Chapter 11

A FUTURE RESEARCH AGENDA

We learned a number of things in designing and carrying out our study which would seem to have important implications for other disaster research and especially cross-societal studies. Thus, in this final chapter we pose five questions raised by our work and try to indicate how the answers might suggest a different approach to some matters in the future.

First, what do our study results say about the significance of small numbers? Second, does our research contribute only to other earthquake studies or can the findings be generalized to other "disaster" situations? Third, was our work on the Mexico City earthquake, a study of a disaster or a catastrophe and the implications if it were primarily one or the other? Fourth, does our work in a complex metropolitan area contribute to our understanding of disaster problems of the future? Fifth, what are the advantages and disadvantages of cross-societal research such as we undertook?

The Significance of Small Numbers

In the analysis of data, small percentages are not necessarily insignificant. In the Mexican earthquake, when only <u>one</u> percent of our respondents reported engaging in a particular behavior, that meant several hundred thousand individuals reacted in the same relative way. To focus only on percentages or on absolute numbers will convey radically different pictures about what went on in Mexico City.

In the main, this is not an observation that has often been made in the past. Only on rare occasions have disaster researchers noted the possible theoretical <u>in</u>significance, but operational importance, of small percentages (see, Quarantelli, 1985a: 199-200). We can see that this can be true in two ways. First, as in the Mexican situation when the base number is very large even tiny percentages, that are by explicit criteria statistically or theoretically unimportant, can extrapolate to very large absolute numbers. Second, the absolute number itself may be relatively low, but because of cultural values involved the phenomena can become important for symbolic reasons (e.g., burying the dead properly, see Blanshan and Quarantelli, 1981; treating the seriously wounded quickly, see Quarantelli, 1983; protecting children, etc.). The study in Mexico City suggests that those who study disasters ought to consider more seriously those findings which are not significant

in one numerical sense for most theoretical and research purposes, but which otherwise are important.

In fact, there may be a very important practical implication in this thematic research finding. It is that the discrepancy between percentages and absolute numbers with respect to behaviors of individuals may become progressively more important the larger the disaster as well as the larger the population base involved. In a small size (impact and population wise) community disaster--the occasion which is the mode in the studies undertaken in the United States (see the Inventory compiled by Quarantelli, 1984b)--the absolute numbers for much behavioral phenomena may actually involve only literally a handful of people. It is easy therefore to ignore such a possibility in disaster planning and not to notice it in the managing of the more typical kind of community disaster. However, if the disaster is very large and in a densely populated area, the matter will have to be operationally addressed both in preparedness planning and disaster response.

Agent Specific or Generic Studies?

Our study of course focused on the reactions to a very specific disaster agent, namely an earthquake. The issue we want to address is whether what we found in terms of our research findings were particularly agent specific. That is, were the observations about organizational and individual behavior response specific to the earthquake agent? In general, we would say that the answer is in the negative.

The problems that were created and occasioned the most difficulties have been observed in the response to many different type of disaster agents, natural and technological. There were problems in search and rescue, sheltering, handling the dead, transporting and treating the injured, convergence, and interorganizational coordination to mention just some. But these difficulties were not primarily the result of the physical damage and destruction that an earthquake creates, but because of the implementation of social values and the pattern of social organization that was necessary to implement those values.

What was studied was an earthquake disaster, but it probably was the magnitude of the event and its social consequences rather than the type of agent that best explains our findings. Our research observations and conclusions would appear to be relevant to any broad scoped, rapid onset event that allows for little or no forewarning and that has significant destructive potential. Whether "natural" or "technological" in nature, similar individual, group, organizational and community behaviors and problems can be expected to occur. It is the social meaning of the occasion which is important rather than its origin.

The earlier cited cities had catastrophes, Mexico City had a disaster. The earthquake in Armenia in late 1988 on in Iran in June 1990 are better candidates for learning from a catastrophe. Therefore, whatever other lessons we draw from the research results from this study, we ought to keep in mind the scope of the occasion we studied. To say this is neither to diminish the considerable human suffering, physical destruction and social disruption that occurred in Mexico, nor to deny the valuable lessons that can be learned from the research on what happened in Mexico City. It is simply to point out that however geologically similar earthquakes may be, they are not similar in their social consequences.

