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DISASTER RELATED SOCIAL BEHAVIOR:
SUMMARY OF 50 YEARS OF RESEARCH
FINDINGS

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*This is the paper written as background for the oral remarks to be made at the 8th International Symposium on Natural and Technological Hazards: Hazards 2000 to be held in Tokushima, Shikoku,

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Introduction

This paper summarizes much although not all of what is known about overall disaster-related social behavior. Drawing from a base of 50 years of social science research involving thousands of studies, we note the typical patterns of behavior at the individual, organizational, community and mass media levels. The last is a surrogate for reactions at the societal level. To avoid interminable and specific documentation, readers are presented a large bibliography at the end of this paper that lists the major research literature examined for the purpose of this essay. Most disasters impact a community. However, there are non-community types of disasters, e.g., a plane crash in an isolated rural area. This affects behavioral responses (e.g., crash survivors do not receive the social support that emerges in a community when residents have undergone a common disaster experience). The 20 general observations below around which we organize our comments, are mostly about community disasters.

Community Disasters

1. Behaviors in community disasters and in everyday emergencies are both qualitatively and quantitatively different. There are behavioral differences in degree and in kind. For instance, because of the typical massive convergence on the impact site of a disaster, the responding organizations have to deal with far more and usually previously unknown groups than in an everyday community emergency. As an example, in a massive fire near Nanticoke, a Canadian research team identified 346 converging organizations, including 27 from the federal government and 10 from the regions, as well as 25 provincial government agencies, four new emergent groups, seven local government departments, 31 fire departments, eight voluntary groups, 41 churches, hospitals and schools, four utilities, and 52 different players from the

private sector.

2. Disasters cannot be behaviorally differentiated in terms of the natural or technological agents involved. They do differ in such dimensions as whether they give no forewarning (e.g., earthquakes and most explosions) or their duration of impact, but these are not single-agent specific features. However, community disasters can be seen as consensus type occasions that are distinguishable from conflict crises. In the latter, such as riots and terrorist attacks, there are deliberate efforts to make the situation worse or to continue the crisis. This distinguishes them from disaster occasions. Thus, with respect to hospitals, they may come under direct attack and usually have only the shift on duty available because of roadblocks or a curfew compared to disasters, where also patient inflow tends to build to a peak and then drop sharply compared to the erratic inflow during a riot.

3. Just as there are major differences between behaviors in everyday emergencies and community disasters, there are also differences between disasters and catastrophes. For example, in the typical disaster, the homeless seek shelter with local friends and relatives; in catastrophes since most everyone is homeless that cannot occur. Also, the facilities and operational bases of almost all emergency organizations are often directly hit in a catastrophe; this seldom occurs in a disaster. Different planning for the managing of a catastrophic occasion than a disaster is required. Of course, what would be catastrophic for a small town might be only disastrous for a metropolitan area.

4. Disaster-related behavior is very complex. Part of the complexity is because it occurs at different social times in the life of a community. We can see this if we make an ideal type four fold distinction between the phases or times of disaster phenomena.

The four phases typically differentiated are:

Mitigation includes measures taken at a time distant (usually before) from an actual disaster impact and are intended to prevent or reduce the impact. (E.g., building codes, land

use regulations, zoning, educational programs, training, etc.)

Preparedness has to do with the actions planned and undertaken when the probability of a disaster in a particular locality is at hand. (E.g., such behavior as warnings and evacuation.)

Response refers to crisis-relevant actions engaged in during and immediately after impact.

(E.g., search and rescue and the providing of emergency medical services.)

Recovery includes activities undertaken after the response in the crisis period is over. (E.g., restoration of utilities and rebuilding of homes.)

The four phases should not be seen as linear but are best seen as being linked in a semicircle. What is done at a previous stage affects later phases. For instance, if evacuees are relocated back to flood plains, this undermines a mitigation action that would involve relocation away from such risky areas.

In addition, there is also a need to differentiate the levels of social behavior involved.

This is important. For instance, a disaster may totally destroy several families or even one organizational facility. But from the overall viewpoint of a large metropolitan area, such losses may be insignificant. For purposes of exposition in what follows we summarize research findings for four social levels (individual, organizational, community and societal) in the four time phases (mitigation, preparedness, response and recovery).

Individual Behavior

5. Individual/households are typically not much interested, much less concerned about disasters before they happen. This is not totally unrealistic. One survey found that only 13.8% of Americans had ever been severely affected by natural disasters or fires. Thus, it is not surprising that every day, certain concerns, take priority over very low probability occasions such as disasters that also have unclear implications for self. Exceptions occur in communities

subject to recurrent crises (generated for instance by floods), and also where activist citizen groups exist such as around hazardous waste sites or chemical plants. These exceptions are known as disaster subcultures.

6. In those situations where there is forewarning, the reaction is usually quite rational and socially oriented. For example, possible victims take seriously those warnings that clearly indicate the threat is fairly certain, will occur soon and will directly impact self and/or significant others. However, it is very difficult to get evacuation if the location and probable safety of absent family/household members are unknown.

