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TWENTY CRITERIA FOR EVALUATING DISASTER
PLANNING AND MANAGING AND THEIR
APPLICABILITY IN DEVELOPING SOCIETIES

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INTRODUCTION

In this paper we address what is important in preparing for and managing disaster occasions. Our starting point is that what is crucial is not planning or managing, but good planning and managing. It is after all possible to have bad instances of both. Thus, to assess in any intelligent way the preparedness planning for and the managing of disasters requires asking the question:

what is good planning and managing?

Now 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 and behavioral scientists. Although we use many of the specific findings of the Disaster Research Center (DRC) since it initiated studies in 1963 (see Appendix on DRC publications), our general observations and conclusions primarily come from the larger body of scientific knowledge that has been accumulated in about four decades of research (for general summaries of the literature see, Dynes, 1974; Lagadec, 1982, 1990; Kreps, 1984, 1989; Drabek, 1986; Dynes, DeMarchi and Pelanda, 1987; Auf der Heide, 1989; Quarantelli and Pelanda, 1989; Drabek and Hoetmer, 1991; Clarke and Short, 1993; Oliver-Smith, 1993; Quarantelli and Popov, 1993).

This research cuts across natural and technological disasters and since it essentially shows that no significant behavioral differences appear in the two types 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. This does raise the question, addressed later, if this is significant for the use and application of the research findings in both kinds of societies. 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 (Quarantelli, 1994).

We first discuss rather extensively ten general principles of disaster planning. Our basic point is that any planning can be evaluated as being good or bad depending on how well it meets the ten criteria discussed.

This discussion is followed with a presentation of ten general principles of disaster managing. This is done because our view is that an evaluation of the management of a disaster has to use different criteria than those applied to preparedness planning.

The paper concludes with an examination of whether the twenty principles derived mostly from studies in developed societies are equally applicable to developing societies.

DISASTER PLANNING

Our concern in this paper is with planning for community disasters. Although the vast majority of disasters impact communities, not all do. For instance, there are some plane crashes, train wrecks, and other kinds of transportation mishaps that occur far away from inhabited areas (Quarantelli, 1980); the same is true of many pipeline accidents. These can result in disasters (when such occasions are not equated only with occasions creating casualties), but their characteristics and consequences do differ somewhat from what appears in a disaster that directly impacts a community, and as such require slightly different planning and managing. For instance, survivors of plane crashes do not have the social support that victims of community disasters usually are given and that is important for mental health (see Quarantelli, 1985a).

Our analysis of the literature indicates that appropriate community disaster preparedness planning is that which meets the following ten criteria. That is, from any assessment or evaluative point of view, the planning to be adequate and good should have these characteristics. Other features probably contribute to good planning also. But the studies undertaken by social and behavioral science disaster researchers indicate that the implementation of the ten principles discussed are necessary, if not sufficient, for the best planning for community disasters.

Good community disaster planning must:

1. Focus on the planning process rather than the production of a written document.

A major impediment to developing good disaster planning involves the adoption of too narrow a view of what preparedness planning involves. To many officials, the writing of a disaster plan is the essence of planning. This is not only an incorrect approach, but actually can be a very dysfunctional position to take. Communities sometimes think they are prepared merely because they have a formal written plan. Even worse, focus on a document or plan often leads relevant officials and organizations to ignore other more critical activities that are absolutely necessary for developing good community disaster planning.

Good disaster preparedness is not synonymous with the formulation of written disaster plans. A far more useful perspective is to envision planning as "a process" rather than to perceive of it as the production of a tangible product. In this view, preparedness planning involves all of those activities, practices, interactions, and relationships, which over the short and long term are intended to improve the response pattern at times of disaster impact.

Thus, when viewed within the aforementioned perspective, disaster preparedness planning includes:

- a. Convening meetings for the purpose of sharing information;
- b. Holding disaster drills, rehearsals and simulations;
- c. Developing techniques for training, knowledge transfer and assessments;
- d. Formulating memoranda of understanding and mutual aid agreements;
- e. Educating citizens and others involved in the planning process;
- f. Obtaining, positioning and maintaining relevant material resources;
- g. Undertaking public educational activities;
- h. Establishing informal linkages between involved groups;
- i. Thinking of and communicating information about future dangers and hazards;
- j. Drawing up organizational disaster plans and integrating them with overall community mass emergency plans; and,
- k. Continually updating obsolete materials/strategies.

Thus, while formal disaster plans are an element in disaster preparedness, they are best viewed as only one of numerous activities which should be undertaken to improve the efficiency and effectiveness of a community disaster response (Quarantelli, 1985b).

The creation of disaster relevant human resources or the reduction of organizational problems in crises cannot be achieved just by writing a plan. For example, converting disaster victims into potential helping resources in an emergency time period must involve public education, training techniques, etc. Similarly, reducing the response-generated problems (discussed later) of organizations requires having meetings, holding drills, securing agreements on memoranda of understanding and taking other necessary actions as required. A range of activities have to be undertaken if the desirable preparedness objectives are to be achieved.

Therefore, if the writing of plans is the major focus, it can be assumed that the planning will not be too good. Unfortunately, the more a society is developed, peopled as they are by hordes of bureaucracies, a focus on the planning process rather than plans can be especially difficult to achieve. Bureaucracies live on paperwork; often the very viability of such entities is measured by the number of documents it generates. A concern with the planning process in preparing for disasters is therefore not likely to be highly evaluated within most government agencies even though such a focus is necessary for good preparedness planning.

2. Recognize that disasters are both quantitatively and qualitatively different from minor emergencies and everyday crises.

On a daily basis, almost all accident and safety oriented community organizations in all societies learn to deal more or less effectively with minor emergencies. Thus, routinized responses to accidents are typically a normal part of the everyday activities of such organizations as the public utilities, hospitals, airlines, fire and police departments, cable systems, railroads, and the chemical and nuclear industry. They have standard operating procedures (SOPs) to manage such situations when they arise. Frequently these organizations have highly skilled personnel who are adept at coping with everyday disruptions and minor accidents.

Unfortunately, this often leads to the collective belief that a disaster can be approached as merely a very large scale traffic accident. In a nationwide study of the chemical industry in the United States, DRC found that many officials felt that preparedness planning for acute toxic releases, chemical explosions, and other such mishaps required no more than an extension of everyday corporate health and safety measures (Quarantelli, 1984c). In another study of the delivery of emergency medical services (EMS) in large mass casualty situations, DRC interviews with EMS personnel showed that it was the opinion of some that special preparedness planning was unnecessary because they saw the provision of EMS in disasters as but an extension of EMS in daily operations, with the only difference in the two situations being one of degree (Quarantelli, 1983a).

