

so as one moves from a conception of a disaster as a disrupting event to one of a crisis occasion, although we will not argue this point further.

The socially oriented conceptions of disaster force a focus on the properties of the social situation and away from the characteristics of disaster agents and impact as such. Vastly oversimplifying for purposes of illustration, was it important that in the San Fernando earthquake of 1971 approximately 60 persons were killed and two hospitals put out of commission? For certain purposes, yes. But for other purposes it is far more crucial, in understanding the social situation, that in terms of the demand-capability ratio of that occasion there were seven and one-half million "survivors" and 120 intact hospitals. If we use these simplified figures only, there is even a question whether, from a sociological point of view, there was a San Fernando earthquake "disaster."

More important is the fact that social factors can be quite similar across many social situations in a way agent characteristics cannot be (and even less than we ourselves once postulated [Quarantelli and Dynes, 1970, p. 328]). This can be more than stated. While it is an occupational disease of researchers to complain that very little is known about whatever they are studying, and this lament has been expressed about the disaster area [Mileti et al, 1975] [White and Haas, 1975], the fact of the matter is that we are not totally ignorant of socio-behavioral aspects of disasters, and that relatively speaking we have advanced tremendously in knowledge and understanding since the first social scientists took to the field to study disasters in the United States in the middle 1950s and in the early 1960s in Japan.

Crucial for the argument in this paper is that the cumulative research and theory in the disaster area shows that there are many socio-behavioral features which are not disaster specific and cut across many different types of disaster agents. Thus, it has been possible to derive principles of disaster planning and emergency management [Quarantelli, 1981]. In a recent disaster primer in a discussion of similarities and differences between community planning for natural hazards and chemical hazards, some differences are noted, but it is then observed that

these differences do not necessarily rule out the application of principles of natural disaster planning to problems of chemical hazards. In fact...studies on natural disaster planning and response can be of value for persons connected with chemical disaster preparedness.

It is then stated

regardless of the characteristics of a particular disaster agent and the specific demands generated by it, the same kinds of community response-related tasks are necessary in both kinds of disaster and for all disaster phases. In any community, for example, the assessment of hazards and the aggregation of disaster-relevant resources are necessary, regardless of the specific hazards and resources in question. Similarly, post-impact communication and decision-making procedures must be planned for and activated in any community crisis.

To draw an analogy, a battle on land is fought with different weapons, material, personnel, and support systems than those used in sea battles, but, nevertheless, the general overall battle requirements are the same for both. In both cases, intelligence about enemy strength and movements must be gathered, resources must be collected, trained personnel must be led effectively, and so on. The same is true for disaster planning; although disaster agents and the human and material resources needed to respond to them may vary, the same generic kinds of activities must be performed in the predisaster, preimpact, response, and recovery periods, regardless of the specific threat [Tierney, 1980, p. 18-19].

At a less abstract level, we have in the disaster area, for example, substantial research findings on such disaster relevant topics as warning [Mileti, 1975], evacuation [Quarantelli, 1980b], delivery of emergency medical services [Taylor, 1977], search and rescue [Drabek et al, forthcoming], etc. We also have considerable understanding of such disaster related problems as looting [Quarantelli and Dynes, 1969], mental health consequences [Perry and Lindell, 1978], panic flight [Quarantelli, 1979]. The point in noting these few examples, from the very many other studies which could be cited, is that they are typical in their ignoring of the specific disaster agent which might be involved. The findings are generalized across-the-board because the research effort was not agent specific. Thus, when Parr wanted to understand the emergence of groups of disaster occasions, he looked at the Alaskan earthquake, but also at tornado, explosion, flood, and plane crash disaster occasions [1970]. Anderson, in order to develop our knowledge of civilian-military disaster relations, looked at earthquakes in Chile, Japan, and El Salvador, at tornadoes and floods as well as the Alaskan earthquake in the United States, and a dam disaster in Italy [1969].

It has also become increasingly clear that what has been called response generated demands are far less agent related than what has been called agent generated demands in disasters [Quarantelli, 1981]. The latter (never visualized as agent specific, however) are demands or tasks generated by a disaster when it impacts or threatens to do so and includes such activities as warning, search and rescue, care of the injured, welfare needs, restoration of community services, etc. Response demands, in contrast, are those tasks which must be carried out if the agent related demands are to be met at all and include communication, continuing assessment of the disaster situation, mobilization and utilization of human and material resources, coordination and exercise of authority. Although there is no space to document the point, Disaster Research Center studies do suggest that even agent demands are inherently related to the social situation involved and seem to have little direct relationship of any kind with any specific agent dimension. In research on planning for and response to acute chemical emergencies, we have found chemical agent related dimensions less directly important than we had originally hypothesized.

Even when social aspects seem agent specific related, closer examination frequently indicates that is not the case. For example, the concept of disaster subculture was initially linked to a specific agent,

a flood subculture, a hurricane subculture, etc., [Moore, 1964] [Osborne, 1970] [Wenger, 1978], but now there is reason to believe experience and other situational factors are more important in the development of the subculture than the characteristics of the specific disaster agent per se.

