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LESSONS FROM RESEARCH:
FINDINGS ON MASS COMMUNICATION SYSTEM
BEHAVIOR IN THE PRE, TRANS, AND
POSTIMPACT PERIODS OF DISASTERS

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OUTLINE OF MAJOR POINTS DISCUSSED

Research findings about disaster related behavior generally.

Individual behavior:

1. It is very difficult to get individuals/households to be self interested much less concerned about disasters before they happen.
2. What disasters do occur, individuals react very well.
3. While the experience of a disaster is a memorable one, and there are differential short run psychological effects, there does not appear to be too many lasting behavioral consequences.

Organizational behavior:

4. To the extent organizations plan for disaster--and few do--they often plan incorrectly.
5. Organizations typically have major problems in attempting to manage disasters, although these are often not the expected difficulties.
6. There is only selective organizational change at best from undergoing a disaster.

Community behavior:

7. Communities generally give very low priority to disaster planning.
8. The greater the disaster, the more there will be the emergence of new structures and functions.
9. There are some selective longer run outcomes and changes in impacted communities, including the surfacing of negative aspects.

Research findings about disaster related mass communication behavior.

1. The mass media give very little coverage to disaster mitigation and prevention measures.
2. The participation of the mass communication system in longer run preimpact disaster preparedness activities tends to be selective and limited.
3. The mass communication system almost always plays a major role in passing on warnings of impending disasters.
4. Disaster preparedness planning among mass media organizations is very limited, generally of poor quality and often not implemented at the time of the emergency.

5. Mass media personnel are usually faced with an initial lack of information about the overall disaster impact.
6. In localities with multiple mass media outlets, there is considerable variation in providing news coverage of disasters.
7. Those organizations that provide information about disasters in their communities give very extensive coverage to the occasion.
8. News stories on disasters is almost exclusively provided by local personnel who have a strong proprietary sense about the news of the disaster.
9. There are a number of internal management problems that surface as mass media organizations attempt to cope with disasters.
10. Mass media organizations change their formal structures or division of labor in attempting to report on disasters, with the middle size groups changing the most.
11. Field reporters have even more autonomy than usual in covering disaster related stories.
12. Mass media organizations primarily use traditional sources of information even at times of disasters.
13. There is a rather selective reporting of important emergency time related activities with some receiving extensive treatment and others, little, if any at all.
14. In spite of the use of traditional sources, there is almost always some conflict between reporters and officials.
15. A "command post" perspective is generally assumed particularly in the electronic media.
16. Citizen sources employed more often than usual are used in differential ways by the electronic and the print media.
17. The gatekeeping process is mostly truncated in the electronic media.
18. The print media are more likely than the electronic media to produce "soft" rather than "hard" or instrumental news stories.
19. The electronic mass media far more than the newspapers are likely to operate as an interpersonal as well as a mass media.
20. Mass media reports, especially in television, tend to present content that perpetuates certain disaster "myths"

INTRODUCTION

We want to start off with a very simple observation. Practically everyone is willing to express views and opinions about what will or will not happen in disasters. In fact, people do not hesitate in social surveys in stating what they think goes on with respect to behavior associated with disasters (see Wenger, James and Faupel, 1985). There are few claims of not knowing.

In some ways, this is rather strange. Why? Because except for a relative handful of emergency managers and disaster researchers, the great majority of people in Western societies have only very limited direct experiences with disasters. Most human beings will directly undergo only one or two, if any at all, major disasters in their lifetimes. Even crisis oriented organizations and many communities, except those in highly risk prone areas, can go decades without being specifically impacted by significant disasters. Disastrous occasions are low probability events for any given locality or group, and the chances of getting involved in them is statistically rather low for any given individual.

So where do people get their images of disastrous phenomena if they do not base them on personal experiences? Some of the picture they have undoubtedly comes from deeply rooted cultural beliefs about the nature of society and history that are informally passed on, for example, such as the Great Flood story in the Bible.

But we think a strong case can be made that what average citizens and officials expect about disasters, what they come to know of ongoing disasters, and what they learn from disasters that have occurred, are primarily although not exclusively learned from mass media accounts. In fact, studies indicate that even in communities that have been recently hit by disasters:

the mass media were the most salient source of information...for many of the respondents, the media were not only an important source of information, they were the only source (Wenger, 1980a: 243; see also, Greene, Perry and Lindell, 1981; Saarinen, 1982).

The images we have of disaster phenomena are drawn mostly from the stories produced by the mass communication system. The expectations almost all of us have of disasters is mostly provided by mass media depictions whether these be news or fictional (for a discussion of disaster movies, see Quarantelli, 1980b, 1985b). Specific disasters that are instantly recognized world wide (Bhopal, Mount St. Helens, Chernobyl, the Loma Prieta earthquake, Three Mile Island, the Armenian earthquake, etc.) can be particularly attributed to mass media reporting (see Patterson and Wilkins, 1988).

At least one point is made and one question is raised if our general assertion is correct. The mass communication system is important. Its reality is our reality. But it can be asked: how accurate is the picture conveyed by the mass media stories?

OUR CENTRAL FOCUS

We can discuss this because there is another knowledge base to draw from. Research on the human and social aspects of disasters, both natural and technological, has been going on since the late 1950s. Much has been learned on how individuals, organizations, communities and societies prepare for and respond to disasters. We are going to talk selectively today about this research-based body of knowledge. While we will draw heavily from the work of the Disaster Research Center (DRC) which has undertaken over 515 field studies of the social aspects of disasters since it was established in 1963, relevant findings from other sources will also be employed (especially Fritz, 1961; Barton, 1970; Lagadec, 1982; Kreps, 1984, 1989; Drabek, 1986; Dynes, De Marchi and Pelanda, 1987; Rosenthal, Charles and Hart, 1989).

Now one general lesson from studies is that there is a tendency to take too narrow a perspective on issues and problems. Our interest in this seminar is in "crises and the media." This is valid, but we can not focus too exclusively on that topic. If we want to understand the operation of the mass media with respect to disasters, we can not just concentrate on the mass communication system itself. The media always operate in the larger context of their social environment. This environment of people and groups basically structures--and both permits and limits--what the mass communication system will or will not do with respect to disasters, as well as everything else.

Therefore, we are first going to talk about what social science research has established about the actual behavior of individuals, organizations, and communities in disasters. The behaviors of these social entities are the turbulent social context within which the mass communication system operates. The mass media in any society far from operating in a social vacuum are immersed in their social environment.

This may seem obvious, but some planning and much discussion of mass media operations in disasters ignores this simple point. For instance, it is the very rare mass media organization that plans for itself being directly impacted by a disaster (sometime it is implicitly assumed that the media system can continue to operate as an untouched observer in a community when everything else has been directly or indirectly affected). Although other social actors frequently make the same assumption (e.g., many hospitals assume that they will not be impacted by a community disaster, see Auf der Heide, 1989), it is a totally unwarranted position.

In addition, it is necessary for the effective operation of the mass communication system that it have an accurate perception of disaster related behavior. For instance, most mass media personnel such as news reporters assume that ordinary citizens do not react too well at the height of a disaster, that people will panic and act in antisocial ways. This belief, as will be discussed later, is not a correct one. In fact, research has found it almost totally false. But the belief strongly affects what news organizations and their personnel report and do not report about disastrous occasions. A different belief about reactions of human beings in disasters would lead to different mass media reporting.

Thus, our initial remarks will summarize in very general terms what is known from systematic studies about disaster-related behavior.

For purposes of exposition, we will generalize what is known about behaviors generally at three different social levels, namely the:

individual/household,
the organizational, and
the community levels.

Additionally, we will talk about what is known about the activities of these social entities at different time periods of disasters, namely the:

preimpact or preparatory phase,
the emergency or impact phase, and
the post impact or recovery phase.

When these two dimensions are cross classified there are nine cells as indicated by this table:

		TIME PHASE		
		Pre	Impact	Post
LEVEL OF SOCIAL ENTITY	Individuals/ households			
	Organizations			
	Communities			

After this brief summarization of what is known about the larger

social context, we will spend most of the rest of our time talking about the mass communication system and its disaster related behavior. In particular, we will present twenty general themes from research findings about the mass media and disasters.

However, we will conclude our remarks with a glance at the future. The 21st Century will pose new problems in this area because it will not be simply the 20th Century repeated. That is, we will note some changes occurring in the nature of disasters and in media technology (drawn mostly from Wenger, 1985b). Some implications of these trends for mass communication and disasters will be noted.

It should also be mentioned that we will primarily be talking of disasters, natural and technological ones. The seminar title is "crises and the media". This implies a somewhat a broader frame of reference than we will be using.

While not everyone has proceeded in the same way, the vast majority of self designated disaster researchers have dealt with the human and social aspects associated with natural hazardous agents (such as hurricanes, floods, volcanic eruptions, tornadoes, earthquakes, tsunami, and blizzards) and with risk producing technological agents (such as explosions, fires, chemical and nuclear plant accidents, electric and energy system failures, biological poisonings, and large scale transportation wrecks and structural collapses). While there are exceptions (see e.g., Baum and Davidson, 1983), most disaster researchers have not found it particularly useful for study purposes to draw a distinction between so called Acts of God and Acts of Men and Women (Smith, North and Price, 1988).

It is noticeable that the events associated with the above occasions are all relatively sudden in appearance and generally have a fairly definable locale or area of impact. Far less studied by social and behavioral scientists have been the usually more diffuse in time and space kinds of hazardous situations. Examples would be famines, droughts, health epidemics, coastal erosions and subsidence, slow chemical poisonings such as by asbestos, radiation contaminations such as by radon, and climatological pollutions such as acid rain. Slow on-set threats pose both theoretical and methodological problems and issues not encountered in quick on-set dangers (see Quarantelli, 1987), although certain occasions such as famines, droughts and health epidemics would probably be readily accepted as "disasters" by the great majority of researchers working on the problem. Nonetheless, the research base and literature we draw from is primarily about sudden type disasters (for an inventory of disaster field studies in the social and behavioral sciences up to 1980, see Quarantelli, 1984b).

Even more excluded by those doing studies in the field are conflict types of occasions, that is, where one or more parties in the situation are consciously and deliberately trying to inflict

damage, destruction and/or disruption on some of the populations involved. Thus, disaster researchers on the whole have not taken as part of their immediate subject matter such situations as wars, riots and civil disturbances, terrorist attacks and hostage takings, product tampering and sabotage, and pogroms and massacres (but see Kreps, 1984, for the opposite view). We as well as others do see conflict occasions as one kind of collective stress situation (as discussed in Barton, 1970), and as such there are certain common elements shared with disasters--which are essentially consensus kinds of crises--but nonetheless the differences are far more important than the similarities (see the contrast in Quarantelli and Dynes, 1970 and Dynes and Quarantelli, 1973). But for the most part we will not deal directly with conflict type situations. This does not deny certain common elements across all collective stress situations only that our interest is in a limited number of them, a particular category.

Now what we or anyone else calls "disasters" is not merely a semantic matter or insignificant. Labels do matter. They affect what planning will be undertaken, who will undertake it, which groups will respond, and generally how citizens will think of the phenomena. This applies just as much to the mass communication system as elsewhere. For example, is the AIDS epidemic treated as a disaster in news reporting? Why or why not? In what way does it make a difference? We believe if you think about these and related questions, you will see in what ways names and labels do make a difference. Therefore, it is important to understand our referent of the term "disaster".

