

MISCELLANEOUS REPORT #44

DISASTER RECOVERY: COMMENTS ON THE
LITERATURE AND A MOSTLY ANNOTATED
BIBLIOGRAPHY*

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I would like to make two general observations before talking specifically about the research literature on recovery from disasters. First, it is necessary to set recovery in a larger context--recovering from disasters did not start with disaster studies. There is an implication in such an observation about what might be the better kind of disaster recovery planning which might be attempted. Second, there are some serious conceptual problems with the concept of disaster recovery. Most have to do with the probability that when we talk of recovery we are using perhaps too broad a term.

Let me say a few words about the first point.

It is important to set any comments on recovery into a larger context. The larger context is the history of the human race. Disasters are not new phenomena. But more important, recovery from them are also not new. In fact, there is almost always recovery from disasters.

To be sure a society or civilization here and there has been destroyed by disasters, such as the civilization that one time existed on the island of Crete. There have also been Indian tribes in both North and South America that were apparently destroyed by disasters. But these have been the very minor exceptions.

There are of course more frequent disappearances as one moves down the social scale. Communities have been totally destroyed. Pompeii is perhaps the best example of such an instance, but it is not the only one.

Organizations and groups too have not survived disasters. And of course families and individuals are not infrequently totally destroyed by disasters. Casualty totals do indicate that some persons do not recover.

However, it is not necessary to do any great studies to observe that the overwhelming majority of social units involved do survive disasters. There is nothing odd about recovering from disasters. It is what usually happens.

A lesson from this observation is that in coping, adapting to disasters, the recovering units must have done something right. They did recover from whatever disaster struck them.

Does this mean that planning for recovering from disasters is unnecessary since it seem to occur naturally? No, because presumably things can always be done better.

Furthermore, there might be another lesson here. It might be that recovery planning that is consistent with natural, spontaneous human and group efforts to cope with disasters might be the best planning. That would also be in line with what disaster researchers already know about disaster planning generally--the best is that which is in line with what occurs naturally.

That is the larger context I wanted to mention.

Now, to turn to my second point.

What is meant by recovery from disaster? Actually the phenomena has not been well conceptualized. In fact, there is not even much agreement on the term, word or label to use. Thus, recovery, reconstruction, restoration, among other words or labels which are used, do not quite seem to be always pointing to the same thing. Those that use reconstruction seem to stress the physical aspects of a postdisaster situation, but for social scientists that probably is not the important dimension to consider. Restoration appears to be a statement about going back to previous patterns, which however most would think should be a matter of empirical determination, not of definition. The term recovery often seems to imply that everything worked out fine after the disaster, but this too should be a matter of research and not of definition.

Dynes, in his earlier remarks, noted that disasters should be thought of as social phenomena of some kind, not physical happenings. This should be kept in mind also when thinking of disaster recovery. He also noted that different types of disasters lead to different problems which in turn should lead to different kinds of research questions. In a cyclone, where forewarning is possible, it is possible to get goods and farm animals out of the way of danger, but this would not be true of an earthquake which has no forewarning period; obviously this has consequences for disaster recovery. Finally, he noted that disasters should always be seen in the larger social context (e.g. studies of the earlier Nicaraguan earthquake and the more recent hurricane which ignored that the disaster recovery occurred within two particular kinds of dictatorial social structures in that society, are perhaps missing the most important element in the total situation).

Now, what does the research literature indicate about recovery? If a disaster happens, a flood in southern Thailand, a landslide in Nepal, a toxic chemical episode in India, a cyclone in Bangladesh, what is likely to be the recovery pattern? Some of what occurs has already been studied. Thus, some of the more relevant research questions have already been asked. It is not necessary to reinvent the wheel again. It is possible to state some of the questions that could be asked, some of the more relevant research topics that might be examined.

However, it is also necessary to observe that from a conceptual viewpoint, that disaster recovery is not neatly separable from either disaster response or disaster mitigation (particularly if one visualizes the four major disaster phases as being in a circle rather than in a linear sequence). The duration or time length of recovery is not self evident, nor where it shades off from response or mitigation planning activities.

Also, recovery is uneven by sectors, or at least it could be. In the "same" disaster, farm lands which have been polluted may not be usable for raising crops for two years, whereas it might be possible to restore a bus system to transport workers to their work places within two days. The

time period for recovering would be markedly different for the two recovery activities.

There are also some problems with trying to observe disaster recovery effects. The further away from the time of impact, the more difficult it is to see the influence of the disaster in the longer time period. After all, existing trends do not stop as a result of the disaster, and after a while it is not easy to tell if what is observed is a consequence of the disaster impact or simply of longer run community trends. Methodologically, there are some complicated problems to solve in studying longer run recovery aspects from disaster impacts, so that they can be separated from continuation of preimpact disaster trends.

Finally, the literature on disaster recovery is very uneven in terms of the social units studied. As can be noted in Drabek's book (p. 17), the higher the social level, the fewer the studies. We have fewer cues about what to study at the higher social levels.

Leaving all these matters aside for the moment, let me illustrate what the research literature suggests about disaster recovery. I will use several examples from different levels rather than trying to summarize a rather substantial body of research, much of which is discussed in the Drabek book.

What can we say at the individual level?

Survivors of disasters will never forget the experience of a major disaster. It will be forever embedded in their memory. It is not something easy to forget.

However, at the same time, people seem to learn very little from the experience in the sense of planning for future similar disasters. They seldom learn what organizations may have planned for future disasters. Put another way, the experience of a disaster by an individual does not appear to be much of a learning experience (except in some cases in persons becoming more sensitive to certain kinds of weather cues).