I have cited mostly emergency time disaster phenomena, but this merely reflects my major professional interest and work. Other topics and issues could be cited such as resistances to hazard mitigation measures, disaster insurance [Kunreuther et al, 1978], obstacles in recovery and reconstruction work, long run demographic and economic consequences of disasters [Rossi et al, 1978]. Here too the findings are disaster generic rather than agent specific. Most of the work mentioned is derived from the American scene, and there may be cross-cultural differences in some respect, [Cattarinussi and Pelanda, 1981] [Hirose, 1981] and as suggested by McLuckie [1975], but if so, that is a social situational rather than agent specific differentiating factor.

We think an all disaster spectrum or generic approach is justified whether problems are divided by time stage, by function, or levels of response. That is, earthquake related issues could be looked at in terms of the pre-impact, the emergency, and/or the post-impact periods. Similarly, earthquake relevant problems could be divided with respect to functional tasks such as mitigation, preparedness, response, and/or recovery. The responding units may be individuals, households, groups, organizations, communities, societies, or international systems. Our view is that we will gain more regarding time stages, functions, or levels of response by considering earthquakes as a member of a more generic class of disasters. Thus, we would argue that even earthquake predictions are not that agent-specific a case, and, in fact, a recent statement by Turner [1980] seems to imply that much of what we know about how people respond to threats and warnings for other dangerous possibilities is equally applicable to prediction scenarios for earthquakes (but compare Panel on Public Policy Implications, [1975]).

It may sometimes appear that a generic approach to disasters may put together rather dissimilar kinds of physical agents or other heterogeneous elements and otherwise violate common sense. In one way this is correct, but not necessarily significant. An analogy may make this point better than a direct discussion.

Biologists have long classified whales, bats, and human beings as mammals. There are many manifest differences in sizes, structures, and functions of these three creatures, but these obvious common sense differences for purposes of biological study and application are far less significant than less overt structural and functional similarities. Thus, all mammals are warm blooded, bear their young alive, etc. For these purposes, the physical size of a whale compared with a bat, or that the former necessarily needs a water environment whereas human beings basically have to live in a land environment, etc., are unimportant and irrelevant.

To put together manifestly different physical agents or overtly distinctively different disaster related elements can be viewed in a parallel fashion. For certain theoretical and practical purposes, a case can be made for a generic rather than agent specific approach to disasters. Thus, our answer to the question in the title of our paper: we should take an all disaster spectrum approach to socio-behavioral aspects of earthquakes.

The general position we have expressed is hardly unique to us. When the United States Congress was considering the Implementation Plan required by the Earthquake Hazards Reduction Act of 1977, the Office of Technology Assessment was asked to develop "Criteria for Evaluating the Earthquake Mitigation Implementation Plan." A summary of the report which discussed the criteria said a major issue was "earthquake versus an all natural hazards strategy." With respect to this matter, the report concluded that

While it may be convenient for researchers and the large Federal agencies to handle hazards categorically, the practicalities of State and local government organization and function increasingly require integrated planning and operations for all hazards. Similarly, federal construction and housing programs also could be responsible to all hazards, not just to one or a few selected hazards. (quoted in The Hazard Monthly, July, 1980, p. 3] see also [Coates et al, 1979]).

Our view will not be easily accepted by others. This is understandable, even apart from differences in conceptualizing disasters. There are a number of other reasons--bad, indifferent, and good--for not accepting or agreeing with a disaster spectrum approach to earthquakes. There is a historical reason. Much early work on disasters have initially focused on the physical agent, and to some this becomes a habitual and traditional way of doing things. As said earlier, "a way of seeing is also a way of not seeing." I have observed a similar reluctance to moving away from an agent specific orientation in the fire research and the chemical hazard areas. Researchers and operational people in those two areas have been struggling with questions as to the physical agents involved and the agent specific characteristics of the agent. Accustomed to thinking in that way, they have difficulty in seeing that socio-behavioral studies of other disaster situations have direct applicability to their own areas. But even in these areas the generic disaster approach is making headway [Tierney, 1980].

Even recognizing that there may be a more valid approach than an agent specific perspective is handicapped by the fact that many of us involved in disaster problems have difficulty in communicating because our worlds of specialization and knowledge are different. Some of us are specialists and knowledgeable in depth about one kind of disaster agent--it may be earthquakes, famines, or explosions. Others of us are specialists and knowledgeable in depth about topics and questions that cut across various kinds of disasters, and thus, we may primarily think in such topical terms as warning, evacuation, medical treatment, or care of the dead. In a sense, some of us divide the disaster world

horizontally; others of us divide it vertically. This does not facilitate communication from one axis to another. Furthermore, I believe that it is more difficult for vertical communicators (agent specific specialists) to understand horizontal communicators (general disaster specialists) than vice versa.