RESEARCH FINDINGS ABOUT INDIVIDUALS, ORGANIZATIONS, COMMUNITIES

Out of the extensive research literature we have pulled out nine general findings, that is, broad generalizations rooted in a body of research studies (see the general references mentioned earlier). Three general themes are each presented for individual behavior, for organizational behavior, and for community behavior. For heuristic purposes, within each set of the three we look at what can be said about the behavior in the preimpact phase, the emergency time phase, and postimpact recovery phase of disasters. While there is reason to think that the reported observations apply in all social systems, they clearly are most applicable in modern societies, the industrialized and urbanized countries in which most of the research has been undertaken.

INDIVIDUAL BEHAVIOR.

- 1. It is very difficult to get individuals/households to be self interested much less concerned about disasters before they happen.**

The great majority of people are oriented to the "here and now". As such, the idea of a possible disaster in the future in which they will be directly involved is seen as so remote, unlikely, and uncertain, that the threat does not enter into consciousness, or if it does, is usually quickly dismissed. Human beings are very unlikely to be engaged by something they do not see as personally involving themselves (or what they value such as their family), which is not immediately present, and which is not certain to occur. The ordinary individual and household is preoccupied with day-to-day specific problems of living, and is not concerned with remote, abstract, rare, statistical probabilities (for a review of the relevant literature. see Drabek, 1986: 320-331). Of course the actual very low probability nature of disasters for individual actors strongly reinforces this orientation; in this sense the behavior is correctly based on a common sense calculation.

Moreover, even when in certain localities there is a recognition and awareness of a potential threat (e.g., as a result of living near an earthquake fault or a hazardous waste site), citizens see disaster planning as primarily a collective or governmental responsibility (Turner, Nigg and Paz, 1986: 80; see also Drabek, 1986: 23). This obligation of the state tends to be seen more in moral than legal terms. To a considerable extent, the passive attitude and expectation that public agencies ought to be taking the lead is indicated by the fact that extremely few persons undertake any kind of specific disaster preparedness in their own households or their places of work (Saarinen, 1982). Given that relatively few people take precautions against fires in their own homes, it is not surprising that even fewer take any steps with regard to preparing for an even rarer and collective crisis, that is, a community disaster which may or may not involve them.

There are two major exceptions to the above. First, in localities which repeatedly experience sudden disaster threats or impacts, an agent specific disaster subculture may develop (e.g., for riverain floods or for hurricanes--see Moore, 1964). In such a setting, many residents will not only be aware of the danger but will have taken preparatory actions (e.g., having built a tornado shelter) and/or will know ahead of time what to do or not to do (e.g., not running out of doors during an earthquake). Of course, not all inhabitants even in disaster subculture area will have been socialized into taking the appropriate behavior. Furthermore, what is important here is not primarily the personal experience of a previous disaster, but rather the development of a shared or collective definition and perception of the situation, namely a subculture. In fact, inhabitants of localities that have disaster subcultures need not have had direct involvement in the earlier occasion--they will learn about the relevance of a specific disaster agent subculture in the same way they learn about other important aspects of their community. Actually even repeated experiences per se of a disaster agent does not automatically generate a disaster subculture among the population of an area; other facilitating conditions are also necessary (Wenger, 1978).

Second, there is the increasing appearance of emergent citizen groups organized around the possible threat or actual impact of a disaster (sometime these reflect more macro level interests such as those that are involved in antinuclear or environmental social movements). This, as a recent DRC study found, is a relatively new phenomena in American society (Quarantelli, 1984a; 1988a), but is also starting to appear in other societies. If people come to define a serious, likely, and probable threat in their immediate neighborhood, and if they judge the local authorities as illegitimately dismissing the concern of residents over the danger, citizen groups typically emerge. These groups, only a small fraction of whom are successful in any way, often try to pressure governmental entities to do something about the specific threat. At times this involves attempting to get laws, ordinances or regulations passed to prevent or to prepare for the threat. These informal citizen groups may also at times try to prepare the local population for a possible disaster from the particular danger involved, although it is not very easy to get people involved (for difficulties in the development of emergent citizen groups concerned with possible earthquakes, see Quarantelli, 1984d). But to the extent such groups are successful, and a few do sometime succeed in a localized area, the awareness and preparations for specific disaster agents may increase substantially in certain neighborhoods of a community.

It should be noted that both exceptions we have noted--the disaster subcultures and the emergent citizen groups--are collective entities, not aggregations of isolated individuals. This is important because mass public educational campaigns aimed at changing individual behavior do not have much of a success record.

The research picture in the disaster area about educational efforts aimed at individual persons is also not very encouraging (see Drabek, 1986: 334-336); often relatively few people are reached and even fewer learn much. Perhaps a general lesson here for improving risk communication to persons is that the groups of which they are a part rather than individuals per se ought to be the prime focus of the effort.

2. When disasters do occur, individuals react very well.

As a whole, human beings respond well at the impact times of disasters. People in such situations actively seek relevant information and attempt to do what they can to deal with the exigencies presented by the emergency. The threat of a disaster just about to happen or its actual impact does not paralyze those affected. Passivity in the face of danger is almost nonexistent. The nearer the threat is perceived to be or the more there have been life or household disrupting problems to be solved as a result of an impact, the more active persons and households will be in responding.

During and immediately after a sudden impact disaster, individuals tend to think of the event as something centered around their immediate physical surroundings, and to underestimate therefore the scope and destructiveness of some kinds of disasters. This results in considerable variability in the initial behavior of victims as they enact their usual social roles as worker, family member, friend, neighbor, etc. At the individual and small group level the behavior is organized, meaningful and goal oriented, although to outsider observers it incorrectly appears as chaotic, confused and random (Dynes, Quarantelli and Kreps, 1981).

For example, the bulk of the search and rescue is quickly initiated by survivors. Typically this informal action, sometime undertaken by small ad hoc groupings, attempts to establish the whereabouts and status of most of those in the searched neighborhoods, locates the injured, and frequently gets them transported for medical treatment (e.g., De Bruycker et al, 1983). Concurrently, other survivors will be attempting to find out if relatives and friends in other localities are safe, while still others will go to places they think they might be needed, and others will voluntarily undertake a variety of emergency tasks from unofficially clearing streets of debris and directly traffic to informally providing shelter, food and clothing to their neighbors in immediate need of such assistance. Survivors do so much prior to and separate from the actions and directions of officials that it sometimes leads emergency agency personnel to mischaracterize the activities as confused and non-goal directed (Dynes, 1990).

Victims not only act positively, but they also show little deviant behavior. The belief that disasters generate much personal deviancy is very widespread and deeply rooted in the population at

large, community officials, and to some extent even among the personnel of emergency organizations, and disaster victims themselves (Wenger, James and Faupel, 1985). Several themes predominate in this kind of thinking.

Thus, it is assumed that disasters generate irrational panic and unleash anti-social behavior. Stories and rumors about such behavior are almost universal after a disaster, but actual instances are often nonexistent, very low in relative frequency when they do occur, and surface only if there are particular set of circumstances which tend to be rare in community type disasters. However, these myths about individual disaster behavior are important because they affect what both citizens and officials often expect and accordingly influence other behaviors, e.g., a reluctance to evacuate because of concern over possible looting, or not issuing warnings because of the belief that panic flight may occur (Quarantelli, 1960).

Disaster victims do not generally act irrationally, certainly no more so and even less likely than in their everyday activities (if by rationality is meant considering options in a crisis situation and/or using appropriate means given certain desired ends, see Quarantelli, 1981b). People who perceive themselves in great danger, if they have any contact with social reality, will feel greatly afraid. But even great fear does not automatically translate into hysterical paralysis, wild flight, or other dysfunctional actions--three frequent referents when the term "panic" is used.

Panic flight additionally endangering self and/or others can and does occur in some collective stress situations (Wenger, 1980b), but even isolated episodes of such behavior are very rare in community disasters. This is because the typical disaster setting lacks the specific conditions necessary for panic flight: namely, a confined space, an immediate and a very high specific risk to self, a perception that escape from entrapment is still a possibility, and a sense of social isolation (contrary to popular notions, a sense of entrapment does not lead to panic flight, see Quarantelli, 1954). These are more likely to be present in an isolated hotel or theater fire than in a community wide disaster.

Instead of wild flight away from a disaster site, there is far more likely to be convergence on places where emergency tasks are being carried out (for the earliest discussion of convergence, see Fritz and Mathewson, 1957). Motivations to help others, rather than narrow self preservation or help, predominate in community disasters. Now, especially to inexperienced officials and journalists, disasters are seen as offering maximum opportunities for the surfacing of antisocial behavior. It is speculated and written that survivors are the easy target for looting and other forms of criminal activity. The imagery is that as Mr. Hyde takes over from Dr. Jekyll at the time of the emergency, property crime

rates will rise, violent crime will increase, and exploitative behavior will spread.

However, the research evidence lends almost no support to these notions (Dynes, Quarantelli and Kreps, 1981). For example, many stories of looting (stealing of goods) will circulate and almost everyone will hear some of them. But looting is not a serious problem; often, apparently not even a single case occurs. Such instances as do occur are not numerous, usually involve articles of little value (which may be picked up by sightseers), and seem to be committed by outsiders to the community--at times by members of security forces brought in to prevent looting! Overall, prosocial rather than antisocial behavior is the dominant characteristic at the emergency time period of a disaster. Such crime as occurs will be far below that which would normally happen on an everyday basis, the mythological belief to the contrary. If the height of a disaster unleashes anything, it is less criminality than altruism.

We have noted some of the major myths of how victims act during disasters to make the point that people can and do react very well to extreme stress situations. They are neither so fragile that they will panic in the face of danger, nor so poorly socialized that they will become antisocial when caught in a disaster. One possible lesson from this research observation is that human beings will almost certainly deal well with communications, including those from the mass media, about even very serious risks, and far better than they are often assumed to be able to handle (see Rosengren, Arvidson and Sturesson, 1978). Most persons may be frightened upon being told of dangers, but a concern that this will lead to undesirable behavior at the time of an emergency is not warranted by the research evidence from community disasters. It should be assumed that individuals and their households will rise to the occasion.

3. While the experience of a disaster is a memorable one, and there are differential short run effects, there does not appear to be too many lasting behavioral consequences.

There is a major dispute among researchers regarding possible pathological consequences for victims of disasters (see Perry and Lindell, 1978). On one side, there are those who believe that the traumatic stress of a disaster experience has both short and long run negative consequences for the mental health of those impacted. Thus, community disasters supposedly drive some people "crazy", psychologically scar numerous others so they cannot function normally in the postimpact period, and leave in their wake many seriously emotionally disturbed victims. These pathological psychological behaviors are presumably manifested by almost all or a majority of individuals involved in a disaster, and may last indefinitely unless treatment is obtained (e.g., for an exposition of this position see some of the articles in Lystad, 1988; but see Taylor, 1990: 79, who in her review of the book notes:"upon

competing the book I sensed a paradox...in the fact that the consensus that emerges from Part I is that disasters do not provoke widespread psychological and emotional impairment. Yet the remainder of the book is devoted to outlining the necessity for specialized planning and services directly at alleviating the mental health consequences of disasters").

