CONCEPTUALIZING DISASTER IN WAYS PRODUCTIVE FOR SOCIAL SCIENCE RESEARCH[1]

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ABSTRACT

Disasters are usually conceptualized in terms of some physical cause but, for social scientists, disasters constitute failures in social systems. The paper traces the development of a social science research tradition which has emerged in the last 40 years. That tradition suggests that disasters do not create dramatic breaks with predisaster behavior but require the understanding of existing social structure as it deals with new problems.

Based on the notion of the local community as the locus of response to disaster, a conceptualization of disaster types is suggested, based on the pattern of organizational involvement. The social scientific study of disaster offers the opportunity to contribute to general theories of social structure. In addition, such research has the potential for informing the direction of public policy.

All disasters are failures on the part of human systems. In every disaster, the physical and social infrastructure fails to protect people from conditions which threaten their well being. At times, the infrastructure itself creates conditions which result in extensive social disruption. To reduce the vulnerability of people to disasters, social and technological systems must adapt to their changing physical and social environments.

(Bates, Dynes, Quarantelli, 1991:288)

INTRODUCTION

Research problems for social scientists are usually determined by someone else or in terms of someone else's interest. This is especially true in conceptualizing "disaster". The notion of disaster is usually phrased in terms of some physical causal agent, such as a flood or an earthquake, and the conventional indicators used to determine a "disaster" are death rate and property damage. Such a formulation implies that the physical cause is the central variable and that the central indicator relates to human mortality and building construction. Other social implications are considered incidental or derivative.

The introductory quotation, however, suggests the concept of disaster is social and that what is conventionally called disaster represents the failure of social systems, not simply the presence of hazards. Most "natural" hazards have existed for centuries but only when they impinge on viable social systems do they become disasters. Fortunately, there is a research tradition within the social sciences on disaster. Some initial comments about that tradition will provide some background to our subsequent discussion.

ORIENTATION TO THE RESEARCH FIELD

1. The literature is extensive enough so that an inventory of "findings" has been published. This inventory (Drabek: 1986) was organized on the basis of a cross classification of structural social unit--from individual to international system and of a

temporal dimension of disaster phases--preparedness, response, recovery and mitigation. Over 1,000 citations were included in the inventory (1986).

2. Much of that work focuses on community disasters-crises situations which cannot be handled by routine emergency actions.

3. Much of that work has focused on western, industrialized societies.

4. The fact that much of the previous work has been derived from western industrialized societies does not imply that this research is not applicable in other types of societies. If theories are properly stated, they should be applicability in a variety of types of societies. For example, if a theory of warning is stated in terms of communication theory, it would not be dependent on a particular form of technology. A theory of community action can be phrased in a way in which it is applicable to a wide variety of community forms.

5. The advantages of cross national and comparative research is, of course, to provide a greater range in certain important social variables: for example, the degree of centralization/ decentralization in governmental structure, the relation-ships between various governmental structures, patterns of institutional interdependence, difference in the perception of governmental responsibility and in the response capabilities of various social units. There are variables in which there is considerable diversity. Since they do vary, comparative research should provides the opportunity to understand the consequences of such differences.

6. While comparative and cross national research provide the opportunity for research on different forms of social structure, disaster also provides the opportunity to understand both the scope and perhaps the limits of social change. Disasters, as such, constitute unique social laboratories in which ethically acceptable social transformations take place. Thus, they help understand the forces of tradition and change within the same society.

7. From the viewpoint of the social sciences, there are a number of significant advantages in studying disasters because

a. a variety of social units can be studied-from individuals, to families, to communities and to national and international systems,

b. most of the social processes in which social scientists are interested can be observed in disaster,

c. a variety of theoretical schemes can be utilized

d. and the range of familiar social science methods can be used.

8. In addition, the study of disasters holds the potential for providing knowledge for application in policy. As a consequence, there is often support for research, which might not necessarily be available for other "problem" areas. However, one should not anticipate too much interest in research funding - some agencies assume that they know everything anyway and it is a matter of simple application; other agencies structure research so that it excludes any social science research; and still other

agencies show an alternating policy of interest and disinterest which plays havoc with research continuities.

9. It is important at this point to make several comments about the intellectual history of disaster research, both to point to the diversity of interests and topics that might be included. Obviously, it is a multidisciplinary field, perhaps with limited coherence. I can speak most accurately about developments in the United States where social science interests developed in the early 1950, primarily among sociologists. A somewhat parallel and separate stream developed among geographers, primarily an extension of the work of Gilbert White (1945). Over the years, individuals in other field, such as communications, political science, anthropology and recently, public administration have developed interests in disaster.

