

THE COMMUNITY RECOVERY PROCESS
IN THE UNITED STATES
AFTER A MAJOR NATURAL DISASTER*

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After studying first-hand how 14 U.S. communities recovered from a major natural disaster, an organizing framework recovery process was developed. That framework depicts the dynamic processes that contribute to an efficient local recovery, including the key elements of recovery and the relationships among those factors. The three key elements are personal leadership, ability to act, and knowledge of what to do.

Of paramount importance to an expeditious recovery is effective intergovernmental relations. In those communities where the speed and quality of recovery was greater, local officials had found ways to (a) ensure more productive intergovernmental relationships, (b) compete effectively for scarce resources, and (c) better manage community-level decisionmaking during the post-disaster period.

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Introduction

From 1980-84, project team conducted an empirical study of community recovery from natural disasters. The study was designed to contribute the base of knowledge about long-term recovery and to produce an analytical framework for future studies of the recovery process.

One of the objectives of the project was to document, and subsequently to share, the positive, long-range recovery efforts of cities and counties. An extensive review of the existing disaster recovery literature revealed the need for more information on local public decisionmaking during long-term recovery. The main project tasks were to document local recovery experiences and to provide a systematic analysis of communities in various stages of recovery. The project staff decided to use the case study method to gather the needed information. A series of site visits was scheduled to interview key decisionmakers and to analyze local public planning and management processes as well as intergovernmental relations. Special efforts were made to monitor and assess key public policies and actions aimed at recovery--including the consideration of significant new mitigation measures and efforts at community betterment.

Research Design

The selection of case study sites was based on such criteria as the nature of the disaster incident, geographic location, size, social and economic characteristics, general interest in the event and in the recovery process, and replicability of mitigation or recovery activities. The project staff reviewed all of the sizeable disaster events that were eligible for federal government assistance (known as Presidentially declared disasters) since 1978, arrayed them by type of disaster agent, and then applied the set of selection factors.

A total of fourteen communities was visited and studied. Three localities, each a place of significant activity that could not be captured in a single trip, were visited twice. These second visits were invaluable because in some communities, the complex web of decisions by many parties could not be understood in a few days, and in others, more time revealed the outcome of decisions that had not been observed during the first visit. In short, a full appreciation of the many dimensions of the recovery process could not be captured with just one cross-sectional view. In terms of specific disaster agents represented, the fourteen examples cover four riverine floods; three flood/mudslide

events; two tornadoes; one hurricane; two winter, costal storms; one earthquake; and one dam break/flood.

The team had been searching for a way to go beyond the individual case studies in order to aggregate the findings and to generalize from them. In working to create an analytic framework, the project team found that previously completed recovery research was of relatively little help. The earlier studies were of limited assistance because none focused on the role of key local persons in the recovery decisionmaking process. That focus was fundamental to this project.

The Local Recovery Process

Recovery is an on-going process which is difficult to measure --especially to measure once and have that suffice. Nevertheless, an exploratory, organizing framework can be provided with respect to long term recovery. In the next section an organizing framework of the recovery process is presented, based on analysis of the fourteen case studies.

The long-term recovery process is characterized by the repair or reconstruction of buildings and structures, the evaluation of existing building codes and land use regulations, and consideration (and implementation) of mitigation measures, both structural and non-structural. Also included in this process are the planning and administrative activities entailed in identifying and securing the resources necessary to accomplish the recovery. Recovery encompasses all domains of community life.

A description of some recovery activities in each main area of community life is provided below:

Residential, including the repair or reconstruction of houses, the repair or replacement of home furnishings, cars and trucks; the settling of insurance claims for damage to personal property; and the permanent resettling of displaced residents.

Business, including the repair or reconstruction of economically viable commercial, industrial, and retail establishments; and the restoration of retail sales, business-related tax revenues, and employment to predisaster levels.

Public services and facilities, including the resumption of water, sewer, electric, telephone and other basic services, the restoration of public transportation, parks, and recreational areas; the repair or reconstruction of public sidewalks, schools, libraries, hospitals, clinics, police stations, fire houses, and other municipal buildings; and progress on

community projects that were planned or under construction prior to the disaster.

General population, including the return of certain social indicators (such as birth, death, and crime rates; alcoholism, child and spouse abuse; and also welfare payments) to at least predisaster levels; and the implementation of other programs designed to restore or improve the quality-of-life for local residents.

Mitigation, including measures which will reduce future losses such as the preparation or revision of a disaster plan; the construction of levees, dikes, breakwaters, and rip rap; the implementation of projects such as the relocation of persons living in high-risk areas; the purchase of disaster-related insurance; and the passage of land use ordinances and building codes.

