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DISASTER RECOVERY: RESEARCH BASED OBSERVATIONS ONWHAT IT MEANS, SUCCESS AND FAILURE, THOSE ASSISTEDAND THOSE ASSISTING

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DISASTER RECOVERY: RESEARCH BASED OBSERVATIONS ON WHAT IT MEANS, SUCCESS AND FAILURE, THOSE ASSISTED AND THOSE ASSISTING

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ABSTRACT

We discuss four general topics.

First, there are various referents for the term "recovery." We note that what seems a simple enough term or word, namely "recovery" covers a variety of very complex activities that need to be addressed in any practical and/or theoretical discussion about the issue. What a process is called, can make a significant difference in consequences.

Second, we consider the policy implications of what might constitute success or failure in disaster recovery. These are related to the goals and levels of recovery, the size of the recovering unit, different perspectives on the process, the secondary or ripple effects of disasters on recovery, and differences in recovery in disasters compared to catastrophes.

Third, we highlight and summarize ten general themes from the research literature about what is known about those individuals and households who are assisted in the recovery effort after disasters. There are substantial differences regarding, for instance, the sources of aid, the kinds of help provided, and the effects of the assistance given to victims in the recovery process.

Fourth, we discuss what the research literature says about those who give or provide disaster assistance to individuals and households in the aftermath of a disaster. The givers or providers, usually organizations, have more complex problems than usually is recognized.

We will be discussing recovery from disasters. More specifically we will note what the word "recovery" might mean, what could constitute success or failure of the process, as well as what characterizes those who are assisted and those who provide assistance in the aftermath of disasters.

The Term "Recovery"

What does "recovery" mean? We have reviewed the literature to see how the term has been used. At one time there was relatively little material available (see Quarantelli 1989), but in recent years far more attention has been paid to "recovery" in research reports (for mostly publications after 1980, see the Bibliography).

In research studies and everyday disaster planning, as well as in actual practice, the referent of those who use the word is not very clear, often inconsistent and confused. While the general referent is clearly to a temporal phase---part of what goes on in the postimpact stage at some point after the crisis time period of disaster. But with respect to other aspects the thinking, writing and doing of most people and groups are rather murky.

In fact, there is not even much agreement on the specific term, world or label to use, or if the different concepts used have reference to the same or different kinds of phenomena. Our impression is that most of the terms frequently used and sometimes interchangeably by both researchers and operational personnel, with the most common ones-- reconstruction, restoration, rehabilitation, restitution and recovery, at least in the *English* language--are not always pointing to the same thing or process.

Let us give our general impression of how the terms seem to be mostly used.

Those that use **reconstruction** seem to stress almost exclusively the postimpact rebuilding of the physical structures destroyed or damaged in a disaster. For social scientists and most operational personnel that is not the most important dimension to consider. It is nevertheless what some individuals and groups primarily attempt to do--putting up buildings and material infrastructures to replace those impacted by disasters.

Restoration appears to be a statement about reestablishing prior or preimpact physical and social patterns. Whatever one thinks of this as a goal, a measure of success, an indicator of personal and/or social change, it would seem to indicate a putting back into nearly the original form whatever existed before the disaster.

Rehabilitation also seems to also suggest a restoration although more of people than things. There is also the connotation of raising the restored level to a better one than before the disaster.

Restitution appears to suggest some kind of restoration of the rightful claimants of owners. It implies legal actions to return to a former state of affairs.

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Finally, the word **recovery** often seems to imply that attempting to and/or bringing the post disaster situation to some level of acceptability. This may or may not be the same as the preimpact level.
Of course there are instances where a researcher has consciously and simultaneously used a number of these terms or referents in developing a theoretical model. For instance, Rubin and Popkin (1990: 85-92) set forth a model of recovery involving three peaks of post impact activities. Peak one is a minimalist/restoration effort where emphasis is on physical recovery. Peak two shows concern for more than physical restoration, especially for societal impacts and human needs after impact. Peak three is where there is focus on community betterment. However, such systematic multi term or referent uses are very rare.

What's in a name? A great deal, and in this instance there is far more involved than semantic quibbling. There are, for example, policy and legal implications linked to different labels. What something is called does make a difference.