These and often similarly strongly voiced views, are simply wrong. In a disaster there is a difference of kind, not just degree, compared to what goes on in an accident or minor emergency. A disaster involves not just more, but something which is qualitatively different. This has to be considered when planning for disasters, training for disaster occasions, operating under disastrous conditions, and evaluating group or organizational activity during such occasions. An accident should not be perceived as a little disaster, nor should a disaster be viewed as a big accident!

This important distinction has just not come out of social science research. Some organizations and communities also recognize that such differences exist. For example, most public utility companies in the United States carefully distinguish between: (1) accidents or emergencies (e.g., everyday localized breakdowns which can be handled by local resources and personnel); and (2) disasters and catastrophes (e.g., far statistically rarer happenings which require external aid because local resources cannot cope with the acute demands). These companies typically recognize a "qualitative difference" between emergencies and disasters. Anyone having the

responsibility of planning for or managing the response to such occasions should also recognize and plan using the fact that such differences do exist.

The following four examples illustrate major qualitative and behavioral differences between disasters and everyday emergencies.

(1) During community disasters, organizations are forced into more and different kinds of interactions with other groups. The number of converging organizations is far larger than most think. For example, a Canadian research team in a study of a massive fire near Nanticoke, Canada in 1990 were able to identify 346 organizations that were on site, that is being at the scene of the fire, inside the evacuation perimeter or having to pass through a police check point in order to become involved (Scanlon, 1992: 9).

The greater the number of organizations involved, the greater the number of contacts and the more new relationships with other groups need to be established. For example, businesses may be required to interact with social service agencies for the first time during major crisis periods. In addition, local private groups may be required to coordinate their activities with distant and/or unfamiliar governmental bureaucracies.

Conversely, during periods of normalcy new relationships between organizations often develop very slowly. There is seldom a need to suddenly and concurrently establish linkages with multiple groups having local, state, and regional, and/or national components. However, during a disaster there is little time available to adjust, for example, to the blurring of interorganizational boundaries, or to the informal sharing or pooling of personnel, tasks, and equipment--common features of major disasters, but absent in minor emergencies. Complicating the greater interdependence in such occasions is the number of new groups with varying functions, capabilities and expectations that will be involved. Even a relatively moderate size disaster will force dozens of unfamiliar local and extra-local organizations to work together on unfamiliar or new tasks that are a part of the community response network. In short, disasters call for more and different organizational relationships.

(2) During disasters, organizations will lose some of their autonomy (e.g., direct control over their own functioning). In most societies, when a community's ability to function normally is seriously threatened, the protection needed from life-threatening situations usually becomes the responsibility of certain specific civil authorities. The mayor, the police chief, the head of the local disaster agency, or some other official, can declare a "state of disaster" and initiate measures to control disaster-related activities in a given locality. In rarer situations the military, especially in developing countries, may sometime takes over disaster operations. However, even in the 1985 Mexico City

earthquake, the Mexican Army was not given the major responsibility in the capital city even though the disaster plans in place might have allowed that to occur (Dynes, Quarantelli, Wenger, 1990). This is typical of developed countries where civil control over any military operation is maintained even during disasters.

In any case, the normal everyday autonomy of organizations is curtailed everywhere in major disasters. As a direct result of the loss of organizational autonomy, daily activities which are taken for granted become problematical. The freedom of mobility within the community, as for example, entering or leaving one's property, may be restricted by police barricades or an evacuation order. During disasters involving dangerous chemicals, site control can be actually be vested in an outside agency such as a state or regional hazardous materials response team, or in the United States to a Federal agency such as the Environmental Protection Agency (EPA). Additionally, many national or international corporations will often intervene during disasters and assume responsibilities, make decisions, or set policies which normally would be the prerogative of the local plant, office, or operation. In short, organizations can have their autonomy preempted in disasters in a way which will not occur during minor emergencies.

(3) Performance standards for organizations often change drastically during disasters. What is appropriate during periods of normalcy or minor emergencies frequently becomes less relevant during the managing of a major community crisis.

For example, standard operating procedures (SOPs) for fire service professionals everywhere require a swift response to emergencies involving structural fires. However, it is recognized that firefighters should respond quite differently to fire-related emergencies involving unidentified chemical substances or materials whose properties are not thoroughly understood. Thus, some delaying of the response until the situation is clarified is what is called for in good disaster planning. In fact, by using daily performance criteria as a basis for determining the type of response required to control hazardous chemical incidents, some fire departments can unintentionally turn minor chemical accidents into major chemical disasters. Similarly, emergency medical service professionals normally have SOPs that emphasize quick response time and swift delivery of patients to hospitals. However, when handling large numbers of casualties, such routine operations should be preempted by special procedures. For example, good disaster planning frequently requires the triaging of victims and the judicious distribution of injured persons to area hospitals to avoid overcrowding of emergency rooms and other risks associated with delays in emergency care due to overloading of hospital staff and substandard medical care.

Thus, performance criteria used during daily routine operations frequently yield to the adoption of different disaster performance

criteria during major crisis occasions. As is the case when fire professionals are faced with crises, emergency medical services systems that use daily performance criteria as a basis for determining their actions has resulted in inadequate and inappropriate responses to mass casualty incidents. Under the pressure of disaster-related demands, emphasis on speed of response and "snatch and run" procedures are not appropriate response managing principles. In short, disasters require different types of organizational performance than do minor emergencies.

(4) A minor emergency is often managed by an organization (public or private) having responsibility or authority to effectuate an emergency response, or is managed by local organizations such as the police and/or fire department. Under emergency conditions, the crossing of boundaries among public and private sector organizations is seldom required. However, during disasters a more coordinated relationship among public and private sector organizations is necessary for good managing of the crisis. Thus, a disaster requires the mobilization of public or community resources and often requires the preempting of some private rights by public rights. For example, unrestricted entry onto private property, which in many societies is normally very limited on a daily basis, is permitted under disastrous conditions. Also, in disasters the destruction of selected private property for the good of the larger community (e.g. the construction of temporary levees of the dynamiting of buildings in the path of a fire) is often permissible without negative or illegal consequences.

Although legally questionable in many societies, the requisitioning of private goods and/or equipment for the public good is also typically an acceptable practice during major disasters. Such actions are not necessarily restricted to the public or governmental requisitioning of private goods. It is to be noted that essential personnel and resources from the private sector are often freely offered for the public good at the height of a disaster. Under disastrous conditions, there may be in fact, citizen or public expectations and demands for goods and services from the private sector which would not otherwise occur during periods of normalcy. Thus, boundaries between public and private goods and services become blurred during disasters.

It might be argued that some societies do not have much of a private sector where there is individual as opposed to collective ownership. Actually, in all human groupings there is some kind of family, if not personal, ownership of things. More important, even when the state, in principle, owns practically everything, various governmental subunits have different claims of "ownership" (i.e., control) of different properties. So even in these societies, at times of disasters, there is likely to be a melding and blurring of who "owns" what in the use of property.

