested the nation's vulnerability to these types of disasters and demonstrated that the country was not prepared to confront an event of this magnitude and complexity. However, social science research has shown that the organizational resilience of emergency management organizations enhanced their capacity to respond to this devastating event (Kendra and Wachtendorf, 2003a). This terrorist attack reinforced what the social science disaster literature has shown for other types of disasters and emergencies: that planning, coordination, and communication are crucial elements in preparing, responding, and recovering from a disaster. However, it is important to note that despite extensive disaster response plans, organizational creativity and improvisation proved to be important elements of disaster response following the 9/11 attacks. As stated by Kendra and Wachtendorf (2003b:52), focusing on emergency management organizations responding to the attacks on the World Trade Center, "training and preparation remain fundamental, but creative thinking, flexibility, and the ability to improvise in newly emergent situations are vital." The 2001 terrorist attacks on the United States also highlighted the importance and contributions of social science research in this area and how we can integrate the extensive body of knowledge and research in this field to better understand, prepare for, and respond to these types of events.

The Executive Office of the President Office of Science and Technology Policy (OSTP) and the Department of Homeland Security (DHS, 2004) have produced an extremely important "National Plan for Research and Development in Support of Critical Infrastructure Protection." In this document, the importance of generating research that "addresses physical, cyber, and human elements of the critical infrastructure sectors" is highlighted (vii). Research areas that are emphasized in the Plan include, among others: protection and prevention; response, recovery, and reconstitution; new and emerging threats and vulnerabilities; and human and social issues. The national R&D Plan highlights the need to "provide public awareness of the risks, how they are being addressed, and how decisions are being made involving investment, threats, and value to the nation" (ix). It also emphasizes the role of communication and how it impacts the protection and response of personnel. The R&D Plan focuses on the importance of providing "an integrated view of societal risks from terrorist events, natural disasters, and other emergencies for incorporation in decision support systems to anticipate and evaluate alternative risk reduction investments and emergency response decisions" (xi). Ultimately, the Plan aims to enhance research that will "reduce America's vulnerability to terrorism" by allowing us to provide timely warnings and ensure the protection of the nation's critical infrastructure. Taking these issues into consideration, we propose a number of

social science research areas which are extremely important, timely, and will contribute to the nation's ability to anticipate, prepare for, respond to, and recover from such devastating events as the 2001 terrorist attacks on the United States.

Key Social Science Research Topics

1. Terrorist incidents within the United States are a rare and relatively recent phenomenon. However, the social sciences have been assessing the impacts and consequences of rapid-onset and unanticipated extreme events on individuals, organizations, and communities for over 50 years (Quarantelli 1978; Drabek 1986). A large body of social science literature exists on how large-scale disasters affect the behavioral response of victims impacted by the disaster event, as well as those who are physically outside of those communities, including the impact of community preparation for and response to extreme events on overall resilience (Tierney 2001); the impact of disasters or anticipation of future events on threat perception and behavioral adaptation (Turner, Nigg & Paz 1986), and recommendations related to evacuation behavior, communicating risks, and developing integrated warning systems (Rodriguez, 2004; Rodriguez, Diaz, and Aguirre, 2004; Tierney, Lindell, and Perry, 2001; Blanchard-Boehm, 1998; Mileti, 1999; Mileti and Sorenson, 1990; Nigg, 1987, 1995). Despite the depth and breadth of this knowledge, a key question needs to be asked: How relevant is this literature in addressing similar issues related to terrorism? Is a human-induced disaster (i.e., terrorism) so radically different from other types of disasters (natural, technological, or environmental) that existing research-based literatures are of no use for understanding terrorism, its impacts and consequences? We believe that this is not the case. However, it is important to determine what we really do know that can be applied to terrorism situations in order to fill the knowledge gaps that do exist. Research in this area would generate scientific information and data aimed at enhancing national capabilities for readiness, response, and resilience of the public and sub-national governmental units to terrorist attacks. By using extant literatures, state-of-the-science summaries can be generated regarding what is known in the social sciences about citizens', organizations' and communities' preparedness for, response to, mitigation for, and recovery from extreme events, with particular attention to their applicability to terrorist events.

2. Local and state governments in the United States have historically had the primary responsibility for preparing for and responding to natural and technological disasters. Since FEMA was established in 1979, extensive programmatic efforts have focused on improving the knowledge, skills, and technologies available to communities and states to develop enhanced capabilities to plan for and respond to moderate and large-scale disasters without requiring substantial resources from the Federal government. While the level of emergency management capability varies widely across the country, most large, metropolitan areas have sufficient knowledge and/or experience to demonstrate a high degree of inter-organizational and intergovernmental integration and coordination necessary to successfully deal with a variety of extreme events. A major issue in the United States' efforts to lessen its vulnerability to economic, social, and political disruption resulting from future terrorist attacks is the extent to which local and state governments are similarly prepared to respond to and recover from a variety of potential terrorist threats. Given that these are newly emerging threats with relatively unknown risks and consequences, it is important to determine the extent to which these local governments can extrapolate their current level of expertise and knowledge to address the unanticipated complexities that terrorist threats will produce. The primary objective in this research area is to improve our understanding of sub-national governments' capacity and capability to prepare for future terrorist threats and activities with respect to awareness, anticipation, prevention, response and recovery; to assess their current capacity for resilience to future terrorist acts; and to discover the knowledge and programmatic gaps that need to be addressed in order for them to enhance that resilience.

