

University of Delaware  
Disaster Research Center

PRELIMINARY PAPER  
#87

EARTHQUAKE PREPAREDNESS CITIZEN GROUPS:  
THEIR ATYPICAL NATURE AND THE CONDITIONS  
FOR THEIR EMERGENCE\*

E.L. Quarantelli

November 1983

\*A slightly different version of this paper was presented for presentation at the 8th World Conference on Earthquake Engineering in San Francisco, California, on July 21-28, 1984. While the data for this paper were obtained under Grant #CEF-8113191 from the National Science Foundation (NSF), all statements made represent the views of the author and are not necessarily those of NSF.

EARTHQUAKE PREPAREDNESS CITIZEN GROUPS:  
THEIR ATYPICAL NATURE AND THE CONDITIONS FOR THEIR EMERGENCE

ABSTRACT

The Disaster Research Center (DRC) undertook a nationwide study of private citizens who organize themselves in groups to prepare for or to recover from disasters. Part of that research looked for citizen groups preparing for earthquakes. We found that there are, relatively and absolutely, few earthquake preparedness citizen groups. To explain this finding, we detail an explanatory model which specifies the conditions necessary for the general emergence of citizen groups, and apply it to the likelihood of the appearance, development, and survival of earthquake preparedness groups. Some of the atypical characteristics, careers, and consequences of the few such groups found by our study, are also noted. Given the atypical nature and the scarcity of earthquake oriented citizen groups, we note the implications for earthquake planning in general.

## Introduction

In this paper we describe what we found in a study of citizen groups preparing for earthquakes. In particular, we attempt to explain the conditions which account for the relative and absolute scarcity of such groups. In addition, we note that earthquake preparedness citizen groups have some atypical characteristics, careers, and consequences when they are compared with other citizen groups. We conclude the paper by indicating what these findings imply about earthquake planning in general.

## Background

The social turmoil of the 1960s left many legacies in American society. One of the more important has been the tendency of private citizens to organize themselves, to come together in formal or informal groups, to deal with perceived social problems. There is little need to document the presence of many such groups which have emerged at both the local and national level to address a variety of problematical issues, ranging from what to do with drunken drivers, to insuring the safety of consumer goods, to providing equality of access to legal services, to improving the quality of television programming (see Boyte, 1980).

Since preparing for or recovering from disasters usually entails many problems, it might be asked if citizens have also organized themselves in this area. What do studies which have been undertaken, since the end of World War II, on the social and human aspects of disasters, show? An examination of such literature (see an inventory of such studies in Quarantelli, 1982b) uncovered anecdotal accounts about the emergence of citizen groups in the predisaster and post recovery periods of disasters. But apparently until recently, little attempt has been made to systematically document the existence of such groups, or more important, to try to understand and explain their nature.

## The General Study

However, in 1981, DRC under a grant from the National Science Foundation, initiated a study of emergent citizen groups (ECG's). We had three general goals in the study. We wanted to obtain as detailed a picture as we empirically could about the phenomena of ECG's; we wanted to integrate and place these findings in a larger context of a model of some kind; and we wanted to derive the implications of the model for private citizens and public organizations.

### Specific research objectives

We have three research objectives: (1) to determine the characteristics of ECG's; (2) to identify the major social conditions associated with the emergence of such groups; and (3) to ascertain some of the more manifest consequences of those citizen groups which do emerge. For purposes of understanding the dynamics of the phenomena, we also looked at the careers of ECG's. These 4 C's (i.e., characteristics, conditions, consequences, and careers) provided the research focus of our work.

## Earthquake oriented ECG's

We were interested in any kind of emergent citizen group whether focused on natural hazards or technological threats. However, ECG's which were associated with earthquakes were singled out for special attention. DRC made a concentrated and systematic effort to find ECG's in California, the coastal Pacific states, and other places in the United States known to be at risk from major earthquakes such as around Memphis, Tennessee and Charleston, South Carolina. All known sources and leads about the possible existence of such groups were contacted. Questions were asked about any knowledge of earthquake-related ECG's among the following groups: (1) federal, state, and local community agencies having frequent contact with citizen groups; (2) public interest groups and national citizen organizations from the public sector, concerned with environmental problems; and (3) ECG's focused on other types of natural and/or technological hazards. A few general circulation magazines also provided some leads (e.g., Nadler, 1982).