However, according to other researchers and we agree with them, this image of community disasters as inevitably creating many and significant mental health problems is another one of the prevailing major myths of disasters (for an analysis of the different points of view on this issue, see Quarantelli, 1985a). Thus, our reading of the research evidence indicates that community disasters very rarely if ever produce any new psychoses or severe mental illnesses (particularly if measured against the degree of mental illness that can be found in the everyday in the typical community, which supposedly is about 15% of the population in the average American community). It does appear such occasions can generate many surface psychological reactions such as sleeplessness, loss of appetite, anxiety and irritability (Tierney and Baisden, 1979). But these symptoms tend to be subclinical, short lived and self remitting. In some postimpact situations most of the victims exhibit many such characteristics, but it has to be remembered that if no disaster had occurred many individuals would still manifest the same symptoms as a result of everyday stresses. Actually and far more typical for disaster occasions, there is considerable variation in the number of individuals who exhibit them and the kinds of postimpact psychological reactions that appear. Equally if not more important, even those persons showing these kinds of reactions are rarely functionally incapacitated in terms of their normal everyday home, school and work behaviors.

With respect to nonpathological consequences, there seems to be differential effects especially in the short run. Thus, while "experience increases hazard perception" (Drabek, 1986: 327), for some this results in more sensitivity to future cues, but for others it appears instead to create a sense of future invulnerability. The latter seems to be similar to a phenomena noted with respect to individuals who survived a "near miss" during World War II air raids or rocket attacks; they too generally felt less vulnerable to later threats (Janis, 1951). Also, development of more positive self images as a result of having reacted well to the crisis has been reported by researchers who looked for other than just negative aftereffects (see, e.g., Taylor, 1977).

Behaviorally too, there are differential nonpathological effects. For example, it has been reported that direct victim family members compared to nonvictim family members not only feel closer to one another than before the disaster, but they also come to interact more with one another than with others outside of the family (Drabek and Key, 1984). A minority view among researchers is that there can be a variety of behavioral as well as psychological

negative effects in the long run, the major example often cited was the aftermath of a very atypical and rare catastrophic occasion, namely the Buffalo Creek flood disaster (Erikson, 1976).

However, while a major disaster experience is seldom forgotten, in the long run it seems to fade somewhat in salience and importance. It is especially difficult to see from the research done many behavioral consequences for individuals which can be attributed to having experienced a disaster. In some ways this is to be expected. People experience very many things in their lives, and while a disaster may be a dramatic incident, it often is simply that--a one time memorable occasion embedded in very many other more important family and work experiences of a continuous nature. These other experiences will necessarily have greater impact on the person. In that context, it is not surprising that one study found far more serious psychological and behavioral consequences from an economic recession than it did from even the extended stress created by the Three Mile Island nuclear plant accident in the same general area.

There are important implications in these observations for postimpact reporting by the mass media. Depending on what research point of view they accept about consequences for individuals, they could influence what postimpact psychological and behavioral characteristics might surface.

ORGANIZATIONAL BEHAVIOR.

4. To the extent organizations plan for disasters--and few do--they often incorrectly plan.

The great majority of public and private organizations in local communities do no planning at all for disasters. The exceptions are certain normally crisis-oriented groups such as police and fire departments (see Wenger, Quarantelli and Dynes, 1988), the hospitals (see Butman, 1982) and the public utilities (see Bardo, 1978). And their planning is mostly for the emergency preparedness and response phases of disasters; even fewer undertake mitigation or prevention planning, and postimpact planning.

Moreover, such organizational plans as are made are often rather limited. For one, there is a tendency to plan for disastrous happenings that will occur to others rather than themselves. Most hospital planning, for instance, ignores the possibility that the hospital itself may be directly impacted (Quarantelli, 1983).

Second, such planning as is undertaken frequently reflects a technological bias. Emphasis is on having certain kinds of equipment and facilities such as multiple radios or a computer run emergency operating center (EOC), rather than developing the appropriate social organization to use the technology. In fact, as technological types of disasters have increased, the more the

notion has spread that there are technological means to prevent these disasters in the first place. A problem is that technological disasters are seldom solely the result of technical failures. They are the result of social errors and these can only be addressed and solved with social solutions not technological ones (Turner, 1978; Perrow, 1984).

Even more important, many of the emergency oriented groups we have mentioned (as well as railroads and airlines, parts of the chemical and nuclear industries) that do plan, have learned to cope--often quite adequately--with accidents and everyday emergencies. They have standard operating procedures (SOPs) to manage such situations. Unfortunately this often leads to the belief that an accident can be treated as a little disaster or that a disaster can be viewed as a big accident. As such it is assumed that the regular SOPs can be used in all crisis occasions. But research has shown that in a disaster there is a difference of kind not just degree compared to what behaviorally goes on in a routine accident or emergency. A disaster involves not just more or a difference in degree but something which is qualitatively different from the everyday emergency. Preparedness planning has to recognize that in disaster situations organizations will have to:

- quickly related to more and different groups;
- adjust to losing part of their autonomy;
- apply different performance standards;
- operate within a closer than usual public and private sector interface; and,
- cope with direct losses of their own personnel, facilities, and resources

(for more detailed discussion, see Quarantelli, 1984c)

Thus, even among those organizations that do plan, the planning is often incorrect in its basic assumptions.

A lesson from all this is that what is important is not planning but good planning, a point not always recognized in mass media descriptions of preimpact organizational preparedness. To the extent that even crisis oriented agencies may proceed incorrectly, the more difficult it will be for them to mobilize others to prepare for disasters. It is impossible to alert and guide citizens and/or organizations about certain kinds of dangers if the group itself does not correctly perceive the realities of the kinds of disaster occasions in which it will have to operate.

5. Organizations typically have major problems in attempting to manage disasters, although these are often not the expected difficulties.

It is very easy to assume that if there has been organizational

disaster planning there will be successful crisis or emergency management. That would seem to be the purpose of planning. But apart from the possibility alluded to above that the planning could be poor to start with (Dynes, 1983), there is also the fact that planning is not managing, and that the former does not automatically transform into the latter.

We may perhaps clarify this by drawing a parallel. The military draws a distinction between strategy and tactics: in fact, they teach and try to implement the differences between the two. Strategy in general has reference to the overall approach to a problem or objective. But there are always situational factors or other contingencies which require particular adjustments to attain a specific goal if the overall objective is to be attained. This is the area of tactics. In somewhat parallel terms, good disaster planning involves the general strategies to be followed in preparing for a sudden community disaster. Good management involves using particular tactics to handle the specific situational contingencies which are present or arise during the course of a disaster occasion (Quarantelli, 1988b).

There are at least three sets of crisis management problems which organizations have to solve. One set has to do with the information flow in the communication process. Within this there typically can be five sources of difficulty, namely in the:

intra and interorganizational information flow; information flow to and from organizations and the general public; and information flow within systems of organizations.

The physical means of communication seldom are the roots of serious trouble.

Second, there can be problems in organizational decision making. These can stem from:

losses of higher echelon personnel because of overwork;
conflict regarding authority over new disaster tasks; and
confusion over jurisdictional responsibilities.

But it would be extremely rare in disaster occasions to have any breakdown in the chain-of-command and lines-of-authority in established organizations.

Third, are the problems associated with the need to have interorganizational coordination as well as a loosening of the command structure. These can result from:

lack of consensus about what constitutes "coordination"; strained relationship created by new disaster tasks; and the magnitude of the disaster impact (for a detailed discussion on these sources of organizational difficulties in disasters, see Quarantelli, 1988b).

Given the potential difficulties it is almost certain there will be organizational problems during the emergency period of a disaster. Inevitably to meet these, there will be emergence and innovations in organizational behavior (Kreps, 1991). This is not a statement of despair about being unable to do anything ahead of times. It is instead a suggestion that it is too late to wait for a disaster to occur before starting to think how organizations can cope with problems and what tactics they can use (those who sometime argue that every disaster is different and therefore prior planning cannot be undertaken, seem to assume the opposite). There also has to be a realistic conception of what actual problems will surface in disaster occasions.

A major lesson from all of this is that even good planning is not enough. Organizations must also learn to manage the problems during the emergency period. Planning and managing while related are two different processes, a distinction seldom noted in mass communication accounts of disasters.

6. There is only selective organizational change at best from undergoing a disaster.

In the immediate postimpact period there usually is much talk within organizations on how improvements should be made in preparations for future crises. But unlike after civil disorders (at least those in the 1960s in American society) where organizational change was often the norm (Weller, 1974), there typically is relatively little change in group structures and functions in the recovery period of disasters (Warheit, 1968; Anderson, 1969). The talk seldom gets translated into concrete actions.

There are occasional exceptions. A few crisis-type organizations have sometimes been markedly changed after undergoing a disaster (Ross, 1978). The facilitating conditions are complex and some of the research results are not altogether consistent (see Drabek, 1986: 284-288 for a discussion of some of the literature). But how the group performed during the emergency period appears to be less of an impetus to change than the willingness of some key officials to lead an organized effort for better disaster planning (particularly if planning was already an expectation in the organization given that future threats might have to be faced, see Forrest, 1974). In some cases the disaster occasion simply seems to accelerate organizational changes already planned or underway;

disasters per se do not seem to be spawning grounds for totally new initiatives for social change.

A lesson from this is that while organizations can change and institute better planning for disasters, it is difficult to do so and occurs relatively rarely. The sometime stated notion, including in mass media accounts, that the experience of a disaster makes organizations far more receptive or at least more open to change is not fully supported by the research data. The best time to plan for disasters is clearly before they happen and not afterwards.

COMMUNITY BEHAVIOR.

7. Communities generally give very low priority to disaster planning.

General or overall disaster planning has low priority--whether measured by attention, budgets or organizational participation--in the great majority of communities. The issue of planning very seldom becomes a matter of broad public concern as would be indicated by mass media focus, discussions in the political arena, or involvement of pressure or interest groups (except in somewhat isolated cases of emergency planning around nuclear or chemical plants). In almost all areas local resources allocated to planning are very minimal and in the United States would be considerably less if it were not for federal matching funds and planning grants. In short, disaster planning has very low ranking on the problem agenda of almost all communities (Rossi, Wright and Weber-Burdin, 1982). The consequence is "that disaster preparedness at the community level is not highly developed at the present time" (Tierney, 1981: 340), even in American society which is more attuned to disaster risks than many other societies.

To the extent communities do undertake or attempt general planning, existing or preimpact organizational cleavages, disputes and conflicts make the effort difficult. For example, there are often everyday stresses and strains between local police and fire departments, between them and the local emergency management agencies, among hospitals and emergency medical service entities, and between public and private sector groups. These make the development of overall disaster planning problematical since it requires the giving up of some organizational autonomy, allowing others access to organizational domains and territories, and providing resources (people, things, information) which could be used by other than the organization itself. Put another way, there are frequently deeply rooted social structural factors affecting organizations which work against rather than facilitating their involvement in community planning.

There are some lessons for the mass communication system from the low priority typically assigned preimpact community disaster

planning and the factors which discourage it. First, just because disasters are almost universally defined as being "bad" does not mean that automatic attention will be given to dealing with them. Second, the advancement and improvement of planning will generally depend on larger social factors which have little to do directly with the merit of preparing for disasters.

8. The greater the disaster, the more there will be the emergence of new structures and functions.

Typically, the overall community response in disasters is fragmented and differentiated. In fact the greater the disaster, the more and the wider the variety of responding entities from different layers of the governmental and nongovernmental sectors (Dynes, 1974). In addition, groups responses are not uniform at different chronological time phases since some groups are just starting to get involved when others are already no longer involved (e.g., weather agencies have usually phased out before relief groups start operating). Similarly, tasks of the same organization will often change through time (e.g., police and fire departments who may initially help in preimpact to alerting residents to a threat will undertake search and rescue after impact).