Likewise, the literature does not suggest much by way of general long run health or mental health consequences. On the whole, there is little indication that most disaster victims are weakened or made more vulnerable in the future to physical health problems. Similarly, although this is a more contentious point in the research literature, most disaster researchers have failed to find significant longer run negative mental health or bad psychological consequences for individuals who undergo a disaster. There is as much evidence that some persons are actually better off psychologically in the post impact period as a result of the experience of undergoing a disaster as there is that some other persons are worst off. Disasters should not be thought of as automatically bad in their results; it is an empirical matter regarding the degree to which consequences are positive and negative as well as inconsequential.

The major qualification on this general statement is that certain category of persons may exhibit some dysfunctional psychological effects as a result of undergoing the extreme stress of a major community disaster. This is frequently stated to be true of children and the elderly, but the research evidence that the former are importantly affected is at best very limited, and for the latter actually the opposite results to the expected is suggested by some studies. However, long run negative psychological consequences do appear to be a strong probability under certain circumstances for first responders--that is, police, fire, and medical personnel who are first on a disaster site and who have to handle very many and badly disfigured dead bodies, for instance. There is an irony in that perhaps the first helpers on the scene may suffer more from a mental health viewpoint than direct disaster victims and survivors. (Actually the key variable in all this may be the perception of very traumatic scenes such as the witnessing of dismembered bodies of children or the slow and torturous dying of loved ones who the perceiver can not help in any way).

At the family level, the research evidence also shows a mixed picture with respect to recovery. Some families are better off after a disaster, some are worst off, most do not appear to be significantly affected one way or another. In certain post impact circumstances, family members become closer and are drawn together more tightly than they were before the disaster. At times, families do disintegrate or have many post impact problems; some research evidence implies these are probably those social entities that were already vulnerable to further stress before the disaster occurred.

Again, there are some factors that may cut across the general picture just indicated. Relocation of families can very often be more stressful and disruptive than the direct impact of a disaster. If long run sheltering and housing is not handled well, even families that successfully cope with the immediate emergency period of a disaster may slowly develop problems in the long run.

In this connection, there are major differences between emergency sheltering, emergency housing, temporary housing and permanent housing activities. Families which cope well with one of the phases do not necessarily adapt well to other phases. While most of the sources of the problems regarding this matter stem from the activities of formal organizations, those that suffer most will often be the family units that are caught up in the process.

At the organizational level, there are again some common themes in the research literature on disaster recovery. There is frequently a clash between helping organizations from outside the local area and community groups. The outsiders may be more professional and have more resources than local groups, but it is almost inevitable that they will be seen at some point as trying to take over what the victims consider as "their" disaster. Good intent or motivation is no substitute for sensitivity to local views of the experience they have undergone.

Just as in the case of individuals, most organizations do not seem to learn too much from the experience of a disaster. Usually right after impact and in the emergency response period, there is much talk about how the group ought to be changed to better cope with future disasters. This talk seldom gets translated into action. However, there are exceptions; in rare but actual cases much organizational learning from the disaster experience can occur resulting in marked organizational changes in structures and functions in the recovery period of disasters. In one sense, this time period does sometime provide a window of opportunity for major organizational change.

Similarly, at the community level, the research evidence indicates a very mixed picture as to any longer run change that can be attributed to the impact of a disaster. The great majority of communities in recovering from a disaster turn out to be rather similar to what they were before the disastrous occasion. But it is also possible to find instances where the community is revitalized and progresses in ways that were not inherent in the predisaster existing trends.

However, the research evidence is fairly clear on one other community level consequence of recovering from a disaster. A degree of community conflict is almost inevitable. In part this stems from a resurgence of existing community disagreements that are usually set aside during the emergency time period of disasters. But in addition, there is the conflict that is engendered by the differences that often arise in how to allocate the resources that become available to recover from the disaster. Some will want to rebuild a town in a physically different way, encourage the development of new industries or businesses, or change land use or residential patterns. Other groups in the locality will want to continue with whatever were the traditional patterns in the area. This kind of conflict can become very bitter and divisive especially if, as is often the case, the informal power structure of a community is divided over the recovery path to follow.

At the societal level, we have to note that with respect to recovery, there is an important differentiating element in whether what occurs is a disaster or a catastrophe. The distinction here is between an occasion that may disrupt one community or even a region, but where the negative consequences are lost in the context of the larger society. Almost all disasters in the United States, for example, have no national level consequences. This is a rather different situation where a catastrophic occasion in some developing country may reduce the gross national product several percentage points, or in the case of some island nations, affect the majority of agricultural production or residential housing. Recovering from such a situation is a rather different matter than what will be involved in the ordinary disaster. (There are also some clear implications for this with respect to linking disaster recovery planning and developmental planning).

It could also be argued that a major disaster and certainly a catastrophe might have overall positive consequences depending on what occurs in the recovery process. For example, there could be conditions favorable to

change: a demonstration that old societal patterns did not work in the extreme situation, the appearance of emergent groups that worked better than established groups, the presentation of different role models and ideals brought in by outside helpers (individual or organizations), and certain differential effects of the disaster (e.g., polluted land or ecologically disrupted fishing areas forcing certain workers out of their traditional occupations). While these may seem viable hypotheses, there is almost no research evidence one way or another on such matters which might be at the heart of the recovery process.