7. When disasters occur, individuals as a whole react very well. Although many rumors about them abound, actual instances of panic flight and looting are very rare if nonexistent, at least in Western type societies. These in fact have become known in the research literature as the "myths" of disaster behavior. Instead, prosocial behavior predominates with, for example, the great bulk, up to 90% plus of search and rescue, being undertaken by those civilian persons around impacted sites.

8. While the experience of a disaster is a memorable one, and there are differential short-run effects, there does not appear to be too many lasting behavioral consequences. There is however considerable controversy about the negative or mental health effects on victims of community disasters. Such occasions can generate many surface psychological reactions such as sleeplessness, loss of appetite, anxiety and irritability. Many researchers argue, and we agree with them, that such effects are primarily subclinical, short lived and self remitting. In some postimpact situations most of the victims can exhibit some such characteristics, but research indicates that if no disaster had occurred many individuals would still manifest these and similar symptoms because of everyday stresses. Equally as important, even those persons showing reactions are rarely functionally incapacitated in terms of their

normal everyday home, school and work behaviors. On the other hand, others concerned with the topic argue that disasters typically create post traumatic stress disorders (PTSD) which may last for a long time and that require the use of crisis intervention techniques. There is some agreement that PTSD may occur among first responders to a disaster. Anyone interested in the issue should recognize there is a controversy and a voluminous literature that provide only ambiguous research support for each position.

Organizational Behavior

9. Disaster mitigation activities are seldom on the agenda of any organization. The major recent exceptions in North America and increasingly in Europe are in the private sector in such businesses as banking, and in those that have always placed a high priority on safety such as the chemical and nuclear power industries. However, even when mitigation measures are undertaken, for cost reasons, they usually have to have an excluding grandfather clause.

10. To the extent that non-emergency organizations undertake preparedness planning--and until recently few did--they often plan incorrectly. For example, there tends to be a focus on written disaster plans. But good planning instead focuses on such processes as: undertaking public educational activities; establishing informal links between key groups; assessing, monitoring and communicating information about local risks; holding disaster drills, rehearsals and simulations; developing techniques for training, knowledge transfer and assessments; convening meetings to share information; obtaining the involvement of citizens, businesses, and non-emergency public agencies and relevant non-local groups in the planning process; and updating strategies, resources and laws as necessary. The production of a document or a written plan, while sometimes legally necessary, is never as important as the planning process.

11. Organizations typically have many problems in coping with the crisis time period of disasters, but they are often not the expected difficulties. For example, the often asked

question about "who is in charge?" is a meaningless question since research shows that any attempt to impose a command and control model on any disaster occasion is both impossible and useless. However, there typically are at least three sets of crisis management problems: (1) Information flow problems in the communication process within and between organizations, and to and from organizations and citizens; (2) Organizational decision making problems resulting from losses of higher echelon personnel because of overwork, conflict regarding authority over new disaster tasks and confusion over jurisdictional responsibilities; and (3) Problems in interorganizational coordination that results from a lack of consensus about what constitutes "coordination," strained relationships created by new disaster tasks and the magnitude of the disaster impact. All this is compounded by the vast convergence of many organizations to the impacted area. In a plane crash in the United States, at least 439 groups appeared on the scene including 31 fire departments, 26 police groups, and 14 military units.

12. There is only selective organizational change at best from undergoing a disaster.

After

a disaster there usually is much talk within organizations on improving the planning for crises. However, such talk seldom is actually implemented by way of any real structural or functional changes. Nevertheless, changes that were underway before a disaster occurred might be accelerated if organizational leadership is present.

Community Behavior

13. Except in a few disaster prone or at risk localities, local areas generally give very low priority to community wide mitigation activities. However, more has been undertaken in recent years partly because of the attention given to disasters everywhere by the mass media. Sometimes, advantage can be taken of the window of opportunity offered by a disaster elsewhere by indicating that the same could occur in one's own community. In addition, sometime leadership is taken by government organizations such as the US Federal Emergency

Management Agency which has initiated *Project Impact* at the local community level, for the putting into place mitigation measures that will reduce the ever escalating cost of disasters.

14. Preparedness planning at the community level is very uneven and often problematical.

In part this is because to the extent attempts are made, existing or preimpact community cleavages, disputes and conflicts often make the effort very difficult, if not impossible. For example, there are often everyday stresses and strains between local police and fire departments, between them and the local emergency management agencies, among hospitals and emergency medical service entities, and between public and private sector groups. Such differences act as major barriers to disaster planning,

15. The greater the disaster, the more there will be the emergence of new behavioral structures and functions at the crisis time period. A fourfold typology captures the phenomena well. Type I organizations are established ones that do not markedly change their general structure and functions at times of crises (E.g., many police and fire departments maintain their traditional forms and spheres of activity). Type II organizations are expanding ones that have new structures but old functions (E.g., Red Cross chapters who by preplanning incorporate many volunteers into a new social structure but carry out traditional agency tasks). Type III organizations are extending ones that have old structures but new functions (E.g., a construction company using its traditional group structure to undertake building or street debris clearance). Finally, Type IV groups are new entities that had no preimpact existence but which carry out new disaster functions (E.g., informal search and rescue teams, or damage assessment groups). These last kinds of groups play crucial roles in the crisis period of a disaster.