In fact, a community usually is faced with all of these domains competing for a fixed number of dollars available for recovery. Decisions about allocations among domains (whether explicit or not) contribute to a strategy for recovery.

In recent years, federal and state disaster assistance in the United States has been such that recovery does not refer to community survival in the basic sense. There are, in fact, no ghost towns in the U.S. as a result of a natural disaster in recent times. Some communities have decided to relocate in part or in total because of fear of future hazards; but that has been a calculated decision rather than an involuntary occurrence.

Friesema (1979), Wright and Rossi (1979) and others have investigated some of the economic aspects of the quality of life before and after a disaster. Nevertheless, a host of questions remain about the economic impact of a disaster on communities in the U.S. Few economists have been engaged in research on the local economic impact of natural disasters. If a community with a declining local economy has a disaster, has it recovered if it restores a quality-of-life that is lower than before the disaster but higher than what it would have been had the disaster not occurred? These and related economic questions require additional study.

Why study the long-term recovery process? There are several compelling reasons why public administrators and other persons with municipal management or emergency management responsibilities should think about the recovery process in advance of having the actual experience; namely:

1. public officials (and others) through the control of resources can effect the outcome of the recovery process, with respect to speed, consumption of resources, and molding a prevailing agenda;

2. public officials can learn from the experiences of others: they can learn to be better prepared, how to move through the administrative processes more quickly, how to deal more effectively with the various levels of government usually involved in the post-disaster phase, and how to control the demands for scarce or strained resources; and
3. state and federal officials need to be sure that existing policies and regulations are not impeding the recovery process at the local level.

Framework of the Recovery Process

An organizing framework of the elements of recovery, and the relationships among those factors, is provided in Figure 1. This framework was inspired in part by a model described by Mileti (1983:403) in his recent work on organizational response to earthquake prediction. This figure shows the dynamic processes that contribute to an efficient recovery. We have identified those factors that facilitate recovery from (a) interviews with local public officials and others (from the communities) who were engaged in the process of recovery from a major disaster in the U.S. during the last five years or so, and (b) the observations of the research team members who visited fourteen recovering communities during the past four years. Preliminary analysis of the fourteen case studies led to the identification and isolation of 44 separate variables, which we clustered under ten major categories, that may play a role in the recovery process. Once we constructed this new organizing framework, we were able to show the interaction among the key variables.

The results of the site visits to disaster-impacted communities, which are documented separately in fourteen case studies, reflect local concerns and preferences. Consequently, we noted actions that "facilitate" the local "prevailing agenda" for recovery, whether or not that agenda is in the best long-term interest of a community and whether or not it is the one that federal or state officials prefer for that community.

In describing the elements of the recovery process, as depicted in Figure 1, we will begin from the bottom up. The contextual setting of the disaster-impacted community will be described first. We then will move to the center section of Figure 1, the three principal elements of the local recovery planning and implementation process. Finally, we will discuss the outcomes of the recovery processes observed.

Intergovernmental and Interorganizational Context

After experiencing a disaster that is large and damaging

enough to warrant receiving a Presidential declaration of disaster, local officials quickly become involved in a complex web of intergovernmental relationships while making the public policy choices that affect the future of the community. Yet, knowledge