My remarks have been very selective. Nevertheless, in part I have tried to indicate that a partial research agenda can be drawn from what we already know about the recovery process (or for that matter what we do not know as in the last example I gave of possible societal change). We do not need to start as if no one ever has thought about any of these matters at all.

In conclusion, I will note that I have handed out a mostly annotated bibliography on the research literature that covers the topic of disaster recovery. The list is not all inclusive but does contain the majority of the major and better known English language work in the area. The listing again illustrates the point I have now made several times. We need not start at ground zero; earlier researchers have pointed out some of the more important research questions we can ask. Even though most of the references are drawn from studies in developed, that is, highly urbanized and industrialized societies, it should not be automatically assumed they are not relevant to developing countries. Such cross societal studies as have been done in the disaster area have consistently found more similarities than differences. Furthermore, we will not know if there are significant differences unless people like you take some of these ideas and see if they are applicable in your own societies.

A MOSTLY ANNOTATED BIBLIOGRAPHY ON DISASTER RECOVERY

Ahearn, F. and R. Cohen

1984 DISASTERS AND MENTAL HEALTH: ANNOTATED BIBLIOGRAPHY.
Washington, DC: National Institute of Mental Health.

Includes abstracts of post disaster studies of both short run and long run psychological consequences of disasters.

Alexander, David

1981 "Disaster in southern Italy: November 1980," Geographical Magazine 53: 553-561.

An examination of the impact of the earthquake on industrial production, the cost of reconstruction, the effect on agriculture, and the distribution of disaster aid.

- Alexander, David
1984 "Housing crisis after natural disaster: The aftermath of the November 1980 southern Italian earthquake," Geoforum 15: 31-37.
- Anderson, W.
1970 DISASTERS AND ORGANIZATIONAL CHANGE: A STUDY OF THE LONG TERM CONSEQUENCES IN ANCHORAGE OF THE 1964 EARTHQUAKE. Newark, DE: Disaster Research Center, University of Delaware.
- Reports that in an 18 month study it was found that 17 of 23 organizations had experienced some structural and/or functional changes as a result of the earthquake experience.
- Aysan, Yasemin and Paul Oliver
1987 HOUSING AND CULTURE AFTER EARTHQUAKES: A GUIDE FOR FUTURE POLICY MAKING ON HOUSING IN SEISMIC AREAS. Oxford, Great Britain: Oxford Polytechnic.
- This manual examines the social and economic consequences of postearthquake housing policies that have been implemented in many of the less well developed countries. It discusses the long term implications of postearthquake relief, reconstruction and resettlement.
- Bates, Frederick (ed.)
1982 Recovery, Change and Development: A Longitudinal Study of the Guatemalan Earthquake. Final Report. Athens, GA: Guatemalan Earthquake Study, University of Georgia.
- A study of differential consequences on different ethnic groups and families.
- Bates, Frederick, Charles Fogleman, Vernon Parenton, Robert Pittsman, and George Tracy
1963 THE SOCIAL AND PSYCHOLOGICAL CONSEQUENCES OF A NATURAL DISASTER. Washington, DC: National Academy of Sciences.
- A longitudinal study conducted over four and a half years of Hurricane Audrey, it describes and analyzes the rehabilitation and recovery activities after the disaster and the long run social changes.
- Benjamin, A. and M. Swallow
1979 EARTHQUAKE RECONSTRUCTION PROGRAM FOR MANAGUA, NICARAGUA. Monticello, IL: Vance Bibliographies.
- Nearly 175 citations on the reconstruction efforts that followed the earthquake in 1972. While about half of the sources are in Spanish, all annotations are in English.

(no author)

1979

BIBLIOGRAPHY ON NATURAL DISASTER RECOVERY AND RECONSTRUCTION. Boulder, CO: Institute of Behavior Science, University of Colorado.

A partially annotated bibliography of about 135 published and unpublished sources.

Bolin, R.

1982

LONG TERM FAMILY RECOVERY FROM DISASTER. Boulder, CO: Institute of Behavioral Science, University of Colorado.

A longitudinal study of family recovery from tornadoes which struck Wichita Falls, Texas. Overall it was found that most families resumed their daily patterns of living that reflect general continuity with their respective pasts, and that by far the strongest determinant of emotional recovery is economic recovery. It was also observed that injuries within the primary group had no major effect on the emotional recovery of victim families, about one fourth of the victims had to change residences at least three times before being able to establish permanent homes, and that the disruptive effects of reconstruction activities on citizens can be expected to persist for more than a year after the disaster.

Bolin, Robert

1985

"Disasters and long term recovery policy: A focus on housing and families," Policy Studies Review 4: 709-715.

Bolin, Robert

1986

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

A comparison of differences between black and white victims of a tornado were related to variation in losses, psychosocial impacts, aid utilization and social support, but not any demographic or socioeconomic factors

Bolin, R. and Patricia Bolton

1983

"Recovery in Nicaragua and the U.S.A.," International Journal of Mass Emergencies and Disasters 1: 125-152.

Family recovery from a flash flood in the United States and an earthquake in Nicaragua was studied longitudinally. Perception of recovery in America is best explained by losses sustained, aid received and recovery of predisaster income levels. In Managua, Nicaragua, the aid provided had little effect; employment continuity took precedence over other variables. It is suggested that in order to recover predisaster levels of satisfaction with life style, families reach beyond their immediate boundaries for help, but the

institutionalized manner in which this is done differs across societies.

Bolton, Patricia A.