Our intent here is not to lay down in an arbitrary manner *what* should be called *what*. Rather it is to call attention to the necessity whether by planners or operational personnel to specify what they mean when they use one and/or all the different labels we have just noted. Likewise, others to whom the terms are directed must also have the same meaning in mind for otherwise there will be miscommunication at best and conflict at worst. If you tell someone that their house will be restored--having in mind bringing it back to the preimpact state--and they have in mind reconstruction to a better than preimpact status, for instance, insures difficulties and problems.

For our purposes in these remarks, we will primarily talk of the recovery process following major disasters. By that we mean that after the impact of a community type disaster and after crisis time needs have been met, there will be a period of time where deliberate actions are undertaken to routinize everyday activities of those individuals and groups whose daily routines have been disrupted. These activities may restore old patterns and/or institute new ones. What actually results are an empirical matter and are not part of the symbolic conceptualization of the process. For purposes of identification our emphasis is on the process, not the end product.

Success or Failure in Recovery

There are policy implications from this approach in considering what might constitute **success** or **failure** in recovery. Let us mention six.

1. The goals of recovery.

It would be possible to assess recovery in terms of the restoration of whatever previously existed prior to the impact of the disaster. On the other hand, the process could be evaluated in terms of bringing the postimpact level up to a higher level than existed in the preimpact phase. This is a decision that sometime has to be made at the operational level.

In the past, although not now, the American National Red Cross, for example, took the position that their criterion in providing assistance was *need not loss*, that individuals and families ought to be assisted to the extent that they would have a certain standard of living irrespective of

whatever they had lost. One result of this is that some victimized by disaster ended up living better than they had before impact, whereas others who had lost substantially more were given the same kind of assistance that left them considerably below their prior-to-disaster standard of living. This also illustrates there can be problems if organizations providing recovery aid have different goals in mind than those assisted.

But apart from the view of those helped, those helping or assisting should be clear about their goals. Whether it is about individuals, households, organizations or communities, what is the goal or the criterion to be used for assessing success in recovery? Is it enough to bring back the past, or is something new or different necessary?

2. The levels of recovery

Not only is it necessary to specify what the goal is in the recovery process, but it is also necessary to note that the process might not proceed at the same rate or in the same way at different levels of the social units involved. This is to say that while the recovery of individuals, households, organizations, the community, and the society are not totally independent of one another, neither is the linkage or correlation necessarily very tight.

For example, a community might lose part of its tax base or some particular industrial plant or business and in that sense might not recover well from a disaster. However, individual citizens or households in impacted areas might recover well from the same disaster in the sense of reestablishing routine patterns and not be directly or even indirectly affected especially in the lifetime of the person or family by the community loss. In terms of a concrete example, Valdez, Alaska (of more recent notoriety) obtained much better port facilities after the 1964 earthquake than it had before, whereas, conversely, certain families and households were forever destroyed by the disaster.

Thus, any assessment of success in recovery has to specify what social level or unit is being evaluated. It may vary from one level to another.

3. The size of the recovering unit

We can also probably say that the larger the social unit involved, the more likely there will be postimpact recovery. For instance, several families may be literally destroyed by a disaster, but in terms of the total community of which they were a part, their loss could be completely insignificant insofar as overall community recovery from a disaster is concerned. The specific families may not recover in any sense from the disaster; the community involved might recover completely.

In fact, Drabek has written:

> for most disasters studied--aside from a few cases that appear to have important differentiating qualities--the overall picture is one of mixed, but relatively minor, ripples in the long-term developmental cycle. Thus, impacts are mixed, in the sense that some could be regarded as negative, others are positive. Resiliency is high for most, but <u>not all systems</u> impacted. For example, a tornado killing several people may evidence no discernible impact on the total community, but

> the families from which these seven were lost will be disrupted severely (1986: 250).

In one sense, an implication here is that smaller units or lower social levels will have more recovery problems. The exceptions would be, as implied in the quotation, if for example in a company town, a mining or oil pumping community, the local operation was forever shut down by the disaster. However, in general, the larger social entity absorbs rather easily smaller internal losses. Peter Rossi and his colleagues, for instance, found no discernible effects on demographic or housing characteristics at the county level in the United States a decade after smaller neighborhoods within counties had been impacted by disaster.