More recently, a research interest has emerged in <u>risk</u>. That concept has brought together other research interests, primarily centering on technological systems and their social consequences. Much of that concern have been evoked by incidents which now are embedded in popular language, such as Three Mile Island, Chernobyl and Bhopal. In addition to the increased scope of the research interest in types of events, there are efforts to assemble and organize literature which up until now has been scattered, Nural Alam's annotated bibliography on natural disasters in Bangladesh is an impressive start (1990).

10. In this brief sketch of these intellectual traditions, there is no necessary conclusion that there should be a single unifying intellectual tradition. Certain disciplinary traditions

will continue to illuminate certain aspects of disaster which are ignored by other disciplines.

11. Neither should we assume that situations which are lumped together evaluatively as disasters will be similar sociologically. To many, a civil war and a massive earthquake in the same nation both constitute "disasters," in an evaluative sense, but the civil war usually indicates conflict situation and thus a fractured social structure while an earthquake more likely would be interpreted as an external threat which would evoke a cohesive community response.

RESEARCH FOCUS

There are a number of rather complex understandings which need to be identified first which provide a sharpened focus for social science research. These can be briefly summarized as follows.

1. The research focus should be on social systems, not physical agents.
2. The research focus should be on social organization, not on social disorganization.
3. The research focus should be on social response, not on individual "victimization".
4. The research focus should be on the continuity of behavior, not on its discontinuity.

Those ideas are based on the conviction that social science research should be generic rather than agent specific. This marks it off from a quite different orientation to research in the

atmospheric, geological and hydrological sciences. For the social sciences, it makes little difference whether the disaster "agent" is a cyclone, a chemical spill or a flash flood in determining what factors relate to warning messages or adherence to evacuation. When agents differ on factors which can have social import, such as predictability, speed of onset, length of forwarding, scope of impact, these need to be described in terms of their social, not their physical, consequences. Thus, physically dissimilar agents can have similar consequences and physically similar agents can have dissimilar effects. (This orientation is especially important for the application of research to disaster planning. The direction of disaster planning around the world is toward more generic or integrated planning. Such a shift, in fact, reflects the impact of previous disaster research on policy.)

It is also important to approach the study of disaster, not as an exercise in social disorganization or pathology but as the occasion for understanding some of the more important "normal" structures and processes, such as communication, interaction, organization and decision making. Thus an approach which emphasizes social adaptability, not social pathology, and problem solving, not social chaos, should be emphasized.

Neither should the study of disaster be preoccupied with studying the "victims", perhaps with the exception of trying to understand the complexity of that concept. Nor is it productive to approach the field to assess the blame and find the villain. The media will do that anyway. The intent should be to understand the

complexity of the social processes which characterizes a disaster occasion. With that focus, contributions can be made both to social science theory and to the formulation of social policy.

One final bit of advice is not to read too much uniqueness and discontinuity into social life which the word "disaster" usually evokes. It is important to continually reaffirm the importance the concept of the continuity of behavior. Disasters do not create dramatic, abrupt changes in behavior. Thus the key to understanding post disaster behavior is not found in the dramatic event itself but in a knowledge of pre-disaster behavior. While disaster may involve complex and subtle transformations, even those have to be understood in terms of the continuities to past behavior and existing structures. Consequently, a research focus should approach the topic in terms of the viability of social structure and its ability to deal with new and often dramatic problems.

TOWARD AN INITIAL CONCEPTUALIZATION OF DISASTER

Let us start with an initial conceptualization of disaster which has considerable value for the following reasons.

1. It is based on a social unit.
2. It is based on a social unit which has cross national and cross cultural applicability.
3. It is a social unit that has the capacity and resources to activate a response to the disaster.

The particular social unit--the community--is a universal locus of social activity. Every community occupies physical space and has, in most cases, territorial boundaries so that the social entity can be characterized in part by its terrain and climatic conditions. Communities have names and some degree of permanent settlement. But these physical, legal and material features are only one dimension since communities are very complex systems of human activity. It is useful to think of a community as a structure which has evolved to meet needs and to deal with problems as well as to allocate resources to problems. This allocation process takes place within an organized division of labor as groups and organizations engage in efforts relating to one or more community need. Thus, the community has to be conceptualized as a multiorganizational system. In this conceptualization, the location of social action is the community.

Since one can frame disasters and community action in terms of a process of social time, then some choice has to be made of the phase of that activity to include.

1. The time focus here will be on the "emergency" period.
2. The emergency period represents the most socially complex phase of the disaster spectrum.
3. Understanding the emergency is most critical since other phases-mitigation, preparedness and recovery are dependent on the activity and the consequences of the emergency period.

So the focus will be on the community, with particular attention of the response which community organizations make during the emergency period. The next step then is to deal with a question which has not be faced but only assumed up to this point - what is a disaster?