1979 Family Recovery Following a Natural Disaster: The Case of Managua, Nicaragua. Ph. D. dissertation. University of Colorado.

It was hypothesized that subjective perceptions of final recovery depends upon objectively measured dimensions of income recovery, employment continuity, and the recovery of dwelling size and conveniences. The conclusion is that disaster recovery is not a unique social phenomenon, but is dependent upon the efficiency of preexisting social and economic networks in the community,

Caporale, Rocco, Ino Rossi and Anna Chairetakis

1985 Reconstruction and sociocultural system: A long range study of reconstruction following the November 23, 1980 earthquake in southern Italy. Unpublished paper.

There were highly differentiated patterns of recovery in the different earthquake impacted villages, and examines the social, economic and political factors that account for the differences.

Chang, S.

1983 "Disaster and fiscal policy: Hurricane impact on municipal revenue," Urban Affairs Quarterly 18: 511-523.

Cohen, Raquel E. and Frederick L. Ahearn

1980 HANDBOOK FOR MENTAL HEALTH CARE OF DISASTER VICTIMS. Baltimore, MD: John Hopkins Press.

Practical information is presented for developing a crisis counseling program, understanding post impact disaster behavior, and treatment techniques for helping victims at various time increments following a disaster.

Cuny, Frederick

1983 DISASTERS AND DEVELOPMENT. NY: Oxford.

A discussion of the possible relationship between recovering from disasters and developmental programs.

Dacy, Douglas C. and Howard Kunreuther

1969 THE ECONOMICS OF NATURAL DISASTERS:IMPLICATIONS FOR FEDERAL POLICY. NY: Free Press.

The aim of book is to formulate a clear cut case for the development of a comprehensive system of disaster insurance as an alternative to the current US federal policy. One

chapter deals with reconstructions and economic development following a disaster.

(no author)
1988

DAMAGE CAUSED BY HURRICANE JOAN IN NICARAGUA: ITS EFFECTS ON ECONOMIC DEVELOPMENT AND LIVING CONDITIONS, AND REHABILITATION AND RECONSTRUCTION NEEDS. Santiago, Chile: United Nations Economic Commission for Latin America and the Caribbean.

Davis, Ian
1978

SHELTER AFTER DISASTER. Oxford: Oxford Polytech Press.

An analysis of problems faced by homeless disaster victims and the kinds of shelters that are often offered and provided. The problems associated with postimpact shelters are also related to the wider context of overall societal development. Brief case studies and summary charts are presented for a number of historical examples of sheltering disaster victims.

Davis, Ian (ed.)
1981

DISASTERS AND THE SMALL DWELLING. NY: Pergamon.

This volume contains 27 conference presented papers that focus mostly on social and economic problems associated with disaster shelter in developing countries. Many of the papers also touch upon larger issues of disaster assistance involving the shortcomings and benefits of post disaster aid when looked at in the long term.

Davis, Ian
1983

"Disaster as agents of change," Habitat 7: 277-310.

Davis, Ian (ed.)
1987

"Homeless and Disaster Response," Special Issue Open House International 12:1-71.

Drabek, Thomas
1986

HUMAN SYSTEM RESPONSES TO DISASTER: AN INVENTORY OF SOCIOLOGICAL FINDINGS. NY: Springer Verlag.

This volumes summarizes much of the sociological and related research literature on disasters. Basic themes in studies done on restoration and reconstruction are presented in two of the ten chapters in the book, and there is relevant material in other chapters too.

Drabek, Thomas and William Key
1984 CONQUERING DISASTER: FAMILY RECOVERY AND LONG TERM CONSEQUENCES. NY: Irvington.

An intensive and extensive study of how families coped with the Topeka tornado of 1966. Taking advantage of predisaster baseline data, control groups were used to compare disaster impacted and nonimpacted families three years after the event. Instead of finding increases in pathology, most of the impacted families showed better psychological and social adjustment than did the control nonimpacted families.

Erikson, Kai T.
1976 EVERYTHING IN ITS PATH. NY: Simon and Schuster.

A very detailed case study of the dam flood disaster in the mining area of Buffalo Creek, West Virginia. Emphasis is on both the short and long run psychological effects on the victims. The consequences are explained primarily in terms of the destruction of the community social fabric.

Erickson, P., T. Drabek, W. Key and J. Crowe
1976 "Families in disaster: Patterns of recovery," Mass Emergencies 1: 203-216.

Fisher, Jack C.
1964 "The reconstruction of Skopje," American Institute of Planning Journal 30: 46-48.

Francaviglia, Richard
1978 "Xenia rebuilds--effects of pre-disaster conditioning on post-disaster redevelopment," Journal of the American Institute of Planners 44: 13-24.

Focuses on the social, political and economic forces which planned the town's reconstruction,, and how those plans have been implemented. Preimpact factors affected the rebuilding.

French, Steven P., Craig Ewing and M. Isaacson
1984 RESTORATION AND RECOVERY FOLLOWING THE COALINGA EARTHQUAKE OF MAY 1983. Boulder, CO: Institute of Behavioral Science, University of Colorado.

Friesema, H. P., J. Caporaso, G. Goldstein, R. Lineberry and R. McCleary
1979 AFTERMATH: COMMUNITIES AFTER NATURAL DISASTER. Beverly Hills, CA: Sage.

Purpose of study was to identify long term social and economic disruptions resulting from natural disasters (a flood, hurricane and two tornadoes), to develop suitable methods for gathering the necessary data, and to ascertain variations in disaster recovery associated with event

severity and external assistance. It proved difficult to find any significant social or economic changes for the impacted community as a whole lasting any longer than a few months. The research also showed that both governmental and nongovernmental external aid is far more complex and generally more extensive in American society, than available reports of disaster expenditures would suggest.