To summarize, during disasters organizations are often faced with

a new set of circumstances with which they must cope. They have to: (1) quickly relate to more and different groups and other organizations; (2) adjust to losing a part of their autonomy; (3) apply different performance standards; and (4) operate within a closer public and private sector interface.

Therefore, disaster preparedness planning which does not recognize the qualitative as well as quantitative differences between emergencies and disasters cannot be good. It is crucial that disaster planners recognize that they have to think about disasters in a different way from everyday accidents, disruptions and minor emergencies. To paraphrase Hemingway, just as the rich are different from the poor in their behaviors, disasters are different in major ways from everyday emergencies.

3. Be generic rather than agent specific.

Although some change is occurring it does seem that much current disaster planning everywhere is agent specific rather than being primarily generic or general. However, research shows good planning should take the latter rather than the former position. Because something is very widely believed or done is no indication of the correctness of a particular point of view.

There is a tendency to organize separate planning around rather specific disaster agents. Thus, in many places around the world there frequently is separate planning for chemical hazards, separate planning for nuclear plants, separate planning for flood threats, and so on. The planning is segregated, with usually distinctive organizations for preparing and responding to the separately viewed threats or impacts.

This kind of agent-specific planning might seem natural and obvious. Are not hazardous chemical threats different from earthquakes? Are not floods different from massive fires in high rise buildings? Of course the answer is yes. But the yes is meaningful only up to a certain point.

For very many of the human and organizational problems in preparing for and managing the response to disasters, the specific kind of disaster agent does not matter. For example, the same kind of warning messages and the same kind of warning system is needed and effective in getting people to evacuate, irrespective of the specific disaster agent involved. It does not matter if the agent is a cyclone, a chemical spill, a tsunami or "tidal wave," or radioactive fallout--what will motivate people to give credence to warning messages, what kinds of messages will be effective, what will limit the acceptance of a warning, and so on will be the same in all cases (Perry, 1983). These human aspects of a disaster do not depend on the specific type of disaster agent involved.

Similarly, if there is need for organized search and rescue or the

large scale delivery of emergency medical services after a disaster impact, the more important organizational aspects that have to be dealt with do not depend on the specific disaster agent involved. For example, DRC research has consistently shown that there is a strong tendency for the less seriously injured to be treated first, that there is a strong likelihood that not all the available hospital and medical facilities will be appropriately used. Likewise, studies have shown that ordinary citizen survivors will undertake most of the initial search and rescue, that the handling of dead bodies--especially if they are dismembered or disfigured--is very psychologically disturbing and has negative mental health consequences for those who engage in such activities. In these and other matters the specific disaster agent involved in the occasion does not matter very much for managing the occasion.

Disasters do differ from one another. But it is not the difference between a chemical disaster and an earthquake disaster, for instance, which is most crucial. In our view the differences that are important have to do with such matters as predictability, controllability, speed of onset, length of possible forewarning, duration, scope of impact, destructive potential, and so on. For example, it is important for planning and response if there is a possible warning time. It matters much less if the agent involved is a natural one or is a technological one. Certain physically "dissimilar" disaster agents can have similar consequences (e.g. most earthquakes and explosions do not allow any forewarning and/or evacuation before impact). Conversely, certain physically "similar" disaster agents can have rather dissimilar effects for the purposes of disaster planning (e.g. "chemical" agents can explode, burn, asphyxiate, pollute, and differentially affect humans, animals, fauna and the whole ecological spectrum).

Given all this, it is not surprising that studies have consistently shown that disaster planning should primarily be, first of all, generic or general and that there should be only one major organization responsible for coordinating the overall planning for all kinds of disasters. There should not be separate preparedness planning by different groups for different agent specific disasters. Of course, within the overall planning, there can and might be special provisions for the distinctive aspects of certain specific kinds of disaster agents (such as how to decontaminate a radiated area), but primary emphasis should be on generic or general disaster planning.

As to other advantages, we should also note that general or generic disaster planning in contrast to specific agent planning is:

- (1) cost-efficient in terms of expenditure of time, effort, money, personnel and resources;
- (2) a politically better strategy because it is possible to collectively mobilize a wide range of groups interested in disaster preparation and response--in effect create a

- (3) more powerful constituency for disaster planning;
- (3) a major way of avoiding duplication, conflict, overlaps and gaps in actual responses; and
- (4) a good process for increasing efficiency as well as effectiveness in any organized response to a disaster.

There are of course major reasons why generic as compared to agent specific planning is difficult to implement. Some have to do with practical matters (see Waugh, 1990); others stem from a lack of understanding of what research has shown. Since the latter in particular have been discussed in detail elsewhere (especially in DRC publications) they will not be further considered here.

4. Be based upon an emergent resource coordination and not a command and control model.

In many countries there is a strong tendency to assume that disaster planning can borrow much from military situations and settings. Thus, it is often visualized that the best model for disaster organizational preparedness and managing is what has been called a "command-and-control" model. This is the notion supposedly taken from the military area that a top down, rigidly controlled, and highly structured social organization model ought to be developed for disaster purposes (see the extended discussion of this in Dynes, 1983).

Let us leave aside the fact that the command and control model is more fiction than fact even in the military area. It is not the way armies, navies or air forces actually operate, especially in conflict situations; stereotypes and group mythologies to the contrary (see Lanir, 1988; Rochlin, 1988). Direct studies in the disaster area not only have shown that command and control models seldom are organizationally viable, but more important, would be poor models for disaster planning even if they could be implemented in the real world. (A major exception might be in a catastrophic disaster if the military was the only viable and nationwide social institution in the society).

In general, the command and control model assumes that disasters create a tremendous discontinuity with everyday life which lowers the effectiveness of individual behavior and reduces the capacities of the social organizations involved. Given this, planning is centered on the development of mechanisms to control supposedly widespread maladaptive individual behavior and on the creation of ad hoc structures to replace the supposedly disrupted and non-functioning social organizations in the disaster locality. Planning efforts are thus directed at the creation of strong authority to overcome the supposedly social disintegrating effects created by the disaster agent.

Planning in this mistaken model is in general oriented towards creating new norms for individuals undertaking emergency behaviors.

For example, spontaneous evacuation behavior is frequently seen as inappropriate or as a manifestation of irrational actions on the part of panicking individuals; but real evacuation is something to be ordered by authorities who are the only ones capable of making rational decisions for others. In this model, plans often make extensive provisions for mass shelters for evacuees on the assumption that individuals and other units, such as families, will be incapable of coping or remedying such crises. Thus, it is assumed new structures are needed to replace the old ones which will have become demoralized or ineffective. This kind of communication and information system is visualized as best able to evaluate information and create official and thus correct messages which than can be communicated through formal and official channels. For the collective good, it is thought decision making has to be centralized with the decisions communicated to induce the compliance of the affected populations (for a further discussion of these matters, see Dynes, 1993).