Thus, in assessing recovery, it is necessary to recognize that it will be affected by the size of the recovering social unit, with the larger ones more likely to recover well.

4. The perspective on recovery.

There are also other interesting policy implications from the probability that larger social units are more likely to recover from disasters. It has to do with the perspective taken on recovery because of prior experiences. What might be deemed an unsuccessful recovery from the viewpoint of one local community may not be deemed unsuccessful from the viewpoint of one local community such as the province or state and particularly the federal national level that normally has to deal with more disasters within their larger geographic area of jurisdictional responsibility. Higher level will have relatively many experiences of disasters, while for most given communities, it is the experience of a lifetime. As such, the former is more likely than the latter to have realistic rather than idealistic conceptions about recovery.

Our point here is that assessment of recovery is not just a matter of what actually occurs, but also prior experiences that affect perceptions of the process.

5. The recovery from secondary or ripple effects of disasters.

There is a strong tendency in disaster occasions to focus on the obvious and direct destruction and damage. One consequence is that the recovery process sometimes ignores or downplays the secondary or ripple effects of disasters. This is well illustrated by the Three Mile Island nuclear accident. Deaths, injuries, and property damage were almost nonexistent. But the indirect and secondary economic costs were enormous. Apart from the financial devastation of the power company involved, the stricter regulations on the nuclear industry and the increased costs of reactor construction and updating, the reduced operations of reactors around the world, and turning to more expensive energy sources, have undoubtedly cost in the hundreds of millions of dollars. Then of course there have been psychological consequences, and also political ones. To this day, people have more concern about possible radiation problems from nuclear plant accidents, than before, and of course this has had a spill over into the political arena.

If the just noted socioeconomic cost analysis has validity, it is a question if the United States and other societies have yet and have fully recovered from the Three Mile Island incident (and we leave aside here in what ways there has been recovery from the Chernobyl disaster with more fare reaching effects of all kinds). At any rate, our point is that is assessing recovery it is

necessary to take into account whether not only direct effects but the more likely wider ranging indirect consequences of a disaster have been dealt with in the recovery process.

6. Recovery from disasters differs from recovery from catastrophes.

Finally, it is easy to be mislead in North American by the fact that the great majority of all the disasters that have happened up to now have been community disasters at worst. We have not had the regional or even national catastrophes that have impacted certain Latin America or Asian countries, for instances where losses up to three percent of the annual gross national product have been sustained, or as in Jamaica a few years ago where the basic industries of the country (in this case, tourism and sugar) were badly damage, and therefore what occurred was a national rather than community level disaster. It is possible to see these kinds of differential effects on different social systems in what Hurricane Hugo did a few years ago. For example, in Montserrat nearly all of the island's 12,000 residents were made homeless, a truly catastrophic occasion for that island system while at worst, Charleston, South Carolina suffered a disaster and not a catastrophe.

One major difference between community level and regional or national level disasters is that in the former there typically is a convergence of assistance from nearby community. Yet the more a disaster encompasses nearby geographically contiguous areas, the less likely will those localities themselves impacted, be able to help in emergency relief or recovery activities. Thus, the larger the disaster, not only is there more likely to be greater short and long run needs, but there is **less likely** to be available certain kinds of nearby assistance that would be present in smaller type disasters.

A policy implication of this is the need for different kinds of planning and managing for catastrophes compared with disasters. This is as true, if not more so, for recovery processes as it is for anything else.

Those Assisted

Let us now present some short selected comments about ten major themes derived from the research literature about those who are assisted. Our remarks will primarily be about individuals, families and households. (We should also note that we do not discuss business recovery, which in the last decade has become a major research focus of the Disaster Research Center, see, for example, Dahlhamer and D'Souza 1997; Tierney 1992, 1994, 1997a, 1997b, 1997c; Nigg 1995a, 1995b, 1996; Tierney and Nigg 1995; Tierney, Nigg and Dahlhamer 1996).

