

Human Resource Development for Emergency Management

Gilbert B. Siegel, University of Southern California

The subject of emergency management is complex for a variety of reasons. Obviously, there are many kinds of disasters. Rational handling of each kind requires different understandings about cause-effect nexuses, appropriate technology, planning approaches, changes of key actors and actions—all depending on whether it is before, during, or after the disaster. United States federalism and interest group politics further complicate the situation. They support a division of governmental authority and responsibility, while disasters frequently confound such a pattern through impacts which cross political and organizational boundaries. Preparedness planning and disaster recovery activities parallel this pattern.

This complexity extends to planning for human resource requirements as well. Human resources are humans capable of performing formally and informally prescribed roles in governmental, private, and third-sector organizations, and also as citizens. However, there are two groups of requisites for estimation of human resources requirements such as is done for various industries, employment sectors, and other domains. First, it must be possible to predict overall demand for outputs and future estimates of labor productivity. Second, it is necessary to develop production functions for either known occupational specialties or required skill mixes—i.e., knowledges, skills, and abilities, abbreviated below as KSAs. Thus, there is need for a data base and models which, unfortunately, do not exist for disaster management.¹ In order to satisfy these requisites, it would be necessary to conduct a hazard analysis for each community or problem shed. Later in this article, a synoptic view of a rational model of emergency management is presented including hazards analysis.

Even though it is not feasible to estimate the set of occupational specialties and number of human resources required for future time horizons, it is possible to infer the KSAs needed for key emergency management roles—emphasis being on management. The general title of emergency management specialist (EMS) will be used to refer to the relevant cluster of KSAs. KSAs are human attributes required to carry out organizational tasks and functions. Once derived, they provide the basis for development of personnel selection and assignment procedures, training or learning objectives, and position design or redesign variables.

Relevant KSAs are to be inferred from three sources of information and ultimately clustered under the phases of emergency management. The first source of

information is provided by a brief review of the literature on human behavior in disasters. It gives insights about what people do with and without training, organization, and control; it also clearly points to the need for such preparations. Next, the nature of the milieu in which emergency management must take place is examined. The force field of emergency management is intergovernmental, intersectoral, interorganizational, and interphenomenal. In looking around for conceptual tools to deal with this complexity, the approach of intergovernmental management may prove helpful. Intergovernmental management is an emerging perspective on public administration which is reviewed through experience in the human services field. The third source from which KSAs are derived is a rational model of emergency management which itself is based on a synopsis of the technical processes discussed in the emergency management literature. This greatly abbreviated model is discussed in the context of cross-organizational participation and networking. Finally, KSAs which comprise the new roles of emergency management specialist (EMS) are related to the phases of emergency management, and some observations about appropriate education and training are made.

The Behavior of Communities in Disasters

Among the dimensions on which disaster agents vary are speed of onset and length of possible warning. In general, the degree of community disorganization is inversely proportional to the length of the period of forewarning.² It is particularly difficult for an effective *ad hoc* communication and authority center to emerge when the period of warning is short.³ Finally, there are the factors of duration (an explosion is limited), scope of impact (several communities, one town, a region?), and destructive potential. When the impact is greater,

Gilbert B. Siegel is professor of public administration at the School of Public Administration, University of Southern California, Los Angeles. He received his Ph.D. in political science from the University of Pittsburgh. His teaching and research are mainly in the human resources management, management analysis, and environmental management fields. He was on the faculty of the former USC Environmental Management Institute. He has consulted for various United States governments as well as the United Nations. Internationally, he researched and consulted in Iran, Brazil, Thailand, Venezuela, and Korea. He edited, authored, or co-authored four books and numerous publications on public management subjects. He received the Mosher Award from *Public Administration Review* in 1967.

there tends to be a lack of consensus about what action is to be taken in the impact area.⁴ This leads to community stress, since it is difficult to maintain a highly integrated level of activity necessary to cope effectively with the impact.⁵

Barton⁶ describes several attributes of response in disaster situations by individuals and organizations. The distribution, spatially and organizationally, of persons with relevant skills is very important for adaptive behavior in disasters. Even when appropriately distributed, both organizations and individuals are highly dependent upon other organizations to coordinate their work. Organizations may have difficulty in making decisions and directing personnel under unexpected conditions because of unexpected tasks, inadequate leadership, or lack of previously worked out programs. Further, organizations may not define the situation as one that requires them to act.⁷

Barton and others make the distinction between mass assault and mass convergence in disasters. Mass assault is defined as the aggregate of activities by primary groups, composed of family members, neighbors, co-workers, and so forth, that attempt to help their own members and to solve the immediate problems created by the disaster.⁸ Sometimes, most of the rescue and first aid is performed by persons at the impact area before outsiders arrive. Mass assault can lead to problems, however, such as maldistribution and misconcentration of help relative to need. Mass convergence, on the other hand, often creates conditions that reduce the help that can be given. Convergence is of people, commodities, and equipment. People are sometimes sightseers and those seeking loved ones. Others want to assist in response activities. However, the concentration tends to immobilize other workers and to block transportation arteries. General appeals to the public without specification of requirements often create mass convergence. Donated supplies sometimes overwhelm the capacity for their use and often, when sent in response to nonspecific request, produce useless supplies.⁹ Among the most effective volunteers have been those who were formed as a team before they arrived, and who came from the same organization which was not affected by the disaster.¹⁰