The simple but very complex answer to that question is that disaster "agents" are not self evident. Both the historical and current practice are replete with examples of how communities have had "disasters" and the effects have been justified by religious and political ideology. The following formulation would seem to capture the relativity of the concept.

A DISASTER IS A NORMATIVELY DEFINED OCCASION IN A COMMUNITY WHEN EXTRAORDINARY EFFORTS ARE TAKEN TO PROTECT AND BENEFIT SOME SOCIAL RESOURCE WHOSE EXISTENCE IS PERCEIVED AS THREATENED.

One should note several implications of that formulation. There are no references to disaster agents. It suggests that all disasters are socially caused and that traditional distinctions God/man, technological/ "natural" are less statements of scientific causation than they are remnants of previous normative arguments whose proponents still think represent statements of truth. It also suggests that yesterday's inattention may be a disaster today. It means that what might be defined as a disaster in one country or community may not be defined in another. It also suggests that the same "agent" will

have quite different consequences in what are seemingly equivalent communities.

The relativity of such a definition will probably bother those who require certainty and clarity. One "solution" to that problem would be to try to identify the normative dimensions which come into play in evaluating social harm. Quarantelli, at one point, has suggested that the following dimensions might be important the proportion of the population involved, the social centrality of the involved population, the length of involvement, the rapidity and predictability of involvement, the unfamiliarity of the crises, the "depth" of involvement and possible recurrence (1990).

With such criteria, it might be possible to predict with a high degree of accuracy characteristics of situations likely in defined as disaster in most contemporary societies. That is, occasions where there is extensive damage to community resources and to the health and social status of those who are central to the life of that community (e.g. community leaders) and those who are dependent on those community resources (e.g. children, old and sick.) If such a community were involved rapidly and unpredictably and if that involvement were expected to be for a long period when that community would continue to experience relative deprivation, it is quite likely that such an occasion would be defined as a disaster.

Of course, in the contemporary world, there is an important mediating element in the evaluation process and that is the media. One of its functions has been to "define" disasters.

Media coverage usually plays on themes drawn from the normative criteria--damage, on children and elderly victims, on the destruction of aspirations and the dimming of hope. (Research Note: It should be possible through multivariant analysis to examine the rational "calculus" that persons give to various factors in the evaluation process. The weighing of factors might change over time. It also might be possible to study the media not from the viewpoint of the accuracy of its coverage but on the distributional patterns of certain evaluative criteria.)

However, a focus on normative criteria, embedded in "public" opinion and in media coverage, however interesting, explains only a part of the definitional process. Values need to be embedded in concrete social structures to influence action and activities. In addition, most of the "factual" information on which these normative judgments and made are not known at the time when community organizations become involved. In fact, one of the characteristics of the emergency period is the search for information. Thus, the concrete exemplification of normative judgments can move accurately be found in the involvement of "community" organizations.

ORGANIZATIONAl INVOLVEMENT AS A KEY DETERMINANT IN DEFINING A DISASTER

If disasters are considered failures on the part of social systems, this would suggest that either the demands which are made on the social systems are excessive or that the capability of the social system is reduced so that the demands cannot be met.

Stated in another way, in "normal" time, community systems are routinized so that the demands and capabilities are in some functional balance. Over time, a community develops institutionalized ways of dealing with routine problems. This institutionalization is reflected in the development of various community organizations--hospitals, schools, stores, security forces, etc. A disaster, however, changes the dimensions of that institutionalized system. More people are injured than the medical system can routinely handle or parts of the medical system may be impaired to reduce its capacity. Both an increase in demands and a decrease in capacity can occur somewhat simultaneously. On the other hand, community systems are surprisingly adaptable to new situations in which there are increased demands and where there is the potential for decreased capacity.

The pattern of response to these changes in demand/ capability ratios can be observed within various community systems. An empirically based typology derived from research at the Disaster Research Center looks at the relationship between the predisaster tasks and structure of community organization and their post impact involvement. Some organizations continue the same tasks with the same social structure while other organizations develop new structures and others engage in new and perhaps unfamiliar tasks. In certain circumstances, new structures emerge, which have no predisaster existence. By cross classifying structure and tasks, four types of organizations are derived. (See Figure I). Type I organizations carry on their same tasks with the same structure in the emergency period. Type II organizations have no emergency

responsibilities but may become involved if necessary. In addition, the complexity of involvement tend to produce Type IV organizations which have new tasks and new structures. These are emergent organizations which have no predisaster counterpart. So the emergency period is characterized by various mixtures of traditional structures and emergent structures.[2]

FIGURE I

ORGANIZED BEHAVIOR IN DISASTERS

		Tasks	
		Old	New
Structure	Old	Type I Established Org.	Type III Extending Org.
	New	Type II Expanding Org.	Type IV Emergent Org.

