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TEN CRITERIA FOR EVALUATING THE
MANAGEMENT OF COMMUNITY DISASTERS

E. L. Quarantelli

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**TEN CRITERIA FOR EVALUATING THE MANAGEMENT
OF COMMUNITY DISASTERS***

E. L. Quarantelli
Disaster Research Center
University of Delaware
Newark, Delaware 19716 USA

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ABSTRACT

In this paper we discuss what is important in the local managing of disasters. We contrast this with the related but different process of planning for disaster occasions. Our assumption is that what is crucial is not management per se, but good managing. Thus, to assess in any intelligent way the management of community disasters requires answering the question: what is good managing? The results of the empirical research undertaken by social scientists over what is now a 40 year period, are used for this purpose.

The criteria discussed have to do with: (1) correctly recognizing differences between response and agent generated demands; (2) adequately carrying out generic functions; (3) effectively mobilizing personnel and resources; (4) generating an appropriate delegation of tasks and a division of labor; (5) adequately processing information; (6) properly exercising decision making; (7) developing over all coordination; (8) blending emergent and established organizational behaviors; (9) providing appropriate reports for the news media; and (10) having a well functioning emergency operations center.

Also raised is the applicability of these research findings derived mostly from developed countries to developing societies.

INTRODUCTION

The major focus in this paper is on disaster management. There are some major differences between the preparing for and the managing of a disaster. For complex reasons, it is not always explicitly recognized or acknowledged that the *planning* and the *managing* of community disasters are two different although related processes. Perhaps it is because many government officials are often involved in both activities. Yet along certain lines the difference would seem fairly obvious. Researchers, for example, recognize that planning a study is different from managing a project carrying out that research. Even the Federal Emergency Management Agency (FEMA) in the United States recently started to emphasize performance rather than planning criteria in its evaluation of local emergency management agencies. Thus, our initial starting point is that the principles of disaster preparedness planning are different from the principles of emergency time crisis management.

The distinction perhaps can be understood by drawing a parallel to the distinction made in the military area between strategy and tactics. In general, strategy has reference to the overall approach to a major problem or basic objective. But there are always specific situational contingencies or factors that have to be taken into account in particular circumstances. This the military considers the province of tactics. Thus, if we think in parallel terms, we can equate good disaster preparedness planning with the best strategy that could be followed in readying a community for a sudden disaster, while good managing involves the use of the best tactics for handling the specific contingencies that surface in the emergency time of a particular disaster.

Furthermore, we assume that what is crucial is not managing, but good managing. All disasters get managed one way or another, even if everything done is "wrong." Thus, an intelligent assessment of disaster management requires asking the question: What is *good* managing?

It would be possible to advance an ideal version of what should be, but we prefer to root our answer to the question in the empirical research already undertaken by social scientists. Although we use many specific findings of the Disaster Research Center (DRC) since it initiated studies in 1963, our general observations and conclusions primarily come from the larger body of scientific knowledge accumulated in four decades of research (for general summaries see, Caplow, Bahr and Chadwick, 1984; Kreps, 1984, 1989; Perry, 1983, 1985; Drabek, 1986; Dynes, DeMarchi and Pelanda, 1987; Auf der Heide, 1989; Quarantelli and Pelanda, 1989; Lagadec, 1990; Waugh, 1990; Drabek and Hoetmer, 1991; Clarke and Short, 1993; Quarantelli and Popov, 1993; Dynes and Tierney, 1994).

This research cuts across natural and technological disasters and since it essentially shows that no significant behavioral differences between both kinds of crises, we do not discuss any distinction in the two occasions. On the other hand, the literature is much stronger on studies done in developed countries than in developing countries. While there is reason to think many of the principles involved are universally applicable, the simple fact is that our research base on developing countries is not as strong as that about developed societies. As mentioned at the end of the paper, this does suggest that we need more studies in developing countries to be able to assess the full applicability of the principles stated below.

Also, in this paper we primarily discuss disasters and not catastrophes; the latter occasions are as qualitatively different from disasters as the latter are from everyday emergencies and in some ways require somewhat different planning and managing (see, Quarantelli, 1994). Catastrophes are such social crises as occurred for instance after the Tangshan earthquake in China where there was complete disruption of social life and the community was no longer functioning in any meaningful sense. This contrasts with the aftermath of the Northridge earthquake in California, which by most criteria was certainly a major disaster. Yet nonetheless, for example, the day after impact, the local race track was functioning with thousands of community residents in attendance. So while undoubtedly some of the principles enunciated below would be applicable in catastrophes, the current research base does not allow us to specify the limits of their relevance.

Our major interest is in presenting criteria for evaluating the management of a disaster. However, partly to highlight the differences between planning and managing, we first very briefly note ten general principles of good disaster planning for the crisis or emergency time period of disasters. (These principles, discussed elsewhere in detail by e.g., Quarantelli, 1989, and Drabek, 1986, allow an evaluation of the preparedness planning for disasters). However, the bulk of this paper consists of an extended presentation of 10 general principles of disaster managing.