Barton¹¹ sums up considerable research on disaster response in three conclusions about methods for increasing output of the emergency system. First, is the need for training for the general population, potential leaders, and others who might perform disaster roles. Second, accurate mass communications with trustworthy information on scope of impact should be provided; this should reduce mass convergence. Finally, a communications center is needed to receive all reports, to permit rational allocation of resources, and to make mass communication accurate.

According to J. R. Brovillette and E. L. Quarantelli,¹² bureaucracies react differently to disasters. In general, they found four internal factors which affect an organization's adaptation to stress. First, is the nature of demands as perceived by organizational personnel, e.g.,

hospital personnel abandoned all but emergency room activities. Second, the particular bureaucratic structure is important, especially the nature of its differentiation and stratification, e.g., police units usually operate more autonomously than fire department personnel. A third internal factor that affects differential adaptation to stress is the emergency capability of the organization and its relevance to emergency operations, e.g., having done disaster planning or possessing emergency equipment such as generators. Fourth, perceptions of effectiveness of emergency response may affect the mode of adaptation, e.g., after a tornado hospital staff began sending patients to other hospitals because they felt they could not handle the workload).

Additionally, these authors found that the ability of the organization to respond was dependent upon the nature of the interorganizational community relationships, such as those between the city and the neighboring Air Force base at the time of the Anchorage earthquake of 1964. These relationships provided a source of external resources. Also, the societal context in which bureaucracies respond is important; e.g., in Japan and Chile, response is different than in the United States because government is highly centralized.

Again, based on the 1964 Anchorage earthquake experience, Dynes and Quarantelli¹³ draw a number of conclusions. One that has not appeared extensively in other research is about the salience of individuals who occupy boundary roles between organizations. These people facilitate the exchange of information and resources. Sometimes these persons play key roles, such as a purchasing agent. Other times, they have membership in more than one organization (e.g., the police chief is also a member of the Red Cross disaster committee), or they are possessed of extensive friendships. The researchers point out that it is difficult to initiate new supplier-client relationships in disasters. It is, therefore, important to link with persons in authority who are able to release materials and equipment from various suppliers, thus, a form of networking.

Five generalizations about needs for emergency management may be drawn from this brief literature review. First, is the importance of planning and organizing in anticipation of disaster events. Behavior in planned situations is more efficacious and purposive. A second generalization is that training for actors in emergency management at all levels is extremely important. Third, along with training, emergency organization is an important element to be planned in key organizations. This may result in modification in structure, roles, and missions. The fourth generalization is the requirement for a command and control center to receive and send accurate messages, to allocate resources, and to establish control. Lastly, it is vitally important that key boundary spanning roles in the emergency management network be developed before disasters occur.

The Intergovernmental, Intersectoral, and Interorganizational Nature of Emergency Management

Legal responsibility and authority for natural and man-made disaster preparedness planning, mitigations, response, and recovery are assigned to multiple public jurisdictions and actors. Under United States federalism, primary responsibility for dealing with problems of hazard exposure is assigned to the states and, through their delegation, to component local government units. Thus, resting primarily upon the police power, each state is legally able to regulate a wide range of activities such as land-use planning, control of use, development, construction, and sale. What may not be regulated through land may be controlled in the interest of public health and safety.

While the states are greatly empowered, physical and political realities have thrust the federal government into a prominent position. Thus, the U.S. Corps of Engineers has constructed most of the major flood control works, and the U.S. Geological Survey has mapped most of the United States. Research is primarily conducted and financed by the national government. Ecologically and economically, many disasters overwhelm the capacity of a single state to respond, and some hazards are interstate in impact. Thus, many national policies are responsive to some aspect of the management of emergencies, and a significant symbiotic relationship exists between the states and the federal government.

Figure 1 is a tabulation of key federal agencies and programs related to natural hazards. Figure 1 also reveals the phenomenon of institutional pluralism in emergency management. This pattern is not limited to federal-state relations, but extends to relations among other governments and the private sector as well. No one level or function is assigned complete responsibility for even a single phase of emergency management. At the local level, departments of city planning, public works, building and safety, public health, fire, and police independently exercise control over one or more phases. Much the same situation exists at state and federal levels where major departments, regulatory commissions and independent agencies have responsibilities for specific elements. Interdependency also exists between the public, private, and third sectors. Private lending and insurance institutions constrain builders and purchasers to reduce the vulnerability of mortgaged or insured property to natural hazard. Ratings by insurers force up city fire protection expenditures through premiums charged property owners based on these ratings. Associations of private and public officials develop model standards, codes, and criteria for guiding governmental policy makers. Private organizations are usually called upon in mass emergencies to supply equipment and commodities. Various third-sector organizations, such as the Red Cross, the Salvation Army, and church groups, are activated in disasters

and facilitate the work of government, particularly in the disaster response phase.