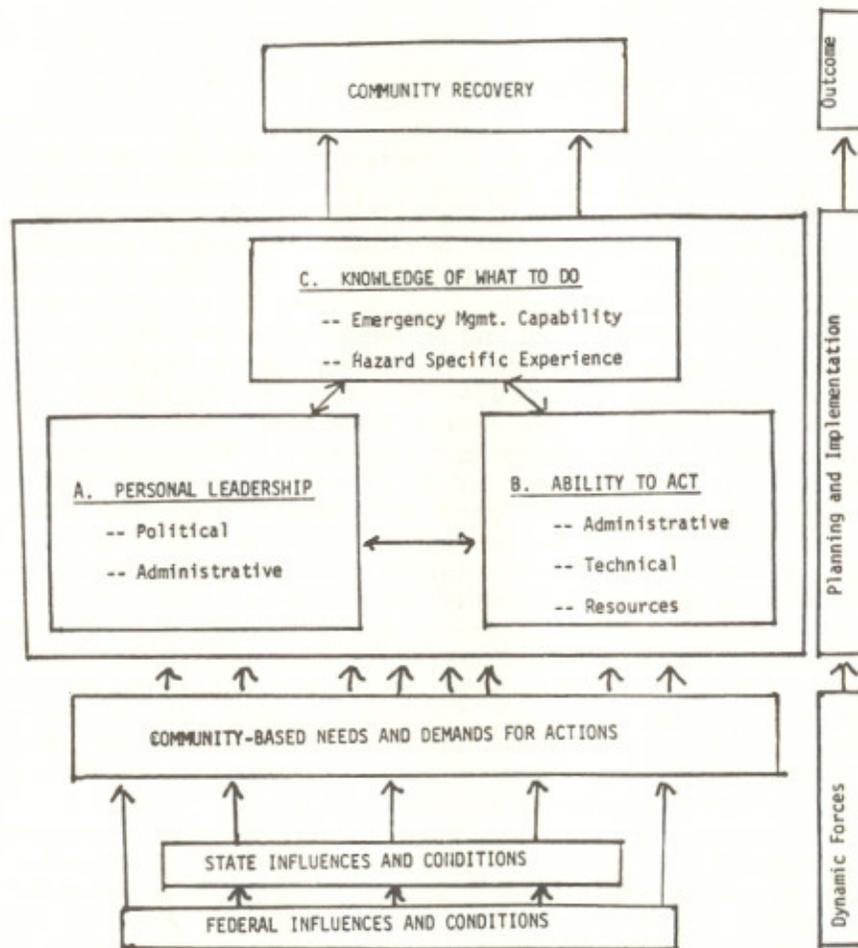


Figure 1: Organizing Framework For Elements of the Recovery Process

of the role of community officials who are responsible for recovery and post-disaster mitigation activities is limited. In a recent article, Kartez (1984:9) states: "There is ... a tendency in social science disaster research to treat the implementing agents--public officials--as a kind of black box." In this section, we will look at the role of local officials, the decisionmaking process that local officials use, and the capabilities required to expedite community recovery and maximize community values.

In the last decade or so, the amount of federal assistance provided to local governments in the U.S. following disasters has increased. Indeed, as Friesema (1979:62) puts it: "... most of the economic costs of natural disasters are externalized to the larger, carrying society." With assistance comes increased interaction among officials at all levels of government. Because of the considerable involvement of other levels of government in a disaster that essentially is a localized event, the quality of intergovernmental relations has a major influence on the efficiency of the local recovery.

As is the case in other public policy arenas, intergovernmental relations in post-disaster settings often are characterized by a limited number of key actors. Recent federal policies and executive orders promote the integration or coordination of post-disaster mitigation efforts with recovery. Other federal requirements, such as the 75 per cent federal and 25 per cent local contribution to public assistance projects, require local governments to assume greater financial and administrative responsibilities for recovery actions. Consequently, the intergovernmental context provided both problems and opportunities for the exercise of local strategic choices in the communities studied. Local assessments of the intergovernmental context varied across the communities studied. More positive assessments came from officials who had found at least one special relationship that seemed to expedite recovery, although in only a few cases did an overall positive assessment of both local-state and local-federal relationships occur.

The Federal Role

Each of the communities studied was in an area that had received a Presidential disaster declaration. The processes set in motion by the declaration, the assistance programs triggered by a declaration, and federal regulations (e.g., the National Flood Insurance Program) were observed to establish the administrative, political, and to some extent the economic context within which recovery took place. Local officials experience a major disaster infrequently; consequently, they are relatively

inexperienced in dealing with disasters compared with their counterparts in federal and state government. Research has shown that during normal times, local officials tend to be less concerned over disasters as a public policy issue than actors at other governmental levels. In virtually all of the cases, local, state, and federal officials tended to have differing and sometimes competing perceptions of (a) their role in recovery, and (b) their priorities during recovery, and (c) the importance of post-disaster mitigation efforts, and d) the proper organizational location of recovery planning and decisionmaking. Indeed, the cases studied exhibited the full continuum of intergovernmental relations from cooperative to highly conflictual.

Local/Federal Context

Federal disaster assistance is provided under the disaster Relief Act of 1974, public Law 93-288, which is implemented by the Federal Emergency Management Administration (FEMA) following a Presidential Declaration of a "major disaster." FEMA administers grants to the states from the President's Disaster Relief Fund and directly coordinates the disaster assistance functions of all federal agencies. When a community receives a Presidential Disaster Declaration, it deals with FEMA during the recovery process. Both public assistance under Public Law 93-288 and payments by the National Flood Insurance Program (in flood disasters) are usually available, yet each program has significant requirements that must be met by local officials. A certain amount of difficulty in federal/local interaction appeared to stem from local inexperience--for example, not knowing ahead of time the limitations of individual and public assistance. By comparison, familiarity in normal times with the intricacies of various program requirements--as well as benefits and limitations--paid off during the turmoil of the recovery phase for some of the communities studied.