1. Disaster victims tend to judge not only their losses but also what they obtain in recovery efforts in **relativistic** rather than absolute terms. Loss and assistance are often evaluated in terms of what others known to the victim have undergone or gotten. There is an additional tendency for this to be even more prevalent the larger the disaster impact, that is, the more there are disaster victims the more probable is this relativistic attitude likely to prevail. This principle is far more applicable in community type disasters and less so in other kinds of disaster occasions such as transportation accidents where survivors are likely to come from a variety of different social settings to which they return for recovery.

2. Certain preimpact social locations or placements affect being helped in the recovery process.

In general, those **outside** of the everyday mainstream remain outside in the post recovery period. For example, single persons, older women, the homeless, or nonreligious people in an area with strong religious affiliations, as social categories tend not to receive equivalent degrees of aid. Everything else being equal, large metropolitan areas are more likely to have isolated individuals and households than other areas, and this carries over into the recovery period.

3. Some families/households receive more help from various sources than others with roughly equivalent losses/needs. Just as in everyday life some social units are in more formal and informal **interaction patterns and networks** than others, the same occurs in the post recovery period. This is why some families from tightly integrated ethnic groups do so much better in recovering than other family units who are less linked into extended kinship patterns. Thus, the social heterogeneity of a community is not necessarily bad for everyone in the disaster recovery process.

4. Somewhat of a different nature, but involving the same principle, there is **differential knowledge** in terms of social status of where to go for help and how to obtain assistance. There are considerable differences in knowing how and where to approach bureaucracies, filling in forms and doing other paperwork, etc. Interestingly, some low status and upper status individuals and families in the United States seem to know better *how to work the system* than do those from middle class status.

5. For the great majority of victims, the **major helping source** in the recovery period are **relatives and kin**. More often than not the help is offered, not requested. In particular, housing help is often provided through such a source (although while short run sharing of housing with others is acceptable, serious stress in relationships occur if common quarters are shared for extended periods of time). Although recovery through the kinship system is usually the most important, there are of course families whose recovery is almost totally dependent on institutional help. Bolin (1982) in his study of how families recover after disasters also notes that there are even some relatively rare cases where recovery is rather autonomous, relatively independent of kin or organizational help.

6. The family **socioeconomic** status is important in the recovery process. The higher the socioeconomic level of the family, the more likely will it recover to a preimpact level. The converse is also true. While lit would be an overstatement to say that disasters result in the "rich getting richer and the poor getting poorer," there is little evidence that disasters in the long run will materially change overall preimpact socioeconomic status differences, despite some rare individual case exceptions to the contrary.

7.The later a victim family is in the **life cycle**, the less likely will there be recovery to a preimpact level, everything else being equal. Both economic and psychological factors appear to be involved. For instance, retired couples who have suffered losses find it more difficult to obtain bank loans to rebuild a house and also they think, probably correctly, that they will simply have less time in the rest of their lives, to be able to do so. This is simply another way of saying that not all socioeconomic losses are equivalent even though in financial terms the figures may be roughly comparable.

8. There is a difference, and no necessarily strong correlation between **perceptual/symbolic** recovery and economic recovery. That is, sometime there is recovery in terms of material

things but often there can be no restoration of lost symbolic possessions or things, be these important family remembrances such as photographs or the old tress that will never exist again in the front or back yard. For some families, the past can never be recovered no matter what is provided materially in the recovery process.

9. The more temporary housing **relocations** occur, the more difficulties there will be in the recovery period. Moving victims more than once into temporary shelters seems to prolong or delay recovery. Victims usually cope relatively well with the immediate disaster impact and the first move into emergency quarters, but show sharply decreasing adaptability to cope with additional moves. This is why sometime the postimpact period is more stressful and may be, in one sense of the term, more of a "disaster" than the actual impact of the disaster agent itself.

10. There can be **positive** as well as negative consequences from involvement in the recovery process, social psychologically as well as socioeconomically. For example, household family ties often tend to be strengthened among victim families. This appears to be somewhat more true at the perceptual than the behavioral level. To a certain extent, there is also the strengthening of ties with other kin. On the other hand, while initial responses to recovery aid tends to be favorable, hostilities frequently develop in later phases. In fact, at the collective level, there is usually a "bitching" phase with a striking out and negative criticisms of whoever happens to be around although they may be helping groups.

