MAJOR THEMES IN DISASTER PREPAREDNESS AND RESPONSE RESEARCH*

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Little systematic social science research was conducted on disaster preparedness or response for 30 years following Prince's (1920) detailed analysis on the community actions taken after two ships collided at the Halifax harbor in 1917. During the past three decades, however, hundreds of researchers from all facets of the social sciences have constructed a substantial information base (e.g., Barton 1969; Dynes 1970; Drabek 1986). Following brief comment regarding the context and limitations of this research base, I will summarize the major themes that comprise it and then briefly comment on research opportunities within the Central American context.

The Context: Methods, Theory, and Practice

To place this summary of conclusions into context, I am compelled to make brief comment regarding the status of: (1) methodologies used, (2) theoretical integrations, and (3) application efforts. This brief assessment is intended to highlight weaknesses in the research base, pinpoint key substantive issues, and establish the broad contours of the future research agenda.

Methodologies Used

While there are exceptions, the vast bulk of this research base is comprised of studies that are largely focused on single disaster events. Research designs that incorporate multiple events and multiple communities have become more common since I (Drabek 1970) and others before me (e.g., Cisin and Clark 1962) underscored this deficiency. As Mileti (1987) later noted,

however, these design limitations have precluded us from adequately addressing the question of generalizability. This same deficiency is found regarding cross-societal comparison and cross-hazard generalization. We have assumed that certain principles may have validity across all such universes, even though most of us suspect that future research will establish sets of "conditional universals" that fit some events, but not others; some societies, but not all. Carefully executed studies and data syntheses should penetrate these issues in the coming decade.

Theoretical Integrations

Despite the efforts of some, e.g., Dynes, De Marchi,and Pelanda 1987, the linkages remain weak between major sectors of sociological theory and disaster research (Dynes and Drabek 1992). To some degree this reflects certain voids in sociological theory that have led disaster researchers to construct unique formulations to organize their observations. For example, Kreps (1989) has established insightful integrations between descriptive disaster response studies and fundamental postulates of classical sociological theory through a framework focused on the temporal sequences of four emergent processes (i.e., domain, resources, tasks and activities). The overall lack of theoretical integration also reflects the need for interdisciplinary formulations that better link disaster behavior to fundamental concepts and principles within political science, psychology, social geography, economics, anthropology, and other facets of the social sciences. Although a few distinguished efforts have made, e.g., Burton, Kates and White (1978), this challenge is an important priority in the future research agenda.

While research like Kreps's has pressed researchers to re-examine their assumptions about the concept of organization when they try to unravel the complex of activities that one observes during disaster responses, it is clear that the criteria selected to delimit the social units selected for study are but one critical research decision. Generalization of results is prohibited

if researchers have not explicated the criteria that define their units of analysis. The fundamental theoretical question of "what is an organization?" has its parallel with the controversy that surrounds the very definition of this research area. While most of us ignore this matter as we move from one research study to another, our failure to address the matter more carefully retards desired cumulation of findings. "What is a disaster?" remains a fundamental issue of theory that must be considered by future scholars.

Application Efforts

Despite these methodological and theoretical challenges, disaster research findings have impacted public policy and response capacity at all levels of the intergovernmental system. As Dynes and I (1992) have detailed elsewhere, the application of empirical research in training and policy has been extensive. This is true especially in the U.S.A., but also reflective of other national experiences such as Australia. Most notably has been the integration of a theoretical perspective that reflects a multihazard approach, i.e., comprehensive emergency management (CEM) and the debunking of numerous myths about disaster behavior (e.g., panic, looting, and personal disorganization)

In part, the impact on policy has been facilitated by the continuity of a few major research centers (e.g., the Disaster Research Center which was established at The Ohio State University in 1963 and relocated to the University of Delaware in 1985) and a variety of multidisciplinary dissemination strategies. Most notable among the dissemination strategies has been the Natural Hazards Research and Applications Information Center (NHRAIC) at the University of Colorado which sponsors an annual conference that brings about 350 researchers, policy makers and emergency management practitioners together to assess research program and identify new research needs. Through a widely circulated bi-monthly newsletter (i.e., *Hazards Observer*, about 8,000 circulation), an established monograph series, and an ongoing library

referral service, the Center performs a key integrative function. Given the multidisciplinary nature of disaster research, this function is critical.