This kind of planning effort, partly consciously and partly unconsciously, is oriented around creating a highly artificial and authoritarian structure to replace natural and spontaneous behavior and structure. This is because the natural and spontaneous response is viewed as incapable of being effective in the stress conditions created by a disaster occasion. In effect, formal plans are created which are thought to be more rational than any informal response, and to which disaster victims and impacted groups should adjust.

However, the research evidence points in a drastically different direction. We will later indicate that in disasters there is less discontinuity with everyday life than is frequently supposed. Also, rather than exhibiting irrational and abnormal behavior, disaster victims, as much as possible, maintain their traditional activities and usual occupational and family responsibilities. Most organizations in disasters tend to operate as well as they do on an everyday basis--it is extremely rare for them to become non-functional even in the worst of disasters unless they were poorly run before impact (catastrophes are a different story).

Thus, in good disaster planning, rather than attempting to centralize authority, it is far more appropriate to develop an emergent resource coordination model. The problem is one of coordination, not control. Disasters have implications for many different segments of social life and the community, each with their own pre-existing patterns of authority and each with the necessity for simultaneous action and autonomous decision-making. This makes it impossible to create a centralized authority system. The centralization of authority is usually predicated on the image of disintegration of social life. The evidence of viability of behavior and the adaptability of traditional structures suggest that the exercise of authority or asking and worrying about "who is in charge?" is more of a problem in the minds of preparedness

planners than a realistic problem under disaster conditions.

5. Focus on general principles and not specific details.

There is a tendency, whether in developing written plans, conducting exercises, thinking about possible hazards, etc., to elaborate considerably. In fact, there is a strong temptation to go into very specific details, trying to spell out every possibility. This is the wrong way to proceed and there are several reasons why this is a poor path to follow. It is impossible to plan for everything. Situations are constantly changing and specifics quickly get outdated. Too many details leave the impression that everything is of equal importance when that is clearly not the case. Furthermore, complex and detailed planning is generally forbidding to most potential users and will end up being ignored.

Therefore, while disaster planning cannot totally ignore specifics, particularly at the organizational level, good preparedness planning should be based upon the formulation of general principles from which simple rather than complex points can be developed. But even apart from written plans, all disaster planning should aim at general rather than specific details. For example, within the context of the disaster literature which discusses the problems surrounding organizational coordination, good preparedness planning must consider the fact that during crisis occasions organizations with response responsibilities will be working with new and more groups (both existing and emergent), and that the new and different kinds of relationships imposed by the crisis situation are unlike those that are required during periods of normalcy. However, during the planning process, no attempt should be made to specify all of the possibilities and intricacies associated with the scope or degree of interorganizational contacts which might conceivably develop. Instead, the planning point advanced ought to be that in a disaster there should be an expectation that many of the social players on the scene will be unknown to key local officials. This may not appear to be that helpful but as the say goes: forewarned forearmed.

Finally, good planning requires accepting the belief that there are principles of good planning. Few persons would explicitly deny this. However, implicitly, even some emergency management organization officials think that every situation is unique and that, in a real sense, general preparedness planning is impossible. That is not a valid view. Every human being is somewhat biologically different from other humans. Nonetheless, the medical world, for example, has no difficulty in identifying general symptoms of illness and specifying uniform treatment procedures. Similarly, each disaster is different, but a general preparedness approach is possible.

6. Be based on what is likely to happen.

Planning of course has to focus on what might happen in the future. Unfortunately, it is too often based on what has happened in the past. But the future will not be the past repeated. No disaster will ever repeat a previous one. More generally, we have discussed elsewhere in detail how it is inevitable that we will have more and worse disasters in the decades to come, because the very nature of social life are increasing both disaster agents and the vulnerabilities of the possibly impacted communities. For example, we have to start preparing for new kinds of disasters in computer operations as well as in the biogenetic or biotechnology areas, and also for disasters which will have their sources in one place and their effects in distant places such as in the radiation fallout in many European countries from the Chernobyl nuclear plant accident in the former Soviet Union. Likewise, the means and ways of coping with disasters can and do change, in some cases improving or in other cases decreasing the capability to prepare for disaster occasions. In that sense, planning which focuses more on the past, even actual past disasters, will not be as good as that which projects what are likely to be future disastrous occasions, both in the short and long run.

However, disaster planning is also frequently weak in another sense when it projects into the future. That is, there is not a focus on what is realistically likely to happen. Too often the organizations involved project what they would ideally like to happen. Agencies and groups in the disaster area are no different than such social entities in any sphere of life. Thus, they tend to plan from perspective of the organization and what is most traditional and convenient for itself. One consequence of this is a strong tendency to develop disaster planning that requires citizens to change their behavior more than necessitating the group to change its own behavior.

A personal story illustrates this point well. One time we were asked by the US National Weather Service to come to a meeting to discuss the question of why citizens did not pay enough attention to the warning messages issued by the Service. We said we would go to the conference but the question asked was backwards. It should be asked: why does the US Weather Service not issue warnings that citizens can pay attention to in a serious way. The problem in our view was in the organization, not the people it was supposedly serving. While it was traditional and convenient to issue very technically correct warnings, the language used and emphasis was meaningless to most citizens. At the meeting we said that if warnings were to become more effective, the Weather Service had to change its behavior and to stop trying to force people to learn what was jargon and technical language, incomprehensible to the average person. To its credit, in this particular instance, the Weather Service did eventually partly change its approach. It took into account the perspective of citizens. Of course their disaster planning became more complex and difficult because they had to change some of their own organizational behavior, especially what

they put into warning messages. The language used was that which the average person could understand, and not some technical jargon.

This example illustrates our more general point that good planning must be based on what realistically is likely to happen. Thus, it is far better to plan on the basis of how people and groups are normally likely to react than to expect them to change their behavior drastically during disasters. In short, planners must adjust their planning to include an understanding of people and their expected behavior under stress, rather than expecting people to change their behavior in order to conform with the planning. Planning must be adjusted to people rather than expecting people to adjust to the planning.

The principle is equally applicable to organizations. The great majority of them should not be expected to act and/or react much differently during a disaster than they would during periods of normalcy. For example, it is useless to assume that concerns over organizational domains or territories which prevail during normal periods will suddenly disappear during disasters. For example, long standing police-fire department conflicts or suspicions that the military is ready to extend its sphere of influence, will not vanish at the emergency time period of disasters. The planning must be adaptable enough to include expected organizational behaviors, rather than trying to force organizations to drastically alter their activities in order to meet the requirements of planning.