Overall, running through our remarks derived from the research literature is the idea that what occurs in the recovery period reflects considerably whatever existed in the preimpact period of the social system involved. This stands out clearly in extreme cases of what might be called short-circuited recovery efforts. Thus, in St. Croix after Hurricane Hugo, a part of the local population engaged in behavior **very rarely** seen in disasters, namely something which research has consistently found to be almost nonexistent in most community disasters (but which is the pattern that typically surfaces in civil disturbances and riot situations). However, what occurred in St. Croix was essentially a continuation of the preimpact social situation, an almost anomic social system characterized by widespread poverty and extensive stealing of goods (although it is very important to note that poverty per se does not automatically lead to criminal behavior; other sociocultural factors must be present). After the hurricane, some parts of the population involved took advantage of the situation to attempt to short-circuit their recovery from the disaster. In more general terms, if we know what exists before a disaster impact, we can have good although not perfect prediction about what will affect what will happen in the emergency and recovery time periods.

Those Assisting

It is easy in looking at disaster recovery to focus almost solely on those assisted. However, it is important that we have understanding and knowledge of those who provide assistance. In some ways, from the viewpoint of disaster planning and managing, it probably is easier to change those who assist than those who are helped. Furthermore, as we have often discussed elsewhere, the locus and source of most postdisaster problems are the helping organizations rather than individual victims as such.

At any rate, we indicate seven selective general themes from the research literature about those who assist after disasters. Some of the specific findings are simply the converse of those we

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have reported about with respect to those that are helped in the recovery process (e.g., the tendency of agencies to help victims in the mainstream of social life and to miss those outside). But some are not. However, our comments here are in terms of general themes, not specific research finding.

1. Almost all of the assistance provided informally and also by relatives and friends is **less noticed and reported**, giving formal agencies the impression that they proportionately provide more recovery help than is actually the case. It is not that official relief and recovery groups do not provide substantial and important help. They do, but not to the extreme extent that they usually believe. This may lead to a formal overestimation of disaster related individual and household needs in a stricken community, and also to duplication of recovery assistance along some lines. More important, this lack of attention if not unawareness of the influx of informal and/or kinship recovery assistance leads to an ignoring of the process in both the planning for and the managing of recovery.

In particular, religious and quasi religious groups lay a more important informal role in recovery activities than usually realized. There are many such groups and many of them operate very informally. Only to the extent that they may take an advocacy role on behalf of victims, do they tend to become publicly visible. In certain city neighborhoods, ethnic groups may play a similar unnoticed role in recovery.

2. A very typical characteristic of disasters is the appearance of news groups and new ways of doing things. This has sometimes been called the **emergent** quality of disaster response. This is as true of recovery organizations and recovery activities as it is of any disaster phenomena. Sometime rather different ways of providing help and even at times new groups are created for giving recovery assistance. Emergence is forced by the fact that traditional agencies and procedures cannot always deal effectively with disaster generated needs and difficulties. In particular, bureaucracies often do not have the flexibility necessary to cope with unusual or unexpected demands, the very aspects typically of recovery situations. In fact, to the extent there is not some degree of emergence, recovery will not be handled well by responsible organizations.

Nevertheless, while emergence is usually functional for disaster recovery, it is not without problems. Traditional and emergent procedures do not always mesh well. Established organizations and new groups likewise often have difficulty working together. Furthermore, whatever innovations there might be, will quickly become status quo, that is relatively inflexible and unresponsive to changing or different social situations.

3. Even leaving emergent groups aside, there tends to be relatively little coordination among the formal organizations involved in recovery efforts. While this problem is not peculiar to groups that provide recovery assistance, it is sometime magnified among them. Much such agencies, unlike emergency oriented community groups such as police and fire departments, do not have planning for disasters as a central or major responsibility. As such the necessity not only for **intra but inter** organizational coordination is easy to overlook until the time of a disaster impact.

