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Disaster Research Center

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DISASTER AS A SOCIAL SCIENCE FIELD

by

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Introduction.

The fascination that people have with disasters — earthquakes, flood, hurricanes, epidemics, etc. — has produced a vast literature which describes or reconstructs these events. Every great catastrophe leaves behind it some public record — an eyewitness account, stories of heroism which takes place, findings of official investigations or perhaps even film or sound recordings. Such public records then become woven into the history of a society which describes its significant events. Disasters themselves are often so important that they date time for a society. "Before the flood," or "After the earthquake," become point of location for social history. And even some place names, such as Pompeii and Hato-hima, become famous only because of their association with disaster. All of this means that men for centuries have recognized disasters as significant events for themselves and for their societies. Their attempt to record these events have been motivated by an effort to understand the event and its consequences for human life.

Interest in disasters today, however, is likely to differ in several respects with the interest of the past. Interest has turned from an account of a disaster as a particular historical event to an approach where the disaster event is examined for what it may tell us about the nature of disaster in general and about the validity of certain theories of human behavior under such stress conditions. The disaster student today is more often a social scientist and his objective is to apply the concepts of the social sciences to disaster situations so as to extend and clarify the existing knowledge in these disciplines. Too, the methods he uses are more systematized, involving the most sophisticated research techniques, and these contrast sharply with the lack of plan in most historically available material.

Research on disasters using social science techniques is quite new. Prior to World War II, there were only scattered examples. Prince's study of a munitions explosion in Halifax, N.S. in the 1920's and Cantril's study of reactions to the threat created by radio program "Invasion From Mars" were examples of studies of actual disasters or disaster-like situations. After World War II, research became more concentrated, in part stimulated by the events of the previous years. Studies were made on the human consequences of the massive bombing of cities which had had occurred in Germany and Japan. The British government sponsored research on the problems encountered in evacuating at large population during the wartime blze. Gradually wartime concerns receded in their importance and disaster research tended to become more concerned with natural disasters. In the United States during the 1950's, studies were made at the National Opinion Research Center of the University of Chicago as well as at the Universities of Oklahoma, Maryland, Texas, Louisiana State and Michigan State. The major focus of research during the 1950's however was the Disaster Research Group of the National Academy of Sciences in the United States. This group sponsored a wide program of studies on natural disasters, often carrying out their field work in communities soon after disasters had occurred (2). When this group was terminated in 1963, the Disaster Research Center at the Ohio State University was formed. This brief history attempts only to point out that there is now a considerable body of social science knowledge about disasters, most of it collected in the last 20 years and most of the field work done in American society.

Opportunities for Social Science Research

Disasters, from a sociological viewpoint, can be considered events where the sum of individual tragedy, the loss of resources, the continued existence of great danger, the disruption of the social system and the combination of these effects are so critical that for a time the very ability of the community to function effectively as a community is endangered. The importance of studying disasters is, of course, that they provide a unique opportunity for observing human reactions under stressful conditions. They provide the opportunity for studying individual reactions to fear and anxiety. They often provide the conditions which induce physical trauma, psychor-

somatic symptoms and produce breavement reactions for individuals following the loss of loved ones. In addition to the stress placed on individuals, disasters create collective stress for families, organizations, communities and even nations. For example, Form and Nosow suggest that:

The concept «disaster» generally is applied to the condition of a community at a particular point in time. From the point of view of its residents, the disaster creates crisis. Crisis may be considered as a breakdown of the social relations and social systems in a community that are of greatest significance to the individual or particular organization involved. In another sense, crisis may be thought of as a destruction of the stable relationships that are necessary for the person. Crisis emerges when these relationships that are necessary for the person. Crisis emerges when these relationships are perceived as being destroyed or in the process of destruction. (3)

The effect of the crisis produced by disasters thus can be observed and studied at different social levels, from individuals to the complexity of a nation. In responding to disasters, an individual or a social system goes through a series of phases and the behavior required for their response to these phases differs. Here we can distinguish five phases over time.¹

1. the pre-disaster phase
2. the period of detection and communication of a specific threat (absent in some disasters)
3. the period of immediate, relatively unorganized response,
4. the period of organized social response
5. the long-run post-disaster period when the social system is restored.