Our primary concern in this paper is with managing community disasters. Although the vast majority of disasters affect communities, not all do. For instance, there are plane crashes, train wrecks, and other kinds of transportation mishaps that occur away from inhabited areas. These can result in disasters (when such occasions are not equated only with casualties), but their characteristics and consequences do differ from those in disasters that directly impact a community, and as such require different managing. For instance, survivors of plane crashes that occur in uninhabited places typically do not have the social support that victims of community disasters usually are given and that is important for their mental health (see Quarantelli, 1980). That is, community support usually neutralizes the extent and duration of stress symptoms.

GOOD PREPAREDNESS PLANNING

Principles of good preparedness planning have been extensively discussed elsewhere (Quarantelli, 1988; see also Dynes, 1993, 1994), so therefore here we merely note that the best or most appropriate preparedness planning to have in place, at any level, but particularly at the local community level is an approach which:

1. Views disasters as both quantitatively and qualitatively different from accidents and minor emergencies.
2. Highlights a continuing planning process rather than the production of or an end product, such as a written plan.
3. Is multihazard rather than single in focus, generic rather than agent specific.
4. Builds on the notion that what is needed is a model that focuses on the coordination of emergent resources, rather than trying to impose some kind of command and control.

5. Focuses on general principles rather than specific details.
6. Assumes potential victims will react well instead of poorly during the emergency time of major crises.
7. Emphasizes the need for intra- and interorganizational integration in the process.
8. Strives to evoke appropriate actions by anticipating likely problems and possible solutions or options.
9. Builds on social science research findings derived from systematic data rather than just personal experiences or "war stories."
10. Includes all four time phases of the planning process (that is mitigation, preparedness, response and recovery) rather than just one time phase.

TEN CRITERIA FOR GOOD DISASTER MANAGEMENT

Generally it is impossible to indicate ahead of time the specific tactics that should be used in an actual crises since they will be relatively distinctive for the actual emergency that develops. However, just as the military finds it possible to discuss tactical principles, disaster researchers can point to some tactical considerations that are involved in efficient and effective disaster management.

Good disaster managing must:

1. Recognize correctly the difference between agent and response generated needs and demands.

It has long been a premise in the **DRC** research literature that there are always two different kinds of needs or demands that have to be addressed in responding to a disaster (Dynes, Quarantelli and Kreps, 1981 with the first edition published in 1972). There are the needs that result directly from the disaster agent involved. Then there are also the demands that result from the response itself of organizations to the crisis. Put another way, there are problems created by the disaster itself, and there are problems generated by the organized effort to respond to the disaster.

The former, agent generated demands, derive from the particular disaster agent: for example, a flood can create a preimpact preparedness need for sandbags to protect against high waters, or potential exposure to radiation may create a demand for medical examinations of possible victims. Agent generated needs will vary considerably depending upon the disaster impact and the specific nature of the agent (although as discussed below in criteria #2 the demands may nevertheless be met by the carrying out of certain generic functions). On the other hand, response generated demands, are common to all disasters. This is so because they are produced by the very effort of responding organizations to manage a community disaster. The crisis time of a disastrous occasion inevitably leads to a "mass assault" by organizations responding to the occasion (Barton, 1970; Scanlon, 1992). This requires effective mobilization of personnel and resources, proper task delegation and division of labor, adequate information flow, a considerate exercise of decision making, and above all successful efforts at coordination of all that is going on (these are discussed below as criteria #3-7). These demands exist in all disasters and are mostly independent of any particular disaster agent.

Good disaster management recognizes differences between agent and response generated needs and demands. The former, because they are more specific to the disaster agent involved requires a more tactical or situational contingency approach, and a response to them can only be planned for ahead of impact up to a certain point. The latter, response generated demands, can be approached in a more strategical and ahead of time planned way. While understanding what is involved cannot alter the appearance of the two kinds of demands, it can allow better planning, a better operational response, and better learning from a disaster. In fact, a failure to recognize the two processes as different, can be taken as an indication of poor disaster management. If there is mostly a focus on the effects of a disaster agent, this misses the point that even more important problems can and do arise in managing the response (Quarantelli, 1985a).

2. Carry out generic functions in an adequate way.

Although different disasters can vary widely in their impacts and effects, with some of them directly linked to the agent involved, it is still possible to visualize common functions that have to be carried out in the management of such occasions. Put another way, the specific needs or demands can be rather different in separate occasions, but certain response patterns or functions will nevertheless still have to be carried out in each case. For example, in one specific earthquake or hurricane there may be tens of thousands of homeless to shelter, such as in Hurricane Andrew or the earthquake in Kobe, where in another there may be only a handful. Nevertheless, it is extremely rare for any significant community disaster not to create some need for the housing of the homeless (Quarantelli, 1984).