There can be several negative outcomes from this lack of prior planning. Duplication of recovery activities can occur. In the worst cases, this could lead to serious <u>inter</u>organizational

conflicts. At times there might be recovery needs of victims that might go unmet because they all in a territorial or domain gap between two organizations. Overall community recovery can thus be impeded.

4. Often overlooked are the **personnel or staff problems** of the organizations that undertake to provide recovery aid and assistance. There are a number of different factors involved. Staff members will often be working at non-regular tasks. Recovery organizations sometime expand to deal with new or extended responsibilities; at times volunteers are used but such personnel almost always prove troublesome. Those organizational workers who have to interact directly with victims are seldom trained for dealing with persons under extreme stress. These and other factors do not make for efficiency and effectiveness in providing disaster recovery aid.
5. Also, unless there is **systematic record keeping** and a formal critique, there will be few lessons learned about organizational operations in recovery. On an everyday basis, most organizational bureaucracies are not very interested in obtaining impartial evaluations of their functioning. This is even truer of agencies that undertake traditional and new tasks in disaster recovery operations. Consequently, systematic assessment of what was done, particularly of innovations for recovery purposes, is seldom undertaken in the post recovery period.

There are several unfortunate consequences of this inaction. It makes it difficult to reach judgments about specific organizational success or failure in disaster recovery. It partly explains why most formal groups seem to learn very little for the future from a disaster experience. It is one reason why structural and functional innovations that might be useful for both every day and disaster purposes seldom get institutionalized. Instead, what is often left in the collective memories of organization in the aftermath of disasters are only "war stories" which are really not very useful for developing strategies and tactics that would make for more efficient and effective recovery assistance and for better socioeconomic recovery.

6. Decisions on priorities in recovery activities often are not well understood by victims and the local population in general This is because sometimes broader **economic criteria** are used other than providing direct humanitarian assistance. For example, after Hurricane Pauline in Mexico, the decision was made to give the highest priority to restoration of services and to bringing the tourist hotel resort area of Cancun back to usual everyday normalcy. There were several factors in the rush to restore normalcy in that specific way. One was to insure that there would be no interruption to the many tourists and all their foreign currencies coming to the hotels. The second was to Insure that the many local natives employed in the resort complex would continue to have jobs. However, a consequence was that the by far most heavily impacted neighborhoods were neglected for months afterwards in the recovery effort. Families and households needing direct help because of being homeless were not immediately helped.

The criteria used for recovery by Mexican organizational officials are very defendable looked at from the broadest economic viewpoint. On the other hand, from a more humanitarian viewpoint, many direct victims were provided very little direct help for a long while. This created a clash between the broader goals that were used, and what lower class victim families and households needed and to some extent, expected. As illustrated in this case, in many situations there often is more involved than simply that the better off usually do better in getting recovery assistance.

7. In many situations the recovery assistance is strongly affected by **political considerations**. Thus, help is sometimes given primarily or at least earlier to supporters of the political party in

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power. This is further complicated by the fact that in some settings there is a difference between the party with power at the local level and the national level. For example, in the aftermath of a major earthquake in Italy, the recovery--especially reconstruction funds--were channeled by the political party in power at the national level to local mayors of impacted towns and villages that were members of the same party.

One does not have to be a Marxist, to accept the idea that political power is a factor in disaster activities, as it is in most other areas of social life. Since exercise of power is usually a reflection of important value differences in a society, it would be surprising if such a factor did not surface during the disaster recovery of individuals, organizations, communities and societies. The operations of political considerations may be more subtle in social systems with strong democratic ideologies. But it would be naive to think that even in such societies, like the United States, no political factors enter into the relevant decision making and the providing of recovery aid. And of course, much international disaster assistance, whether it be for crisis time and/or longer term recovery assistance, is often determined by political considerations. There are many past and current disasters where governmental offering of aid as well as requesting it or accepting it, was or is mostly a political decision. So any understanding of what affects disaster recovery, be it in terms of domestic or foreign help, requires knowledge of the political setting involved.