## Methodology

All situations selected for inclusion in our larger study were approached in the same way. Long distance phone calls were made to reputed group members as well as to other local sources in the community who might know about the existence of such ECG's, for example, officials in disaster and emergency agencies. If after such an inquiry, there seemed to be a viable group (in being or in the process of development), a DRC field team was dispatched to the locality. To avoid disproportionate weighting from single factors, limits or quotas were set with respect to the number of ECG related situations we examined in each state, in any particular local community, and for any given disaster agent (see Quarantelli, 1983).

The DRC field team collected three kinds of data about all ECG's. In-depth, open ended interviews were conducted with all key or core members of the ECG as well as a selected range of peripheral members. In addition, interviews were also obtained with key public/private officials dealing with the ECG, and relevant mass communication personnel in the community. Data were also gathered through systematic documenting; this involved collecting material ranging from budgets and articles of incorporation, to newsletters and minutes of meetings, to disaster plans and legal briefs, to journalistic stories and tapes about the ECG. In a few cases, it was possible for DRC field workers to do participant observing at group meetings or public assemblages.

The interview guides used attempted to obtain information relevant to:

- 1) the history of the group from its inception to the present, including any incorporation activity;
- 2) the structural and functional composition of the group, including its major interactions with other groups;
- 3) what effects--if any--the group has had in its community;
- 4) which local organizations the group was salient and legitimate; and
- 5) how certain conditions, such as availability of resources and press attention, has influenced the group origin, development, and survival.

A special disaster probability scale was given to each respondent in our study. This scale asked all persons interviewed to make an assessment on a 1-5 scale of the probability their area would be impacted by each of 21 different kinds of possible natural and technological disaster agents (e.g., earthquakes or toxic wastes). Another scale attempted to gauge the perceived relative influence of 29 different kinds of community agencies and organizations on the problem focus of the ECG being studied (e.g., the local disaster service agency or the federal government).

In late 1983, DRC completed its field work. We studied more than 50 different situations. Included in this figure are a few aborted ECG's and several failed attempts to organize ECG's. Information was obtained on 28 natural disaster oriented groups or quasi groupings, and 22 technological accident oriented groups or semi-groupings. A year after initial field contact with each ECG, a brief follow-up study was conducted; about a fifth of them in the field, the rest through a phone survey. All the data were subjected to a variety of qualitative and quantitative analyses (for preliminary reports from initial analyses, see Green and Ireland, 1982; Neal, 1982a; Neal 1982b; McCabe and Neal, 1983; Quarantelli, 1983).

#### A general finding about earthquake oriented ECG's

Despite an extensive and exhaustive search effort, DRC was able to initially identify only about a dozen possible ECG situations related to earthquakes. When these situations were explored, we found that most involved abortive efforts to form earthquake oriented ECG's, represented educational activities on the part of one or two individual persons rather than an ECG, or involved informational activities undertaken by well-established formal organizations (e.g., Junior League chapters). DRC found only several clear-cut earthquake oriented ECG's in the San Francisco-Oakland area which met our criteria of an ECG. In this, we found what some earlier research by Turner and his colleagues had previously discovered in a study in the Los Angeles area with a somewhat different focus, namely that

very few new groups were established because of the earthquake threat. The extremely small number of spontaneously created neighborhood groups concerned with family and neighborhood earthquake preparation did not survive beyond single meetings. One group spurred by the enthusiasm of a student organization was active during two years at a high school. Other groups were shaped as extensions of the pre-existing interests of their founders; a hobbyist established an earthquake prediction group using a simple "tiltmeter" he had constructed; a ham radio operator purchased a surplus tiltmeter from the government and attempted to involve other ham operators in prediction; a small group of home economists first saw the relevance of home dried food to earthquake survival, and then moved into full fledged consideration of earthquake preparedness, presenting packaged programs for civic groups and preparing a manual for use in the individual households (Turner et al, 1981:57).