Geipel, Robert

1982 DISASTER AND RECONSTRUCTION: THE FRIULI (ITALY) EARTHQUAKE OF 1976. London: Allen and Unwin.

The author shows the relevance of hazard theory to the case of Friuli, especially as pertains to reconstruction alternatives, the implications of location assignment of prefabricated housing, the impact of external intervention, and the victims' perceptions and assessment of natural hazards. It is also noted that the earthquake was not a leveller of social differences but accentuated preexisting differences, and that there is a serious question about the desirability of temporary housing to alleviate the conditions of emergency versus permanent rebuilding, though this may delay the reconstruction process.

Glantz, Michael (ed.)

1976 THE POLITICS OF NATURAL DISASTER: THE CASE OF THE SAHEL DROUGHT. NY: Praeger.

Gratton, V., H. Thier, E. Arjonilla and R. Melgar

1987 "The recovery of schools from earthquake effects: Lessons from Mexico City," Disasters 11: 310-315.

This paper, using the earthquake in Mexico City as an example, looks at the preparation needed by schools for medium to long term recovery from the physical and psychological effects of disasters.

Greene, Marjorie

1987 "Skopje, Yugoslavia: Seismic concerns and land use issues during the first 20 years of reconstruction following a devastating earthquake," Earthquake Spectra 3: 103--117.

A discussion of how early administrative decisions made after the 1963 earthquake affected the long run reconstruction of the city and some unexpected problems that were created.

Haas, J. E., Robert Kates and M. Bowden (eds,)

1977 RECONSTRUCTION FOLLOWING DISASTER. Cambridge, MA: The MIT Press.

Case studies of reconstruction following the Managua earthquake and the Rapid city flash flood, as well as the

Anchorage and the San Francisco earthquakes. The central issues and decisions are based upon value choices that give varying emphases to easy return to normalcy, the reduction of future vulnerability, or to opportunities for improved equity, efficiency or amenity. It is observed that overambitious post reconstruction planning to reduce future vulnerability or to improve efficiency or amenity appears to be counterproductive.

Hanson, S., J. Vitek and P. Hanson

1979 "Natural disaster-long range impact of human response to future disaster threats," Environment and Behavior 11: 268-284.

Havlick, Spenser W.

1986 "Third world cities at risk: building for calamity," Environment 28: 6-11, 41-45.

The author argues that much post disaster recovery and reconstruction efforts in the lesser developed countries (LDC) of the world frequently do not produce the necessary policy, institutional or structural changes needed to prevent or mitigate a recurrence of negative disaster impacts. It is also suggested that caution be used in importing into LDC the recovery techniques used in highly industrialized and urbanized societies.

Hegenbarth, Jane and David Brower

1985 "Redevelopment after the storm: Hazard mitigation opportunities and obstacles in the post disaster setting," Carolina Planning 2: 28-43.

Hogg, Sarah J.

1980 "Reconstruction following seismic disaster in Venzone, Friuli," Disasters 4: 173-185.

Hohenemser, C.R. , R. W. Kates and P. Slovic

1983 "The nature of technological hazard," Science 220: 378-384.

Hoover, Greg A. and Fred Bates

1985 "The impact of a natural disaster on the division of labor in twelve Guatemalan communities: A study of social change in a developing country," International Journal of Mass Emergencies and Disasters 3:

Using an interrupted time series analysis to determine the effects of a disaster on the rate and direction of change in the division of labor in a dozen communities, it was found that increasing complexity before the earthquake was followed by accelerated growth in complexity after the disaster.

- Huerta, F. and R. Horton
1978 "Coping behavior of elderly flood victims," The Gerontologist 18: 541-546.
- Suggests that older victims may be better able along certain lines to deal with disasters than younger persons.
- Kasperson, Jeanne and Roger Kasperson
1987 "Priorities in profile: Managing risks in developing countries," Risk Abstracts 4: 113-118.
- Most technological risk assessment studies deal with hazards in developed countries. There is a need to consider that less developed countries have only limited expertise, few financial resources and overburdened institutions for dealing with the newer technological dangers and threats.
- Kreimer, Alcira
1978 "Post disaster reconstruction planning: The cases of Nicaragua and Guatemala," Mass Emergencies 3: 23-40.
- The differential recovery processes in the two societies are described and compared.
- Kunreuther, Howard and E. S. Fiore
1966 THE ALASKAN EARTHQUAKE: A CASE STUDY IN THE ECONOMICS OF DISASTER. Washington, DC: Institute for Defense Analysis.
- A study of the immediate post disaster recuperation, the long term economic recovery and the role of the federal government in the reconstruction after the earthquake. Topics discussed include: supply and demand problems, external assistance, labor migration patterns, public and private reconstruction efforts, and economic improvements.
- (no author)
1981 Land Issues in Reconstruction. Dallas, TX: Intertext.
- A pamphlet which outlines the issues at stake when land use planning becomes a part of the reconstruction process, and which describes the changes in the land and land values after an area has been hit by an earthquake, flood, volcanic eruption, and an hurricane.
- LaPlante, Josephine
1988 "Recovery following disaster: policy issues and dimensions. " Pp. 217-235 in Louise K. Comfort (ed.) MANAGING DISASTER: STRATEGIES AND POLICY PERSPECTIVE, Durham, NC: Duke University Press.