A Concluding Observation

In almost any area of study, including those that have nothing to do with disasters, it can usually be anticipated ahead of time that the research results will eventually reach two general conclusions. One is that the phenomena being studied, whatever it is, is more complicated than might appear to be the case and in terms of initial superficial observations. The second is that apart from finding complexity rather than simplicity, research will typically find that many widely held beliefs about the phenomena will be doubtful if not downright incorrect. In our remarks, we have tried to indicate in what ways recovery from disasters is complex rather than simple, and that the research findings are not necessarily supportive of popular beliefs about the process.

Our view is that with such a perspective and with such knowledge, planning and managing of disaster recovery can be made more efficient and effective. Of course, we do not pretend that we have presented a complete and final picture about the recovery process, even just of socioeconomic aspects. Yet we do hope that we have given enough so that those who have responsibilities for preparedness planning and management responses may have been given some new and different perspectives for a difficult and important job, that of helping in recovering from disasters.

BIBLIOGRAPHY

Arnold, C.
1993 Reconstruction After Earthquakes: Issues, Urban Design, and Case Studies. Palo Alto, CA.: Building Systems Development.

Bates, F. and W. G. Peacock
1987 Disasters and social change. Pp. 291-330 in R. Dynes, B. De Marchi and C. Pelanda

(eds.) Sociology of Disaster. Milan, Italy: Franco Angeli.

1979 Bibliography on Natural Disaster Recovery and Reconstruction. Boulder, CO.: Institute of Behavioral Science, University of Colorado.

Bolin, Robert
1982 Long-Term Family Recovery from Disaster. Boulder, CO.: Institute of Behavior Science, University of Colorado.

Bolin, Robert
1986 Disaster impact and recovery: A comparison of black and white victims. International Journal of Mass Emergencies and Disasters 4: 35-50.

Bolin, Robert
1989 Temporary sheltering after the Whittier Narrows Earthquake. Final Report. Las Cruces, N.M.: Department of Sociology, New Mexico University.

Bolin, Robert and Patricia Bolton
1983 Recovery in Nicaragua and the U.S.A. International Journal of Mass Emergencies and Disasters 1: 125-152.

Bolin, Robert
1994 Postdisaster sheltering and housing: social processes in response and recovery. Pp. 115-127 in R. Dynes and K. Tierney (eds.) Disasters, Collective Behavior and Social Organization. Newark, DE. : University of Delaware Press.

Caporale, Rocco
1989 Toward a cultural-systemic theory of natural disasters: The case of the Italian earthquakes of 1968 in Belice, 1976 in Friuli and 1980 in Campania-Basilicata. In E. L. Quarantelli and Carlo Pelanda (eds.) Proceedings of the Italy-United States Seminar on Preparations for, Responses to and Recovery from Major Community Disasters. Newark, DE. : Disaster Research Center, University of Delaware.

Dahlhamer, J. and M. D'Souza
1997 Determinants of business disaster preparedness. International Journal of Mass Emergencies and Disasters 15 (1997): 265-281.

Drabek, Thomas
1986 Human System Responses to Disaster. An Inventory of Sociological Findings. N.Y.: Springer Verlag.

Drabek, Thomas and William Key
1984 Conquering Disaster: Family Recovery and Long Term Consequences. N.Y. : Irvington Press.

Dynes, R. and E. L. Quarantelli
1989 Reconstruction in the context of recovery: Thoughts on the Alaskan earthquake. Preliminary Paper # 141. Newark, DE. : Disaster Research Center, University of

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Delaware.

Golec, Judy
1983 A contextual approach to the social psychological study of disaster recovery. International Journal of Mass Emergencies and Disasters 1: 255-276.

LaPlante, J.
1988 Recovery following disaster: policy issues and dimensions. Pp. 217- 235 in L. Comfort (ed.) Managing Disaster: Strategies and Policy Perspective. Durham, NC. : Duke University Press.

Mitchell, J. (ed)
1996 The Long Road to Recovery: Community Response to Industrial Disaster. Washington, D.C.: Brookings Institution Press.

Nigg, J.
1995a Business disruption due to earthquake-induced lifeline interruption. Pp. 46-58 in W. Yayong and F. Cheng (eds.) Proceedings for Sino-US Symposium on Post-Earthquake Rehabilitation and Reconstruction. China: Ministry of Construction.