Thus, although the specifics both in terms of needs and responses will vary from disaster to disaster, some researchers have argued--correctly in our view--that there are functions that are common or generic in all disasters. That is, certain activities in a general sense will have to be undertaken, although the need or demand for them will vary in each case. Perry, for instance, has written:

Generic functions are actions or activities that may be useful in various disaster events. Evacuation, for example, may be needed in floods, hurricanes, volcanic eruptions, nuclear power plant accidents, or hazardous materials incidents. Generic functions are developed and planned in the pre-impact phase, *although some decisions will have to be adapted to situational demands* (italics added) (1991: 218)

He then goes on to discuss six generic functions--warnings, evacuation, sheltering, emergency medical care, search and rescue, and protection of property. It would be the rare disaster in which there was the absence of any of these activities (although warnings could not occur in very suddenly occurring disasters such as most earthquakes and many toxic chemical explosions). There are other actions that could reasonably be added to the list. For instance, Kreps (1991: 41-42) additionally lists such activities as mobilizing emergency personnel and resources, assessing the damage, coordinating emergency management activities, and restoring essential public services. While there might not be full agreement on an absolute number, very few researchers would dispute there are certain generic functions. In fact, none would probably dispute including the ten just mentioned.

Given their generic nature, an evaluation is always possible regarding the carrying out of the functions, especially their adequacy. Examples of important questions that could be asked are: Was the need for the function recognized early? Was the function carried out without too many problems? Were the recipients (i.e., the disaster victims) satisfied with the function provided? If the answer for all is yes, it is likely that there was at least an adequate management of generic functions.

3. Mobilize personnel and resources in an effective manner.

In the great majority of disasters there is not an absence or lack of necessary personnel or resources. The number and kinds of people that could be useful at the crisis time of disastrous occasions are generally available, both in terms of spatial proximity and immediate availability (see e.g., Bolin, 1990 on responses in the Loma Prieta earthquake). Similarly, except occasionally for the need of some very specialized equipment, the materials and things that could most appropriately be used in the situation, are typically in, around or near the disaster site. In fact, in every disaster, sooner or later, more or less, even if there had been no planning, the personnel and resources needed to deal with the crisis, appear on the scene (although in truly catastrophic occasions, such as the Armenian earthquake, the assistance will often come from outside the stricken community).

Of course, there can be the overabundance of something that is not needed. For example, a problem that frequently surfaces has to do with presence and use of many individual volunteers. Many well-motivated volunteers with a variety of skills are not necessarily a good resource in a disastrous occasion (see Holland, 1989). In fact, without very good prior planning of who will use volunteers, where they will be sent, how they will be supervised, when they will be used, and so on--the sheer presence of masses of individual volunteers will simply create another disaster management problem. Often, vitally needed regular staff members of organizations will be used to attempt some ad hoc planning and/or training for some hurriedly designed tasks. Consequently, individual volunteers often hinder rather than help in the mobilization of organizations.

So good disaster management does not involve the mobilization per se of personnel and resources--that will happen anyway. Rather it is their effective mobilization. Effectiveness essentially means that there has been a desired production of an intended result, this evaluation differing from that of efficiency where the results are obtained in the best way. For example, an evacuation may get a population out of an endangered area and be effective, but may not be very efficient in terms of the use of unnecessary resources, the time consumed, or the problems generated. It is possible to judge effectiveness in a variety of ways including the following. Were the needed personnel and resources identified well in the crisis? Were they located quickly and brought to bear correctly? Were they appropriate for the crisis time problems? Positive answers to such questions would suggest there had been not only a mobilization of needed personnel and resources, but an effective one.

4. Involve a proper task delegation and division of labor.

One of the major consequences of any disaster is the creation of many old and new tasks that community organizations have to address. Persons are killed and injured. Houses and other buildings are damaged or destroyed. Survivors have to be evacuated, then housed and fed. Utilities have to

be restored. Fires sometime have to be put out. Roads have to be repaired. The list can be quite long. However, immediately after impact and early in the crisis period, the nature of the required tasks and the scope of organizational involvement is usually unknown, unclear and/or confused. In spite of this uncertainty, there is nonetheless a great urgency to act which has several consequences for organizational activities.

A number of the tasks are typically undertaken by specific organizations since they are part of that group's usual understanding of responsibility (e.g., fire departments fight fires). Yet even that can be complicated because of the convergence of many organizations from outside the impacted community. For example, in a disaster studied by **DRC**, there were 68 different fire departments alone, on the scene. In a study of a massive fire done by a Canadian group, 346 organizations appeared on site; they included seven departments of local government, 10 agencies of the regional government, 25 entities from the provincial government and 27 organizations from the federal government as well as 31 fire departments, 41 churches, hospitals and schools, four utilities, eight voluntary agencies, few new emergent groups and at least 42 different players from the private sector (Scanlon, 1991: 169). Equally as important, there are tasks that are not the normal preimpact responsibility of anyone, such as very large scale search and rescue, handling of mass casualties, establishing who should be on missing persons lists, instituting and using a pass system to prevent entry into certain damaged areas, finding and taking care of many abandoned pets, etc. As is discussed later, many of these tasks are assumed by new or emergent groups.