Intergovernmental Management: An Ideal Type for Emergency Management

If, indeed, a situation of pluralism prevails in all aspects of the emergency management process something ought to be done to constrain the potential paralytic impact of unrestricted organizational pursuit of self-interest on the one hand, and nonconcerted action on the other. The idea of a super disaster agency at the local level is rejected as impractical. Instead, a system of cooperation and coordination based on participative planning, involving intergovernmental and interorganizational agreements, and requiring assiduous networking and communication is presented.

Robert Agranoff and Valerie Lindsay¹⁴ described intergovernmental management as applied to human services problem solving at the local level. Their research examined six intergovernmental bodies (IGBs) found in different metropolitan areas. Most of the problems generated required solving or participation by various governments and private and third-sector organizations in the social services area (Title XX Social Services, CETA, Community Development Block Grants, General Revenue Sharing, and various categorical programs). The IGBs were not as formal as special districts, but were more like intergovernmental compacts. The purpose of the IGBs was not coordinative; rather it was the solving of specific problems. However, the IGBs have not been rejected as a coordinative mechanism.

The problems had both political and technical dimensions which were bounded as narrowly as possible for solution. Decisions had to be made at several levels involving persons from different organizations. Thus, there was negotiated consensus before an IGB governing board was asked to decide upon or to ratify a solution. Special administrative tools were developed to deal with the nature of IGBs and interjurisdictional management problems. For example, one group identified problems with conflicting demands on service agencies. To eliminate these conflicting requirements a unified audit agreement among the organizations involved was devised, as was a cross-walk service classification system for compatible program and fiscal monitoring. This pattern of intergovernmental management involved joint management actions by separate organizations. In few cases did IGBs assume a role equivalent to a single governmental unit by carrying out a decision through its own structure. Usually financial resources also remained in separate organizations and jurisdictions, except for small amounts of money contributed to staff and operate the IGBs.

A Rational Model of Emergency Management

The preceding sections lead to three conclusions about requirements for an emergency management sys-

FIGURE 1
Key Federal Agencies and Programs Related to Natural Hazards

FEDERAL AGENCY OR ACTIVITY	PROGRAM	EARTHQUAKES	HURRICANE WINDS	TORNADOES	TSUNAMIS	LANDSLIDES	RIVERINE FLOODS	STORM SURGE	SEVERE WINDS	EXPANSIVE SOIL
Farmers Home Administration (DOA)	Emergency Loans	□	□	□	□	□		□	□	□
	Watershed Protection and Flood Prevention Loans						■			
Agricultural Stabilization and Conservation Service (DOA)	Emergency Conservation Measures	□	□				□		□	
Soil Conservation Service (DOA)	Resource Conservation and Development						■			
	Water Shed Protection and Flood Prevention						■			
Department of the Army Office of the Chief of Engineers (DOD)	Flood Control Works (Rehabilitation)		□		□		□	□	□	
	Flood Fighting and Rescue Operations						□	□		
	Flood Plain Management Services						■			
	Emergency Bank Protection						□	□		
	Small Flood Control Projects						■	■		
	Snagging and Clearing						■	■		
	Planning Assistance to States						■	■		
	Dam Inspection						■			
Public Health Service	Emergency Medical Service Planning	□	□	□	□	□	□	□	□	
Housing Protection and Mortgage Credit/FHA (HUD)	Mortgage Insurance: Disaster Victims	□	□	□	□	□	□	□	□	
Disaster Response and Recovery (FEMA)	Disaster Assistance	□	□	□	□	□	□	□	□	
Federal Insurance Administration (FEMA)	National Flood Insurance Program					■*	■	■		
Office of Plans and Preparedness (FEMA)	Emergency Management Assistance	■ □	■ □	■ □	■ □	■ □	■ □	■ □	■ □	■ □
	State Disaster Preparedness Grants	■	■	■	■	■	■	■	■	■
	Earthquake and Hurricane Loss Study and Contingency Planning	■	■							
Office of Disaster Response and Recovery (FEMA)	Disaster Assistance	□	□	□	□	□	□	□	□	□
Defense Electric Power Administration (DOI)	Electric Power Planning for Emergencies	□	□				□		□	
Bureau of Reclamation (DOI)	Reclamation Projects						■			
National Science Foundation	Basic Research	R	R	R	R	R	R	R	R	R
Small Business Administration	Loans to Natural Disaster Victims	□	□	□	□	□	□	□	□	
Tennessee Valley Authority	Water Resources Development and Flood Control						■			
Federal Crop Insurance Corp. (DOA)	Crop Insurance		□				□		□	
U.S. Geological Survey (DOI)	Prediction	■			■	■	■			
National Weather Services (NOAA)	Hazard Warnings		■	■	■		■	■	■	
National Meteorological Center (NOAA)	Hazard Warnings			■						
National Science Storm Forecast Center (NOAA)	Hazard Warnings			■						
Radar Report and Warning Coordination Circuit (NOAA)	Hazard Warnings		■	■						
GOES - Satellite System (NOAA)	Hazard Warnings		■	■	■					
National Hurricane Center (NOAA)	Hazard Warnings		■							
National Tsunami Warning Center (DOI)	Hazard Warnings				■					
Office of Coastal Zone Management (NOAA)	Coastal Hazard Mitigation	■	■		■	■	■	■	■	

