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INTRODUCTION

Organizational Reform and Technological Innovation in Emergency Management

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As the new millennium approaches, important and fundamental changes are taking place in the profession and practice of emergency management. Not least of these changes are organizational reforms to correct past deficiencies and build capacity for future action while incorporating new applications of technology to reduce environmental risks and manage disaster responses and recovery efforts more effectively. To some extent, the organizational reforms in emergency management are part of the larger movement in the U.S. and other developed nations to reform, reorganize, reinvent, and reengineer government operations and to develop more cooperative and collaborative efforts among the public, private, and nonprofit sectors. However, on a practical level, the reform and technological innovation are products of disaster experience, i.e., the "lessons learned." The impetus for change is both internal and external to the field, for example:

1. Scientific knowledge, particularly regarding causal relationships, and technical skill are expanding our knowledge of hazards and how to deal with them;
2. Regional and local preparedness and mitigation programs are being encouraged to reduce reliance upon the resources and expertise of the national government;
3. Multi-hazard approaches are being implemented to provide greater programmatic flexibility and to expand operational capacities at all levels of government;

4. Nonstructural mitigation, particularly land-use and building regulation, is increasingly incorporated in emergency management planning;
5. Linkages of government disaster agencies with private and nonprofit agencies is broadening the resource base and capacities of emergency management systems at all levels; and
6. Professionalization of the field of emergency management is expanding the capacities and perspectives of officials and agencies (Waugh 1996).

These changes in emergency management are being driven by a variety of factors, not least of which are political pressures to reduce the very role of government in society and the normal process of institutionalization as the function of emergency management is recognized as important and integrated into the structures of government. Indeed, emergency management is a quintessential governmental function. National and regional governments are still expected to respond when local resources and capabilities are outstripped. However, there is an icreasing emphasis on decentralizing responsibility for decision-making to local authorities. This decentralization may reflect a renewed faith in local political, administrative, and fiscal capacities. It is also an acknowledgement of the need for broad community participation and greater reliance on individual responsibility. Clarifying the roles of public, private, and nonprofit organizations helps to "civilianize" emergency response and recovery, and give support to the legal, political, and administrative responsibilities of local and state officials.

Decentralization of policymaking and program administration may also reflect an ideological shift that emphasizes local autonomy regardless of capacities. Clearly, there is tremendous unevenness in local capacities, with some governments being highly competent and others unable to perform even routine tasks satisfactorily. As local governments are told to assume greater responsibility for the protection of their own residents and property, they are forced to become more creative in identifying needed resources. Local officials are learning to identify and use resources that encourage risk reduction and preparedness at the regional, state, community, and individual levels and to become less reliant on traditional governmental and charitable relief agencies. Mitigation has become the central focus of emergency management policymaking, although many communities still fail to recognize and address risks. Increasing professionalization of local emergency managers and other public safety personnel is one result of the decentralization trend.

Perhaps more importantly, emergency management is becoming a major political and administrative concern for public officials at all levels. The heightened interest in emergency management is a function of at least three factors. First, the professionalization of the field of emergency management is creating administrative and political constituencies to support organizational and procedural reform and is increasing the application of new scientific and technical

expertise. While seeking the "lessons learned" is something of a cliché among emergency managers, professional managers are better able to glean general lessons from disaster experience and to avoid "fighting the last war." The process of professionalization, too, is also encouraging the "demilitarization" of the field, reorienting agencies from their earlier "command and control" orientations to more coordinative and cooperative orientations and changing priorities from civil defense programs to natural and technological disaster programs (see, e.g., Waugh 1993). This "lesson" may eventually extend to international relief efforts where the cultural conflict between military and humanitarian organizations has reduced the effectiveness of the operations (Pan American Health Organization 1995).

Second, there are strong political pressures to reorganize and reform emergency management systems to reduce the cost of disaster response and recovery. In some measure, that involves reforming disaster agencies (see, e.g., Sylves 1996) and restructuring state and local government relationships (see, e.g., Sutphen 1996; Waugh and Sylves 1996; and Waugh 1994). Agency budgets and professional careers hang in the balance when disaster operations are perceived to be significantly less effective than they should be. Moreover, there is increased concern among public officials about their personal exposure to political and legal liability for failure to respond effectively. In the U.S., President Bush was severely criticized for the slow response to Hurricane Hugo in 1989 and came close to losing critical electoral votes in the state of Florida after his administration's poor performance during the Hurricane Andrew disaster in 1992. That lesson was not lost on his successor. The Clinton Administration has been very quick to respond to major disasters. Governors and mayors have similarly been encouraged to pay due attention to response and recovery capabilities. Effective disaster response, in a sense, has become a barometer of administrative capacity. For local officials, the "first responders" and policymakers, there is also legal risk when there is inadequate preparation for disaster and/or ineffective disaster response, or even the perception that efforts were less adequate than they should have been. Local officials can be held personally liable for failing to prepare. Even reasonable evacuation decisions and other disaster responses can result in lawsuits, as well as cost votes.

Third, innovative technological advances are transforming the practice of emergency management. Information on hazards and disasters has expanded tremendously with the adaptation of some military technologies, particularly satellite imaging and surveillance technologies, to civilian use. More applications are being drawn from such civilian functions as city planning, property tax assessment, and traffic management as well. Whatever their origins, geographic information systems, decision support systems, satellite communication systems, satellite mapping, computer modeling, virtual reality technologies, global

positioning systems, and a variety of other technologies are permitting the decentralization of operational decisionmaking. Information and communication technologies, too, are helping emergency managers in distant emergency operations centers to sort through the flood of data, select out relevant information, and communicate it to personnel in the field. As a result, personnel on-site during the disaster can be the eyes and ears of local, regional, state, and even federal EOCs providing critical information for the setting of priorities and the allocation of resources. Emergency managers are better able to manage the information they receive so that decisionmaking can be decentralized, federal and state resources can be brought to bear in support of local disaster operations, and local capacities for a variety of administrative tasks are enhanced.