Another common response for organizations is to initiate activities to immediate and visible problems, which may not be part of their subsequent responsibility. Another response is to mobilize added resources, including personnel, in anticipation of increased tasks. Such actions change the pattern of tasks; modify previously established patterns of decision-making, authority relationship, and information flow channels; and create new organizational boundaries. In addition to creating internal changes, the scope of the tasks and the uncertainty of them leads organizations to become involved with other organization with which they have been previously unfamiliar (for other aspects, see Dynes, Quarantelli and Kreps, 1981: 41-43).

In fact, all groups that appear in a community crisis can be classified as being one of four possible types. These are indicated in the following typology.

		TASKS	
		Regular	Non-Regular
R E L A T	O	Type I	Type III
	l d	Established Organizations	Extending Organizations

I O N S H I P S			
	N e w	Type II Expanding Organizations	Type IV Emergent Groups

The four possibilities shown are derived from considering the fact that some community organizations have tasks within the crisis period that are essentially the same as those they undertake during routine or preimpact times. Other groups, however, have basically new tasks. In addition, some organizations maintain a similar set of internal social relationship from the every day to the disaster occasion, while others develop a completely new set of relationships. A cross classification of these dimensions of tasks and relationships provides the typology provided above (for more details see its initial formulation by Quarantelli, 1967; for a more up to date statement, see Drabek, 1987).

All of the above indicates the complexity of the division of labor and task delegation that will arise in any disaster of any magnitude. Clearly good disaster management is that which involves proper task management and division of labor. Proper in this context means that all necessary tasks are carried out relatively quickly and with few problems, and that there is some division of labor among the responding organizations. The latter, among other things, implies that it is recognized that there will be Type IV groups who will be undertaking necessary tasks, and that there will be Type II and Type III organizations operating as well as established ones using their regular social structure to carry out old tasks (e.g., police departments directing traffic and maintaining security in the community). A response that tries to involve only established organizations is a clear indication that there has been poor disaster management.

5. Allow the adequate processing of information.

In both the prescriptive and research literature on disaster management, it is often said that there are "communication" problems in disasters. Such a formulation, in our view, however tends to put an emphasis on communication technology, the means used rather than what is communicated. Thus, for example, there are statements made that "more radios" are or were needed. Yet research shows that most problems stem from what is communicated rather than how communication occurs. In most cases, information flow problems do not arise from equipment scarcity, damaged facilities, or other forms of destruction that result in rendering the communication technology inoperable. They stem more from problems in the process of communication itself, the information flow per se, in which there is often a massive increase. In the Loma Prieta earthquake, phone calls into the Bay area jumped from 50 million on a normal day to 80 million the next day.

Necessarily also there are multi streams of information flow during the crisis period of a disaster. There is the information flow:

within every responding organization;
between organizations;
from citizens to organizations; and
from organizations to citizens.

These information flows can all become problematical in disastrous occasions.

Let us just illustrate just from intraorganizational information flow. Under everyday conditions, the system is designed to process and exchange predetermined types and quantities of information. However, during a disaster, the number of staff using the system may increase greatly. This can be created by internal staffing changes undertaken by the organization to meet the demands of the crisis occasion. For example, double shifts may be used or volunteers may be incorporated into the work force. Often too the existing system cannot accommodate the volume of information required by system users. When the extra demands upon the internal system exceed its capability, this results in "overload", the net result of which brings about system failure or in the loss and delay of information to, from, and among staff members. Similarly, in normal times the flow goes through certain channels, usually following the organizational chain-of-command pattern. Thus, user information needs, conditions under which information is to be exchanged, and the information flow from the top to the bottom and vice versa, are relatively clearly defined and structured. However, during a disaster the channeling of information in the organization becomes more complex. For example, it is usual for: (a) several individuals to occupy a work position previously held only by one person; (2) officials to assume non-routine tasks; and/or (3) officials to be reassigned to work in temporary emergency positions within the organization. These and other factors can lead to the creation of situations where the normal channels of information flow are insufficient to insure that all relevant information will reach those group members who should be informed of group activities. There are similar problematical aspects in interorganizational, citizen to organization and organization to citizen information flow (see e.g., Drabek, 1985; Quarantelli, 1985b).

Given all this, it is possible to evaluate the adequacy of information flow in a disaster. If organizations and/or citizens did not get the information they needed, clearly the disaster managing was not as it should have been. Of course there can be adequate information in any of the four streams mentioned above, so each must be judged independent of one another.