Legend:

*mudslides only

- Programs with pre-disaster functions (disaster mitigation)
- Programs with post-disaster functions (disaster relief)
- R Programs with natural hazard research functions

Source: W. J. Petak and A. A. Atkisson, *Natural Hazard Risk Assessment and Public Policy: Anticipating the Unexpected* (New York: Springer-Verlag, 1982).

tem. First, planned and organized response is better than *ad hoc* community adaptation, although there have been several examples of spectacular human service through mass assault by persons fortuitously positioned. Second, successful emergency management efforts are by their nature intergovernmental, intersectoral, and interorganizational. Further, they require cooperative agreement, plans, and coordinated action for success. The third conclusion is that a model inspired by the idea of intergovernmental management can be instrumental in the planned management of large-scale emergencies.

Various policy formulation and administrative process models have been developed elsewhere in this symposium. Thus, the synoptic model which is shown in Figure 2 is meant to be neither comprehensive nor totally accurate technically. However, it provides the basis to derive the important emergency management role content of the EMS.

The four stages of dealing with emergencies are assumed for the model: preparedness planning, mitigation or prevention activities, response (usually the period of the first 72 hours), and recovery (the problem of rebuilding and returning to normalcy). It is also assumed that the process is followed separately for each specific type of disaster, although some of the structures and roles that are developed may have utility for multiple disasters. Each disaster plan and goals would have to be adopted by participating governments or by over-head jurisdictions, such as states or counties. It is imagined that the one continuous role throughout all stages of the process and aside from highest political and executive leadership, would be the EMSs. Thus, for example, they would be key staff persons before, during, and after both tornadoes and epidemics. Also, implicit in the model is the idea of intergovernmental problem solving, and a major role of the EMS would be to develop and maintain viable intergovernmental and interorganizational networks for the various areas of emergencies. Figure 3 summarizes by type of organization or function the potential categories to be involved in the networks at various emergency management stages. Of course, for any given problem shed such as a metropolitan area, these categories may represent hundreds of organizations.

In Figure 2, it can be seen that two types of formal committees are used: technical committees and policy committees. The technical committee in particular would, with some exception, be composed of different persons for each type of emergency. The policy committees, also specific for type of emergency, would tend to have considerable overlapping membership. Plans are drafted mainly by technical committees and approved by the constituent policy committees and home organizations or governments. During disaster response, the emergency operations or command and control center is staffed mainly by the same persons for all types of emergencies, although there may be additions and deletions depending on the crisis. The command and control center personnel would include designated high level

political, executive, functional, and technical personnel, including EMS staffers.

The Role and Requirements of the Emergency Management Specialist

The work of the EMS might be performed in two modes. One is a discrete job(s) with its own title. Alternatively, the tasks and functions might be performed under existing titles such as planners, environmental protection specialists, and middle management ranked police or fire jobs. EMS personnel are envisioned as staff rather than line positions, except insofar as they are assisted by other personnel. The idea is that the EMS must work through and derive authority from higher political and administrative officials, helping them to build, maintain, and cooperate with interorganizational frameworks for action.

The model in Figure 2 and ideas from intergovernmental management suggest a pattern of human qualification requirements. These are listed in Figure 4 as areas of knowledge, skill, and ability.

Finally, how will the attributes listed in Figure 4 be obtained in personnel? How many actual persons will be needed? As previously stated, many existing roles in formal organizations are close to that of the EMS, particularly in those organizations with major disaster responsibilities. In obtaining and developing personnel for new roles, the traditional modes of human resources procurement may be used; namely, recruit and select persons from inside or outside organizations, and develop candidates through training programs and/or assignments based on newly created or redesigned positions. External training and education, internships, and intergovernmental rotation of assignments are also useful. Intergovernmental assignments probably can be worked out by interested individuals and governments.