If we consider this time phase of disaster and the types of behavior expected or required by the various social levels, we can see in Chart I that many types of problems relevant to social science can be studied. For example, how are warnings of the impending disaster communicated to individuals and how do they react to these warnings? What role do individuals select in the immediate response? Do they assume roles in organizations attempting to cope with the disaster or do they play the role of family member and concentrate on their family obligations? How effective are they in their

role ? Does the disaster have any long range emotional consequences for their personality structure ? Or take another level that of formal organizations, how are these organizations prepared for a disaster ? Do they have a plan for disaster ? How do they mobilize during the threat period ? During the next phases, what are their problems in coordinating their members ? What permanent effects will the disaster have upon the structure of the organization. Will changes be made within the organization as a result of their experience ? Will it now differ in its relationships to other organizations ? The intent here is only to present as illustrations a few of the problems which can be studied in disaster situations, problems which are important for social science in general.

Chart I
SELECTED DISASTER PROBLEMS BY SOCIAL UNIT AND PERIOD

Social Unit	P E R I O D				
	Pre-Disaster	Threat	Immediate Response	Organized Response	Long-Run Post-Disaster
Individuals	Anticipation of Danger	Response to Warning	Selection of Role	Effectiveness	Emotional and physical symptoms
Small Groups	Opinion-forming Interaction		Role allocation Cohesion of group		Effects on Cohesion
Formal Organizations	Organizational Preparedness	Mobilization	Coordination of members		Effects on internal structure
Community Systems	Community planning	Flow of warnings	Leadership and coordination		Effect on community plan
Regions and Nations	National	Flow of warning in larger area	Mobilization of outside and	Coordination	Effects on economy, morale

For example, the importance of group membership and the roles of individuals has been studied effectively in disaster situations. All individuals are members of many different groups and, in each of their membership groups, they have obligations to behave in certain ways in their roles. At *enormous* times, these obligations may sometimes conflict but a disaster destroys the normal scheduling of the various responsibilities and produces the need to play many roles at the same time. A father is also a policeman. Given a disaster, should he fill the role of father or be a policeman. Such conflicting demands can create psychological conflict for the individual and, for organizations, may result in the loss of crucial personnel. Disasters offer the opportunity for observing how individuals resolve these conflicts and provide knowledge which would increase organizational effectiveness during disasters. For example, it has been found that those individuals who have jobs which are highly structured and highly routine are more likely to report to their jobs. Policemen, for example, know that they will be needed during a disaster and know that they need to do will be somewhat similar to what they do every day. In addition, if they have developed close personal relationships on the job, they will be motivated to report to their job so they will not let the other workers down. These conditions would result from working with the same individuals over time and would not be found in part-time or in voluntary roles also, if the policeman happened to be wearing his uniform when the disaster occurred, others would expect him to stay in his organizational role. They would not exert pressure on him to assume other tasks. His chances of playing his organizational role would also be increased if he immediately had accurate information about the scope of the disaster and if rapid communication was available to enable him to reassure himself about the safety of his family.

Conversely, loss of personnel to organizations by resolving role conflict in favor of family obligations would more likely occur in widespread disasters which create problems of communication and reassurance. It would occur more frequently among those with part-time and voluntary roles, which allow the person greater flexibility in his behavior and in those roles where the person had not developed close personal relationships and where his organizational ties were not visible to others. The intent here is not to imply that all of the conditions affecting role conflict can be under-

stood as a result of research in disasters but only that disaster provides an opportunity to study role conflict, an important theoretical concept in the social sciences, in a realistic context. The same could be said for other topics of importance in the social sciences.

The Disaster Research Center.

In September 1963, A Disaster Research Center was established at The Ohio State University to study the operations of organizations under stress. The reason for this focus is that complex organizations constitute one of the most important elements in the social web of modern societies. Most citizens in modern societies are born in a hospital, are educated in a school, work in one organization or another. In short, members of these societies obtain a large part of their psychological, social and cultural satisfactions in large scale organization. The understanding of modern man and the society in which he lives, therefore, is critically dependant on the study of complex organizations. One of the best ways of understanding these organizations is to study how they react to stress situations. Crises reveal, as few situations can, how organizations are structured, how organizations change and how organizations fulfill their functions.

Disasters provide a natural laboratory for testing hypotheses about organizational and group behavior under realistic conditions of severe strain and stress. We are particularly concerned with such organizational characteristics and processes such as speed and flexibility in response, adaptability and maneuverability, self sufficiency and autonomy, span and systems of control, etc. Our research has focused on :

Interorganizational problems :

1. Problems involved in relation of particular organizations to overall programs of emergency rescue, control and relief
2. Circumstances affecting the ability of organizations to cooperate support or collaborate with other organizations
3. Sources of organizational capacities to serve as nuclei for expanded emergency operations in community disasters.