6. Permit the proper exercise of decision making.

Disasters require that there be proper decision making. Now many assumed problems in this area rarely appear at times of disasters. For example, very seldom does the usual chain-of-command and lines-of-authority break down during a crisis period. Similarly, contrary to much mythology about the matter, officials in responsible positions will not abandon or fail to carry out their work roles because they give greater priority to their family responsibilities (Rogers, 1986). Likewise, there rarely is any challenging of which group has authority to carry out traditional tasks (e.g., there are

seldom disputes about who should fight fires, repair phones, perform major surgical operations, etc.)

On the other hand, decision making is very likely to be affected in a negative way by certain typical happenings in the crisis time of disaster occasions. Four common problems are:

- (1) loss of higher echelon personnel because of overwork;
- (2) conflict over responsibility regarding new disaster tasks;
- (3) clashes over organizational domains between established and emergent groups; and
- (4) surfacing of organizational jurisdictional differences.

The first problem stems from the strong tendency by key officials to continue to work too long in a crisis. But personnel remaining on the job around-the-clock will eventually collapse from exhaustion or become inefficient in their decision making. More important, when such officials are eventually succeeded by others, their successors will lack the information necessary for appropriate decision making in part because crucial data will not have been formally recorded. Proper decision making requires relevant knowledge. Officials with the appropriate information will not always be physically capable of working beyond a certain point. If such officials occupy key decision making positions, the disaster response capability of the organization can be seriously impaired.

Determining who has the organizational authority to make decisions for the performance of new disaster related task can be another major problem. When such new tasks must be performed, questions almost inevitably arise about which organizations should make determinations about them. For example, the responsibility for deciding and performing large scale search and rescue or mass burial of the dead is not normally the everyday pattern of any established organization. This sometimes leads to no decisions or poor decision making.

Decision making problems surrounding the performance of traditional tasks sometime arise between established organizations and outside or emergent groups. For instance, "area security" for the most part is considered a traditional local police function. Conflicts can arise if nonlocal police or military personnel move into a disaster area and also attempt to provide security. Such actions are often viewed by the local police as an attempt to usurp their authority. This issue is sometimes manifested in disputes over who has the right to make decisions about the issuance of passes allowing entry into a restricted area. The situation is even more complex when the competing organization is an extra-community group or an emergent group. For example, nonlocal relief or welfare agencies may provide services during a community disaster. Though they may be exercising their mandated function in providing such services, such agencies are often viewed as intruders into the domain of local agencies. If the outsider relief group is undertaking the same disaster tasks, there are likely to be questions about its legitimacy, authority and decision making.

Also, community disasters frequently cut across jurisdictional boundaries of local organizations. This creates a great potential for conflicts. During non-crisis periods, vague, unclear or overlapping authority and responsibility can often be ignored. During disasters this is frequently not the case. Since disaster situations sometime require prompt and authoritative decisions, unresolved jurisdictional issues often surface at the height of an emergency period.

One aspect of good disaster management is proper decision making. Another is that the problems indicated above are avoided. It is such matters that are important in evaluating the effectiveness of a response rather than whether the decisions are made by those in formally designated positions of authority. Unfortunately as others have said:

Contingency planners developing organizational structures typically pursue the concept of organizational control rather than the goal of effective decision making (Harrald, Cohn and Wallace, 1992: 197).

7. Focus on the development of overall coordination.

In the face of the convergence of multiple groups, a variety of tasks as well as new ones, massive but erratic information flow, and sometime irresolute or incorrect decision making, the question is often asked: who is in charge? Those who ask this assume that it is a significant question and that good disaster management requires a clear-cut answer that a particular organization is controlling the situation. However, the research evidence seriously challenges whether the question is even a meaningful one for disastrous occasions, that somehow one official or agency should be in charge. Actually, studies (Dynes, 1983, 1993, 1994) show that it is impossible to impose such control and that even if it were possible, it still would not be the best response model to follow.

Control is not coordination. Emergency oriented organizations that operate with a "command and control" model of how a disaster response should be handled are particularly vulnerable to equating the two. Drawing from an inappropriate military model, the incorrect assumption is made that an integration of the overall community response can best be made by imposing an authoritarian and centralized structure on the crisis (see Neal and Phillips, 1995). The spread of the Incident Command System (ICS) as a model to be used for managing disasters is a contemporary manifestation of the thinking that such occasions must be "controlled." Yet research shows that the ICS is not a good way of trying to manage the situation, despite its recent faddish adoption among certain American emergency organizations (see, Wenger, Quarantelli and Dynes, 1990).

The development of organizational coordination is problem plagued if there is not good management. Very few organizations do not agree in principle that coordination is needed during disasters. However, the term "coordination" is neither self explanatory nor a matter of much consensus. Along some lines, there are groups who view coordination at best as informing other groups about what they will be doing. Along another line, some organizations see coordination as the centralization of decision making in a particular agency or among a few key officials, usually involving themselves. Others see coordination, correctly in our view, as mutually agreed upon cooperation on how to deal with particular tasks. Given such diverse views, it is to be expected that even when a formal preimpact accord to "coordinate" a response exists, there often surfaces mutual accusations that one or both parties have failed to honor the agreement.