7. Be vertically and horizontally integrated.

Good planning uses an overall community perspective on the process. It is of no use for an organization to plan well for itself or a handful of other organizations when disaster occasions usually precipitate a community mass assault on the problem. Studies by ourselves and others have, in fact, consistently reported that local emergency personnel are consistently surprised at the number and diversity of responders both from within and outside the community which converge on the disaster site--the larger the disaster, the more the converging groups and their variety.

This organizational mass assault would create problems even if planned for, but regrettably there tends to be fragmentation of local disaster preparedness planning. In the United States, there frequently are three different clusters of planners who have little contact with one another. Now in other societies, the clusterings may differ in number and composition but typically there are usually unintegrated clusters of groups involved in local disaster planning. Frequently there is the planning organized by and around the social control agencies such as the police, that clustered around hospitals and other medical institutions, and in recent years, increasingly there is the disaster planning being separately undertaken by groups in the nuclear power and the chemical

industries, which in many countries are also part of the private sector. In some developing societies too the military often has its own separate disaster planning frequently totally unrelated to any local effort.

But good preparedness planning requires an overall and integrated effort by all germane organizations. All relevant sectors of the community, public and private, not only need to be involved but their various proposed courses of action need to be tied to one another. Disasters do not impact only one sector or segment of a community; in fact a disaster by most definitions is something which disrupts community life across-the-board. Therefore, from an organizational point of view, planning also has to be across-the-board, involving all groups who will have some managing role in a disaster response, including non-local ones.

Among other things this means that good disaster planning is both vertically and horizontally integrated. That is, vertical planning at different governmental--and where relevant, non governmental--levels must be linked and integrated with one another. National level planning for disasters, that at the regional or provincial levels, and at the community level need to be consistent with and reinforcing one another. In fact, the planning in the four different time phases of disasters should not be done independent of one another (e.g., if in a recovery period evacuees continued to be sheltered in a flood plain, this creates a disincentive for mitigation measures that would bar occupancy of such areas).

As such, good disaster preparedness planning must include, in the larger sense of the term, education as a key component. Planning requires educating oneself and others. There is not only the need to teach one's own group on what to expect and to do, but there is also the necessity of learning how others are intending to respond. A frequent error in organizational disaster planning is that planners forget that they will have to orient or otherwise educate other groups relative to their respective roles in disastrous occasions. Knowing the role/responsibilities of a few key officials and planners, or the organization is not enough. The counterpart roles of others must be clear to facilitate coordination and an integrated community disaster response.

Furthermore, any such overall integrated effort needs to be continually reviewed and updated. Some community organizations come and go; others change their personnel or their top officials; still others may be given new functions or have old ones taken away. All such modifications or changes can seriously undermine even previously agreed upon roles in disaster planning. Without ongoing review and making of revisions what once might have been good planning may become a paper shell without substance.

8. Strive to evoke appropriate actions by anticipating likely problems and possible solutions or options.

While in some instances planning can be oriented to prevention (such as when mitigation measures are planned), most emergency time planning has to be directed toward altering or modifying what will happen. Planning should therefore indicate the range of problems which might occur and a range of possible solutions to them. Thus, good planning attempts to reduce uncertainties, but it is unwise to assume that everything can be anticipated or that all of the unknowns can be accurately predicted ahead of time.

The contingencies are too many to anticipate all possibilities; however, good planning can indicate some of the major parameters of the situation. For example, it is possible to incorporate into the planning process the perspective that disaster victims will take the initiative and will not be passive, or that helping organizations will have difficulty coordinating new tasks. Such an approach reduces the unknowns which have to be considered. It not only narrows the range of problems which need to be anticipated, but also lessens the number of alternative or optional solutions which have to be examined. If disaster victims do not markedly engage in antisocial behavior, for instance, there is little need to plan for a variety of security measures or the mobilization of many law enforcing agencies. On the other hand, if there is always a degree of tension between local and extra-local organizations, whether in the public or private sector, this should be recognized and addressed in preparedness planning.

Community disaster preparedness planning should strive to evoke appropriate actions. At times, planning appears primarily as a mechanism for speeding up responses to crisis situations. It is true that good planning may allow a quicker response to certain disaster problems; however, quickness of response should be a by-product rather than a major objective. Appropriateness of response rather than speed of response is far more crucial. Accordingly, it is much more important to obtain valid information about what is happening than it is to take immediate actions. Reacting to the immediate situation may seem the most natural and humane thing to do, but it is rarely the most efficient and effective response strategy. The immediate situation is rarely that important in terms of both short-run and long-run consequences. Planning, in fact, should help to discourage impulsive reactions and to encourage the adoption of appropriate actions necessary to meet the challenges of the immediate situation. For example, planning should be directed at slowing down the convergence of helping organizations at a disaster site, thus reducing coordination problems.

Of course, planning for appropriate actions can not start out from a poor base, either of a practical or theoretical nature. Too often, the personal experience of an official becomes the basis of the disaster planning. This is very bad. It is not possible to adequately prepare for disasters solely on the basis of one or two personal experiences! There are very serious limitations to such

an approach. Organizational officials are unlikely to have direct personal experience with very many disasters. Thus, idiosyncratic features of a particular occasion may be mistaken as universal characteristic of all crises. There is also a tendency to extrapolate or make broad generalizations based upon personal experiences with one or two disaster agents and to apply the generalizations to the full spectrum of possible disasters.

Additionally, due to the lack of a broad perspective, it is not always possible to derive meaningful lessons from personal experiences. For example, rather than recognizing a perceived absence of panic as a general human tendency, often it is attributed to one's own unique stable qualities or the sterling (but exceptional) characteristics of the impacted population. Finally, it is never easy for organizational officials to make an impartial evaluation of the actions of their own group. Too often, after-action reports are post hoc defenses or justifications of what the agency did rather than a candid assessment of either the problems encountered or the mistakes made.

A direct personal or organizational disaster experience is less useful for disaster planning purposes than is often recognized. Before such experiences can be utilized, they must be seriously analyzed and their limitations explicitly stated. It is, therefore, possible for some officials within emergency management organizations to be involved in several disasters yet demonstrate by their actions that they learned very little. In essence, the events to which they refer are not conducive for deriving general principles. Just as military "war stories" contribute nothing to military planning strategy, disaster "war stories" are seldom useful in developing preparedness planning strategies.

The most adequate knowledge base for planning purposes is grounded in as wide a range of as many disasters as possible, involves a systematic and objective examination of what occurs, and attempts to draw general principles and theoretical models from the information available. This is what scientific research in the disaster area attempts. Until the last few decades, disaster planners could justifiably say there were very few social scientific studies which could be used. This excuse is no longer legitimate. There now exists a body of social scientific knowledge very applicable to disaster planning, a point to which we now turn.