This extreme heterogeneity in response stems from a variety of factors. In the United States, for example, by law and tradition as well as expectation, governmental response is decentralized. So local agencies will be complemented by state organizations, and both in turn will be joined by federal groups. Also for the same reasons, organizations in the public and the private sectors take and are assigned various responsibilities for varying emergency time tasks. Finally, even in the most preplanned of occasions, disasters draw to themselves a massive convergence of people, communications and material goods from outside the impacted area. So a major community disaster insures an uncoordinated "mass assault" (Fritz, 1961; Kreps, 1983).

Faced with this, community officials sometime struggle to impose some overall order in the emergency, attempting to bring into being what has been called a "command and control" situation. This is a model which essentially involves the idea of centralizing authority and operating with a top down, decision making structure (for its relationship to poor planning, see Dynes, 1983). At the operational level, the effort is to try and answer the question: "who is in charge?"

However, research indicates that the last question is not a very meaningful one. Coordination rather than control is the best that can be achieved, and that in certain respects a loosening of the command structure and decentralization of decision making to lower levels will be the most effective community response (Quarantelli, 1988b). There typically is the emergence of many new behaviors in the attempt to cope with the multiple contingencies created by the

disaster occasion (Quarantelli, 1984a; Drabek, 1987). The greater the disaster, the more improvisations of all kinds appear accompanied by new groupings and pluralistic decision making in tasks ranging from search and rescue (Drabek et al., 1981) and the providing of emergency medical services (Quarantelli, 1983), to interorganizational coordination and community priority setting (Dynes, 1974, 1978). While the emergent phenomena is partly rooted in and comes out of preexisting structures and functions, there is also always an element of the new, novel, nontraditional or nonroutine in what can be seen at the height of a disaster, and as such there is the appearance of a temporary "synthetic community" (Drabek, 1986; see also Bosworth and Kreps, 1986).

A lesson of all of this is that any thinking about disasters has to come to terms with the fact of substantial emergent behavior at the community level. But as we shall discuss later, it is this kind of behavior that is mostly missed by reporters and the mass communication system. There is a tendency to look for the traditional community patterns when these are mostly set aside at the height of the emergency period of a major disaster.

9. There are some selective longer run outcomes and changes in communities that have been impacted by disasters, including the surfacing of negative aspects.

Typically, disasters bring about relatively little change in any impacted community, at least in developed countries. Thus, studies in the United States have shown no discernible disaster related long term effects on such community characteristics as population, age composition, housing stock and values, rents, family income, size of work force, unemployment level, retail sales, number of businesses, etc. (Rossi et al., 1978; Friesema et al., 1979). While some of these findings have been strongly challenged on methodological grounds (see, e.g., Drabek, 1981), most researchers would probably agree that community change as a whole is not an outcome of disasters. Even very heavily stricken communities are rebuilt and socially restructured fairly similar to what they were before impact (see e.g., Francaviglia, 1978).

However, other research does indicate that there can be some community changes as well as functional and dysfunctional consequences (see Kartez, 1984; Scanlon, 1988). As to the former there is some evidence (see Drabek, 1986: 293-298) that disasters can both accelerate some ongoing community trends (e.g., in local governmental arrangements and power structures) and generate limited new patterns (e.g. in the providing of local mental health services and some mitigation measures such as flood proofing regulations). However, all the conditions which will produce some disaster induced community changes and in what ways, are far from clear.

The recovery phase of impacted communities seems to be related to

a variety of factors, especially the political aspects of postdisaster intergovernmental relations (Rubin, 1981; Stratton, 1989). There is often the surfacing of negative feelings and opinions in the community. For example, there frequently are consistent and complained about discrimination in rehousing of disaster victims (Quarantelli, 1984e), and complaints that some neighborhoods or sectors are being favored in relief efforts. Some of the former is manifested in blame assignation which however may deflect attention away from social structural flaws to a mass media influenced search for individual scapegoats (see, e.g., Drabek and Quarantelli, 1967; Neal, 1984). In fact, one of the longer run effects of disasters is the return not only of preimpact community conflicts, but of the addition of new ones created by recovery and reconstruction efforts (Quarantelli and Dynes, 1976; Stallings, 1988).

If the research base being used about longer run effects is valid, a lesson would appear to be that while there are differential outcomes in the community, negative aspects also frequently surface. The latter seem particularly related to reporting by the local mass media. This is not to imply that the mass communication systems create the problems, only that they are a factor in their existence.

While the just concluded presentation has necessarily been selective, we believe that we have conveyed the larger social context in which the mass communication system is always operating whenever it addresses disaster related matters. Although some of the research findings are not unexpected, we think that a number of them are counter intuitive and that others are simply contrary to what is widely believed, by mass media personnel as well as others. We now turn to a presentation of what social science research has established about the operation of the mass media with respect to disasters. It is perhaps not amiss to mention again that our discussion is primarily about the local mass media and about sudden disasters and not other kinds of community crises.

RESEARCH FINDINGS ABOUT THE MASS COMMUNICATION SYSTEM

From the research studies we have pulled out twenty major findings about disaster relevant operations of the mass communication system. Much of this study in the United States has been carried on at the DRC, although increasingly other work is appearing (for a general discussion of this other literature see Quarantelli, 1989) Otherwise, for especially relevant specific works see Moore, 1958; Jensen, 1972; Singer and Green, 1972; Harless and Rarick, 1974; Molotch and Lester, 1975; Scanlon, Luukko and Morton, 1978; Scanlon, 1979; Scanlon and Frizzell, 1979; Alexander, 1980; Carter, 1980; Kreps, 1980; Friedman, 1981; Scanlon and Alldred, 1982; Sood, 1982; McKay, 1983; Nimmo, 1984; Mazur, 1984; Hiroi, Mikami and Miyata, 1985; Nimmo and Combs, 1985; Scanlon and Hiscott, 1985; Beady and Bolin, 1986; Wilkins, 1987; Rubin, 1987; Sood, Stockdale and Rogers, 1987; Walters, Wilkins and Walters, 1988; Wilkins and Patterson, 1987; Fischer, 1989, and others listed in the DRC annotated bibliography, Mass Media and Disasters, 1988.

While the observations reported in what follows are mostly drawn from all the relevant DRC studies (e.g., Brooks, 1970; Waxman, 1973; Quarantelli, 1971, 1980a, 1980b, 1981a, 1985b, 1989; Adams, 1974; 1975; Kueneman and Wright, 1976; Hannigan, 1976; Hannigan and Wigert, 1973; Weller, 1979a, 1979b; Green, 1983; Wenger, 1985b; Phillips, 1986; Wenger and Friedman, 1986; Friedman, 1987; Quarantelli and Wenger, 1991) greatest attention is paid to the conclusions from the most recent of the DRC research undertaken; thus, most of the statistics provided are from that study (see Wenger and Quarantelli, 1990).

In this discussion our findings are primarily about the reporting of news stories by local community mass media organizations (few of the studies deal with national news reporting and there is almost nothing except Conrad, 1978; Quarantelli, 1980b; 1985b on fictional depictions of disasters). We mostly also, although not exclusively, focus on news reporting at the emergency time period of disasters, reflecting both the research and mass media foci of attention.

The Preimpact Time Period.

1. The mass media give very little coverage to disaster mitigation and prevention measures.

Very rarely does the local mass communication system report on community disaster mitigation and prevention activities. Such matters as hazard related building codes, land use ordinances, zoning measures, etc., are not seen as very interesting topics for media coverage and there is little effort to initiate reporting on such measures. About the only time there is any attention is when the activity becomes the object of public controversy in the

political arena, as when suggested actions would be economically costly for homeowners, real estate interests and/or the construction industry (see Drabek, Mushkatel and Kilijanek, 1983). Not much attention is paid to disasters before they occur.

But even after they occur the picture does not fundamentally change. In this context, Scanlon once posited that:

the media would provide no advance information about the possibility of a disaster or what to do about it, nor would they provide any post-disaster information about what might be done to avoid future occurrences (1979: 256).

In other words, media coverage would focus for the most part on the actual disaster itself and ignore the more long-term issues such as hazard mitigation. Most research would generally support this position. In fact, a study in Australia makes the point that:

newspapers did not provide members of the public with information to help them reduce the personal impact of a subsequent event. In fact, the newspaper reporting may well lull the community into believing that another severe event could not happen again and therefore inhibit public acceptance of a counter-disaster plan or land use zoning policy (McKay, 1983: 123).

At best there is only rather selective and limited attention paid by the mass media to some other kinds of preimpact preparedness activities, to which we now turn.

2. The participation of the mass communication system in longer run preimpact disaster preparedness activities tends to be selective and limited.

To the extent that there is any mass media interest in longer run preparedness planning, it is usually with respect to certain organized educational campaigns and informational efforts. Sometime in a local community there will be a campaign to make residents aware of certain risks and the measures which might be undertaken to prepare for them (e.g. with respect to preparing for a hurricane or nuclear plant radiation fallout). As part of this, for instance, some mass media may provide inserts in newspapers or announcements in the electronic media, and/or have a news story covering the activity. At best, such mass communication activities seem to have limited effect on awareness and even less on the taking of individual/household preparedness steps (see, e.g., Christensen and Ruch, 1978; Strother and Buchbinder, 1980; McKay, 1984). Or as elsewhere stated in a discussion of reporting by newspapers in Los Angeles:

attention to politicized controversies over dam, nuclear plant, and LNG terminal safety, while emphasizing earthquake danger, does not stimulate attention to preparedness and safety in the local community and therefore probably does not contribute toward public understanding of the local earthquake threat (Turner, Nigg, Paz and Young, 1981: 15).

About the only exceptions are in disaster subcultures, where such educational campaigns are sometimes regular parts of the preparedness effort. In those cases, they serve to reinforce already existing attitudes and beliefs.

Also, at times mass media outlets will produce documentaries or more general informational pieces on possible disasters in particular localities. While there is very little research evidence on their creation/production and reception/effectiveness, but from what is known of the general impact of informational documentaries in general, the effects are probably rather minimal. As Larson comments, public information campaigns must work on "the assumption that most of the public will be only mildly interested or not at all interested in what is communicated" (1980: 121), or as Drabek states: "research suggests that merely increasing the frequency of public information campaigns does not produce sweeping change" (1986: 334).

3. The mass communication system almost always plays a major role in passing on warnings of impending disasters.

Except for certain types of sudden emergencies such as toxic chemical spills where the forewarning period is very short, in almost all other occasions research has found that: "large segments of the threatened populations indicate that they were alerted through" warning messages from the mass media (Drabek, 1986: 122). Without doubt, this is the clearest and most consistent role played by the mass communication system in a disaster response. Whether by law, tradition, or expectation, warnings are passed on everywhere, especially by radio. As an aside, the same can not be said for mass media warning about more slowly developing kinds of threats, such as chronic hazardous chemicals, or even certain kinds of conflict situations, such as possible riots, see Quarantelli, 1971.

While the matter of taking responsibility for transmitting warnings is not problematical, this does not mean that there are not some mass media problems with the activity. Let us illustrate a few. For one, monitoring of threats and risks to a society is usually done by specialized government agencies, such as the national weather service. This means there can be, and sometime there are, problems of communication between the monitoring agencies and the mass media (Leik, Carter and Clark, 1981). For example, in some

instances the media never get the warning message, or the technical warnings issued by the monitoring groups might be rewritten or edited in ways that change the original intended meaning when a message is publically transmitted.