May, Peter
1985

RECOVERING FROM CATASTROPHES: FEDERAL DISASTER RELIEF POLICY AND POLITICS. Westport, CT: Greenwood Press.

The evolution of US federal disaster relief and recovery policies has been fundamentally influenced by past uncoordinated congressional decisions, agency actions, and related politics and intergovernmental processes. Essentially the view expressed is that policies are the result of political and governmental processes.

May, Peter
1988

"Disaster recovery and reconstruction." Pp. 236-251 in Louise Comfort (ed.) MANAGING DISASTER: STRATEGIES AND POLICY PERSPECTIVES. Durham, NC: Duke University Press.

Notes that in the United States there is a political dilemma for disaster policy making. The politically most popular policy--expanding federal assistance for recovery and reconstruction--is both costly and does little to control longer run growth of disaster losses, but on the other hand, the politics that are believed to be most effective--preparedness and mitigation--are politically less salient and therefore unlikely to receive much attention during the active stages of federal disaster policy making.

Minnis, Mhyra S.
1971

THE VOICE OF THE PEOPLE IN DISASTER AND AFTER: A STUDY IN RESIDENTIAL INTEGRATION. Lubbock, TX: Texas Tech University.

Study of the adjustments of different ethnic groups when tornado victims from former segregated neighborhoods were relocated together. Also contains information on how housing decisions were reached and how they were affected by financial assistance programs and administrative decisions.

Mitchell, William
1976

"Reconstruction after disaster--Gediz earthquake of 1970," Geographical Review 66: 296-313.

The need for expediency in reconstruction and the influence of outside agencies created many problems and waste. The resulting reconstructed communities were aesthetically or practically inadequate and many of the new communities were left uninhabited.

Mitchell, William
1977

"Partial recovery and reconstruction after disaster: The Lice case," Mass Emergencies 2:233-247.

When earthquakes occur in areas where ethnic antagonisms and political instability already exist, the immediate

difficulties of relief and reconstruction are compounded by these problems. A basic question raised during reconstruction concerns the introduction of modern conveniences into a traditional society.

(no author)

1984

The model recovery program. Sacramento, CA: California Office of Emergency Services.

A pamphlet that provides guidelines for developing a coordinated system to integrate predisaster emergency response and recovery planning for better conducting recovery operations.

Muller, Larry and Patrick Mulhern

1977

1976 Big Thompson flood and flood recovery planning. NY: American Society of Civil Engineering.

A brief account of the disastrous flash flood emphasizing initial federal, state, local and private relief groups actions in recovery and reconstruction. Political problems were compounded by personnel changes at federal and local levels during the time period of policy formulation and implementation.

(no author)

1986

THE NATURAL DISASTER OF MARCH 1987 IN EQUADOR AND ITS IMPACT ON SOCIAL AND ECONOMIC DEVELOPMENT. Santiago, Chile: United Nations Economic Commission for Latin America and the Caribbean.

(no author)

1977

NICARAGUA--AN ASSESSMENT OF EARTHQUAKE RELIEF AND RECONSTRUCTION ASSISTANCE. Washington, DC: U.S. General Accounting Office.

Examines the monetary basis of disaster relief and reconstruction: where does money come from, under what conditions is it loaned or given, what local organizations are responsible for the specific dispersal of funds.

Oliver-Smith, Anthony

1977

"Disaster rehabilitation and social change in Yungay, Peru," Human Organization 36: 5-13.

Discusses the rehabilitative system established in the earthquake stricken area and notes that a housing program initially provoked great social conflict, but ultimately may contribute to a more cohesive social system. A program supporting peasants with food allotments while rebuilding their localities exaggerated schismatic tendencies present in the communities and contributed to attitudinal changes among

them. A relocation project to establish a provincial capital in a geologically safe zone, encountered resistance because it would have brought about radical structural changes in traditional social patterns.

Oliver-Smith, Anthony

1979 "The Yungay avalanche of 1970: Anthropological perspectives on disasters and social change," Disasters 3: 95-101.

Oliver-Smith, Anthony

1986 THE MARTYRED CITY: DEATH AND REBIRTH IN THE ANDES.
Albuquerque, NM: University of New Mexico Press.

(no author)

1988 THE ORGANIZATIONAL AND PUBLIC RESPONSE TO THE SEPTEMBER 1985 EARTHQUAKE IN MEXICO CITY, MEXICO. Newark, DE: Disaster Research Center, University of Delaware

Paulozzi, Leonard

1980 "Great myths in disaster relief--epidemics," Journal of Environmental Health 43: 140-143.

Peacock, Walter 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.

An examination of the effects of disaster damage, community type, housing programs, and other social determinants on household recovery after a major earthquake. While reconstruction aid was the single most important determinant of recovery, it was the type and not the value of aid that was critical. Strong support was found for the conclusion that temporary housing as a form of aid retards the recovery process, while permanent housing programs actually produces net improvement in living conditions.

Perry, Ronald and Hirotada Hirose

1983 "Volcanic eruptions and functional change: Parallels in Japan and the United States," International Journal of Mass Emergencies and Disasters 1: 231-253.

A cross societal examination of the impact of volcanic eruptions on two small communities with tourist based economies. The study highlights differences and commonalities in the responses including community reaction to the imposition of access control, functional shifts in the local economies after controls were lifted, and the impact of the public's perception of the hazard upon tourism.

Petty, Geraldine, L. Dzirkals and M. Krahenbuhl.