However, even the best of preplanning is limited in preparing for all emergent behaviors. In fact, it appears that the greater the disaster, the more an increasing involvement of the

organized entities going from Type I through Type IV. An ordinary, everyday emergency could be handled only by Type I organizations, but a catastrophic disaster will require the multiple presence of all four types of organized behavior. It goes without saying that the presence of many such groups of differing structures and functions creates major problems of coordination at the community level.

6. The recovery period is typically difficult with both old and new problems emerging.

The

muting of preimpact community differences that exist at the crisis time period, disappears in this later time phase, so all the old problems reappear. In addition, there are new problems that stem from the disaster impact, for example, differences on whether and how a devastated business or residential neighborhood area should be rebuilt.

Mass Media

(as surrogate for the society)

17. The media pay little attention to mitigation activity. In part this correctly reflects the fact

that disasters/catastrophes may be of very high impact but are very low probability occasions for any given locality. The lack of attention is also partly reinforced in cultures such as North American ones inclined to take relatively rather short time views of the future.

18. The media normally have a dual role: to "observe and report" what is happening and to "warn" of the threat. In the first, the media acts as an outsider to the community, in the latter it is an integral part of the emergency preparedness system. Seldom are the two roles well integrated, leading to a weaving back and forth from one role to the other, confusing media users.

19. News stories provide the operative "reality" about the crisis period for almost everyone,

but are necessarily incomplete. In many ways, the mass media are the surrogates for societal attention to any disaster (while this is true for all time periods, it is especially so for the response or crisis time phase). The new communication revolution involving computers, satellite dishes, etc. will allow much interactive and decentralized information seeking, thus probably creating further problems for community level responses. Apart from that, even at the present time much of what is reported is not so much false as incomplete. The norms and values that guide news gathering leads to an incomplete and somewhat unbalanced picture of what goes on during the height of the crisis. For example, while usually 90% plus of search and rescue is informally undertaken by citizens on site, the focus of media reports will be on formal and organized search and rescue groups.

20. In the recovery period there is a tendency for the mass media to focus on conflictive aspects and atypical problems. In a sense, this time phase marks a going back to normal time news gathering norms. These stress not the reporting of agreements or routines, but emphasize conflict situations and what is out of the ordinary, i.e., man bites dog rather than the converse.

Applicability of Findings

To what extent are these research-based observations applicable everywhere? The question is a particular relevant one given that most of the studies so far undertaken have been done by social scientists in Western type societies, even though the great majority of disasters occur in developing countries. The observations from the ever growing number of studies in non-Western social systems appears to be consistent with what we have reported in this paper. But more will have to be done before we can be sure that the observations are universal ones. Even if that turns out to be the case, it is also to be expected that there will be societal and cultural specific human and group behaviors that might require some qualifications on the general observations made so far.

A Concluding Observation

We have indicated a number of problems at different times of and social levels in disasters.

Some of them could be reduced or even eliminated by better planning and managing. However, it should be recognized that there are limits to what can be done to change what happens at times of disasters. This is not a counsel of despair but to suggest that it is important to remain rooted in reality, especially as established by systematic research. Even simple knowledge of what is likely to occur can be very helpful. We have tried to present some of that research-based knowledge. .

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There are also two major social science disaster research centers that have very extensive publication lists that are available for free.

1) Disaster Research Center, University of Delaware, Newark, Delaware, 19716 USA. (fax302-8312091;EmailSusan.castelli@mvs.udel.edu; WWW:http://www.udel.edu/DRC/homepage.htm.

2) The Natural Hazards Research and Applications Information Center, Campus Box 482, University of Colorado, Boulder, Colorado 80309 USA. (fax 303-492-2151; Email hazctr@colorado.edu; WWW: http://www.colorado.edu/hazards). The Center every year publishes a special edition of its newsletter, the Natural Hazards Observer, which lists other centers, publications and other sources of information in many places around the world.

There is also a major professional association called the ISA Research Committee on Disasters which involves mostly disaster researchers but also has as members some disaster planners and managers, from about three dozen countries around the world. This organization publishes a journal, The International Journal of Mass Emergencies and Disasters and a newsletter Unscheduled Events. There always is a major international meeting every four years (the next one in Brisbane, Australia in 2002 and also the Committee has initiated a series of books on disaster topics, the first being Quarantelli (ed.) What is a disaster; The second is to be a volume on disaster methodology..

The current web site for the Research Committee is at <http://sociweb.tamu.edu/ircd/>

The current web site for the Journal is at: <http://www.usc.edu/sppd/ijmed>.