Another problem area is the context that surrounds the disaster warnings being transmitted by the mass media outlets. For example, if a radio station broadcasts what supposedly is an urgent warning and then reverts to normal programming, it will be far less believed than if the station converts completely and immediately to broadcasting emergency messages. Consistency of cues is very important in getting people to accept a warning as being serious and valid. Thus, when there are multiple electronic mass media outlets in a community, the urgency of warning messages can be considerably weakened if most stations are not sending the same general message.

Still another problematical aspect is that in general, warnings issued via the mass media are more likely to be perceived as indicating to people something is "wrong" rather than mobilizing them to directly respond to the message. Few accept such messages at face value, especially initial ones. The problem is compounded by the fact, that an effective warning message must not only indicate that something is wrong, but what the person receiving the message can or should do for the occasion. For example, to tell people they need to evacuate is not that helpful if the best evacuation routes or means are not indicated (Perry, Greene and Lindell, 1980).

Of course some of these problems would be nonexistent or less serious if good preimpact disaster preparedness planning by the mass communication system was in place. But as we shall now discuss, that is not the case.

4. Disaster preparedness planning among mass media organizations is very limited, generally of poor quality and often not implemented.

Little attention, both relatively and absolutely, is paid to emergency and disaster planning in almost all mass media organizations. The majority have no disaster plans whatsoever, giving no consideration to problems they would have if their facilities were impacted or to the difficulties of covering a major story in an altered and turbulent social environment. In some DRC research focused mostly on disaster prone cities, only 33% of the community radio stations had any disaster plans of any kind. About half of the television stations (of those that were news oriented) and daily newspapers had some planning.

Even when there is planning, it is of inadequate quality. Except for some newspapers, it is rare to have plans on how the mass media organization would operate if it could not use its usual physical facility. The planning rarely considers how the organization

should relate to others such as risk monitoring groups, local emergency management agencies and other mass media organizations. Usually plans consist only of brief documents that specify procedures for notifying and mobilizing personnel, and lists of phone numbers of emergency relevant organizations. But even such material often can not be located at disaster times and the information is frequently outdated or no longer accurate. This partly reflects the fact that almost never is there any exercising of whatever planning may exist.

Mass media personnel are almost never involved in the development of community wide disaster plans. Part of the responsibility of this difficulty resides with local emergency management officials who almost always have mixed feelings about including the mass media in planning. While local officials may view the media as part of the response effort, they generally do not include media personnel in their agency planning or in any exercise of plans. (Local mass media may sometime "cover" local disaster exercises and drills as a news story, but this role as an "outsider" or "observer" is part of the difficulty in the disaster planners-media relationship).

Given all of this, it is thus not surprising that one DRC study found that only 37% of mass media organizations actually used any aspects of their planning in a disaster. Somewhat amusing, if it otherwise did not indicate a serious problem, was that station personnel frequently had difficulty locating copies of their plan even a number of weeks after the events during DRC follow up field studies.

Are there any major exceptions? Occasionally there is some planning in very disaster prone areas, but even in such localities in and around San Francisco and Los Angeles in the United States, there is less organizational preparedness than might be anticipated. The recent Loma Prieta earthquake showed that many important planning problems, such as the mass media facilities themselves being directly impacted, had not been addressed with the news coverage being negatively affected (see, Rogers, Berndt, Harris and Minzer, 1990; Covering the Quake, 1989).

The Emergency Time Period.

5. Mass media personnel are usually faced with an initial lack of information about the overall disaster impact.

Local mass media personnel are almost always faced with the problem of a severe lack of information about the magnitude and scope of major disaster impacts (Sood, 1987; Quarantelli and Wenger, 1989). Often it is not even a question of accuracy but of trying to make some coherent sense out of a variety of fragmented and multiple details, frequently of a contradictory nature. This is not surprising because even emergency organizations with formal

responsibility for monitoring and surveying disaster damages often also have very little initial and verified overall information about casualties and destruction, needs and problems (Quarantelli, 1988b). Right after impact, with a turbulent social and physical environment, with normal communication channels disrupted, and with many different organizations trying to mobilize and respond, the collection and codification of information about the overall situation can be very problematical. While this massive lack of damage assessment usually prevails only in the first few hours, in major disasters the reaching of a good general picture of the overall situation may take a day.

This creates severe problems for mass media organizations, especially in those disasters where there are very many and diffuse impact areas in the community. News personnel often find that their traditional sources of information are not of much assistance, because members of those groups (e.g., police departments) also usually lack an overall picture of the occasion. Reporters who attempt to obtain information in the field, if they can get through debris/cordons often can not call back to their newsroom because of disrupted or clogged telephone lines. In more physically focused disasters, reporters often do not have easy access or entry into the damaged places, because of police cordons or ongoing work of emergency workers sometime trying to save the lives of victims. In these kinds of situations there often is verbal conflict, sometimes of a very heated nature, between media personnel and security/emergency worker (Wenger and Quarantelli, 1989: 32).

6. In localities with multiple mass media outlets, there is considerable variation in providing news coverage of disasters.

The mass media system as a whole in any given community very seldom responds across-the-board to a disaster. Not all media outlets will cover even a major disaster, much less all disasters and emergencies. There is also considerable variation in the pattern and depth of those who present news coverage of the occasion.

In particular, radio gets differentially involved with only a minority of stations providing special disaster coverage. One DRC study found that 19% of all stations did not cover disasters in their own communities (going off the air or continuing with normal programming). Another 30% never preempted local programming, and 28% did not increase their normal time allocated for news.

In contrast, newspapers almost always add open pages devoted solely to news about the local disaster and often publish special issues on community disasters. Television coverage is only a little less extensive: some stations go off the air or do not operate (e.g. in the United States, public education stations). One DRC study found that 83% of operating television stations preempted regular programming and 96% increased their news time during the emergency

period of the disaster.

7. Those organizations that provide information about disasters in their communities give very extensive coverage to the occasion.

Disaster coverage is massive for all mass media that operate. In one DRC study, it was found that the local newspapers examined in nine communities impacted by disasters carried from 44 to 160 stories with an average of almost 90 stories about the event. Of these stories, 33% appeared on the front page and 55% appeared within the first three pages. In addition, a total of almost 700 photographs accompanied the 904 stories.

A somewhat similar picture also appeared when an examination was made of the electronic coverage of two disaster impacted communities (actually not all media outlets were studied). Several local television stations produced a total of 175 reports during the first two days, or about 44 reports each da. In both cases, normal programming was preempted and news coverage was extended to cover the disaster occasion. Radio stations in the same two communities provided a total of 134 reports, or about 34 reports each in the same time period.

These observations were made of disasters, which while major, were neither massive nor catastrophic. While there are very few data on local mass media coverage of the latter kind of occasions, the reporting from outside the local community for them supports the notion that disasters are big news stories. For example, after the Loma Prieta earthquake the Los Angeles Time published 215 stories during the first 16 days after impact and the New York Times published 111 stories in the same time period (Rogers, Berndt, Harris and Minzer, 1990: 32).

8. News stories on disasters is almost exclusively provided by local personnel who have a strong proprietary sense about the news of the disaster.

In one DRC study it was found that not only was the disaster a local story, but that it was produced by the coverage of the local mass media organizations. Over 95% of all the stories were produced by the local staffs of these groups. The few stories that were not written or produced by local staff were from state, regional and national bureaus. News services, wire services and outside sources amounted to less than one percent of the coverage. The material was available to the local outlets since these sources were producing copy and tape in many cases.

In a psychological sense, it is clear that local mass communication systems consider disasters in their own community as "their" disasters. In the print media, for example, there is considerable concern over copyrighting material to insure "their disaster" and "their coverage" is acknowledged. However, the tendency of

"locals" to claim the disaster as their "own" disaster, is not peculiar to the mass media area; it often occurs in other operational areas too, such as the providing of relief.

One consequence of this local ownership claim to the disaster is sometimes manifested in tensions if not open clashes between local mass media personnel and national network staff members. As one researcher noted about the Loma Prieta earthquake:

local newsmen were awed by the presence of...famous television personalities, but they also resented their presence in the impacted area (Rogers, Berndt, Harris and Minzer, 1990: 42).

This kind of outside convergence of course occurs at a time when in major disasters the local station personnel are already under considerable strain. Although overt expressions of hostility toward outsiders is usually muted, there are times when open clashes will occur between local and outside mass media reporters (Quarantelli, 1989). This has less to do with lack of helpfulness to one another, but more with the competition that sometimes develops for access to community officials and for attention at press briefings.

That it is the last factor noted is supported by the fact that there appears to be few problems between workers at local outlets that are affiliates of national radio and television networks and representatives of those groups that come to the disaster site. In one sense, the staff members involved are all members of the same general organization. In those kinds of situations at least surface cooperation tends to be the norm, with reciprocity being the underlying promise.

9. There are a number of internal management problems that surface as mass media organizations attempt to cope with disasters.

In the efforts of the local media to cover their community disasters, a number of internal management problems will surface (which however is not peculiar to such organizations, see Drabek, 1990). Let us note three of them.

When a disaster hits, the mass media groups with normally large number of reporters such as newspapers and all news radio stations usually send all their reporters out into the field. Similarly, the television media mobilize all their resources, sending reporters and film crews into the field, and even utilize staff members from outside their newsroom. But this rather massive assault on covering the occasion, creates a number of organizational problems. Especially in diffuse types of disasters, there typically is a problem in coordinating the coverage by the large number of reporters out in the field, who usually have been

given no guidance on what to report about the disaster. This lack of coordination of field coverage not only presents difficulties of management within the newsroom (discussed later), but it can also influence the content of what is produced. There is a tendency to orient the news coverage around what the initial feedback from reporters or others suggests; but given the already discussed lack of accurate information available after impact, a rather misleading picture can be produced.

In some major disasters, although not all, media organizations are often faced with the unforeseen problem of too many stories. When a large number of reporters are filing stories and supplying information to the newsroom, editors sometime find themselves with too much material and the editing process and copy desk may be overwhelmed. As a result a considerable amount of information may not be processed quickly, may not be edited soon enough to meet deadlines, or may be superseded by later stories. As we shall discuss later, alterations are made in the gatekeeping process to cope with the surplus of stories.

Finally, in those disasters where the emergency period extends over a number of days, the work schedule of mass media personnel will be expanded. However, this will generate fatigue and stress in staff members. Of course, the expansion of work schedules is not unique to mass media organizations. It can be observed in many emergency response oriented groups such as police and fire departments, hospitals, and the public utilities (Brouillette and Quarantelli, 1971; Quarantelli, 1983; Wenger, Quarantelli and Dynes, 1988). But most of these organizations typically have double or triple shift work forces. This is not a typical job pattern among mass media groups, and almost never has there been any organizational planning for this problem. Thus, not having foreseen that work schedules will be expanded, mass media management has to develop ad hoc provisions for the relief and aid of their own exhausted personnel.

10. Mass media organizations change their formal structures or division of labor in attempting to report on disasters, with the middle size groups changing the most.