There are also problems in coordinating social entities from the public and private sectors. Government and private groups usually have different interests, tasks and goals. For example, public agencies, frequently by law and by tradition, have to consider a disaster occasion and the demands it creates from the perspective of the larger community. Private sector organizations necessarily have a much narrower perspective, assessing their involvement primarily as they see the occasion generally impinging on their operation and profitability and have much less flexibility in using their personnel and resources than do government agencies.

Finally, coordination is also difficult between organizations working on common but new tasks. Even local agencies accustomed to working together, such as police and fire departments, may encounter difficulties when they suddenly try to integrate their activities to accomplish novel disaster tasks, such as the handling of mass casualties. While police and fire agencies may be accustomed to recovering a few bodies resulting from traffic accidents or fires, a large number of dead bodies resulting from a major disaster, will pose coordination problems. It is partly the newness of many disaster tasks that create strained relationships among organizations who may have previously worked together in harmony. Also, in daily operations there can be a gradual development, frequently on a trial and error basis, of a cooperative working relationship between two groups concerned with achieving a common goal. Such leisurely developments of cooperative relationships are an impossibility given the immediate demands during the crisis phase of a community disaster.

Many of the issues in disaster management discussed earlier are crucially dependent on how key officials handle the overall problem of integrating the organizational and community responses. A good start is by emphasizing cooperation rather than control or insisting that "someone should be in charge." The three specific problem areas in coordination we have mentioned can only partly be dealt with by preimpact planning. Much will depend not only on the exercise of tact and sensitivity by the key officials involved, but a willingness to de-emphasize organizational claims of leadership and territorial demands by partly stressing actions necessary for the greater community good. Appeals to larger symbols and humanitarian concerns can move people and groups to cooperate especially at the height of a major community disaster. Good disaster management can be judged on the kinds of efforts made at coordination and the relative absence of the problems mentioned.

8. Blend emergent aspects with established ones.

Any disaster, even of moderate magnitude, will be marked by the presence of emergent phenomena, sometimes of groups, sometimes of behaviors, or both. For example, there will be emergent groups that engage in search and rescue, do damage assessment, handle the dead, distribute relief supplies, and present the grievances of survivors about housing and rebuilding (Drabek, 1986: 132-149). Thus, in the Northridge earthquake, the search and rescue while influenced by informal preimpact social links and ties, was essentially undertaken by emergent groups (for behavior in that disaster, see Tierney, 1994). New, temporary behaviors even occur in some very traditional organizations such as police departments and churches (Quarantelli, 1996). Thus, while there are many unresearched questions about the origins, nature, boundaries, careers, cross-societal differences and types of emergence (see Drabek, 1987), the phenomena especially at the crisis time of disasters, is ubiquitous.

However, such improvisation frequently bothers many in the disaster management area, since basically they are in bureaucratic organizations. Yet:

Any seeking to improve the quality of emergency management, especially those aspects relevant to the response phase, must recognize the limited applicability of the elements of assumptions derived from the bureaucratic model. While it remains a powerful instrument for accomplishing tasks characterized by repetition and uniformity, continued efforts to use for disaster . . . has reduced the response capability of many . . . communities. It has only been through recent documentations of numerous emergent systems that this conclusion has been accepted by small numbers of emergency management practitioners. Efforts are underway to construct models reflective of the qualities that define this managerial problem (Drabek, 1987: 290).

Yet even if the research knowledge is limited, the problem cannot be avoided in actual disasters. This is consistent with the frequently expressed view in the disaster literature that if something needs to be done especially at the height of a crisis, people and organizations will attempt to do something. If they cannot do it with their traditional or usual ways of doing things, an effort will be made to develop new ways. Thus, if a police department cannot handle the problem in the way they usually do, the organization will organize itself, to do in a different way (e.g., calling in all shifts, mobilizing reserves, deputizing civilians, etc.). Also, if non routine problems develop, an effort will be made to deal with them. Thus, if a stricken neighborhood finds itself with the possibility that many injured may be trapped under debris, the citizens around will informally organize themselves into teams to engage in a very non routine task, the search and rescue of victims. These kinds of efforts, whether by organizations and/or citizens, may not be very efficient, but there will be an effort.

Emergent phenomena, that is, new social arrangements and activities, are a pervasive feature of responses to disasters, although the manifestation may range from minor behaviors to major groups. As such, disaster managers should take the appearance of the phenomena for granted and incorporate the probability of its occurrence into their thinking and acting. Just assuming it will occur is helpful for research has consistently shown that one of the most disturbing aspects for emergency responders in disasters is the appearance of phenomena that they had not anticipated in their planning. It is impossible to foresee everything, but there is no-good reason for not anticipating the very probable, such as the appearance of emergence.