1977 ECONOMIC RECOVERY FOLLOWING DISASTER: A SELECTED ANNOTATED
BIBLIOGRAPHY. Santa Monica, CA: The Rand Corporation.

Major emphasis is on sources dealing with recovery from war
produced situations in industrialized societies particularly
since 1939. Parts IV and V cite the disaster literature.

(no author)

1987 PLANNING FOR CRISIS RELIEF: TOWARDS COMPREHENSIVE RESOURCE
MANAGEMENT AND PLANNING FOR NATURAL DISASTER PREVENTION.
Nagoya, Japan: United Nations Center for Regional Develop-
ment.

Proceedings of a seminar that considered issues relating to
the prevention, response to and recover from problems of
floods, high winds, earthquakes, volcanic eruptions and urban
hazards, especially in developing countries and particularly
those with metropolitan areas. Apart from a general descrip-
tion of the problems, there is set forth a series of recom-
mendations for data base developments, for needed research,
for education and training, and for implementation strategies
concerning the various hazards

Prince, Samuel

1920 CATASTROPHE AND SOCIAL CHANGE. NY: Columbia.

The first social science study to examine the links between
disaster and social change.

Quarantelli, E. L.

1982 SHELTERING AND HOUSING AFTER MAJOR COMMUNITY DISASTERS: CASE
STUDIES AND GENERAL CONCLUSIONS. Newark, DE: Disaster
Research Center, University Delaware.

Suggests the value of distinguishing between emergency
sheltering, temporary sheltering, temporary housing and
permanent housing for disaster victims., In the United
States there is little overall planning for any kind of post
disaster shelter/housing, but to the extent it exist at the
community level is aimed at temporary sheltering; to the
extent temporary sheltering planning is undertaken it is
fragmented among various emergency organizations; many
sheltering and housing problems stem less from individual
evacuees but from the organizations trying to help them; the
permanent housing which will develop after a major disaster
depends upon the predisaster housing situation and the
influence of various local interest and power groups; and,
sheltering and housing phases do not usually progress in a
neat linear fashion.

Quarantelli, E. L.

1986 Research findings on organizational behavior in disasters and their applicability in developing countries. Preliminary Paper 107. Newark, DE: Disaster Research Center, University of Delaware

This paper discusses the possible application of lessons learned from disaster research in the developed countries to disaster preparedness and management in developing countries. It is noted that the latter as compared with the former do not have as complex organizational structures, that many of the key officials have obtained their professional training and education outside their own social systems, that such bureaucratic organizational structures as do exist tend to function from the top down, that in many such bureaucracies emphasis is on paperwork and form rather than functions or tasks, and that few distinctively separate local level disaster preparedness or response organizations exist.

Quarantelli, E. L.

1986 "Summary address at seminar on the social, cultural, and economic impact of disaster emergency aid in developing countries," ADDRO Newsletter: 4: 35-40.

Quarantelli, E. L. and Russell R. Dynes

1976 "Community conflicts: Its absence and its presence in natural disasters," Mass Emergencies 1: 139-152.

There is considerable variation in the presence or absence of community conflicting following disasters; to the extent there is a pattern it is the relative absence of conflict in the emergency period and its presence in the longer run recovery period. The presence or absence is functional or dysfunctional depending upon a series of other conditions.

(no author)

1987 RECOVERY AND RECONSTRUCTION PLANNING EXISTING POLICIES AND FUTURE DIRECTIONS. Los Angeles, CA: Emergency Management Committee, City of Los Angeles.

A summary of the policies and programs in Los Angeles for dealing with earthquake recovery, including existing policies, shelter provisions, public works and lifeline infrastructure, ordinances and building codes, community redevelopment laws, and legislative processes and state laws.

Rogers, George W.
1970 "Economic effects of the earthquake." Pp. 32-38 in THE GREAT ALASKA EARTHQUAKE OF 1964: HUMAN ECOLOGY. Washington, DC: National Academy of Sciences.

Uses population, employment, personal income, industry, state revenue and resource data from 1960 through 1967 to trace the economic effects of the earthquake. Overall, the economy benefited but effects differed among communities and areas.

Ross, G. Alexander
1978 "Organizational innovation in disaster settings. Pp. 215-232 in E. L. Quarantelli (ed.) DISASTERS: THEORY AND RESEARCH. Beverly Hills, CA: Sage.

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. NY: Plenum Press.

An examination of the average annual damages and personal injuries suffered in the United States between 1970-1980 from five hazards: household fires, floods, tornadoes, hurricanes and earthquakes. Analysis of aid received in the form of insurance payments, gifts, grants and loans showed that floods present the most serious problems to households, not only resulting in more damage but also less likely to be covered by insurance and more likely to lead the household into enlarging its debt burden.

Rossi, P., J. Wright, S. Wright and E. Weber-Burdin
1978 "Are there long term effects of American natural disasters? Estimations of floods, hurricanes, and tornados occurring 1960 to 1970 ," Mass Emergencies 3: 117-132.

Rubin, Claire
1981 LONG TERM RECOVERY FROM NATURAL DISASTERS: A COMPARATIVE ANALYSIS OF SIX LOCAL EXPERIENCES. Washington, DC: Academy for Contemporary Problems.

Studies conducted from six months to three years after disasters such as ocean flooding, a hurricane, flash flooding, and recurrent urban flooding, examined the success of community recovery programs and to identify significant new mitigation measures which had been adopted.

Rubin, Claire
1985 "The community recovery process in the United States after a major natural disaster," International Journal of Mass Emergencies and Disasters 3:10-28.