Preparedness Themes

While dozens of specific conclusions and research findings could be identified (see Drabek 1986), I want to focus on three broad themes that define this area: (1) public expectations; (2) extent of disaster planning; and (3) professionalization of emergency managers.

Public Expectations

What does the public anticipate and expect regarding disaster preparedness? To some degree the answer remains unclear, but three key conclusions can be reached by reviewing numerous studies.

1. *Disaster preparedness is perceived by the public as a legitimate function of government.* During the past decade there has been a great deal of controversy within the U.S.A. and elsewhere regarding the distribution of services within the intergovernment system (i.e., among local, state, and federal agencies) and between the private and public sectors. The drift toward increased "privatization" of traditional governmental services has altered emergency management in important ways especially as more managers of private sector firms have recognized the desirability of establishing in-house disaster preparedness programs. Still, surveys (e.g., Turner et al. 1986) reveal that the public defines disaster preparedness as a legitimate function of government. When disaster victims are not assisted in a timely manner or when private firms respond ineffectively or unethically, pressures mount quickly for reorganization and increased regulation. My ongoing study of the tourist industry has documented that most

business executives, like the public generally, expects government agencies to prepare for disasters, especially those that are most probable (e.g., Drabek 1991, 1992).

Within the context of other social needs, however, disaster preparedness does not rank at the top of the list. By asking local and state political elites to rank a series of social ills, including crime and unemployment, Rossi and his associates (1982) argued that disaster preparedness was of lowest priority on the public agenda. It ranked just below pornography. While the survey results are clear cut, interpretation remains a matter of judgment (Drabek 1981). And by posing the questions as they did, the Rossi team stacked the deck to push disaster preparedness into a tier of near irrelevance (Wright and Rossi 1981). We know that perceptions of denial and keen fiscal competition act in concert to press disaster preparedness down toward the bottom of the policy agenda during non-disaster times. But many effective local emergency managers have perservered against these constraints to maintain the integrity of their program and thereby increase the disaster response capability of their community (Drabek 1990).

2. *Overall, the extent of disaster planning has improved significantly over the past decade, both in quality and quantity.* With aggressive efforts by governmental agencies and their sub-units e.g., the Federal Emergency Management Agency (FEMA), the extent of disaster planning has increased sharply within both the public and private sectors. CEM has been implemented through the integrated emergency management system (IEMS) as more and more communities have begun to assess their vulnerabilities carefully and engage in multiyear goal setting programs to enhance their response capability (see Figure 1).

There are important voids, however. Cross-hazard planning remains an idea to be implemented fully, especially in the technological dimension. While progress has been made, the volume and diversity of hazardous substances being moved through communities, stored there, and used regularly in routine manufacturing activities continues to place many locales at higher risk (Sorensen and Mileti 1987). Furthermore, certain industries, like tourism, remain minimally prepared given the significant vulnerability they have from hurricanes, tornadoes,

earthquakes, and other hazards. While my recent survey of 185 tourist business managers did reveal a modest amount of disaster evacuation planning, only 28 percent had any type of written plan. Furthermore, the percentages of managers who indicated that their plans were updated (22%) or exercised (5%) annually, were shockingly low (Drabek forthcoming).