Studies in Metropolitan Areas

The earthquake we studied occurred in what is the largest urban complex in the world, and in a city which many presently believe will have over 20, 000 000 population by the turn of the century, about a decade off. But in the same time period there will be dozens of other cities which while not having as many residents will nonetheless also become huge metropoleis. Moreover urban scholars have recently been suggesting that along some lines, past differences between metropolitan areas in developed and developing countries are quickly disappearing as global cities emerge (King, 1990). In some respects, therefore, Mexico City and its handling of disasters might be thought of as a research prototype for the future. Put another way, disaster researchers need to consider the urban studies they need to conduct for these social locations of many important disasters in the future. Any realistic assessment has to be that there will be more and worse disasters in the decades ahead (Quarantelli, 1988b).

We think that Mexico City has provided some cues. Disaster researchers should increasingly anticipate that they will have to study very large and very heterogeneous populations. This will pose some methodological challenges, particularly if financial resources for disaster studies do not significantly increase. For in general the larger the study the more costly it will be to undertake.

However, the real issues that need to be addressed will be theoretical and substantive ones which do not emerge when research is done on smaller and less complex social units. How does a researcher conceptualize these vast communities of the future where legal boundaries and governmental jurisdictions will have little functional meaning? Which are the relevant groups that need to be studied regarding preparedness and response when there are multiple organizations within organizations, and multi layers of organized and unorganized groups within the metropoleis of the 21st Century? In both developed (see Quarantelli, 1985c, 1988a) and developing societies (see Schuurman and Van Naersen, 1989) there has been an upsurge in urban areas of locally based movements--environmental action organizations, neighborhood associations, etc., attempting

Disaster or Catastrophe?

While the specific characteristics of the agent may not create significant social differences in the emergency response, differences in the scope of the social disruption could make a difference. Only a limited vocabulary to discuss this difference exists, namely the difference as some have posited, between a catastrophe and a disaster (Quarantelli, 1987b). The argument is that there are both quantitative and qualitative differences between a disaster and a catastrophe. For example, in a disaster, most of a community remains basically untouched and functioning; therefore there can be immediate convergence from the unaffected areas and less involved victims. In a catastrophic situation, most of the structures may be destroyed and a majority of the inhabitants will be dead or injured; most of the convergence in such an occasion will have to come from afar and from non-local sources.

Very noticeable was the fact that there were in Mexico City very few secondary threats such as from fires, dangerous chemical spills, downed power lines, collapsed dams, etc. For example, there were very few fires as a result of the earthquake. This might seem a matter of chance, but it is more adequately attributed to building construction techniques and consequences of life style. The activities of not only the fire department, but many other organizations would be significantly complicated in the United States where a much greater number of fires could be expected in a similar kind of earthquake. In fact, Japanese researchers looking at the Mexico City earthquake have indicated that they believe the relative absence of fires was one major difference in what they anticipate in a similar kind of earthquake occasion in Japan (Disaster Measures Planning Section, 1986). Put another way, the earthquake in Mexico created a disaster; in the United States and Japan a similar force earthquake could have the potential of being more catastrophic in nature.

The disaster in Mexico City was a major one and, as we have shown, worse in social consequences than appeared on the surface. Nonetheless, the earthquake did not totally disrupt the everyday community behavior of Mexico City in the way that, for example, the Tangshan, the Managua, the Guatemala City earthquakes in recent times, or the San Francisco, Messina or Tokyo earthquakes in the past, completely disrupted the everyday activities of the cities involved. Or as one earthquake specialist said:

> The 1985 earthquake caused a disaster, but not a great disaster. The description great disaster must be reserved for earthquakes that greatly damage cities or cause many tens of thousands of casualties (George Housner quoted in Reinert, 1986: 4).

to improve conditions through self-help schemes; what are the implications of such groupings for urban disaster planning and response? In fact, how will the meaning of disasters and catastrophes in such communities change, given the tremendous resources they already have just for everyday needs and demands? How does one study disasters where the point of impact may be quite distant from points of effects or as Akimoto has written about urban complexes and their lifeline infrastructures:

> the damage inflicted upon the lifelines...is never confined to the affected part. It always has a possibility of being transferred to and extending into one or another function (1987: 174).