The Federal Emergency Management Agency (FEMA) has adopted the idea of the integrated emergency management system in which a variety of disciplines respond simultaneously and in unison when disaster occurs.¹⁵ This idea is embodied in the various courses and programs that FEMA offers and sponsors. Seminars have been developed in cooperation with the International City Management Association to involve local officials in disaster preparedness and response training, and with the National Association of Schools of Public Affairs and Administration in introducing disaster management in public administration curricula. FEMA's Emergency Training Center in Emmitsburg, Maryland, offers a variety of educational and training activities in fields such as: fire prevention, suppression, and investigation; comprehensive emergency management for state and local officials; policy conferences for top leadership in local and state governments, business, and the professions; and development of an annual issue agenda in cooperation with citizens representing many organizations which are concerned with aspects of managing emergencies. The National Training Center's

FIGURE 2
Synoptic View of a Rational Model of Emergency Management

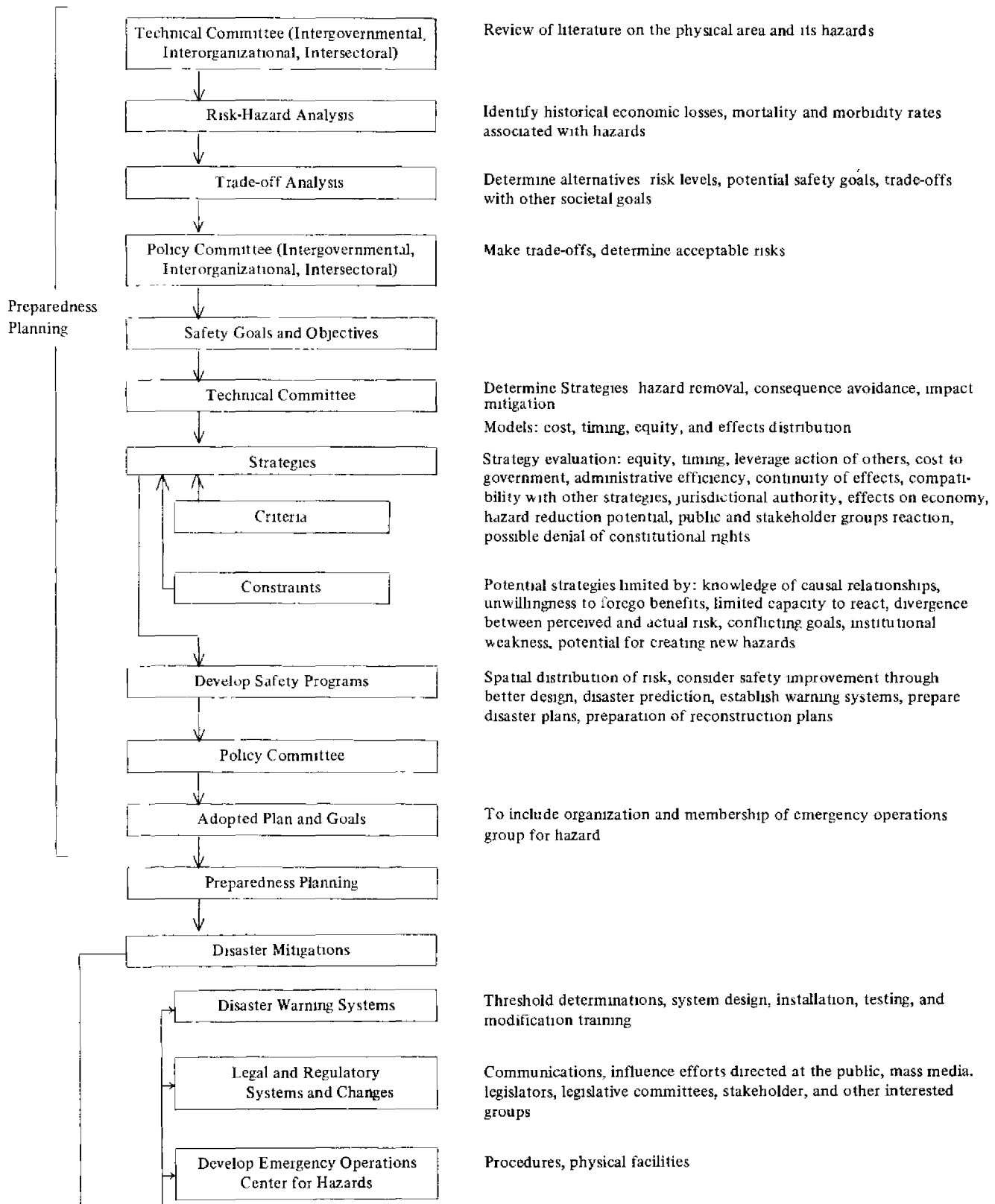


FIGURE 2 (continued)