They go on further to say that:

The most general conclusion from this review is that the events of 1976 did not produce significant and lasting neighborhood planning (Turner et al, 1981:57).

Although DRC conducted only two systematic studies of earthquake oriented ECG's it does not mean that this number constituted the total universe of such ECG's existing during the period of our field work. In one community, we did hear about other citizen groups interested in earthquake preparedness (but did not attempt to examine them in-depth since we had already reached our self-imposed limitation of not studying more than six ECG's of any kind in any given state). It is also possible there were ECG's which we did not find despite our search effort, and our looking outside of California was not nearly as extensive or intensive as it was inside the state where we primarily concentrated on the Los Angeles and the San Francisco-Oakland areas. We also picked up indications of earlier formed ECG's which had dissolved by the time we hunted them down. In addition, since the conclusion of our field work, we have heard of the possible existence of other earthquake related ECG's.

Nonetheless, unlike in the case of floods or of toxic waste sites, for example, where DRC encountered many ECG's concerned with such situations, it is clear that earthquake oriented ECG's are relatively and absolutely few in number. In fact, for no other general disaster agent, natural or technological, does there appear to be fewer ECG's at the present time in American society. Japanese and Italian disaster researchers have also indicated to us such emergent citizen groups are very rare in their own countries, but that is less surprising because ECG's of any kind surface relatively infrequently in those societies.

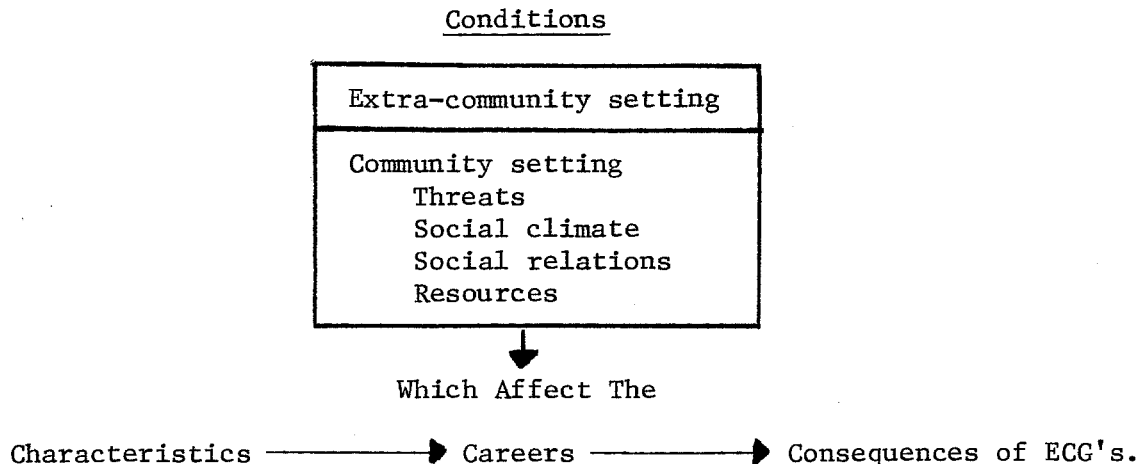
This finding raises a basic question about earthquake oriented ECG's, namely, what accounts for their infrequent emergence?

#### An Explanatory Model

While our general examination of the conditions associated with the emergence, development, and survival of all ECG's is not yet complete, the outlines of an explanatory model have been tentatively formulated. Five factors appear particularly significant:

- (1) a legitimizing extra-community and at the local community level, social setting;
- (2) a perceived threat;
- (3) a supportive social climate;
- (4) a facilitating set of social relations; and
- (5) the availability of certain non-material resources.

In graphic terms we can visualize these elements.



If the indicated conditions exist, there is a very high probability that citizen groups will form around particular disaster agents (see Quarantelli, 1983).

Our explanatory model assumes that all that goes on within a given locality will be affected by the larger extra-community setting. Particularly important are the supra-community groups and networks concerned with similar issues and problems. At the local community level, members of ECG's perceive certain threats, which can be thought of as the demands in the situation.