Generally, mass communication organizations are bureaucratically structured. Except in the case of minuscule, semi-automated radio stations, mass media outlets typically have a rather specialized division of labor with personnel at different levels even in groups with relatively small number of personnel. Thus, in the electronic media there usually are engineering, sales, traffic, business and other areas (and within the newsroom there is further division of labor between the news director, producer, assignment editor, editors, writers, reporters, photographers and news anchors, etc.). As such, the normal delegation of tasks is clear and personnel from one department do not usually perform in other areas; staff from non news divisions will not usually even step into the newsroom.

At times of disasters there usually are alterations in the normal division of labor, with workers participating in the processing of news stories in ways they usually do not do on an everyday basis. In smaller radio stations and newspapers, staff members often do a variety of different tasks and this pattern is continued during a disaster, although if the disaster is of enough magnitude, there is an even more blurring of normal tasks and an alteration of the division of labor. Similarly, the larger an organization the more likely it will have personnel for specialized tasks and this will continue during disasters. However, if the disaster is large enough, the division of labor will break down even in the very small and the very large mass media.

However, the most drastic alterations in the division of labor will occur in moderate sized news organizations. That is, the relationship between size and alterations in structure during disasters is curvilinear. For example, in one study, out of 32 small stations, only 58% preempted programming, as compared to 83% of the several large stations and 100% of the 12 medium sized stations studied. Furthermore, only 45% of the small outlets and 50% of the large stations increased their news staff in order to cover the disaster occasion, while 91% of the medium stations had an increase of personnel. Finally, only 41% of the small stations and 50% of the large ones actually sent reporters into the field to report the disaster, whereas 91% of the medium outlets did so.

11. Field reporters have even more autonomy than usual in covering disaster related stories.

Reporters, at least in American society, tend to view themselves and are viewed by the mass media organizations by whom they are employed as having considerable work autonomy. In fact, autonomy in covering stories is a very prized characteristic of the job (McQuail, 1984: 106-111; Wright, 1986: 80).

In disasters, field reporters typically have more independence than usual. They are often initially given very limited guidance what stories should be covered, being told to go to certain general locations and to bring back a story. Given the normal autonomy that exists, this therefore represents only an alteration of degree not of kind. Furthermore, the degree to which this pattern emerges is directly related to the magnitude of the disaster, the scope of impact, and the degree of disruption of normal communications (such as the phone system). In general, the bigger and greater the scope of the disaster and the more difficulty reporters have in contacting their office, the more independence they have (Sood, Stockdale, Rogers, 1987).

In those situations, there are consequences for the mass media newsrooms when they lose contact with their field reporters and are not getting feedback from them. Editors and management personnel do not know the nature of the stories being obtained and not being

obtained. One result is both overlapping stories and gaps in story coverage of the disaster. But the increased autonomy in the field is accompanied by an increased centralization within the newsroom. Greater coordination is required otherwise a mass media newsroom might find itself flooded only with almost identical stories. The dialectical pattern of increased centralization within the newsroom and increased autonomy in the field is the result of organizational adaptations to an altered environment and increased demands upon the mass media personnel.

However, it should be noted that the greater autonomy of organizational personnel in sudden disasters is not distinctive to the mass media area. There is a decentralization of decision making and much initiative on the part of "field workers" or lower level personnel in almost any group involved in a major community disaster response, be it hospitals or police departments. The nature of a disastrous occasion, where initially what has occurred and what is needed is unknown to anyone, facilitates and encourages independence of actions without much checking with normally and formally hierarchical superiors.

It also seems that the greater autonomy of reporters tends to lead to an increase in the sharing of information among field reporters from different news organizations. Actually even on everyday basis there is more information sharing than is usually acknowledged, even by the mass media organizations themselves. In part, as Scanlon (1980) has noted, this activity is implicitly encouraged because it is a rather easy and effective way of avoiding being "scooped" by other reporters. This informal information sharing occurs in disasters at a higher rate than during normal times, particularly between personnel from different media (e.g., between reporters from a radio station and a newspaper).

12. Mass media organizations primarily use traditional sources of information even at times of disasters.

Despite the indicated autonomy reporters do not generally seek new sources of information. Instead there continues to be a heavy reliance upon traditional--which usually means official--sources of news by all media organizations (although certain everyday sources such as wire services and syndicated services are ignored since their content is generally not relevant to local coverage of a community disaster). Many reporters first turn to their local normal news sources, usually working their "beats". For those who are able to communicate with their newsrooms, their news stories are often composed almost exclusively from the perspective of these sources.

One DRC study found that local governmental officials were cited by name or title in 14% of radio, 19% of television and 24% of newspaper stories; this obviously understates the informal use of such sources. Police, fire and certain relief agencies were also

frequently cited. In contrast, local emergency management officials were infrequently cited, being mentioned in only 8% of radio, 2% of television and 3% of newspaper stories. Officials from outside the community who have come in to respond to the disaster are seldom cited. These patterns indicate the influence of traditional "beats" in the coverage of disasters. Those sources that are ignored, and that could have relevant information on disasters, are generally unattended to during normal day to day operations. In addition, a reliance upon local, as opposed to other officials, is not only consistent with traditional news gathering patterns but is also compatible with the "proprietary" orientation that is developed by many mass media personnel towards their local disasters.

What of traditional sources of information such as press conferences and press releases? Their role are different during normal times and during disasters. First, given the difficulties reporters have in obtaining information, they view press conferences at disaster times as more valuable than during normal times. But second, unlike on an everyday basis, press conferences in disasters are irregularly held and often delayed for hours (although much local community disaster planning calls for regular and frequent conferences, this procedure is not always implemented in actual emergencies). Third, conferences and releases while considered helpful are sometime viewed with a little suspicion in that the official information released is given out by "somebody for reasons of their own"; in fact, if not reporters questions are not handled well, the situation can become a "media disaster" as was the case in the Three Mile Island nuclear plant accident where there was increasing media doubt and skepticism that they were being properly informed about what was occurring (see Friedman, 1981; Rubin, 1987).

13. There is a rather selective reporting of important emergency time related activities with some receiving extensive treatment and others, little, if any at all.

One consequence of a reliance upon traditional sources is that the actions of nontraditional sources slip through the "news net." The activities of volunteers and of emergent groups and organizations that are not part of the normal "beat" system or regularly courted for news tend to be ignored in mass media accounts. A somewhat distorted image of the disaster can be created by this practice.

For example, search and rescue is overwhelmingly carried out right after impact by the immediate survivors, whereas mass media accounts focus heavily on formal and search efforts that often are relatively insignificant in the carrying out of the task. Thus, while thousands may be informally rescued alive, news stories may primarily concentrate on accounts of organized dog teams from outside who almost always find a relative few dead bodies, if they find anyone at all. In one DRC study, it was found that only 8% of

the radio, the television and the newspaper stories discussed search and rescue, making this crucial emergency time task invisible in most coverages.

Similarly, the activities of certain organizations familiar on an everyday basis to mass media personnel, such as police and fire departments, are highlighted, whereas other more unfamiliar groups such as the public utilities or many relief agencies go all but unreported. Thus, the media content can create the impression that the emergency response is primarily an activity of a few formal and familiar organizations. For example, the police almost inevitably are portrayed as having a lead role; this is certainly true in some occasions, but in many disasters the mass media attention to them is misleading of their relative importance (if we keep in mind our earlier remarks that our pictures of disasters is mostly what the mass media report, it should be seen why this is an important research observation).

14. In spite of the use of traditional sources, there is almost always some conflict between reporters and officials.

Although there is a strong tendency to use traditional sources of information, there are a number of other circumstances which tend to exacerbate the relationship between local reporters and community officials (Scanlon, Alldred, Farrell and Prawzick, 1980). Let us note three of them that can and often do create tension and sometime open conflict.

In numerous disasters, but especially focused ones, reporters often have difficulty in getting easy access or entry into damaged areas. Sometime this is simply a result of physical barriers such as debris strewn roads; at other times it stems from the roadblocks or cordons set up by security personnel (who unlike the officials the reporters are trying to reach frequently do not personally know media personnel nor are they particularly sensitive to journalistic expectations).

Often too, the more relevant and key local emergency officials are not accessible to reporters. Again, there are different reasons for this. In many cases the officials are very busy with responding to the exigencies and contingencies of any emergency period, which has much higher priority than meeting with people only seeking information. In other cases, personnel from community agencies believe reporters are looking for "negative" information; whether this is correct or not is irrelevant if the belief exists.

Also in addition to or compounding the problems of a lack of access to damaged areas and officials, is what reporters see as a paucity of press conferences and briefings, the absence of a central point for official information distribution, and the scarcity of Public Information Officers (PIOs) who have experience with and are sensitive to the needs of mass media personnel. Again often it is

not what is factually the case, but what is perceived to be the situation (e.g., sometime PIOs know what the reporters are asking and are not "covering" up, but the information necessary to answer the question is just not known to anyone, such as the exact number of dead and injured).

A consequence, if any of these problems emerge, is that they often engender tense relationships between media personnel and community officials. At times these can erupt into shouting matches. When two parties in a work relationship enter into interaction with contrasting if not conflicting views regarding the nature of that relationship, conflict is inevitable.

Up to now we have talked of the mass media in general without distinguishing too much between differences in radio, television and newspaper responses and activities in the emergency time period of disasters. But they have a different technological base (see Wenger and Quarantelli, 1989: 21-22). In very general terms, studies have found that the print media make significantly fewer changes in their preimpact organizational structural structures, divisions of labor, and decision making arrangements at times of disasters than do the electronic media. Conversely, radio and television stations are more likely to adopt new, emergent and/or altered patterns of behavior. However, problems in the coverage of disaster occasions appears to be more severe for the electronic media than for their newspaper counterparts.

Apart from these general tendencies, there are some specific differences which research has found between media in the processing of news during disasters. We turn now to a discussion of these.

15. A "command post" perspective is generally assumed particularly in the electronic media.

Some earlier DRC studies suggest the local mass media by obtaining information mostly from community officials generally located at the command post or emergency operations center tend almost exclusively to present a "command post view" of the disaster occasion. Thus, it is argued that there is a bias in the reporting towards the perception and construction of "reality" as seen by only one set of social actors in the situation, mostly emergency oriented governmental officials (Quarantelli, 1981a; see also Sood, Stockdale and Rogers, 1987). This is one possible perspective, but it is only one of many different orientations that could be possible about a disaster (e.g., the perspectives of on-the-line operational personnel such as police and fire officers; of disaster impacted victims; of relief workers from outside of the community; of foreign researchers; of distant relatives and friends of victims; of non-impacted community residents, etc.) Therefore, coverage is somewhat limited and reflective more of an official, top down, governmental and social control perspective than other

possible views. It might also be questioned if taking this perspective does not contribute to disaster mythologies about looting and antisocial behavior, given that such matters are the understandable interests of such social control agencies as the police.

The more recent DRC research indicates that a command post perspective is especially assumed in the electronic media, although somewhat less true of radio stations. A DRC study found that within radio, 62% of the reports used some command post sources and 42% relied solely on such officials; for television, 54% of all stories incorporated these sources and 37% relied solely on command post officials. Newspapers were somewhat less command post oriented; only 21% of the stories relied solely on these types of officials.

Although as will be discussed, citizens and other officials are sometimes contacted and informally used, command post sources clearly dominate the actual content that is produced. In other words, although private citizens may be a valued source of information, they are not an important source for attribution in published articles and broadcast reports. In utilizing the strategic ritual of objectivity, reporters continue to turn to command post officials for quotes and citations. Although citizen input may shape the structure of a story or news report, it tends to be a hidden, covert source. In sum, the "command post view" is certainly present in the content although it is less evident in actual news gathering process and the construction of news account.