Intraorganizational problems :

1. Problems involved in the recruitment, role training and re-tainment of organizational personnel likely to be involved in stress situations.
2. Factors and conditions that will maintain organizational continuity and viability under crisis conditions.
3. Sources of internal organizational vulnerability and strength in disaster operations.

The work of the Center is organized in two closely related but separate phases — the field phase and the laboratory phase. In the field phase, field teams are sent to the scenes as quickly as possible after a community catastrophe. We gather our data primarily through participant observation and tape recorded interviews with personnel at different levels in organizations. Since the inception of the Center, we have studied organizational operations in over twenty major disasters, among which have been earthquakes in Alaska, Japan, Greece and floods in Ohio, Mexico and Montana, the Unont Dam overflow in northern Italy, hurricanes in Florida, Louisiana and Texas, forest fires and tidal wave destruction in California, tornados in the Midwest United States as well as major fires and explosions.

The laboratory phase utilizes a group analysis laboratory with complete audio and video recording equipment. The main lab is adaptable in that it can be used as a conference room or smaller offices are tied into the main lab by telephone and can observe the activity in the main lab by television. The activity in these laboratories can be recorded both on a 24 track tape recorder so voices do not mix, as well as by video taping. In addition, the activity can be observed through one way mirrors. The intent is to take segments of actual organizations and place them in the laboratory to observe their reactions to problems common to disasters. For example, what happened to the decision making process when the organization is confronted by contradictory information ? What happened to the decision making process when a high proportion of the decision making personnel are *diosta* ? Recently we simulated a disaster — like situation when we brought real dispatching units of

a large metropolitan police force and presented them with set of problems were actually based on the police calls to another police department during a major explosion.

While the Disaster Research Center's focus is on organizational aspects, there are, of course, many other aspects of the disaster situation which still need to be studied. We hope by combining the field phase which confronts real situations and actual operation with the laboratory phase where we can control (somewhat artificial) situations that we can gain knowledge about organizations under stress.

As indicated earlier, most of the research on disasters has been done by American social scientists on disasters occurring in America. In a few instances, studies have been done on disasters in other societies and by social scientists from other societies. It is hoped that others will join us in our attempt to gain knowledge about the many aspects of human reactions to stress. More cross-cultural studies are needed to see how reactions to stress vary from one culture to another. For example, do the differences among cultures in their attitudes toward nature — i.e. whether it is to be mastered or accepted — make a difference in individual reaction to disaster. In other words, why do some people see a disaster as something to cope with while others accept it as inevitable?

There are special reasons for studying disasters particularly in the developing countries. Many of these countries are also disaster-prone, and disasters become much more serious events in the societies. Developing countries often have minimum resources which are pledged to raise the low productive capacities of these countries through programs of development. In disasters not only are some of these limited resources destroyed but the low availability of private resources forces the government to divert its own resources into reconstruction which slows the total rate of development. Thus, disasters create problems for the whole sequence of development of a country.

In another way disasters should also hold an interest for the social scientist concerned with social change. This is based on the idea that certain types of social change are, in part, crises stimulated and sustained. This is suggested by the relationship between disasters

and certain kinds of institutional growth and development in the United States. Specific areas of the country subject to recurrent natural catastrophes as California, Texas and Florida have developed complex physical and social technologies and organizations to deal with such disasters. Rather different phenomena such as the growth of the city manager form of government, the establishment of certain kinds of building codes in some urban areas and the development of particular kinds of public health measures can be directly linked to the experiences of certain communities with recurrent disasters. Some areas of the world are far more disaster prone than the United States. Such countries as India, Pakistan, Iran, Columbia, Peru and Chile are subject to annual disasters of major magnitude. In fact, periodic catastrophes are recurrent in such regions as the Indian subcontinent. Given this, certain societies would seem to have high crisis-induced social change potentials. Understanding this institutionalization process perhaps would give insight into the general problem of social change.

Summary :

While concern for disaster is very old, more recently the disaster event has been examined for what it tells us about disaster in general and about human behavior under stress. Disasters provide the opportunity to explore realistically many social science problems at both the individual and the collective level. Disaster research also offers the opportunity to understand reactions to stress cross-culturally as well as the phenomena as crisis-induced social change.

References

1. Edited informal notes of lecture given at National Center of Social and Criminological Research, May 3, 1965.
2. For one summary of the work stimulated by the Disaster Research Group, see George W. Baker and Dwight W. Chapman, *Man and Society in Disaster*, New York : Basic Books, 1962.
3. W. H. Form and Nosow, *Community in Disaster*, New York: Harper and Brothers, 1958, p. 12.