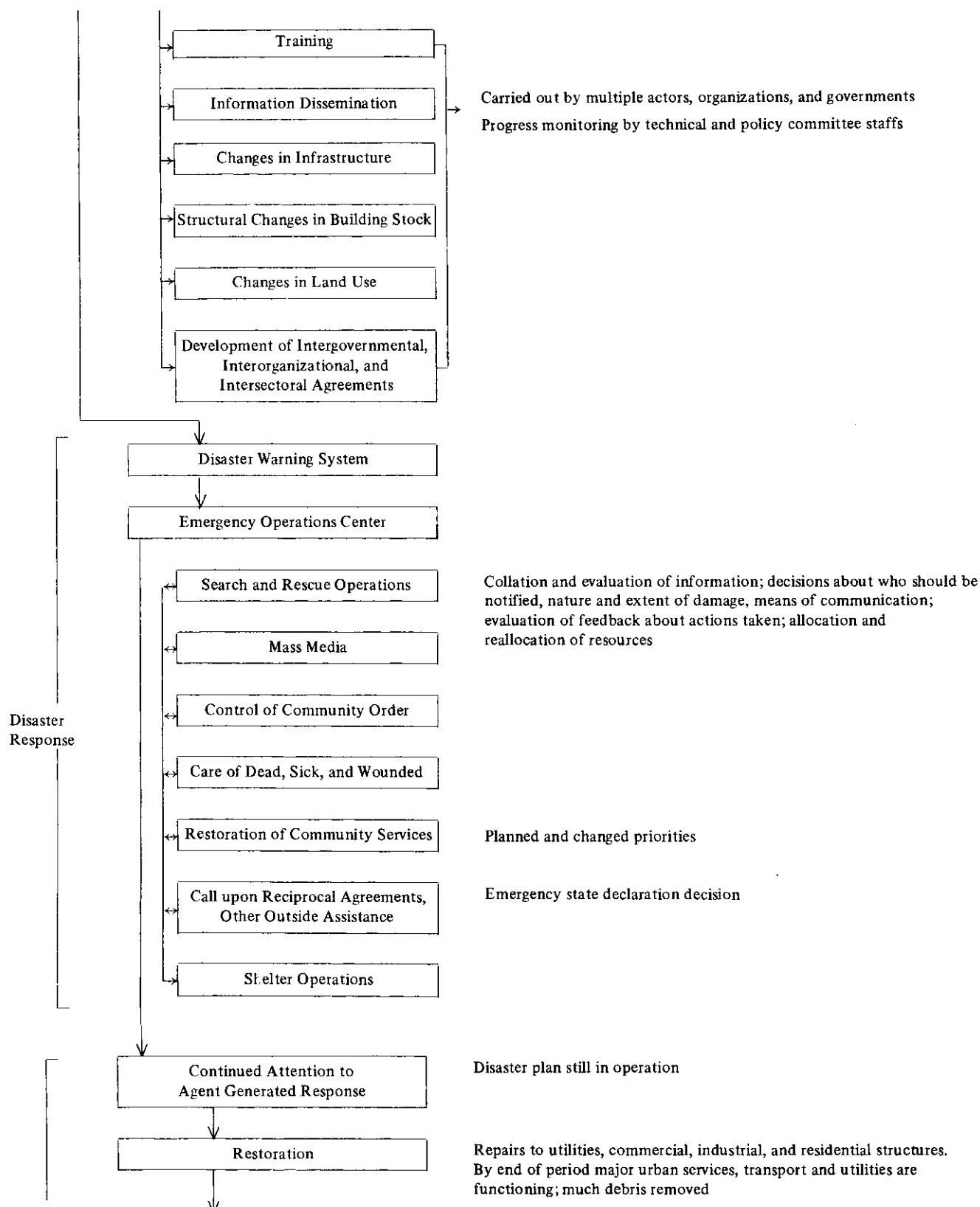
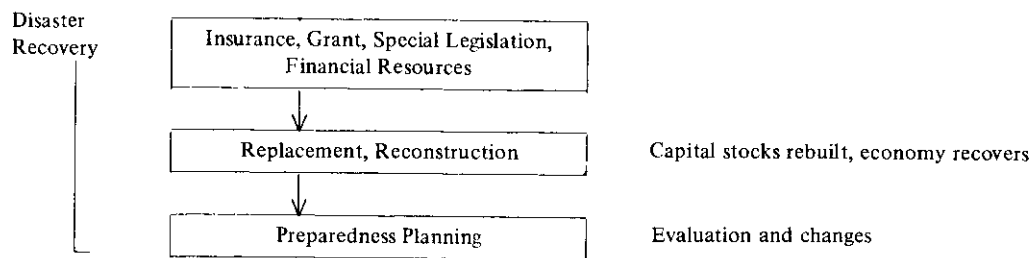


FIGURE 2 (continued)



Source: Modified after Harold D. Foster, *Disaster Planning, the Preservation of Life and Property* (New York: Springer-Verlag, 1980).