Demands always occur in a particular kind of social environment or social climate; the social climate being the relevant set of norms, values, and beliefs existing in the local community. Within that environment there exists certain patterns of social organization or social relations; this organization being the links and institutions which constitute the relevant pattern of social interaction in the community. Certain capabilities or resources are available within that community. Resources are human and material assets such as the personnel, knowledge, and access available.

Applications to the earthquake area

When the model is applied to earthquake situations, what do we find? The first three conditions especially, seem generally absent or lacking, and thus discourage or prevent the emergence of earthquake oriented ECG's. Put another way, the three general conditions and factors--namely, a legitimizing social setting, a perceived threat, and a supportive social climate--which lead to the general emergence of ECG's rarely appear at the local community level in the appropriate degree so as to lead to the appearance of ECG's concerned with earthquakes. More specifically, our study found the following with respect to each of these three conditions.

1. Supra-community citizen groups and networks while they generally have little direct input and influence on the origins of local ECG's, nonetheless serve to indicate that a locally expressed concern must be legitimate because it is given attention elsewhere. Such extra-community factors also help in the origination of local ECG's because they suggest that the local issue is part of a national problem. The extra-community setting also frequently indicates the need for political action.

There are no supra-community citizen groups and national networks concerned with earthquakes. This contrasts with the situation which exists, to cite examples, for floods or toxic wastes, where the DRC found there are statewide, regional, and national groups and networks (see Quarantelli, 1983). In contrast, as Turner has noted, "one of the difficulties with the field of disaster preparedness is the dearth of mobilized public interest groups" (1982:521). There is little indication to possible local groups who might become interested in earthquakes that their concern is part of a national problem. Among the conditions making it difficult to generate any kind of attention to earthquake possibilities outside of California, is a general perception that this kind of disaster agent is a serious threat only in that state (for a discussion of this question in other high risk areas in Missouri and Washington, see Drabek, Mushkatel, and Killijanek, 1983). There is no model from outside the community suggesting that local residents should organize themselves to take political action. A few efforts to politicize earthquake planning activities, as in Utah, have failed partly because such planning actions have not been perceived as requiring political organization (see Olson, Svenson, and Nilson, 1982).

Such extra-community groupings, definitions as a national problem, and political actions do characterize other potential threat situations such as nuclear plants and hazardous waste disposal sites. These are not existing social conditions for earthquakes. As such, there is no legitimizing extra-community social setting for the possible emergence of earthquake oriented ECG's.

2. For ECG's in general to come into being there must be a perceived threat, either by way of an actual dangerous event (i.e., an actual disaster) or an acceptable definition of a possible threat. The danger must be seen as threatening the home and the family of actual or potential victims. Finally, the hazard must be seen as having fairly immediate probable impact and not be simply a remote possibility.

General surveys indicate that California as a whole (see Jackson and Mukerjee, 1974; Meltsner, 1977; Jackson, 1977, 1981; Turner et al, 1981) and even more so populations in other regions of the United States at risk from earthquakes (see Drabek, Mushkatel, and Killijanek, 1983) minimize or down-play the earthquake threat to themselves. Meltsner (1977) notes that the overall attitudinal pattern in California is one of "indifference." Drabek and his colleagues (1983:90) found in Missouri that officials believed only 34 percent of citizens were either very aware or even just aware of the earthquake hazard to the state, much less taking it seriously. It is easy also, even if there is an acceptance of a general threat of an earthquake to the local community as a whole, to believe that the chances of being personally impacted are rather low. Thus, Jackson notes that while 96 percent



of respondents in San Francisco "expected earthquakes to occur in the future, few believed that they themselves would sustain damages" (1981:300). In another study, he found that 59 percent of his respondents "were either uncertain that they would ever experience an earthquake, or denied the possibility outright in spite of the fact that" they lived in Los Angeles, Alaska, or the most seismically hazardous area of Canada (Jackson, 1977:278).