9. Use the best social science knowledge possible and not myths and misconceptions.

Planning for disasters can be no better than the knowledge base from which it is derived and/or the assumptions made about individual and organizational behavior during such crises. Too many officials in emergency management organizations who accept planning in principle do not, or cannot, recognize the fact that they do not approach it using the best possible knowledge base or

correct assumptions. As such, disaster planning is often based solely or primarily on common sense notions. But many popular views incorporate myths about human behavior under extreme stress.

This would pose no problem if the common sense notions and assumptions made about disaster time were valid. However, social science studies in the last decade have seriously questioned widespread and common expectations about disasters. In fact, such research has consistently shown that many popular views about disaster behavior are inaccurate (Wenger, James and Faupel, 1985). For example, social science research has found that because the image of victim-dependency is so widespread, considerable organizational effort is expended on planning mass shelters. But they will not be used (except under exceptional circumstances of a catastrophic nature) since victims typically seek and are given sheltering assistance by friends and relatives. Obviously, any preparedness activity which is based on incorrect assumptions about anticipated behavior during disasters is not good planning.

Especially to be noted are widespread misconceptions about the likelihood of panic, social disorder and passivity. Common sense notions and the research evidence vary considerably on all three.

(1) There often are expectations of panic, but what occurs is rather reasonable behavior. For some reason, perhaps because of the mass communications system emphasis on the theme, many officials and others think that when people are faced with great threat or danger they will panic. This panic supposedly manifests itself in hysterical breakdowns or wild flights. Presumably, people cannot be depended upon to react intelligently and non-selfishly in situations of great personal danger.

Studies have consistently shown that this is simply not the case. People as a whole do not panic. Actual instances of hysterical breakdowns and wild flights are extremely rare, and are usually of no practical or operational importance if they occur. In fact, instead of flight away from the danger site, there is much more likely to be convergence on an impacted area. Instead of collapse into hysterical breakdowns, people actively move to do what they think has to be done in the crisis. Disaster victims are usually quite frightened, but that does not mean they will act selfishly or impulsively. They do not become unreasoning animals, but instead (one could argue) they tend to show more rationality under stress than they do normally, if by rationality is meant conscious weighing of alternative courses of action in a situation. We do not do much conscious weighing of alternatives in performing most of our daily routine behaviors.

(2) There also frequently are expectations of disorder, but what appears is a great deal of prosocial instead of antisocial behavior. To inexperienced officials and journalists, disasters are apparently seen as offering opportunities for the surfacing of

antisocial behavior. It is speculated that deviant behavior will emerge and that dazed victims in the disaster area become easy targets for looting and other forms of criminal activity. Next to the supposed "panic" problem is the supposed "looting" problem. The imagery is that as Mr. Hyde will take over from Dr. Jekyll crime rates will rise and exploitative behavior will spread.

This too is an incorrect view according to the research undertaken by ourselves and others. Many stories of looting will circulate, but actual instances will be rare and if they occur will be done by outsiders rather than the impacted population itself. Far more material will be freely donated and given away than could conceivably be looted. In actuality, prosocial rather than antisocial behavior is a dominant characteristic of the emergency time period of a disaster. Crime rates will usually drop. Exploitative behavior is only likely to be seen in relatively rare instances of profiteering after the immediate emergency period is over. If disasters unleash anything, it is not the criminal in us, but the altruistic.

(3) There also may be expectations among planners of dependency by survivors, but what develops instead is considerable self and small-group initiative. There is a tendency in disaster planning to assume that disasters leave large numbers of people dazed, shocked, and unable to cope with the new realities of the community crisis. The assumption is that victims are so disoriented and demoralized that they will need outsiders to do the most elementary tasks for them, such as being fed, housed, and clothed. If the previously discussed expectation of disorder is based on a Dr. Jekyll and Mr. Hyde view of human beings, the expectation of dependency is based on a Big Brother image. If Big Brother does not step in, nothing, it is assumed, will happen.

Researchers have also found that this expectation too is quite false. Those who experience disasters are not immobilized by even the most catastrophic of events. They are neither devoid of initiative nor passively expectant that others will take care of them and their needs. Usually, before the full impact is over, search and rescue efforts are initiated by neighbors, and the injured are brought to hospitals. Shelter is actively sought and offered by kin and friends. In fact, the evidence is substantial and consistent that far from even seeking, and much less depending upon, formal relief and welfare organizations, these are among the last sources that the vast majority of victims will turn to for help. In a disaster, self- and kin-help and mutual informal initiative and assistance will dominate.

Thus, if planning assumes panic, disorder and passivity as the dominant behavioral features which will appear at the height of a disaster impact, an incorrect starting point will have been taken. Good preparedness planning instead works with the idea that those impacted by community disasters will generally be calm, orderly,

and able to take initiatives.

Unfortunately, just as there are mythologies about human behavior in disasters, there are also misconceptions about organizational behavior. For example, there is the belief that communication problems stem mostly from technological failures, that there is considerable breakdown of authority, or that coordination can be brought about by centralizing control. These too are mistaken notions. We do not have the time and space in this paper to elaborate on these and other misconceptions about organizational behaviors in disasters; they are later partly discussed under management problems and are detailed elsewhere in the literature (see earlier references). But the important point is that beliefs in mythologies about organizations in disastrous occasions are as undermining of good planning as incorrect assumptions about human behavior under great stress.

As someone else wrote long ago, more damage is done by what people incorrectly believe to be true, than by lack of knowledge per se. Unfortunately, in the disaster area false beliefs about human and social aspects abound among emergency planners and emergency officials. To the extent that is the situation, their disaster planning will tend to be poor.

10. Recognize that crisis time disaster planning and disaster managing are separate processes.

We would be amiss if we stopped our discussion at this point because it might imply that if the previous nine criteria were all met, we would then have good preparedness planning and good managing of community disasters. Unfortunately this is not and can not be the case. There are some major differences between the preparing for and the managing of a disaster. The principles of disaster preparedness planning are not the same as the principles of emergency time crises management. They are not simply two sides of the same coin.

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 which 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 best tactics which could be used to handle particular contingencies in the emergency time period of a specific disaster.

Generally it is impossible to indicate ahead of time the specific tactics which will have to be used in an actual crises, since

almost by definition, they will be relatively specific to the actual emergency that develops. However, just as the military finds it possible to discuss tactical principles, disaster researchers can point to some of the tactical considerations which are involved in efficient and effective disaster management. Since we have written on this matter in detail elsewhere, here we will only mention some fundamental points.

DISASTER MANAGING

For reasons not altogether clear to us, it is not always explicitly recognized or acknowledged that the planning and the managing of community disasters are two different processes. Perhaps it is because many of the same community officials are often involved in both activities. Yet along certain lines the difference would seem fairly obvious. Researchers, for example, usually recognize that planning a study is different from managing a project carrying out that research. On the other hand, it is only very recently that the Federal Emergency Management Agency (FEMA) in the United States started to emphasize performance rather than planning criteria in its evaluation of local emergency management agencies. Apparently the difference is not that obvious to all.