After studying fourteen American communities each recovering from a major natural disaster, it was concluded that the key

elements of recovery were: personal leadership, ability to act, and knowledge of what to do. In those localities where speed and quality of recovery was greater, local officials found ways to: ensure more productive intergovernmental relationships, compete effectively for scarce resources, and better manage community level decision making during the post disaster period.

Rubin, Claire and D. Barbee

1985 "Disaster recovery and hazard mitigation: Bridging the intergovernmental gap," Public Administration Review 45: 57-63.

Rubin, Claire with M. Saperstein and D. Barbee

1985 COMMUNITY RECOVERY FROM A MAJOR NATURAL DISASTER. Boulder, CO: Institute of Behavioral Science, University of Colorado.

A detailed discussion of how fourteen American communities, particularly their local government, attempted to recover from negative disaster effects. An analysis is made of the kind of disaster agent involved, the level of emergency preparedness planning, the kind of disaster agent involved, the role of community officials in recovery and postdisaster mitigation, and the community's view of itself and its future.

Saarinen, T. (ed.) PERSPECTIVES ON INCREASING HAZARD AWARENESS.

Boulder, CO: Institute of Behavioral Science, University of Colorado.

Seklregg, L., E. Crittenden and N. Williams

1970 "Urban planning in the reconstruction." Pp. 186-239 in THE GREAT ALASKA EARTHQUAKE OF 1964: HUMAN ECOLOGY. Washington, DC: National Academy of Sciences.

An analysis of the planning in different communities that took place after the earthquake, to what extent planning was implemented, and the reasons for lack of or change in implementation.

(no author)

1982 SHELTER AFTER DISASTER: GUIDELINES FOR ASSISTANCE. Geneva, Switzerland: UNDRO

Topics discussed include the assessment of survivor's needs, shelter strategies; contingency planning and preparedness; the opportunity for risk reduction and reform during the reconstruction phase; the relocation of settlements; land tenure and land use; and housing financing. Eleven case studies provide examples of emergency sheltering and housing provisions following a major disaster.

- Tierney, Kathleen and Barbara Baisden
1979 CRISIS INTERVENTION PROGRAMS FOR DISASTER VICTIMS: A SOURCE BOOK AND MANUAL FOR SMALLER COMMUNITIES. Washington, DC: U. S. Government Printing Office.
- A guide to problems involved in the organized delivery of mental health services after disasters (especially in smaller communities), it presents a survey of what is known about post disaster mental health needs, and includes an annotated bibliography on the relevant applied and theoretical literature.
- Torry, William
1978 "Bureaucracy, community, and natural disasters," Human Organization 37: 302-308
- It is suggested that disaster help by governments frequently acts, itself, as an agent of disaster by nurturing long term risk through short term remedies. It does so because sizeable capital outlays and institutional intervention from the national government weakens local support structures, and as the local autonomy of adjustments shrinks, the ensuring dependencies on remote, unpredictable, bureaucratic solutions to disaster management prevails.
- Torry, W. I. (ed.)
1979 "Natural disasters and economic development." Special Issue. Mass Emergencies 4
- Contains eight articles on major natural disasters in developing countries and consequences for their economic growth and development. Includes articles on famine administration in India, relocation of housing victims in Peru, post earthquake housing changes in Guatemala, and effects of droughts and famines in the Senegal.
- Trainer, Patricia and Robert Bolin
1977 "Persistent effects of disasters on daily activities," EKISTICS 260:52-55.
- It is said that too much concern is given to the physical reconstruction of cities while low priority and little attention are given to projects that might hasten the social restructuring of human activities.
- Wells, F. R. and R. F. McCotter
1978 "An alternative to temporary disaster housing," Housing Science 2: 259-264.
- While disasters are frequently followed by erection of temporary and sometimes substandard dwellings (which by default often become permanent), this paper advocates a

commitment to permanent building construction as rapidly as possible so as to eliminate the necessity for intermediate temporary housing. This will require predisaster planning.

Wettenhall, R. L.

1975

BUSHFIRE DISASTER: AN AUSTRALIAN COMMUNITY IN CRISIS.
Sydney, Australia: Angus and Robertson.

A very detailed account of both the short and long run problems and responses to massive bushfires which affected Hobart, Australia and surrounding areas. Political aspects of the situation are particularly discussed.

Wright, J. D., Peter Rossi, S. Wright and E. Weber-Burdin

1979

AFTER THE CLEAN UP: LONG RANGE EFFECTS OF NATURAL DISASTERS.
Beverly Hills, CA: Sage.

Long term effects of floods, hurricanes and tornadoes that impacted American communities between 1960 and 1970 were studied using census data by statistically contrasting counties that had been impacted and control ones that had not, and by making similar contrasts within Standard Metropolitan Statistical Areas. The research showed that there were no discernible effects on population and housing growth trends during the period studied.

Wurtele, Zivia S.

1972

A CASE STUDY OF CORPUS CHRISTI AFTER HURRICANE CELIA AND A METHODOLOGY FOR EVALUATING ECONOMIC IMPACTS OF DISASTERS AND DISASTER ASSISTANCE PROGRAMS. Santa Monica, CA: System Development Corporation.

Presents two distinct models for approximating the economic impacts of a disaster, as well as a socioeconomic profile for monitoring a regional economy in the twelve months following a disaster. Application of model and profile indicates that despite damage estimates of over a third of a billion dollars, much reconstruction was accomplished in the year after the hurricane.