Finally, the usefulness of an agent specific and an all disaster spectrum approach to earthquakes or any other kind of disaster varies with the purposes involved. It can be quite valid to resist an all disaster approach. It is functional to take an agent specific approach for certain purposes, but it is not true for all purposes. We have tried to show why with respect to socio-behavioral aspects an all disaster spectrum approach to earthquakes would be the more fruitful approach [Dynes, Quarantelli and Kreps, 1981].

At times, when the polarity in approach is raised and discussed, a statement is made to the effect that, yes there is a difference in approach possible, but the division is a practical versus a theoretical one. Thus, it is said that operational personnel faced with dealing with an immediate emergency situation need agent specific knowledge. How far do people have to be evacuated to avoid the toxicity or flying debris if a tanker of chlorine is threatening to explode? On the other hand, it is said that those with more theoretical concerns can deal with more generic questions. What, for example, are the general factors which are involved in motivating people to evacuate?

I do not see the practical-theoretical distinction as a valid one. It seems to me to confuse tactical matters (e.g., the distance to evacuate), which would vary in any situation involving either similar or different disaster agents, with strategic matters (e.g., general principles of motivation applicable in all situations). There are strategies for dealing with disasters which cut across disasters; the tactics may be more situationally specific although even the military from where the strategy-tactics distinction is drawn seems to feel that soldiers can be taught tactical principles.

We can also note that such a practical and applied field as medicine proceeds as if planning and responses in disasters need not be agent specific. It is extremely rare to find disaster medical personnel training and preparing for only one kind of medical treatment. Disasters are viewed generally (e.g., the World Health Organization defines a disaster as "a situation which implies unforeseen, serious and immediate threats to public health" [Lechat, 1980, p. 18], and disaster medicine emphasizes general principles and organizationally focus is on triage, allocation of patients to hospitals, and other non-specific disaster agent aspects. Parenthetically, it was the Disaster Research Center's extensive studies of the delivery of emergency medical services in mass casualty situations [Quarantelli, forthcoming] which have been an important influence in my own thinking about the importance of taking an all disaster spectrum approach to very many disaster problems and issues.

However, there would be considerable theoretical and practical usefulness if we could develop a meaningful typology of disasters.

Although the first analytical typology was offered nearly a half century ago [Carr, 1932], most efforts today still do not go much beyond the simple and unrewarding distinction, for example, between acts of God versus human generated disasters. What we need in the disaster area instead is the development of a typology which uses general dimensions which not only cut across different disaster agents, but also the same disaster agent. As many have said, what is important is not the physical differences between an explosion or an earthquake, but that neither usually allows time for warning, etc. Or as other have said, "...a flash flood resulting from a broken dam might have more similarity to a sudden tornado than to a slowly rising Mississippi River flood" [Stoddard, 1968, p. 12]; "...a flood in Cincinnati for which there may be two weeks warning is simply not a comparable event to a flood in Denver with six hour warning, or to one in Rapid City where warnings were received as flood waters entered dwellings" [Mileti et al, 1975, p. 5]; or "differences between damaging events due to the same natural or man-made agent may be larger than between events initiated by a different agent" [Hewitt and Burton, 1971, p. 124]. Another extreme but illustrative example was the earlier mentioned attempt to compare different kinds of nuclear related crises with natural disaster occasions. If we could develop disaster typologies based on combinations of meaningful dimensions of social occasions, we could better grasp the commonality of socio-behavioral phenomena across different agent differences and differences within the same agent.

None of what has been said to this point argues against specific studies, including socio-behavioral ones, of earthquakes. We have a good start on such studies in a number of different countries [Abe, 1971] [Adams, 1969] [Anderson, 1966] [Bates et al, 1979] [Bolen and Trainer, 1978] [Bourque et al, 1973] [Committee on the Alaska Earthquake, 1970] [Dynes, Haas and Quarantelli, 1964] [Geipel, 1979] [Haas et al, 1977] [Kates et al, 1973] [Kennedy, 1971] [Kreimer, 1978] [Kunreuther and Fiore, 1966] [Mitchell, 1977] [Oliver-Smith, 1979] [Olson and Olson, 1977] [Strassoldo and Cattarinussi, 1978] [Takuma, 1978] [Trainer and Bolin, 1976] [Turner et al, 1980] [Yutzy, Anderson and Dynes, 1969]. However, their findings should be seen as not specific to earthquakes; the results ought to be incorporated into whatever we know of other disaster phenomena. Equally important, observations about generic disaster phenomena ought to be brought to bear when socio-behavioral studies of earthquakes are undertaken. Instead of having what I consider a narrow agent specific focus, whether it be with respect to mitigation, preparedness, response, or recovery activity, we should take a generic or all disaster spectrum approach to the phenomena, at least for socio-behavioral questions and research.

Some, perhaps most of you, may not be convinced of the validity and usefulness of the approach advocated in this paper. But if I have provoked you to think consciously about your own position, my general goal has been achieved. Furthermore, if the provocation has been strong enough and you basically disagree, I would hope this will eventually evoke an explicit reply, and we can continue the dialogue at some other time in some other place.

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