That problem aside, good managing of community disasters can primarily be evaluated in terms of certain research derived criteria. Much of the relevant literature on the topic is more implicit than explicit, but nevertheless is fairly extensive. Collectively it indicates that the management is good if the following ten criteria, which are sequentially related to one another, are all met. It should be noted too that whereas much planning can be generally evaluated ahead of time, a specific judgement on managing mostly can be made only after a disaster impact. Nevertheless, knowledge of what constitutes good management can be helpful even to operational officials in the middle of a disaster crisis, and of course after the occasion is over can be used to make changes for future disasters.

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). This necessitates 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 all discussed below as criteria #3-7). These demands exist in all disasters and are somewhat 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 can not 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 being 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. For instance, to the extent there are mental health problems they result mostly from response rather than agent generated demands (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 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, 1984a).

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 rather 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 possibly other actions that might be added such as assessing the damage or restoring essential public services (see the discussion in Kreps, 1991: 41-42), but few researchers would dispute there are certain generic functions and at least the six mentioned.

Now, given their generic nature, an evaluation should always be possible regarding the carrying out of the functions, especially their adequacy. As examples of important questions that could be asked are the following: 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 or temporal proximity. 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 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 wide variety of skills are not necessarily a good resource in a disastrous occasion. In fact, in the absence of 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 have to 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 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 time period, the nature of the required tasks and the scope of organizational involvement are 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 preimpact understanding of responsibility (e.g. fire departments fight

fires). But even that can be complicated because of the convergence of many organizations from outside of the impacted community. For example, in one disaster studied by DRC a total of 68 different fire departments appeared on the scene. Equally as important, there are tasks which 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 will be 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 (see Quarantelli 1984b; 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 I O N S H I P S | O l d | Type I Established Organizations | Type III Extending Organizations |
| | N e w | Type II Expanding Organizations | Type IV Emergent Groups |

The four possibilities indicated are derived from considering the fact that some community organizations have tasks within the crisis

period which are essentially the same as those they undertake during routine or preimpact times. Others groups, however, have basically new tasks. In addition, some organizations maintain a similar set of internal social relationship from the everyday 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 Quarantelli, 1967).

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 proscriptive and research literature on disaster management, it is often said that there are "communication" problems at the crisis time period of 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. But 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.

Necessarily there are multi streams of information flow during the crisis time 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 flow 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. Likewise, 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 telephones, 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 period 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 on the part of 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 importantly, 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 there are such new tasks to 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 established organizations. 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 example, for the most part "area security" is considered a traditional local police function. Conflicts can arise if non-local 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 decisive 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 a response rather than whether the decisions are made by those in formally designated positions of authority

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. In fact, studies (Dynes, 1993) indicate 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 which 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 situation. 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 (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 suing 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 which 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 other issues in disaster management which we discussed earlier are crucially dependent on how key officials handle the overall problem of integrating organizational and community responses to a disaster. 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 deemphasize 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, Aguirre and his colleagues (1993) found that the search and rescue in the Guadlajara, Mexico gasoline explosion in 1992, while influenced by informal preimpact social links and ties, was essentially undertaken by emergent groups. New, temporary behaviors even occur in some very traditional organizations such as police departments and churches (Quarantelli, 1983b). Thus, while there are many unresearched questions about the origins, intrinsic nature, boundaries, careers, cross-societal differences and types of emergence (see Drabek, 1987), the phenomena especially at the crisis time period of disasters, is ubiquitous.

However, such improvisation frequently bother 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 and 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).

But even if the research knowledge is limited, the problem can not 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 organized 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 which 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 is 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. In many cases, 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.

Actually, planners and responders might consider what circumstances and for what purposes they might actually want to facilitate certain kinds of emergence. A case in point is the use of individual volunteers, which we have already noted are usually more of a problem than a help. Volunteering does represent emergent behavior by individuals. But it could be appropriate to try to facilitate emergent volunteering by groups (e.g., social clubs, neighborhood civic associations, some 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 the 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 indicated.

9. Provide the mass communication system with appropriate information.

One of the prominent features 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 information provided by such systems. But for our purposes in this paper, the importance of modern mass communication systems is that they the perception of any community disaster including its effects 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. 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 of 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 information, the mass media can be depended upon to disseminate, not intentionally but nonetheless, news which will often not be accurate and informative.

If there is not satisfaction in all the 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 three segments of the community are obtaining the information they need so they can each act 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. 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 is undoubtedly valid as a measure of good disaster management, it is clear that 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 a number of crisis time activities which if done right 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. But 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.

But 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 some knowledge of what each other are 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 various outside organizations and agencies. Some of these relationships are horizontal, 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 vertical 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).

If all ten criteria we have discussed above are met, it is very likely that there will be a good managing of a disaster. But at best, for the reasons indicated, there will be only a partial correlation with whatever the preparedness planning was. Nevertheless, if all 20 criteria discussed above are well handled, there is likely to be good disaster planning and managing.

However, disaster studies in the last 40 years nonetheless indicate that there are limits to getting both good planning and 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 planning and 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 completely prevented; we equally know that will not happen. We may also know what is the very best planning 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 preparedness planning and managing must operate in a real and not an ideal world. Idealistic conceptions should provide us goals. But if we are to improve the planning for and the managing of disasters we have to be realistic, both in terms of recognizing what really exists and what can be realistically achieved. So far 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.

SOCIAL TECHNOLOGY TRANSFER: DEVELOPED TO DEVELOPING SOCIETIES

However, this brings us to a last consideration: how applicable are the 20 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 preparedness planning and managing of developing countries?

We leave aside here our own very serious reservations about the theoretical and conceptual validity of contrasting the terms "developed" and "developing," which we have elaborated upon elsewhere (Quarantelli, 1992). For purposes of discussions, therefore, we would make the following points relevant to a possible disaster preparedness technology transfer from developed to developing societies.

Developed versus developing countries from an organizational point of view could be seen to differ along the following lines:

(a) Developing societies do not have as complex organizational structures as do developed systems; there is simply less of an infrastructure in many such countries.

(b) Many of the top organizational officials have obtained their education and training in developed societies; thus, they have been socialized to Western professional ideals rather than local contexts and norms.

(c) Such complex organizational structures as do exist tend to function from the top down; while almost all organizations are reactive rather than proactive, this is especially true in developing countries with a strong tendency for initiatives only coming from the very top.

(d) In many organizations in developing countries there is a strong emphasis on structures or forms rather than functions or tasks; thus, the means often become ends as seen in the proliferation of paperwork and plans.