FIGURE 3
Possible Organizational Relationships and Emergency Management States

Organizational Relationships	Emergency Management Stages			
	Preparedness Planning	Mitigation	Response	Recovery
Local Government:	X			
Political Leadership		X	X	X
Administrative Leadership		X	X	X
Police			X	
Fire			X	
Public Works		X	X	
Roads and Streets		X	X	
Building and Safety		X		
Sanitation		X		
Water Supply		X		
Planning and Land-Use Control		X		X
Public Utilities	X	X	X	X
Medical Services:	X		X	
Hospitals				
Public Health				
Coroner				
Relief Agencies:	X		X	
Red Cross				
Salvation Army				
Federal Departments (e.g., NRC, USACE)	X	X	X	X
Contractors with Heavy Equipment	X		X	
Retail, Wholesale Stores with Trucks	X		X	
Retail, Wholesale Stores with Vital Supplies	X		X	X
National Guard	X		X	
Federal Disaster Relief				X
State Agencies (e.g., highways)	X	X		X
Welfare, Religious, and Service Organizations				X
Insurance Companies		X		X
Mass Media		X	X	X
Volunteer Organizations and the Public	X		X	

FIGURE 4
Human Resource Requirements for EMSs and Emergency Management Stages

Knowledge, Skill, and Ability Areas (KSAs)	Emergency Management Stages			
	Preparedness Planning	Mitigation	Response	Recovery
1. Understand the content of major statutes and their implementing regulations.	X	X		X
2. Understand the major temporal, spatial, and socioeconomic distributions of environmental quality and life quality measures.	X			
3. Understand the methods appropriate to development or analysis of a work plan or program including: flow charts, PERT/CPM charts, milestones, task distribution charts, functional authority matrices, organization charts, task statements, and decision trees.	X	X		X
4. Understand the legal status, general organization structures and major operating methods and milieus, and division of responsibility between the federal government, states, cities, towns, etc.	X		X	
5. Understand where to find and how to use standard sources of information concerning: laws, administrative regulations, health status, environmental quality, demography, environmental control technology, meteorology, soils structure and geography, public organizations, and expenditures and budgets.	X			
6. Understand the methods, techniques, and graphic displays utilized in project management.	X	X		X
7. Understand the sequences of operations performed in a formal problem policy analysis which includes use of appropriate risk assessment, cost-effectiveness, and benefit-cost methods.	X	X		X
8. Understand the formats utilized in budget documents, the flow of such documents through the budget/program system, and the principal decision modes within the system.	X			X
9. Understand grants administration regulations, standards, report formats, and auditing procedures and policies.	X	X		X
10. Understand the major elements in the legislative process of national and local governments and the principal actors involved in those operations.	X	X		
11. Understand the variety of factors which influence varying levels of organizational performance including: supervisory and managerial attitudes and practices; internal control procedures; wage and salary systems; recruitment, staffing, promotion, and retention policies and practices; program and policy development practices; and other factors.	X	X	X	X
12. Understand the constraints on and characteristics, jurisdictional-institutional settings, principal operational sequences, and environmental quality-safety relevance of the following types of programs: (a) land-use planning and zoning; (b) subdivision regulation; (c) permits and licenses for siting selected types of facilities; (d) building code enactment and enforcement operations; (e) housing and building occupancy codes; (f) community redevelopment systems and operations; (g) health and safety code enactment and enforcement operations; (h) use of special funding mechanisms for solid waste collection and disposal, potable and waste water transport, and sewage treatment programs; and (i) regional planning and review and comment procedures and policies.	X	X		X
13. Understand the major types of stakeholder groups whose interests are involved with emergency management programs, and the role of such groups in problem identification, policy development, and policy implementation.	X	X	X	X
14. Understand the processes of development of community safety plans, including: hazard identification, goals and acceptable risk, development and evaluation of strategies, safety programs and plans, as well as program evaluation.	X			

FIGURE 4 (continued)

Knowledge, Skill, and Ability Areas	Emergency Management Stages			
	Preparedness Planning	Mitigation	Response	Recovery
15. Understand hazard micronization in which different hazard zones are delineated, loss potential of alternative combinations of structural designs and land-use activity within zones are established, and standards are set for unacceptable risk to life and property.	X			
16. Understand the processes of development of disaster warning systems including: sources of hazard, monitoring, and warning systems design; installation and education of users; and system testing evaluation and modification.		X		
17. Understand the requirements for development of an emergency command and control center.		X		
18. Understand the research evidence on psychological and social (including bureaucratic) behavior in disaster situations.		X	X	
19. Understand political analysis: actors, interests, power bases, and constraints relative to intergovernmental problems.	X	X		
20. Be able to find, utilize, and understand technical articles in professional journals whose contents are relevant to problem identification, policy development, program planning, and program implementation operations.	X	X		
21. Be able to draft documents in unambiguous language such as the following: proposed regulations, technical articles and critiques, abstracts of technical and policy literature, grant applications, research and project management protocols, budget requests, and intergovernmental and interorganizational agreements.	X	X		
22. Be able to develop, use, and maintain networks of individuals from different organizations held together by common interests and exchanges of information.	X	X	X	X
23. Be able to use experts to identify hazards and their probabilities through interviews, conferences, Delphi, Nominal Group, Crawford Slip Technique, and other means.	X			
24. Skill in negotiation and persuasion and skill in listening.	X	X		
25. Skill in adapting problem-solving methods to new applications and skill in inventing methods.	X	X		X