Of course it is particularly important not to assume automatically that emergent phenomena are necessarily dysfunctional, bad, or otherwise inappropriate for the crisis occasion. There is a strong tendency among disaster managers to think that because they have not planned for or are not controlling some phenomena, that it cannot be good. This is seldom the case. Commonly, the new behavior or group may represent the most effective way of coping with a problem. This is not to say that emergence always represents the best solution, but emergence does represent an effort to solve problems, and at worst is usually somewhat effective in its results.

Actually, planners and responders might consider what circumstances and for what purposes they might want to facilitate certain kinds of emergence. A case in point is the use of individual volunteers, which as already noted are usually more of a problem than a help. Volunteering does represent emergent behavior by individuals. Yet it could be appropriate to try facilitating emergent volunteering by groups (e.g., social clubs, neighborhood civic associations, religious groups, etc.) The advantage would be that the members of such groups would be operating with known others with whom they share certain norms and values (Dynes and Quarantelli, 1980). As such, the disaster managers could deal with already existing "leaders" of such groups and let them lead the members.

Our overall point, is that there will be emergence in disasters. Therefore, such behavior ought to be blended in the best way possible with relevant other activities. If this is done, the disaster management in the situation will probably be good for the reasons suggested.

9. Provide the mass communication system with appropriate information.

A prominent feature of modern societies is that they have complex mass communication systems with multiple mass media outlets. A very strong case in fact could be made that developed societies, those that are highly industrialized and urbanized, could not exist without the news and stories provided by such systems. Yet for our purposes in this paper, the importance of modern mass communication systems is that the perception of any community disaster and what is needed to cope with the occasion, is increasingly dependent on what that system provides. In many respects the view that everyone, including emergency managers, have of a disaster is more and more the "reality" as presented on television, radio and in the newspaper (a phenomena long recognized by researchers but more recently popularly talked about as the "CNN" problem concerning crises that are brought to the attention of the world). What citizens know about a disaster, its effects and problems, is very heavily dependent on the distributed content of the mass media outlets.

As such, good disaster management encourages the development of patterns of relationships that are acceptable and beneficial to the responding organizations, the mass media groups, and citizens in general. An indicator of such a relationship is a cooperative pattern of interaction between organizational and community officials and media representatives. An additional indication is that citizens believe they are receiving and being given by the local mass communication system, a relatively accurate picture of what is happening. Furthermore, where these relationships are good, the members of the press are satisfied with the amount and quality of information that is given to them by officials who in turn want to disseminate certain disaster relevant information.

Of course, since it is their responsibility, the initial gathering of data on what has and is occurring, is dependent on managers of the different responding emergency related organizations. If they do not provide relevant details and accounts, the local mass media can be depended upon to disseminate, not intentionally but nonetheless, news that will often not be accurate and informative.

If there is not satisfaction in all three sectors--officials, the press and citizens--the disaster management is not as good as it should be. Even more important than satisfaction is that all community segments are obtaining the information they need for acting appropriately in the situation.

This does not mean that there might not be difficulties even under the best of circumstances. Part of this results from the fact that in many Western type societies, norms in the world of journalism almost mandate an adversarial relationship between the press and government officials.

In addition, there is a necessity to consider the future with respect to the mass media area. It is in a state of extreme flux and change. What are the implications for disaster planning and managing, for example, of the bringing in of distant stations via cable to a local community? We have observed cases of audiences in one region of the United States receiving tornado or flood warnings meant for the area around the original transmitting station in another section of the country, and conversely not receiving their own local community warning because they are tuned to a far distant station.

Some anecdotal examples raise even more interesting questions. In one case recently studied in the field by **DRC**, the on-the-scene reporting of a hazardous toxic spill incident by the local television station was utilized by the incident fire commander to make field decisions; also at the very same time that official was being interviewed by a reporter on what was happening. In still another disaster, guests trapped in their rooms in a high-rise hotel fire were informed of the progress of the fire and instructed on what they should do (including on evacuation) by the on-the-scene telecasting of the incident by mobile vans of local television stations.

Many of the newer technologies, from cellular telephones to direct broadcast satellites to video cassette recorders intervene in new ways in transmission from the initial communicator to recipients of the information. Some of these were used in the response to the Northridge earthquake in California (see Tierney, 1994). Clearly we have phenomena here that is rather different from what is usually assumed in the traditional view of mass media use in disasters. Thus, while the criteria we have advanced here about the mass communication system are undoubtedly valid as a measure of good disaster management, clearly such managing in the future (we have to think here in terms of years and not decades) will have to take into account the mass communication revolution that is occurring.

10. Have a well functioning Emergency Operations Center (EOC).

We have discussed many crisis time activities that if done well would make for good disaster management. Thus, there must be the effective mobilization of persons and resources, the carrying out of generic functions, an appropriate task delegation and division of labor, adequate processing of information, the proper exercise of decision making, a focus on overall coordination, a good blending of emergent and established aspects, and a providing of appropriate information to the local mass communication system. Yet given the multiplicity of groups and varying actions involved, there are many things that can go wrong.