(e) Relatively few distinctively separate disaster preparedness or management organizations exist; apart from the lack of groups with relevant responsibilities there is also the accompanying lack of a constituency that otherwise might provide some political pressure and support.

(f) And, the further away from the national level of developing societies, the rarer the existence of disaster specific agencies; yet in many fundamental senses, good disaster planning and managing has to be rooted at the local community level.

If this is the organizational framework in developing countries, what are some of the implications for disaster preparedness? Let us discuss four points, particularly as they apply to

organizations. They are derived both from the research from Western societies and from some of the limited social science disaster studies that have been done in such places as India and Mexico, and a few studies in other Asian, African, and Latin American countries (see, for example, Raghavulu, 1982; Research, 1989; Alam, 1990; African, 1991). Nevertheless, our statements should be taken as educated impressions rather than well established empirical conclusions.

1. In the 1970s, we hypothesized that cross-societal differences in responses in the emergency time period of disasters varied directly with the level of the social behavior involved. Thus, universal or panhuman patterns of behavior were most likely at the individual or human behavior level. But societal specific behavior patterns are more likely going from the family, to the organization, to the community, and to the societal level.

The cross societal research as has been undertaken is supportive of the hypothesis. For instance, panic flight behavior is very rare among disaster victims in any society. Search and rescue activity is primarily carried out by surviving neighbors and private citizens. Consistent with this, and contrary to the image left by many press reports, the vast bulk of search and rescue in the 1985 Mexican City earthquake was carried out by individuals on the scene right after impact--the publicized activities of foreign teams that went to Mexico City in the days after the earthquake rescued only a minuscule proportion of those found. In contrast, organized mitigation measures and reconstruction activities primarily at the community level tend to vary very much from one society to another.

Assuming our general hypothesis is correct, it follows that organizational disaster behavior will not be universal, but also that it will not be completely societal specific. Clearly what is needed are systematic studies which would identify the universal features and the societal specific characteristics of organizations in disasters. We could hypothesize, for example, that organizations that use the same kind of standardized technological resources, such as public utilities, will tend to behave generally in the same way in disasters.

2. Now the absence in developing societies of the kinds of organizations existing in Western type countries does not mean a total absence of the disaster functions that such groups may have. For instance, few developing countries have the elaborate or specialized weather service organizations found in the West or Japan. Likewise, many such countries do not have the complex and multi-faceted mass media outlets that exist in Europe or the United States and Canada. However, the absence of a modern mass communication system linked to a modern monitoring and warning weather service system does not preclude institutionalized ways of alerting people and groups to sudden dangers. In some developing societies, there are rather complex informal social networks which

allow many warnings to reach populations relatively well apart from any mass communication system. For instance, there has been research showing the existence of many early indicators of possible flooding as well as traditional warning message networks functioning in flood prone villages in India that are apart from the official and mass media warning systems (see Schware, 1984).

In a similar way, most developing countries do not have the systems of organizations which in Western type societies are characterized as medical-health systems. The elaborate and linked groups created in many developed countries for the delivery of emergency medical services are even less likely to exist in developing societies. As an Indian disaster specialist at the Joint Assistance Center (JAC) once wrote, while cases involving major surgical operations can only be done with a hospital context:

even in a country like India where proper medical hospital care may not be available in peach times for distances up to 10 to 15 kilometers, people over time have developed and devised their own techniques of dealing with medical emergencies, using herbal or other natural resources. JAC itself have been integrating such techniques (e.g. solar therapy) into its training programmes for disaster preparedness for the last several years (Jain, 1983).

Overall, our general point is that we should not assume that the organized ways in the West for providing certain services or carrying out particular tasks, are the only possible relevant social arrangements. Less important than the social structures for doing something, are the social functions carried out. Without in any way implying an equivalence, at the very least it should be recognized that different kinds of social organizations might be able to carry out the same tasks, and that similar appearing social organizations do not necessarily have the same functions. This can be easily seen in some developing countries which, in form have nominal Western style democratic political institutions, but which actually do not function in any democratic way.

3. The more experience communities and organizations have with disasters, the more likely they are to be prepared for and to respond well to new disasters. But it is known from research in developed countries that there is no direct relationship between prior disaster experiences and good disaster preparedness and managing. Nonetheless, studies do suggest that there is likely to be a correlation, for the recurrence of disasters raises the probability of the development of what has been called a "disaster subculture". This involves an interrelated set of attitudes and practices among the populations and groups in an area that makes them better prepared to respond to a new disaster (Wenger, 1978).

As a whole, developing nations are more at risk to disasters than developed countries. Therefore, although no solid research data exists on this point, we would expect developing nations to have many disaster subcultures. That being the case, such cultures ought to improve their capabilities, including those at the organizational level, to cope with familiar types of disasters.

This can only be stated in hypothetical form, given the absence of much social science research on disasters in developing countries. But the point is mentioned to question an implicit assumption that in almost all respects developing countries, as a whole, are worse off in disaster preparedness than developed countries, especially given few or no organizations specifically oriented to disaster problems. However, if disaster subcultures exist, this would not be the case.

4. One of the general conclusions of the organizational research is that there is much emergent behavior in disasters and that such behavior usually makes for more efficient and effective responses. This is certainly true in developed societies. To what extent would this hold for organizations in developing social systems?

In the absence of comparative systematic research data, the point could be argued both ways. It could be said that emergence occurs in organizations in developed countries because that is the only way such groups can cope with the new demands of a crisis situation. Their old structures and infrastructures are too rigid and cannot be easily modified or changed in a very short time period. But a crisis demands action and established organizations cope by generating new structures and functions. This could also be true of organizations in developing countries.

On the other hand, it might be argued that most bureaucratic organizations in developing countries do not have the history of those in developed societies. They therefore would lack the structural rigidity frequently reinforced by a long history, the cumulative accretions of traditional ways of doing things which will not be easily altered even in the face of a disastrous occasion. Our view is that many organizations in developing countries would show relatively little adaptive capabilities, less because of their historical roots, but more because many such organizations are top heavy and tend to emphasize structure more than tasks. If our hypothesis is correct, it would follow that there would be less adaptive organizations in disasters in developing social systems.

What can we generally conclude? We know the dimensions discussed are important in the context of most modern societies ranging from Japan to Italy, but we really do not know which specific ones are equally important elsewhere. Such a view may not seem very helpful. Nonetheless, it is a step forward from assuming as is

sometimes done that what applies in developed societies is fully applicable to developing countries, or asserting, as is also sometime done, that the lessons from Western type societies have no major applicability in non-Western systems. In our view, it is not either/or, but what can and cannot be extrapolated from one kind of society to another.

In conclusion, we can say there are criteria for evaluating disaster planning and managing. Without question, to a degree they are applicable in developing societies. As such, we think our theoretical discussion can have some practical value.

APPENDIX

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