And, fourth, greater understanding of hazards and the dangers they pose is encouraging attention to the variety of vulnerabilities in modern society. The special needs of the elderly, children, nonambulatory patients, ethnic minorities, non-English-speaking residents, homeless individuals, pets and other animals, and other groups are increasingly being addressed. The unique and not-so-unique vulnerabilities of museums and other cultural and scientific facilities, computer processing and record storage facilities, communications networks, utilities (especially water supplies), health care facilities, and other sites with fragile and valuable properties are also being addressed. Economic impacts, including effects on small businesses and on employment, are also being assessed. In short, the scope of emergency management concerns has broadened tremendously over the past twenty years, as has knowledge about hazards and human behavior.

The Symposium

The articles in this symposium offer broad evidence of the organizational and technological changes taking place in the practice of emergency management. The first article, by Richard T. Sylves, elucidates the national system to manage the hazard posed by shipborne oil transport and to respond to oil spills. The Exxon Valdez spill in 1989 demonstrated the need for increased regulation of oil transporters to reduce the risk of oil spills, clarify the responsibilities of public agencies and private organizations, improve preparedness programs to facilitate speedy and effective response and recovery efforts, and develop better technologies for oil spill cleanups. To some extent, those needs have been addressed by the Oil Pollution Act of 1990 and increased monitoring by the U.S. Coast Guard and the U.S. Environmental Protection Agency. However, Professor Sylves draws attention to continuing problems regarding legal liability, spill clean-up, and the fragmented intergovernmental system.

The second article, by Delores Kory, uses survey data to show that there is support for regional emergency management efforts in southeast Florida and

argues that amendment of that state's Emergency Management Act (Chapter 252) could mandate or, at minimum, facilitate cooperation among the increasingly fragmented local governments. She uses the San Diego, California, regional system as a model that might be emulated by county and municipal officials on south Florida's Gold Coast. The three county governments and their ninety-seven municipal governments, according to Professor Kory, have ample precedent for collaboration and should be encouraged to do so. That their officials support such efforts lends weight to her argument.

The third article, by Louise Comfort, Ali Tekin, Ernesto Pretto, Bulent Kirimli, Derek Angus, and other members of the International, Interdisciplinary Disaster Research Group based at the University of Pittsburgh and at Ege and Ankara Universities in Turkey, focuses on mechanisms that may increase community capacities to respond to disaster. Using data from a devastating 1992 earthquake in the northern Turkish city of Erzincan, the research group examined the relationships among disaster experience or trauma, prior training or preparation, and capacity for action during the disaster. They conclude that training does improve capacities for disaster response dramatically and can be a critical resource for the entire affected community. The study provides a strong argument for local "disaster response systems" to make communities more resilient when disaster strikes.

The fourth article, by Eve Grundfest and Marc Weber, addresses the growing use of the Internet by emergency managers and disaster researchers. Grundfest and Weber describe Internet communications from listservs to field surveys, including the "networks" created by the communication medium, bulletin boards and data sources on specific disaster types, real-time data sites, government agency sites, and educational sites. They conclude that the value of the Internet as an electronic information source, a mechanism to communicate with experts virtually anywhere in the world, and a source of public information during disaster operations is only slowly being realized. The Internet is becoming a critical resource and an invaluable tool.

References

Pan American Health Organization. 1995. "Bridging a Gap Between Two Cultures: Military and Humanitarian." *Disasters: Preparedness and Mitigation in the Americas* 64 (October):1,7.

Sutphen, Sandra. 1996. "California Wildfires: How Integrated Emergency Management Succeeds and Fails." Pp. 161-188 in *Disaster Management in the U.S. and Canada*, edited by Richard T. Sylves and William L. Waugh, Jr. Springfield, Ill.: Charles C. Thomas Publishers.

Sylves, Richard T. 1996. "Redesigning and Administering Federal Emergency

Management." Pp. 5-25 in *Disaster Management in the U.S. and Canada*, edited by Richard T. Sylves and William L. Waugh, Jr. Springfield, Ill.: Charles C. Thomas Publishers.

Waugh, William L., Jr. 1997. "The Fiscal Risk in All-Hazards Emergency Management OR the Political Hazard of Rational Policy." *International Journal of Public Administration* (forthcoming).

———. 1996. "Disaster Management for the New Millennium." Pp. 344-359 in *Disaster Management in the U.S. and Canada*, edited by Richard T. Sylves and William L. Waugh, Jr. Springfield, Ill.: Charles C. Thomas Publishers.

———. 1994. "Emergency Management and State and Local Government Capacity." Pp. 221-237 in *Cities and Disaster: North American Studies in Emergency Management*, edited by Richard T. Sylves and William L. Waugh, Jr. Springfield, Ill.: Charles C. Thomas Publishers.

———. 1993. "Co-ordination or Control: Organizational Design and the Emergency Management Function." *International Journal of Disaster Management and Prevention* 2 (December):17-31

Waugh, William L., Jr. and Richard T. Sylves. 1996. "Intergovernmental Relations of Emergency Management." Pp. 46-68 in *Disaster Management in the U.S. and Canada*, edited by Richard T. Sylves and William L. Waugh, Jr. Springfield, Ill.: Charles C. Thomas Publishers.