Again, there is relative greater perception of threat; of the likelihood of being directly impacted; and of the immediacy of the danger for residents living in hurricane prone areas or next to toxic waste sites than there is by populations in earthquake prone localities. These are not typical existing social conditions for residents in areas prone to earthquakes. Thus, the perceived threat necessary for the emergence of ECG's is only seldom present for the possible development of ECG's with a concern with earthquakes.

3. A supportive social climate must generally exist if ECG's are to appear and survive; this has to do with the presence of certain norms, values, and beliefs about who has the responsibility for dealing with community threats, what priorities should be assigned to handling the threats, and what can be done about the possible dangerous consequences. Especially important in the crystallization of ECG's is the failure of community, particularly governmental officials, to acknowledge or recognize the threat, whatever it may be. Spotlighting of the threat by the local mass communication system, and a public belief that they can do something about the threat, are also typically part of a supportive social climate.

If these are the general conditions necessary for the emergence of citizen groups, the state and community planning and designated official agencies to deal with the earthquake threat, at least in California, is probably working against the establishment of earthquake oriented citizen groups. Low value priority on the public agenda is not challenged by the erratic and low profile given to the earthquake problem both in California as well as other risk areas by local mass media outlets (for the infrequent mass media coverage in Missouri and Washington, see Drabek, Mushkatel, and Killijanek, 1983:114,120; for discussion of the nature of the coverage in California, see Turner et al, 1981; Turner, 1982). In addition, there is the widespread belief, documented in survey data that "people do see the prospect of an earthquake as requiring collective rather than merely individual and family action, and they see government, especially local government, as the appropriate agency for collective response" (Turner, 1979:80). Jackson also notes that "only 32 respondents (10.6 percent) replied "the householder" when asked "Who should bear the responsibility for coping with earthquake problems?" (1981:407).

Unlike in the instance of say, floods or hurricanes, there seldom is a supportive social climate at the local community level to help establish earthquake oriented ECG's. There is particular irony in the fact that obvious governmental action that acknowledges the earthquake threat, by meeting public expectations (or norms) of where earthquake disaster planning responsibility rests, is almost certainly discouraging citizens formally organizing themselves. The low value priority seemingly given to earthquake planning in the typical local mass communication system, and the public belief that earthquake preparatory or mitigation measures can and should be taken by non-individual or

family sources, are simply another part of the typical non-supportive social climate in almost all communities for the emergence of earthquake oriented ECG's.

The absence of the conditions we have discussed seems to account for the relative and absolute scarcity of citizen groups with an earthquake focus. Nonetheless, some such groups do come into being. Our research, however, also found that in many respects these ECG's showed atypical patterns. That is, their characteristics, careers, and consequences are manifestly different than found in more typical ECG's oriented around other possible disaster agents (for preliminary findings of the DRC work see Quarantelli, 1983).

While the earthquake oriented ECG's do have a number of aspects in common with other kinds of disaster oriented ECG's, there are also a number of noticeable differences. To illustrate these differences we note a dozen major ones with respect to the careers, characteristics, and consequences of the groups. There are more than we list, but we limit ourselves because our purpose regarding this point is primarily illustration.

#### Careers

1. Earthquake oriented ECG's grow out of or are parallel with other neighborhood security or environmental concerns (e.g., crime watches or landslides). Most other ECG's have their origins in the specific disaster agent around which they eventually form.
2. The local mass media system often plays a crucial role in the development of ECG's; it is almost not involved in this way in the formation of citizen groups concerned with earthquakes.
3. The great majority of ECG's turn toward political action or goals; this is not true of earthquake oriented ECG's.
4. There typically is an evolution of the structure of ECG's, often although not always in the direction of greater complexity, but at the very least, some change. The original structure of earthquake oriented ECG's show almost no change.
5. Most ECG's formally incorporate if they come into being; those concerned with earthquakes do not.

#### Characteristics

1. Women predominate both as members and leaders in the typical ECG. Women make up the majority of members in citizen groups concerned with earthquakes, but they tend not to be the leaders.
2. Membership in most ECG's is open ended, and all members of the community are potential members. Membership in earthquake oriented ECG's is closed and exclusive, confined to the residents of a particular neighborhood.
3. ECG's typically have a core group which makes the key decisions and does most of the work; earthquake oriented ECG's tend to operate more as a committee of the whole or through a committee system.
4. The typical ECG is conflict oriented or takes an advocacy role. This is not true of citizen groups focused on earthquakes.