3. In the Emergency Management area, "best practices" are often derived from the "lessons learned" by a community that has experienced a major disaster (Nigg, *et al.* 2000; Wachtendorf, 2002a, 2002b). Similarly, social scientists have found that individuals who live in a community struck by a disaster are likely to change their perceptions of risk about that disaster agent and what can be done to lessen its future impacts (Turner, Nigg, & Paz 1986). However, other research seems to suggest that when citizens believe that their community has taken adequate mitigation actions to ensure their safety, they personally are less likely to maintain a belief that they are still at risk and are, therefore, less likely to 'continue to be prepared (Hannigan & Kueneman 1978). It is extremely important to understand how experiences with past terrorist activities have influenced the ways in which people are coming to view the terrorist threat and what they believe can be done to prepare for it. Are people more or less fatalistic (e.g., nothing can be done so why try to prepare) about the threat than are people in other communities? Are those in communities where terrorist acts have taken place (New York City, Washington, D.C., and Oklahoma City) more likely to support more governmental actions to lessen their vulnerability than are residents of other communities? Is there a difference in citizens' attitudes and behaviors when the terrorist was a citizen instead of a non-citizen? Answers to these types of questions are necessary to develop educational and training programs that will be positively accepted and supported by U.S. citizens. The results of these studies would also provide information to policymakers and program managers in order to develop targeted strategies (for specific social groups and communities) that address: perceptions of terrorists, local risk, and the consequences of terrorist acts; behavioral changes that would enhance resiliency; and the development of information strategies during non-emergency periods and disaster episodes. This research would also allow us to determine how individuals and their communities understand the various types of terrorist threats, their consequences, and their options for minimizing their vulnerability.

4. To date, the health consequences resulting from natural and technological disasters in the United States have easily been managed by our traditional health care, hospital, and emergency medical care systems. The adequacy of physical hospital facilities has been improved to withstand geologic, atmospheric and hydrological agents; sufficient medical professionals have been available in post-disaster situations to treat victims; no shortage of diagnostic or treatment equipment and supplies have been discovered. The United States has been spared human-induced (terrorist) attacks using biological, chemical, and radiological (BCR) agents. However, the consequences of such attacks could rapidly create widespread social disruption as speculation about health consequences overwhelms the medical community. Similarly, few medical facilities have substantial isolation or decontamination facilities if faced with more than a dozen or so victims at one time. Also, plans for the provision of mass immunizations or prophylactic medications are at a very preliminary stage. Given our lack of experience with these types of agents, Public Health must be a focal element of our critical infrastructure that needs immediate attention. In June, 2004, the Disasters Roundtable and the Roundtable on Environmental Health Sciences, Research, and Medicine of the National Academies sponsored a joint workshop that examined the issues of health risks and disasters, with an emphasis on the type of health risks, capacity needs, and research needs that are necessary to adequately respond to a variety of crisis conditions (IOM and NRC, 2005). Little previous contact had existed between members of these two communities, demonstrating the lack of awareness of research literatures and operational assumptions. Similarly, public health (other than the systems addressing traditional problems mentioned above) has not been formally integrated in the emergency management system. Primary research questions to address this issue include: How can public health planning be informed by previous disaster research? What is the best way to integrate public health planning and response with federal, state, and local emergency management systems? What types of public educational needs must be addressed in order for positive, adaptive behaviors to be taken in BCR events? When BCR events are identified, how can information be effectively communicated to the public?

5. Pre-disaster planning is essential to an effective disaster response but organizations are also more resilient when they can anticipate shifting environments, develop planned courses of action, and demonstrate flexibility and the ability to improvise under time constraints when unanticipated situations emerge (Wachtendorf, 2004; Kendra & Wachtendorf, 2003; Dynes & Drabek, 1994). Indeed, planning and improvisation must work in concert with each other. Organizational changes in the post-9/11 environment, however, have deemphasized the role of improvisation in resiliency. Research should focus on the development of appropriate strategies to foster a culture receptive to both planning and improvisation in organizations charged with disaster management activities.

6. Disasters do not respect political boundaries (Wachtendorf, 2000). Given the increasingly global nature of economic and social systems (e.g., interdependencies of the systems and cascading events that may result from a hazard event), it is important to understand how to best mitigate, plan for, respond to, and recover from disasters that impact transnational critical systems, including economic and health related systems. Understanding security, disaster preparedness efforts, and response capacity along U.S. borders and with global systems is key to bolstering resilience to terrorist, human-induced, and natural disasters.

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