3. *The single most significant societal change that has most altered community preparedness has been the increased professionalization of local emergency managers.* As CEM was adopted, local preparedness programs shifted from a narrow civil defense focus during the 1970s (Drabek 1987). To implement this shift, a new breed of governmental employees was required. No longer would retired military personnel dominate this occupation. And as "command and control" and nuclear war planning models became defined as inadequate organizing tools for community preparedness, new training programs were initiated within FEMA's Emergency Management Institute (EMI) located at Emmitsburg, Maryland. These programs have been augmented by satellite-based instruction established through the Emergency Education Network (EENET) and university-based undergraduate and graduate training in emergency management. Increased use of microcomputers for information storage and decision assistance is but one of the significant technologies that are driving the rapid professionalization of this occupation (Drabek 1991). In 1991, the primary professional association within local government, i.e., the International City Management Association, released the first major text within its management training core that is focused exclusively on this newly emerging profession (Drabek and Hoetmer 1991).

Response Themes

Among the hundreds of specific study findings that have piled up over the past three decades regarding human responses to disaster, many are subsumed within three broad conclusions. While these do not speak to numerous other issues that have been the research focus of some, they reflect the very core of the overall knowledge base.

1. *Disaster responses by individuals reflect a continuity of values and behavior.* These continuities are seen in numerous ways, but three have been of special importance in correcting a disaster mythology that had constrained emergency management professionals. First, initial responses to disaster events reflect controlled activism. Panic behavior is rare and so are lethargic or dazed responses. Rather than a victim population that is stunned into helplessness, the behavioral portraits clearly reveal quick responses. At times these may run counter to official plans, actions, or decisions, but close inspection reveals that victims and non-victims alike are responding within their value matrix and the information bases available to them. Family, friends and neighbors remain the primary concern and self-help actions are directed toward them in ways perceived as appropriate. When excess numbers of victims end up at a single hospital, panic behavior is not the reason, rather it is the desire to obtain quick medical treatment.

The second continuity is the minimal amount of anti-social behavior. Neither increased crime nor extensive looting follows most natural disasters. Of course, civil disturbances are a different type of event in which looting behavior is paramount for reasons that Quarantelli and Dynes (1970) have highlighted. Unfortunately, the public, both individuals and business owners, still carry the myth of looting in their perceptual base (Drabek 1992). And there may be exceptional conditions that loosen the social constraints that pattern these continuities. Based on his assessment of St. Croix after Hurricane Hugo, Quarantelli has proposed three key conditions that may be associated with increased looting after natural disasters, i.e., highly

stratified nature of the society, the temporary loss of social control by legitimate organizational authority and the continuity of a pre-event pattern of minor theft. His specifications are illustrative of the types of "conditional universals" that some of us believe will characterize the disaster knowledge base in a couple of decades after additional cross-societal studies of multi-event responses have been completed.

The third continuity defines the maximization of helping behavior, heroic actions, and altruistic sentiments. These three qualities are highlighted in most disaster field studies. This is not to say that conflict never exists. Certainly it does. But when the overall picture is reviewed, the items that stand out in disaster responses are these three behavior forms. Like the activism of quick victim and non-victim responses, however, helping behaviors may conflict with relief organization responses. At times the desire to be helpful results in an oversupply of used clothing, for example. Unless relief organizations have the capacity to manage the volume, much will remain unused. Indeed, the action, like victim transportation, may become a problem source, rather than a community resource. And that leads to a fundamental axiom of professional emergency management, i.e., understand and anticipate community responses so as to convert problems into resources.

2. *Interorganizational and community level responses reflect fragmentation and uneven levels of coordination.* There are many reasons why this response pattern continues today inspite of extensive preparedness actions. Overall, however, the U.S.A. picture has been one of steady improvement especially since the implementation of emergency operating centers (EOC's). High levels of organizational autonomy maximize performance within differentiated task domains. When disaster strikes, however, a new set of demands presses the fragmented system toward greater levels of centralization of decision making. This strain pattern has led some to impose militaristic concepts of command and control that have limited utility as coordination tools within the vast array of civilian agencies typically found at disaster scenes.