Nigg, J.
1995b Disaster recovery as a social process. Pp. 81-92 in Wellington After the Quake: The Challenge of Rebuilding. Wellington, New Zealand: The Earthquake Commission.

Nigg, J.
1996 Anticipated business disruption effects due to earthquake-induced lifeline interruptions. Pp. 47-57 in F. Cheng and Y. Wang (eds) Post-Earthquake Rehabilitation and Reconstruction. Pergamon.

Peacock, W. G., C. Killian and F. Bates
1987 The effects of disaster damage and housing aid on household recovery following the 1976 Guatemalan earthquake. International Journal of Mass Emergencies and Disasters 5:63-88.

Petty, G. and M. Krahenbuhl
1977 Economic Recovery Following Disaster: A Selected Annotated Bibliography. Santa Monica, CA. : The Rand Corporation.

Quarantelli, E. L.
1982 Sheltering and Housing After Major Community Disasters: Case Studies and General Conclusions. Newark, DE. : Disaster Research Center, University of Delaware.

Quarantelli, E. L.
1989 Disaster recovery: Comments on the literature and a mostly annotated bibliography. Miscellaneous Report #44. Newark, DE. : Disaster Research Center, University of Delaware.

Rossi, P., J. Wright, E. Weber-Burdin and J. Pereira

1983 Victims of the Environment: Loss from Natural Hazards in the United States, 1970-1980. N.Y.: Plenum Press.

Rubin, Claire
1981 Long Term Recovery From Natural Disasters: Comparative Analysis of Six Local Experiences. Washington, D.C.: Academy of Contemporary Problems.

Rubin, Claire
1985 The community recovery process in the United States after a major natural disaster. International Journal of Mass Emergencies and Disasters 3: 10-18.

Rubin, Claire
1991 Recovery from disaster. Pp. 224-260 in T. Drabek and G. Hoetmer (eds) Emergency Management: Principles and Practice for Local Government. Washington, D.C.: International City Management Association.

Rubin, Claire and Daniel G. Barbee
1985 Disaster recovery and hazard mitigation: Bridging the intergovernmental gap. Public Administration Review 45: 63.

Rubin, Claire and Roy Popkin
1990 Disaster Recovery After Hurricane Hugo in South Carolina. Working Paper # 69. Boulder, CO.: Natural Hazards Research and Applications Information Center, University of Colorado.

Tierney, K.
1992 What are the likely categories of loss and damage? Pp. 77-82 in The Economic Consequences of a Catastrophic Earthquake: Proceedings of a Forum. Washington, D.C.: National Academy Press.

Tierney, K.
1994 Societal impacts. Pp. 7:1-7:10 in J. Goltz (ed) The Northridge, California Earthquake of January 17, 1994: General Reconnaissance Report. Buffalo, N.Y.: National Center for Earthquake Engineering Research.

Tierney, K.
1997a Impacts of recent disasters on business; The 1993 Midwest floods and the 1994 Northridge earthquake. Pp. 189-222 in B. Jones (ed) Economic Consequences of Earthquakes: Prepared for the Unexpected. Buffalo, N.Y.: National Center for Earthquake Engineering Research.

Tierney, K.
1997b Business impacts of the Northridge earthquake. Journal of Contingencies and Crisis Management 5: 87-97.

Tierney, K.
1997c Business impacts and recovery following the Northridge earthquake. Pp. 431-434 in Proceedings of the 5th United States/Japan Workshop on Urban Earthquake

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Hazard Reduction. Pasadena, CA.

Tierney, K. and J. Nigg
1995 Business vulnerability to disaster-related lifeline disruption. Pp. 72-79 in Proceedings of the Fourth U.S. Conference on Lifeline Earthquake Engineering. N.Y.: Technical Council on Lifeline Earthquake Engineering, American Society of Civil Engineering.

Tierney, K., J. Nigg and J. Dahlhamer
1996 The impact of the 1993 Midwest floods: Business vulnerability and disruption in Des Moines. Pp. 214-233 in R. Sylves and W. Waugh (eds) Disaster Management in the U.S. and Canada. Illinois; Charles C. Thomas Publisher.