16. Citizen sources employed more than usual are used in differential ways by the electronic and the print media.

As just noted, relative to normal times, citizens are more heavily used as sources of news during disasters. Those mass media organizations that operate tend to increase their use of information from citizens in an effort to fill their expanded news time. Radio stations especially are more likely to directly utilize local private citizens than the other media; for example, statements tend to be aired immediately and/or callers to the station are put directly on the air. In radio stations that normally operate with a news/talk format, inputs from citizens is particularly often openly courted and aired with little normal gatekeeping, as we will discuss later.

However, different social conditions create differential usages by the media. The nature of the media, the size of the mass communication organization and the scope of the disaster affects the use of the inputs of citizens. For example, let us note differences in usages between print and electronic media. Newspapers primarily utilize citizens as sources of expressive or feature and human interest stories. In one DRC study it was found that of 167 citations to citizens, 55% were in soft news stories,

while only 36% appeared in primarily instrumental articles. However, in contrast, the electronic media being very instrumentally oriented, used its citizen sources 68% of the time in instrumental stories and only 27% of the time in soft news stories.

This differential utilization of citizen sources is a result of the contrasting organizational needs of the two types of mass media. To fill the rapidly created, expanded newshole, the electronic media turn toward hard news and instrumental material. In gathering this material, electronic media personnel tend to rely upon any source that can provide any type of information, including citizens. Furthermore, given the truncation of the gatekeeping process that occurs in these media, citizens are more likely to be placed on the air live or cited in the news reports, as some attribution must be given for the raw, instrumental content that is flowing out of the media outlet.

However, newspapers do not face the same problems. Gatekeeping is not truncated; in fact, it tends to be elaborated. Without the pressures for immediate dissemination of content, more expressive and analytical articles can be produced. Citizens provide an important source of information for such stories, which is probably not a departure from everyday practices.

Other factors also affect use of citizen inputs. For instance, smaller organizations, lacking certain resources, rely more heavily upon citizens. Likewise, in localities where the nature of the destruction and disruption makes travel and/or contact with officials difficult, individual residents of the community are more often relied upon than usual for news stories.

17. The gatekeeping process is mostly truncated in the electronic media.

One of the key concepts developed in the sociology of mass communication area has been that of "gatekeeping" (Wright, 1986: 73-84). It refers to those work statuses or locations in media organizations whose incumbents can modify, alter or control the flow and construction of content in a significant way. During normal times, in all media the gatekeeping process involves a number of stages or steps in which incumbents in various mass media organizations mold and change the content of a news story so that eventually it is a collective product.

An earlier study on radio stations during disasters suggested that gatekeeping is truncated during disasters. That is, the news processing is simplified and the news details are distributed to audiences without the usual editing and "quality control" operations. Information received from citizens and other sources is transmitted in "raw" form with steps or stages in the gatekeeping process eliminated. This change in the pattern appears

to be an adaptation on the part of media organizations to meet demands for increased output of content in an altered and turbulent environmental setting (Waxman, 1973; see also Sood, Stockdale and Rogers, 1987).

The more recent research indicates that the previous finding of a truncated gatekeeping process is primarily true for the electronic media. In both radio and television stations there is a considerable increase in the amount of live coverage during disaster occasions, with news stories not going through the everyday filtering process. In DRC studies it was found that in both small and large radio stations, the usual steps of writing, editing and recording news stories are often eliminated. Reporters, officials and citizens are often placed on the air "live" and their raw information is instantly distributed. Television stations evidence a similar pattern with video tape not being as edited as carefully as usual and with significantly more live coverage being aired.

In contrast, in newspapers the gatekeeping process often becomes more elaborate or more complex during disasters than during routine times. There is a tendency to use "rewrite" persons who often take information from a number of different reporters and construct a story from the various accounts. From there the story is usually passed through the normal gatekeeping patterns of the newspaper.

18. The print media are more likely than the electronic media to produce more "soft" rather than "hard" or instrumental news stories.

News stories are frequently characterized as being "hard" or "soft". The former refers to reports that are factual, informative, descriptive; the latter to accounts that are impressionistic, human interest oriented, analytical. In a disaster context, hard news (or instrumental) contains factual accounts of disaster happenings, official and unofficial announcements, and items that describe happenings occurring at or around the time of being reported. Soft news (or expressive) refers to analytical and feature stories concerning such issues as planning, blame for casualties, and human responses to the disaster.

During a disaster, all of the local mass media are oriented toward instrumental stories. Nevertheless, the distinction between hard and soft news shows up in reporting of disastrous occasions. In this newspapers compared with radio and television stations adopt somewhat different roles and cover different aspects of disasters. Generally, the electronic media are the primary distributors of hard news items during the early emergency time period. Where there is not a loss of electrical power, television plays the prime role, otherwise it is radio. For some outlets, this stress on hard news is a simple extension of their normal

definition and preference. However, in other stations, this orientation represents a shift from a more feature or expressive oriented content.

It could be argued that the emphasis on hard news represents the effect of journalistic values and ethics that stress the presentation of factual informative content of immediate import during disaster occasions. The argument may have some validity. However, the presentation of hard news is also a quick and easy solution to the problem of immediately filling the expanded news time of the electronic media. Analytical and feature stories require more time to construct. They usually require some research and consultation with a variety of sources. Their substance is not consistent with organizational demands for rapid, intense coverage under stressful conditions. In the instance of disasters there appears to be a fortuitous convergence of journalistic values, the nature of hard news stories, and the organizational needs of the electronic media outlets.

In newspapers instead, while hard news is of course presented, a different picture emerges. One DRC study that content analyzed the reporting in the first two days after the impact of disasters found that only 52.9% of all stories were of an instrumental nature, nearly half the total. In contrast, 93% of stories on radio were instrumental, while for television stories the figure was 78%. Thus, the more expressive, feature and analytical nature of newspaper reporting can be seen even during the initial days of the emergency periods of disasters.

19. The electronic mass media far more than the newspapers are likely to operate as an interpersonal as well as a mass media.

There is a definite tendency for the "mass media" to become "interpersonal media" even in such different societies as Japan and the United States (Quarantelli and Wenger, 1989). That is, instead of being only a vehicle for mass and public distribution of content to large number of people, it often becomes a very elaborate mechanism for interpersonal communication. This is especially true for radio, and to a considerable lesser extent for television. In many radio stations, personal messages are transmitted from listeners concerning their safety, location, well being of others, and other kinds of personal information. Often these messages are directed to specific relatives and friends of victims. In contrast, newspapers seldom become involved in transmitting personal messages to their readers.

While the activity seems to make sense, we actually have little systematic knowledge of its use and functions. Except in general terms, there is little understanding of how audiences use the personalized messages. It is also not clear why broadcasters engage in a practice which is rather deviant in normal times; in fact, personal messages by the electronic media on an everyday

basis is prohibited by law in the United States.

20. Mass media reports, especially in television, tend to present content that perpetuates certain disaster "myths".

A quantitative analysis by DRC of media news accounts does indicate that only a small minority of them refer to such disaster myths as the prevalence of panic, looting, martial law imposition, disaster shock, increasing crime, mass shelter utilization, mass evacuation flight and victim helplessness. In general, less than 10% of the stories in all media present these images.

However, the qualitative analysis indicates a different matter. The content often highlights the myths. Television in particular is prone to perpetuating disaster myths. For example, although references to panic and looting constitute only a small proportion of the total television content, their presentation is very dramatic and consistent with the mythologies.

The importance of these observations is that not only citizens but public officials often depend on news accounts during the early stages for information on the situation. To the extent that what they receive is incorrect, the more difficult it will be for them to react appropriately in disaster occasions.

Can what we have reported from the existing research be generalized to all social systems? As indicated earlier, most of the mass communication study in the disaster area have been done in the United States and Canada. A definitive answer to the question whether the above observations can be extrapolated to social systems other than these two awaits systematic cross-societal studies. However, some preliminary research of this nature, including a specific Japan-United States comparative study (see Quarantelli and Wenger, 1991), suggests that most of our findings probably are valid for highly industrialized and urbanized societies. Actually, how much our observations can be generalized are probably less of a problem that ought to be considered than another one to which we now turn.

THE FUTURE

Even if disaster planning and response on the part of the mass communication system (local and otherwise) was perfect at the present time, that would not solve some of the problems that will be present in the future. This is because the nature of disasters is changing and there are major changes occurring in mass media technology. (Wenger, 1985b). Put another way, there are major trends in developed societies which will directly affect disaster related activities of the mass media. Let us explain this in a little more detail.

1. There are going to be more and worse disasters in the future.

The 21st century, less than a decade away, will bring us more and worse disasters. Why? We can note five different categories of threats that will bring this about, namely:

- (1) old kinds of natural disaster agents will simply have more to impact.

While such physical agents as floods, hurricanes, tornadoes, earthquakes and volcanic eruptions are probably not increasing (at least on any observable human time scale), what they can socially impact is changing. Population growth, building of structures and economic development means that in most places, more people, more property, more wealth are increasingly at risk. For example, there are more people and settlements than ever before in riverain flood plains. Where in the past there was marsh or swampy areas, there are now housing complexes and industrial parks. Where empty space might have been hit in the past, in the future people and developed areas will be hit. There is practically nothing of the reverse--abandonment or withdrawal from dangerous localities.

One way to document the probable greater future impact is to ask the following: If the last disaster to hit a particular area were to hit exactly in the same way now or in the future, would there be less, the same or more lost? In the vast majority of cases, the answer would have to be more.

- (2) new and increasing kinds of technological accidents and mishaps that were almost nonexistent prior to World War II.

To the category of so-called natural hazards has been added a relatively newer category of technological accidents and mishaps. These are the disasters resulting from human errors and collective mistakes of groups. To the so-called Acts of God, the human race is increasingly adding Acts of Men and Women.

There are the increasing risks associated with the production, transportation and use of dangerous chemicals (the relative recency

of these threats are perhaps attested to by the fact that when I started research about 40 years ago, they were simply not mentioned as a major or frequent danger). Bhopal has shown what can happen. An interesting aspect of the appearance of these threats is that even localities which in the past had none or few risks from natural disaster agents, are now vulnerable to toxic chemical spills, explosions or fires, if they have any roads, railways or navigable waterways. To the in-plant and transportation kinds of acute chemical types of disasters, we have also been adding the more slowly developing and diffuse types associated with hazardous waste sites such as seen in Love Canal.

Then there are of course the risk associated with nuclear power. Three Mile Island suggested the potential: Chernobyl presented the reality. Apart from problems in the aging nuclear plants around the world, there is the danger that will be increasingly generated by the handling and transporting of nuclear wastes all over the world (and the often overlooked transportation of military generated radioactive material). One abandoned cancer treatment machine in Goiania, Brazil not only created casualties but massive economic disruption.

These kinds of disasters can be qualitatively different than other kinds of disasters. For example, chemical poisonings and radiation contaminations require complex and sophisticated kinds of medical treatment, require far more costly cleanups and require more specialized knowledge than necessary for natural disasters. Also, in some case, there are second order effects; for example, health consequences such as cancer cases can surface years after the event.