Implementation of human resources approaches to disaster planning are more appropriate among civilian agencies than military based command and control models (Dynes 1983). Thus, those responsible for planning should utilize existing habit patterns as the basis for emergency action, utilize existing authority structures, rather than create new ones. When outside resources are required those in charge must insure that they fit local sociocultural practices. They must take actions that will move the community back to normal as quickly as possible through existing social networks.

Improved response coordination also is directly related to pre-event patterns of interagency relationships. When effective managers have nurtured strong linkage systems prior to a disaster, the level of coordination has been improved significantly. Planning that works reflects commitment to the process as continual and involvement as those who will implement the plans established. Various other strategies for nurturing interagency linkages include constituency support, use of committees, and the like (Drabek 1990).

3. *The intergovernmental system reflects efforts at coordination by middle level managers who often are reduced in effectiveness by the politicalization of the disaster.*

Agency heads are protective of the autonomy of their unit. During disaster situations most will relinquish temporarily aspects of autonomy so as to permit more centralized decision making. This can be maximized if local, state, and federal agencies are communicating through a series of EOC's that permits smoother and more rapid communication flows. If every city agency, for example, is making independent and uncoordinated requests to the state disaster office, response effectiveness will be reduced. Hence, at this level, and between the states and the federal level, various mechanisms have been created to improve coordination. The creation of the Federal Emergency Management Agency in 1979 established a single point of contact for the states, who were in turn, urged to establish a comparable unit for city and county contacts. When large disasters occur, much of the recovery apparatus is coordinated through the Federal Coordinating Officer (FCO) who works closely with the state counterpart

(SCO). Despite high demand levels that often reflect urgency, these middle level managers can coordinate astonishing amounts of assistance for both individuals and local governments.

At each level of the intergovernmental system, however, and not well documented by social scientists to date, aside from a few exploratory studies, e.g., May 1985, disasters become objects of interest for political systems. As this happens, new levels of communication emerge and at times varying political agendas impact the response pattern. Usually middle level managers seek to buffer the response systems from these forces, but unmet demands become easy targets for those seeking to use the disaster for political gain. At times, various procedures and policies may be altered as the bargaining process unfolds. Interest groups too may seek to use the disaster as a rallying point for their respective agendas. As the number and intensity of such efforts cumulate, the operating system of middle level managers, may discover that coordination has become reduced significantly as has their ability to control the complex intergovernmental system.

The Central American Context

These themes can be placed into the central American context by considering three key points of focus. While my personal knowledge of Central American history and culture is limited, papers by Lavell (1991a, b) provided numerous points of interface. Clearly, disaster vulnerability is high as he documents for a variety of natural disaster, including hurricanes, earthquakes, volcanoes, and other hazards (1991a, p. 4).