Emergency Management Institute lists 78 different courses in its catalog.¹⁶

An example of an external educational program offered by a university is the Intergovernmental Management, MPA specialization of the School of Public Administration, University of Southern California. Students focus on the local, state, and national governments by rotating course work at the three campus centers in Los Angeles, Sacramento, and Washington, D.C. Didactic materials are slanted towards the level of government emphasized by the particular center. Each student takes an internship at each location as well. Many students functionally specialize their internships so that they obtain the vertical perspective of a function. This, of course, can be applied to emergency management.

Future demand for specialists in emergency management is a more difficult question than the job description and specification. Many functionally related jobs

already exist in organizations such as civil defense-disaster coordinators in local governments and government liaison roles in the Red Cross and the Salvation Army. Some of the planning activities, no doubt, are carried out by regional planning and environmental protection agencies and councils of governments. However, if the proposals here are taken seriously, it can be assumed that most major governmental entities will require EMS staff positions, as will most large private sector stakeholders, and that others will be required for state and federal agencies. Many persons presently in civil defense-disaster coordination roles may require retraining.

Summary

Initially some of the key literature on the behavior of communities in disaster situations was reviewed. These findings permitted limited generalizations about disaster

episodes. These are: the importance of planning and organization in anticipation of occurrence; the importance of training for virtually everyone; the need to establish emergency organizations; the requirement for an operations or command and control center to control information and resources and to assess efficacy and progress; and that key boundary spanning roles need to be established. The latter has been modeled as the EMS.

We examined complex legal-functional requirements and possible interactions between governments, private, and third-sector organizations within the system of federalism and interest group pluralism of the United States. The intergovernmental management analogy from the experience with human service programs was viewed as a useful mode of attacking the planning and management problems inherent in concerted action among such divergent groups.

A rational emergency management model was posited for the heuristic purpose of deriving sample human resource requirements for carrying out the EMS role envisioned. At the heart of the role is the concept of management in intergovernmental, intersectoral, and interorganizational contexts. Thus, EMS roles are to display a combination of political, communication, administrative management, and rational problem-solving knowledges, skills, abilities, and personal characteristics. Some suggestions for obtaining appropriately qualified personnel were given. No attempt was made to estimate numbers of persons required because of difficulties in estimating demand. It was noted that EMS tasks might be allocated in ways alternative to creating new jobs.

Notes

1. Alan Fechter, *Forecasting the Impact of Technological Change on Manpower Utilization and Displacement: An Analytic Summary* (Washington, D.C.: The Urban Institute, March 1975).
2. Charles E. Fritz, "Disasters Compared in Six American Communities," *Human Organization* 16, No. 2 (Summer 1957), p. 7.
3. James O. Thompson and Robert W. Hawkes, "Disaster Community Organization and Administrative Process," in G. W. Baker and D. W. Chapman, eds., *Man and Society in Disasters* (New York: Basic Books, 1962), p. 290.
4. William H. Form and Sigmund Nosrow, *Community in Disaster* (New York: Harper and Brothers, 1958), p. 111.
5. Fritz, *op. cit.*, pp. 28-29.
6. Allen H. Barton, *Communications in Disaster: A Sociological Analysis of Collective Stress Situations* (Garden City, N.Y.: Doubleday & Co., Inc., 1969).
7. *Ibid.*, pp. 130-135.
8. *Ibid.*, pp. 132-138.
9. C. E. Fritz and J. H. Mathewson, *Convergence Behavior in Disasters: A Problem of Social Control*, Disaster Study No. 9 (Washington, D.C.: National Academy of Sciences, National Research Council, 1957), pp. 22-23.
10. Barton, *op. cit.*, p. 190.
11. Barton, *op. cit.*, pp. 195-196.
12. J. R. Brovillette and E. L. Quarantelli, "Types of Patterned Variation in Bureaucratic Adaptations to Organizational Stress," *Sociological Inquiry* 41 (Winter 1971), pp. 39-46.
13. R. R. Dynes and E. L. Quarantelli, "Intergovernmental Relations in Communities Under Stress" (Columbus, Ohio: Disaster Research Center, The Ohio State University, October 1969).
14. Robert Agranoff and Valerie A. Lindsay, "Intergovernmental Management: Perspective from Human Services Problem Solving at the Local Level," *Public Administration Review* 43 (May-June 1983), pp. 227-237.
15. F. J. Villella, "Emergency Management in Public Administration Education," presented to the 45th National Conference of the American Society for Public Administration, Denver, Colorado, April 9, 1984, p. 11.
16. *Catalog of Courses 1983-1984* (Emmitsburg, Md.: Emergency Management Institute, National Emergency Training Center, Federal Emergency Management Agency).