Therefore, to some researchers, the key to a good overall crisis response is a well functioning Emergency Operations Center (EOC). As Perry notes:

the EOC serves as the master coordination . . . point for all counterdisaster efforts (1991: 204)

Equally as important he notes that:

The EOC is a function, a place, and a structure (1991: 204)

The organized crisis time response in a disaster is clearly aided if responding organizations, local and otherwise, are aware of and are represented at a common place or location such as a fully staffed and adequately equipped EOC. This can considerably facilitate the information flow necessary for coordinative activity to occur. At one level, the place--particularly the physical facilities themselves--is of relative importance. As a minimum, adequate communication modes, microcomputers, adequate work space, and certain resources, such as maps and resource inventories, are necessities. However, physical facilities in themselves cannot substitute or make up for inadequate social factors. For instance, a high tech equipped EOC is useless if organizations do not send liaison personnel to it.

Now research indicates that the particular social structure, that is, the social organization of the EOC, can vary considerably. Furthermore, there is no one particular social arrangement or form that is overwhelmingly better than any other, although some can operate better than others in given contexts. For example, in the United States, there are currently at least eight types of local emergency management agencies that typically run EOCs. All, more or less, can carry out necessary functions (see Wenger, Quarantelli and Dynes, 1987: 59-77). Among other things, this suggests that in managing (and prior planning), the greatest attention should be paid to the carrying out of functions rather the structures involved.

An EOC is a social system; if relevant and generic functions are carried out, its location and the physical facilities are relatively unimportant. What is crucial is that organizational liaison personnel be knowledgeable and possess certain decision making responsibilities in their own organizations. For example, a coordinated response is often limited and handicapped by the low level officials representing various agencies at the EOC. Such persons would normally have inadequate knowledge of the domain, capabilities and resources of their own organization, but usually also suffer from a lack of integration into the decision making process of their own groups as well.

If there is proper representation, the EOC can collect and distribute very relevant information that is necessary for the carrying out of any task. Not only should each organization have knowledge of what each is doing, but there is also the need to have some overall coordination of the response activities. Besides problematical relationships among local groups, there can be difficulties in relationships between the locals and outside organizations and agencies. Some of these relationships are vertical, such as those between local government agencies and certain local community units in the private sector such as hospitals, religious groups, or building contractors. However, problems in horizontal relationships are also common. There can be conflictive relationships between the locals and governmental agencies above them at the state/provincial or national levels. In an effective overall response, there is a minimization of the degree of conflict in horizontal and vertical

relationships. While in principle such potential problems can be dealt with in any place, an EOC lends itself well as a location where representatives of different groups can work out problems.

Overall, an EOC functioning in the ways indicated above is usually another indication of good disaster management. This is not to say that everything will go smoothly. The social climate of an EOC is a very stressful one: there is pressure to take action, limited and uncertain information, shifting priorities, and overlapping lines of authority and responsibility (Perry, 1991 :210).

CONCLUSION

If all ten criteria we have discussed above are met, it is very likely that there will be a good managing of a disaster. However, disaster studies in the last 40 years nonetheless indicate that there are limits to getting good managing. The limits, which would have to be the subject of another paper if they were discussed in detail, are created by such factors as economic and social costs, human and societal value priorities, poor design implementations, and political considerations. Put another way, because there might be knowledge and understanding of what constitutes good managing does not mean that is what will be in place at any given place in any given time. To draw a parallel, we know in one sense of the term how the further spread of AIDS could be substantially prevented; we equally know that will not happen. We may also know what is the very best and managing for disasters, but we equally know that is not what will exist in reality.

This is mentioned to stress that any evaluation of disaster management must operate in a real and not an ideal world. Idealistic conceptions should provide us goals. Yet if we are to improve the managing of disasters we have to be realistic, both in terms of recognizing what really exists and what can be realistically achieved. Therefore, in this paper we have tried to set forth some of that reality as it has been described and analyzed by social science disaster researchers.

This brings us to a last consideration: how applicable are the criteria stated above to all social systems? In the main, the research from which they are derived was conducted in highly urbanized and industrialized societies. Can the criteria therefore be equally applied to the managing of developing countries? A related question is whether they are also applicable to relatively diffuse kinds of disasters such as famines and droughts. We have discussed this matter elsewhere as well as the broader question of the theoretical and conceptual validity of such terms as "developed" and "developing"(see Quarantelli, 1992). A few studies explicitly comparing responses have been undertaken (e.g., Dynes, Quarantelli and Wenger, 1990 on reactions to the Mexico City earthquake and responses in the United States; Perry and Hirose, 1982 on Japanese and American responses to volcanic eruptions). Generally we have concluded that while some criteria appear applicable anywhere, without far more systematic and comparative studies and analyses specifically focused on the problem than currently exist, the two questions we have just posed, remain unanswered. However, given the spread of social science disaster research in many countries around the world, including such developing countries such as India and Egypt, gives us hope that researchers in those societies will help us move closer to a meaningful answer.

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