5. The great majority of ECG's direct most of their activities outside of the group, whereas earthquake oriented ECG's are largely internally focused.

#### Consequences

1. ECG's typically engage in much interaction with other groups and attempt to communicate with governmental agencies. ECG's concerned with earthquakes make very few attempts to interact with other community groups, governmental or otherwise.
2. ECG's which become established almost always achieve a degree of success in getting the issue defined as a social problem, but few ECG's attain their initially formulated goals. Earthquake oriented ECG's remain almost unknown outside of their local neighborhood, and define success in terms of information circulation to their own members.

In concluding this part of the paper we should note the significant observation that citizen groups do sometimes form in connection with earthquakes but in opposition to action. These groups as Nigg and Young (1979) have noted, have emerged along with formal business groups with vested interests to resist the implementation of seismic safety legislation. Despite the fact that the resisters were the intended beneficiaries of the legislation, they fought and in the cases examined, were successful in stalling the hazard mitigation intent of the legislators.

#### Implications for Earthquake Planning

There is no reason to believe that in the short run the particular conditions necessary for the emergence of earthquake oriented ECG's will come into being as the result of natural social processes. Such processes are also unlikely in the long run. But neither is there reason to think that social planning could bring about the appropriate generating conditions for earthquake oriented ECG's. Disaster planning can best be implemented and instituted when some of the necessary conditions for whatever is desired are already present in the situational planning per se can seldom create such conditions (see Dynes, Quarantelli, and Kreps, 1981).

Among some implications from our study for earthquake planning in general in American society are:

1. No assumption should be made that any significant organized citizen planning for earthquakes will develop in the future. As in other problematical areas, there are limits to citizen participation in even neighborhood activities (see Gittell, 1980).
2. Efforts that might be made to generate such group developments among citizens are probably best directed at other individual or household preparedness measures (e.g., informational and educational programs on how to protect oneself and household at impact time.) However, there is considerable evidence that public education campaigns cannot be expected to accomplish too much.
3. Organization and community planning and preparedness ought to be expanded to cover what earthquake victims will not have organized themselves to do (e.g., post-impact systematic search and rescue efforts in neighborhoods). Individuals

do more for themselves in disasters, than they are usually given credit for, but there are any number of emergency tasks which can best be done by formal public or private groups (Quarantelli, 1982a).

4. Community disaster planners will have to seek other sources of political support for earthquake planning given the absence of local advocacy groups of citizens, e.g., among well-established financial institutions. But there still may be a problem here because when the California Seismic Safety Commission surveyed state legislators prior to the Coalinga earthquake, it found that 64 percent of those responding said the public would have to demand it before the legislature would assign high priority to emergency and disaster planning.

5. Disaster planning should aim at training a cadre of knowledgeable operational personnel who know how to mobilize and manage resources rather than attempting to develop a grass-root base of trained citizens. This idea may run against the grain of some democratic ideologies, but is more in tune with the realities and imperatives of social structures (see Rich, 1982).

These recommendations are in line with the general position in much of the research into the social and behavioral aspects of the efficiency these last 30 years. It is the view that improvement in the efficiency and effectiveness of responses at emergency time will primarily be attained by improving the emergency organization which will be involved instead of trying to change the behavioral response patterns of individual victims (Quarantelli, 1982a). Citizen groups can be an important factor in certain aspects of disaster planning, and especially as advocates for better mitigation and preparedness measures for some kinds of disaster agents, such as flood, hurricanes, toxic wastes and nuclear plants, but the earthquake area does not appear to be a very fruitful one to look for the emergence of similar types of citizen groups.