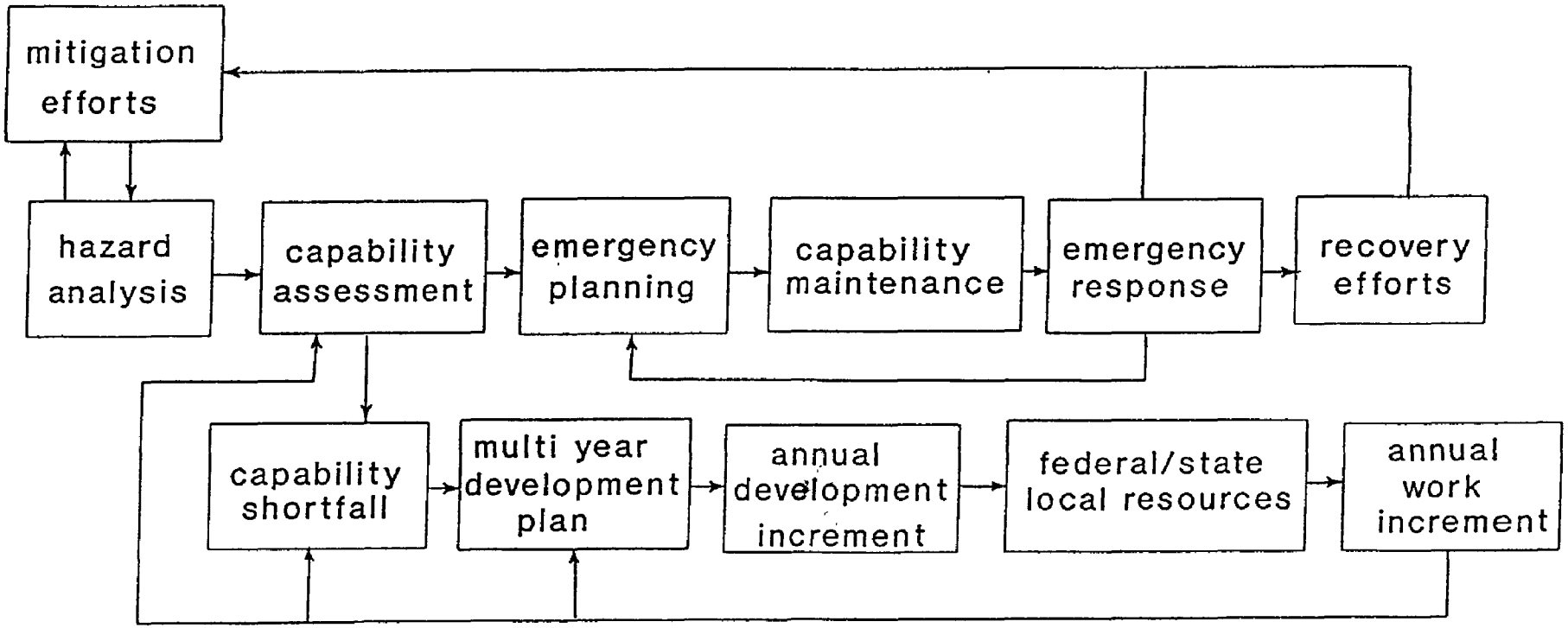
Although some studies of disaster preparedness and response have been conducted in Central America (e.g., a six country study of risk zone and options for disaster policy, Lavell 1991b, p. 5), the region presents many unique opportunities for social science research. Given the current limitations of the cross-national data base on disaster preparedness and response, studies on future disaster events should be implemented to add to the emerging world wide

data base. These studies could be focused on any of the issues described above with cultural differences and similarities as central themes in the analysis. Additionally, more policy oriented studies could be designed so that nation specific alternatives could be assessed.

A series of studies could be initiated regarding public education programs designed to improve preparedness levels. Lavell (1991b, p. 20) underscores the risk perceptions and fatalistic attitudes that may account for the current levels of interest. He proposes that, "communities which live under permanent conditions of risk but which have never been exposed to totally unmanageable contexts tend to internalize the risk as part of their 'everyday' living conditions." (1991b, p. 21). This is a general issue that many nations have confronted through a variety of programs. What types of demonstration projects might be designed for schools? What avenues are available for adult education? What roles can new information technologies play?

Finally, Lavell (1991a, p. 14) highlights the centralized nature of the Central American government structures. Local and intermediate, i.e., provinces, levels are weak, hence, a variety of coordination failures plague disaster responses (see Lavell, 1991a, p. 17 for specific examples). While social science research cannot change such institutional arrangements, two specific developments might improve coordination. First, the level of professionalism among local emergency managers should be assessed. Avenues for increasing professionalism should be explored. Specific demonstration projects could be monitored so as to ascertain the programs and practices that would best nurture future developments. Second, microcomputer systems are one of the many forces that are pressing local emergency managers into higher levels of professionalism. With enhanced capacity to manage disaster relevant information, all phases of Comprehensive Emergency Management (CEM) can be nurtured. Demonstration projects could be funded at provincial and municipality levels so as to stimulate adoption and implementation of this technology.

Figure 1
INTEGRATED EMERGENCY MANAGEMENT SYSTEM (IEMS)



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