These are simply a very few illustrative questions of the many that will need to be raised for improving research into the urban disasters and catastrophes that will occur in coming years.

Cross-Societal Studies

It is rather difficult to easily balance the advantages and disadvantages of cross-societal research on the basis of our study of the Mexico City earthquake. There are both negative and positive implications for future cross-societal studies from the work we did. On the one hand, there are obvious theoretical and practical benefits from this kind of research, especially if done in close collaboration with colleagues from the other country. On the other hand, it is important to note that some of the kinds of difficulties which have been suggested as being likely to appear in such studies (Quarantelli, 1979) did surface.

The close collaboration between the Mexican researchers and the DRC staff was beneficial in many ways (we think for both sides but we will here primarily discuss it from our perspective). For one, our Mexican colleagues provided considerable guidance on the realities of what could or could not be done in the context of Mexican society and Mexico City, as well as identifying relevant officials and the organizations for the study. Their assistance prevented us from having unrealistic research goals and wasting time, effort and resources on unreachable study objectives. This was particularly true in the early stages of the work.

Also, it is very probable that the kind of good social science data we obtained, whether this be in terms of the survey results or the organizational interviews, could not have been collected other than by Mexicans. An earlier DRC study of the chemical explosion just outside Mexico City in 1984, which used only researchers from the United States, did collect data, but the field work encountered all kinds of resistances and much of the information obtained proved highly suspect for analytical purposes.

The collaboration also allowed us to better analyze the data that was in the main collected by our Mexican colleagues. They could and did provide the social context for interpretations that DRC staff members did not have as outsiders to the society. This was accomplished through a number of informal meetings and a somewhat formal briefing.

In contrast, there are also some problematical aspects in collaborative cross-societal research. Such work is costly in terms of time expenditure. Communication whether by phone or mail from one side to another can be very time consuming and not always dependable. Personal contacts may be restricted by cost factors. There are also very likely to be differences in conceptions about social science research which partly reflect different intellectual traditions in the societies from which the researchers come. This may slow down the reaching of consensus on the research design, particularly when one party has primary responsibility for gathering the data and the other the undertaking of the data analysis. Also, there are inevitable and to some extent unresolvable difficulties in the translation of certain questions used in field instruments or in the interpretations of answers obtained. For some words and ideas in one language there are no equivalent meaningful terms in the other language. Even when there is the best of cooperation and good will on both sides, as was true in our study, there are the above issues in cross-societal research which will affect both the quantity and quality of what can be done (see Dynes, 1988).

Certainly, on balance, we think that cross societal studies can both be done and are worthwhile doing (as an example among the few done, see Perry and Hirose, 1983). In our particular case, we feel that we achieved most of our research goals as a result of the collaboration our colleagues in Mexico provided as well as the support we received from a number of Mexican officials. The result was the collection of good data on which many significant and unexpected findings have been generated which have both theoretical and practical implications. In the long run, of course, the evaluation of the research results will have to be left to the judgement of others, but we feel that we have learned much about the social response to the earthquake in Mexico City.

Finally, in conclusion, we want to make a more general point. We think that at the very least we have contributed to a very small data base that will need considerable enlargement if disaster research is going to make any progress. Drabek (1987b) stated this problem in the following way:

> ...if responses are to be generalized, what limits are appropriate? To date we have made minimal progress toward integrating the insights and approaches to comparative structural analysis whereby societies, commun-

> ities, or organizations, for example might be compared regarding event responses ...the comparative work completed by McLuckie... remains relatively isolated within the disaster research legacy. Hopefully, that will change during the next decade (1987b: 329).

Hopefully, the research we have reported is a start in that direction, as well as contributing to closing the gap of understanding between Mexico and the United States that is said to exist in the quotation that led off this volume.