## Bibliography

- Boyte, Harry C.  
1980 The Backyard Revolution. Philadelphia, Pennsylvania:  
Temple University Press.
- Drabek, Thomas E., Alvin Mushkatel, and Thomas Killijanek  
1983 Earthquake Mitigation Policy: The Experience of Two States.  
Boulder, Colorado: Institute of Behavioral Science, University  
of Colorado.
- Dynes, Russell, E. L. Quarantelli, and Gary Kreps  
1981 "A perspective on disaster planning." Report Series #11.  
Columbus, Ohio: Disaster Research Center, The Ohio State  
University.
- Gittel, Marilyn  
1980 Limits to Citizen Participation. Beverly Hills, California:  
Sage.
- Green, Kenneth E. and Eric Ireland  
1982 "Impacts and implications of spontaneous citizen organizations."  
Preliminary Paper #77. Columbus, Ohio: Disaster Research  
Center, The Ohio State University.
- Jackson, E. L.  
1977 "Public response to earthquake hazard." California Geology  
30: 278-280.
- Jackson, Edgar L.  
1981 "Response to earthquake hazard. The West Coast of North  
America." Environment and Behavior 13: 387-416.
- McCabe, Susan and David M. Neal  
1983 "Gender composition in social movement organizations: the  
predominance of women in emergent citizen groups in disaster."  
Preliminary Paper #85. Columbus, Ohio: Disaster Research  
Center, The Ohio State University.
- Meltsner, Arnold J.  
1977 Citizens and Earthquakes. Unpublished paper.
- Nadler, Judith  
1982 "Getting neighbors together to get earthquake prepared."  
Sunset March 168: 111.
- Neal, David M.  
1982a "A structural analysis of the emergence and non-emergence of  
citizens' groups in disaster threat situations." Preliminary  
Paper #79. Columbus, Ohio: Disaster Research Center, The  
Ohio State University.
- 1982b "Blame assignment in diffuse disaster situations: the role of  
emergent citizen groups." Preliminary Paper #78. Columbus,  
Ohio: Disaster Research Center, The Ohio State University.

- Nigg,  
1979 Joanne and Barbara Young  
"Community resistance: a response to social policy implementation." Paper presented at the Annual Meeting of the American Sociological Association, Boston, Massachusetts.
- Olson,  
1982 Richard, Arthur Svenson, and Douglas Nilson  
The Utah Seismic Safety Advisory Council (1977-1981): A Preliminary Life History. Unpublished report.
- Quarantelli,  
1982a E. L.  
"Human resources and organizational behaviors in community disaster and their relationship to planning." Preliminary Paper #76. Columbus, Ohio: Disaster Research Center, The Ohio State University.
- 1982b "Inventory of disaster field studies in the social and behavioral sciences 1919-1979." Miscellaneous Report #32. Columbus, Ohio: Disaster Research Center, The Ohio State University.
- 1983 "Emergent citizen groups in disaster preparedness and recovery activities: an interim report." Miscellaneous Report #33. Columbus, Ohio: Disaster Research Center, The Ohio State University.
- Rich,  
1982 Richard C.  
"Dilemmas of citizen participation in the neighborhood movement." Urban Affairs Quarterly 17: 387-392.
- Turner,  
1982 Ralph  
"Media in crisis--blowing hot and cold." Bulletin of the Seismological Society of America 72: 519-528.
- Turner,  
1979 Ralph et al  
Earthquake Threat: The Human Response in Southern California. Los Angeles, California: Institute for Social Science Research, University of California.
- 1981 Community Response to Earthquake Threat in Southern California. Part Ten. Summary and Recommendations. Los Angeles, California: Institute for Social Science Research, University of California.

Preliminary Paper

87

EARTHQUAKE PREPAREDNESS CITIZEN GROUPS:  
THEIR ATYPICAL NATURE AND THE CONDITIONS  
FOR THEIR EMERGENCE\*

E. L. Quarantelli

Department of Sociology  
Disaster Research Center  
The Ohio State University

November 1983

\*A slightly different version of this paper was presented for presentation at the 8th World Conference on Earthquake Engineering in San Francisco, California, on July 21-28, 1984. While the data for this paper were obtained under Grant #CEF-8113191 from the National Science Foundation (NSF), all statements made represent the views of the author and are not necessarily those of NSF.