There are other interesting implications of these kinds of disasters. We will simply note that increasingly natural disaster agents will generate concurrent technological disasters, e.g., a flood impacting a chemical complex or an earthquake affecting a nuclear plant. Also, increasingly localities are facing disastrous conditions from disaster sources that may be quite distant, as seen in the radiation fallout from Chernobyl that affected much of Europe.

(3) technological advances that add complexity to old threats.

There are two aspects to this: (a) preventive or protective measures which indirectly can lead to possible disasters, and, (b) the scale of chain reactions possible in modern societies which can turn a little accident into a catastrophic disaster.

As to the first, take this as an example. Fires in high-rise buildings, in combination with the highly combustible and toxic construction and furnishing materials presently used, have brought an additional threat dimension to that kind of situation. People

are prevented from being burned by raising the probability of their being asphyxiated. The MGM hotel fire in Las Vegas is an example of what is more likely to occur in the future.

Somewhat in the same vein, let us quote a former head of the Environmental Protection Agency. He said:

It is entirely possible that somewhere in the country toxic metals are being removed from the air, transferred to a waste water stream, removed again by water pollution controls converted to a sludge, shipped to an incinerator, and returned to the air (Lee Thomas, quoted in the New York Times, 5/11/86).

He is pointing to the fact that certain technologies that reduce or prevent the development of particular kinds of risk or environmental threats do so by solutions that often generate their own dangers or hazards.

Another quotation will illustrate our point about the increasing scale of disasters. It goes as follows: "small scale failures can be produced very rapidly, but large scale failures can only be produced if time and resources are devoted to them." For example, we have always had, since their coming into being, electric power and telephone system failures. However, the 1965 blackout in northeastern United States suggest how, in the modern world, large areas of a country can become vulnerable to electric grid system malfunctions. Not only can something in a far distant place have local effects, but the complicated linkages almost insure that sooner or later there will be large scale effects.

(4) new versions of past dangers.

In some instances we can see new manifestations of old kinds of threats. Droughts used to be thought of as rural problems. This is no longer the case. Increasingly, in different countries, urban and metropolitan localities will find themselves faced with shortages or reduced water supplies. So far we have had only emergencies coped with by reducing industrial water usage, but one day there will be a disaster if a major part or all of an urban area runs out of water or has enough only for the most necessary of water needs.

This is most likely to occur in combination with the collapse of a major tunnel, pumping station or other critical facilities of a water supply system. This brings us also to the fact that there is an increasing problem generated by the deteriorating physical and public works infrastructures of lifeline systems (at least in older American cities). The prevalence of decaying bridge and tunnel structures, crumbling highways, obsolete and overloaded waste water

and sewerage treatment plants, worn out sewer and water mains, aging subways and rail systems, all suggest a variety of many disastrous possibilities beyond the isolated and occasional accidents of the past.

(5) developing kinds of new risks that have not been traditionally thought of as in the province of emergency management.

Let us indicate two major very hazardous situations that will certainly occur in the future: biotechnological accidents and computer failures that will result in disasters.

There is the newly developing area of biotechnology, especially genetic engineering (DNA). Basically, this involves altering the blueprint for any living organism--plant, animal or human--and creating new characteristics, some of which are very useful (e.g., there have been created various kinds of oil and chemical waste eating bacteria that can be used to clean up spills). However, there can and will be the creation of, or the escape from control of some altered organism that cannot be checked by present known means. Some of the oil-chomping organisms developed for cleanup purposes could go ahead and attack lubricants in all machinery. Our ability to custom design living organisms almost insures that one day there will be some almost Frankenstein-like bacteria, plant or animal let loose on the world. This is not science fiction; as one commentator on this coming problem wrote:

The advocates of recombinant DNA technology claim that it is safe because they cannot see how a disaster would occur and because no disaster has ever happened yet. That amounts to saying that the technology is as safe as the Titanic, the Chernobyl nuclear reactor or the space shuttle (Robert J. Yaes letter in 1987 New York Times).

Then there are all the disastrous consequences that are linked to the computer revolution. Use of computers have improved disaster planning and managing. But our increasing dependence on computer technology will magnify future disasters and turn some minor ones into major ones. When the technology fails, and it will fail at times, what will those who have come to depend on them do? We know of one chemical plant disaster, because the computer monitoring system failed, where it took hours before the surrounding population was warned; in pre-computer days the warning would almost certainly have been issued much earlier.

More important, many sectors of government and business are increasingly computer based for the data and information they need to function, sometimes literally from minute to minute. It can be predicted with certainty that in the future such systems will fail

or function incorrectly. We will then have a really new kind of disaster--a computer disaster. Many will have very complex chain reactions. One scenario of a computer failure in California indicates there would be serious problems in the international banking and financial community within 24 hours.

The kinds of future disasters we have discussed will magnify the problems of the mass media in reporting on disasters. Let us give only three examples of the occasions that they will have to deal with in coming years.

First, there will be the need to cope with the fact that many future disasters will not necessarily create many human casualties but will otherwise be very socially costly. Certain of the future disasters have catastrophic potential even if they would occasion few or no casualties or even have physical impact. One writer has made this point very well:

Some events make only small ripples; others make big ones. Early theories equated the magnitude of impact to the number of people killed or injured, or to the amount of property damaged. Unfortunately, things are not this simple. The accident at Three Mile Island (TMI)...provided a dramatic demonstration that factors besides injury, death, and property damage impose serious costs. Despite the fact that not a single person died at TMI, and few, if any, latent cancer fatalities are expected, no other accident...has produced such costly societal impacts. The accident at TMI certainly devastated the utility that owned and operated the plant. It also imposed enormous cost (estimated at 500 billion dollars...) on the nuclear industry and on society, through stricter regulation, reduced operation of reactors worldwide, greater public opposition to nuclear power, reliance on more expensive energy sources, and increased costs of reactor construction and operation. It may even have led to a more hostile view of other large scale, modern technologies, such as chemical manufacturing and genetic engineering. The point is that traditional economic and risk analyses tend to neglect these higher-order impacts, hence they greatly underestimate the costs associated with certain kinds of mishaps.

Although the reaction to the TMI was extreme, it is by no means an isolated example. Other recent events that have had enormous indirect

impacts include...the discovery of pollution from chemical wastes at Love Canal...and Times Beach...the disastrous launch of the space shuttle Challenger... Following these extreme events are a myriad of lesser incidents events varying in the breadth and magnitude of their impacts.

New theories and methods of analysis are needed to forecast costly ripple effects so that they may be factored into risk-management decisions.

(Slovic, 1987: 3-4).

Second, mass media reporting and involvement in technological disasters is generally more problematical than it is for natural disaster occasions. The newer technology requires greater understanding. For example, during the Three Mile Island nuclear plant accident, one of the difficulties was that reporters and editors lacked the technical knowledge and mastery of nuclear jargon to correctly report what was occurring.

Third, the reporting of technological hazards is complicated by issues of responsibilities and blame. News reports are likely to attempt to fix responsibility for the disaster. Such issues of liability and blame place the occasion within a conflict oriented context. Also:

an adversarial relationship may develop between media representatives and emergency management personnel as the former engage in "investigative reporting" that appears to be callous "snooping" from the perspective of the latter (Wenger, 1985: 23)

Actually, blame is also increasingly being placed in natural disaster situations as human beings rather than God are assigned responsibility. If so, what is now a mass media problem with just one class of disasters will spread out to almost all disasters.

2. Basic changes are occurring in media technology which will have important consequences for covering future disaster responses, and will also affect disaster related behavior.

The mass media area is in a state of extreme flux and change. What are the implications for disaster preparations and responses, for example, of the bringing in of distant stations via cable to a local community? We now have 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 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 transmissions 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.

Furthermore, as written in a recent volume on the "new media":

New ways of encoding, transmitting, distributing, and displaying information most overtly in the form of new communication technologies. For example, digital, as compared to analog, encoding dramatically increases the speed, accuracy, and volume of information that can be exchanged. It efficiently integrates voice, data, and video. It facilitates signal processing and coding techniques. It offers greater privacy and security. But more important, humans are beginning to communicate in new ways as well. New media--from videotext to personal computer networks, from communication satellites to fiber optics--are blurring distinctions that seemed so clear and useful a generation ago (Rice et al., 1984: 34).

The importance of much of this is that, of course, it adds an interactive element absent from the one way mass media of the past and much of the present. For example, how will this affect warnings sent through the mass media system? Within the mass communication organizations themselves, what will the increasing addition of computers and interactive media technologies do to their news operations as they attempt to mobilize resources, obtain information, and coordinate their activities in disasters? The new technologies will make a difference but we have little idea at present how they will do so and in what ways. But even before research addresses this matter, we can start thinking about what possibilities and problems will be presented in the future.

For instance, the media technology changes probably will accelerate existing trends in mass communication audiences. As in the Western World we move away from an industrial society to a knowledge society, we are also moving away from massive, mass communication systems that simultaneously reached a vast, heterogenous audience to highly specialized media that attract much smaller, special interest audiences. This trend was first seen in the area of radio and magazines. Both of these media evolved highly specialized formats for particular kinds of audiences (e.g. teenagers interested in rock music, sports enthusiasts, stamp collectors, news addicts, etc.). Thus, the mass circulation magazines and the general format radio and the radio networks disappeared over a decade ago. Television is rapidly following the same path. The national television networks in the United States, for instance, increasingly have less of a share of the total audience as many viewers turn to the more specialized programs available through the cable system. As a result of these trends the audiences of the future will be even more fragmented. Even at the local level it will be increasingly difficult to reach a mass, heterogeneous audience.

A Final Comment

In conclusion, let us say the following. There is a strong tendency on the part of many people when discussing the role of the mass communication system in disasters to engage in considerable "media bashing". That is, the mass media organizations and their personnel are faulted for many things that happen or do not happen. Such blame assignation, as we know from disaster research, does play a function in helping people to adjust to the stresses associated with disasters. But we should not confuse the psychological function served by "media bashing" with a correct analysis of the situation. In our presentation we have tried to indicate why, the social factors responsible for the way the mass media and others act in disasters. The world of the mass media has its own values, beliefs, norms, values, social structures, etc. like any other subworld that are the sources of its behavior (see Quarantelli, 1990). It is necessary to understand those to recognize what is going on; this may not be as much "fun" as calling names but it is the only way to true knowledge that can be useful.

Furthermore, this position also allows for the possibility of change, if that is desired. This is possible because many of the difficulties and problems that we have discussed concern the perceived role of the local mass media in the overall emergency response in the community. The issue is quite simple. There are two inherently conflicting roles that media organizations may perform during the emergency time periods of disasters.

On the one hand, they could be part of the community emergency response effort or system. In such cases they would be responding

with such organizations as local police and fire departments, emergency planning and managing agencies, public works and utilities, welfare and social service groups, and emergency medical services and hospitals. (Actually, to the extent that local media outlets play a role in transmitting warnings about disasters, they are part of the overall community response system).

On the other hand, the mass communication system may play its more traditional "fifth estate" role in many Western societies, that is, as the monitor and chronicler of events within the community. In effect, the organizational work force are simply media personnel covering a story as they would cover any other story, and are not a part of the disaster response itself. To some extent, they are local people who remain outside of the local situation. (Research shows that the print media are more like to see themselves in such a way).

We would like to suggest that this dual role could serve as good a starting point for discussion about the mass media and crises as any other that might be advanced. Certainly understanding the role problem is crucial. Maybe it can also afford some clues on how changes in the situation that might be desired could be brought about.

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