Brief mention of that organizational typology and the previous research on the pattern of organizational involvement is the best indicator of normative judgments defining a disaster. The fact that some organizations have emergency responsibility within their domains serves to define the situation. Put more simply, if emergency organizations are involved it must be an emergency, since that organization has defined it that way <u>by its involvement</u>. The fact of organizational action implies that

normative criteria are being evoked. This "behavioral" indicator is a much more concrete evidence of definition that abstract "public opinion".

These brief comments about rather extended theoretical considerations within the disaster literature do not do them justice but, on the other hand, they serve as a base to reformulate a distinction which is sometimes useful-that is a difference between sudden and slow onset disasters. Often this is seen as an inherent attribute of some "physical" agent. In the terms just presented, a sudden disaster is one in which there is rather uniform consensus on the normative criteria and that consensus is evidenced by the rapid involvement by community organizations for which the situation is clearly within their domains. Conversely, a slow onset disaster is one which evidences less consensus because of minimal organizational involvement. In part, that minimal involvement may reflect the lack of organizational resources within the community. Consequently, the conditions may become chronic but, on the other hand, consensus may be gradually achieved by the additional involvement of organizations external to the community. In effect, the distinction between sudden and slow onset reflects difference in organizational attention rather than being some inherent attribute of a "disaster" agent.

Extending those ideas, it is possible to develop a taxonomy of different community disasters, which focuses on the pattern of relationships among community organizations. That discussion follows.

CATEGORIES OF COMMUNITY DISASTERS

From the viewpoint of the community system, it is possible to identify several model types of disaster. The first type and the "basic" model is called the Autonomous Community Disaster. This type would fit many disasters in developed countries. The community system is the location of the "impact" and the response by local community organizations. That involvement reflects a consensus that an extraordinary efforts are being undertaken to deal with the social resources which are being threatened. An important sub-type of Autonomous Community Disasters is what will be called Community Accident. The difference implied here is that the response is focused on the activities of institu-tionalized emergency (Type I) organizations. In effect, it is a delimited disaster and better characterized in "accident" terms.

The second major type is what will be called Dependent Community Disasters which implies that additional response resources are provide by other social systems, external to the community. Three sub types are identified 1) Conflict Dependent, 2) Client Dependent and 3) Proxy Dependent. These are all situations in which the local community is seen as dependent by external agencies, both national and international, that can become involved. This in effect creates a "dual" system, which creates an emergent pattern of organizational involvement.

The rationale for the development of different disaster types is not to create meaningless and academic distinctions but as a basis for illustrating important similarities and differences among

types. One of the persistent problems of the interpretation of research has been that "conclusions" are drawn based on one disaster type and then generalized to other quite different types. The rationale here for the taxonomy is to point to different research questions.[3]

The major difference among the types is centered in the notion of the capability of communities to respond on the basis of their own social resources. Resources here are conceptualized in terms of the organizational structure of the community. I am assuming that there will also be considerable complexity of informal activity. This Barton (1969) has called the mass assault, that is "helping" activity on the part of persons, small informal groups and families which would constitute an important part of the total community response. The more formally organized structures of the community, however, constituted the core of the organized response.

AUTONOMOUS COMMUNITY DISASTERS

Two sub types are differentiated (1) community accidents and (2) community disasters.

(1) Community Accidents - These are situations in which an occasion can be handled by Type I or emergency organizations. The demands which are made on the community are within the scope of domain responsibility of the usual emergency organizations- police, fire, medical and health personnel. Such accidents create needs (and damage) which is limited to the accident scene so few other community facilities are damaged. Thus, the emergency response is delimited in both location and to the range of emergency

activities. The primary burden of emergency response falls on those organizations which incorporate clearly deferred emergency responsibility into their domains. When the emergency tasks are completed, there are few vestiges of the "accident" or lasting effects on the community structure.

Research focus - In these situations, research interests might focus on search and rescue, delivery of emergency medical services, security at the disaster site, coordination of multiple emergencies, handling of temporary interruption of community services, etc. Another focus could be on the "first responder", on the implementation of mutual aid pacts, the emergence of patterns of coordination, study of convergence on accident site, social control of convergence.

Possible Empirical examples: Lockerbie U.K. plane crash: New World Hotel Collapse, Singapore: Train Crash, Bintaro, Indonesia.

(2) Community Disasters - This type represents the more traditional disaster. Differentiating this type from a community accident is the extensiveness of involvement of organizations and other segments within the community. In community accidents, the emergency organizations will have developed some familiarity and accommodation to the domain definitions of other Type I organizations. In a community disaster, the pattern of damage may extend to several different places in the community rather than being focalized as it is within a community accident. Too, a number of community structures, perhaps including those which might house the traditional emergency organizations, might be damaged or destroyed. To determine whether such conditions exist requires the