In addition, great local displeasure was expressed with regard to the requirement that local governments provide 25 percent of the total amount the federal government set for public assistance and with what local officials viewed as the complex and onerous administrative process they must go through before receiving the federal share of the cost of the public projects described in the Damage Survey Reports (DSRs).

Even after receiving a Presidential Disaster Declaration and identifying available federal programs, a community still may face difficulty in obtaining federal aid to assist with reconstruction. Prior to 1973, many federal agencies had categorical grant programs (i.e., categories of activities eligible are specified) available to localities that had experienced a serious disaster.

Since then, however, the block grant and revenue sharing programs have left little discretionary federal funding available for long-range disaster recovery. This circumstance contributed to less favorable local perceptions of the federal role in recovery.

The State Role

Typically, state government, as a partner in the federal-state agreement signed after the designation of a presidential disaster declaration, has a set of specified responsibilities. Among them is the responsibility for hazard mitigation activities in the impacted area, known informally as the Section 406 (of the FEMA regulations) requirement. States also play an important role in the disbursement of Individual Assistance Program payments and in other special programs and assistance triggered by a presidential disaster declaration. Under state law, various state agencies have authority to provide programmatic and financial assistance. Each state's laws, executive orders, and regulations specify gubernatorial and other state powers regarding state assistance to localities. The state presence is personified by the Governor's Authorized Representative, who works closely with the Federal Coordinating Office and others in the Disaster Assistance Center created immediately after a disaster is declared.

Relations with state government officials varied widely among the sites studied. Because these relationships tended to improve or sour over time, no general characterization holds true for the duration of the recovery process. Generally, the negative assessments of state relations by local government officials stemmed from their perception of the state's inability to provide desired technical assistance or significant financial assistance. Also, the heavy local dependence on federal programs for funding led to a direct local/federal relationship, which was intensified when local officials wanted quick decisions and ready cash flow for major projects. Under these circumstances, the state often was *perceived* as another layer of government to go through, and one that does not yield substantial assistance. The word perception is underscored, because in actuality several states had provided significant technical assistance and material resources to disaster-impacted localities. Yet, generally local officials do not recall that assistance and most responded to the interviewers' questions with negative comments about the state's role in their recovery.

Mitigation

Mitigation is an important consideration during the post-disaster period because it creates a different context for inter-

governmental relations than exists otherwise. Mitigation can be viewed as a sub-category of federal and state relations with local governments in that (a) it means a different set of decision rules for local government and (b) it can have an effect on local choices. (For example, the presence of a federal interagency hazard mitigation team on site within two weeks after a disaster may either set or change local priorities). In short, mitigation may change the demand structure at the local level during the recovery period.

For flood-related hazards, a special set of requirements exists for municipalities that participate in the National Flood Insurance Program. Achieving mitigative measures in the post-disaster period is often a complex exercise in intergovernmental relations. A description of the research team's observations about mitigation follows.

The correlation between disaster experience and mitigative actions is not as clear as might be expected. For example, one community with a history of frequent coastal storms paid minimal attention to post-disaster mitigation, while another community, also subject to coastal storms but far less frequently, did take a number of significant mitigative steps. Neither was there a clear correlation between size of a community and attention to mitigation; the smallest community we studied continuously engages in mitigation planning, although it is dependent on external resources to accomplish such measures.

There are many determinants of whether significant mitigative measures will be taken, according to staff observations of local experience. The following examples should be considered part of the box in Figure 1 marked "Community-based Needs and Demands for Action." Some of the locally-determined pressures for (or against) mitigation are as follows:

Regional attitudes: The prevailing way of doing things and the extent of conservatism are two factors that determine the local public attitude and posture toward external organizations and other levels of government (especially federal).

Dependence vs. independence: Some localities, especially small ones, are very dependent on technical assistance or financial help from other levels of government and, apparently, will stay that way. Consequently, in times of emergency, they rely heavily on state and federal assistance for a variety of needs. Others pride themselves on self-sufficiency or independence and do not want outside involvement (which they perceive as interference) in their affairs. Either of these characteristics carried to an extreme becomes a problem of its own for state and federal emer-

gency services personnel. Note that these local attitudes of dependence or independence are not a function of resource availability only.

Understanding: Perceptual or attitudinal characteristics affect a locality's inclination to mitigate hazards. Not everyone perceives the repetitive, cyclical nature of certain natural phenomena or analyzes existing hazards and plans for mitigation of disasters likely to recur after one's term of office or lifetime ends. What constitutes mitigation, particularly knowledge of specific mitigation techniques and projects, is not clear to all decisionmakers. A local official may fully support the concept and process of recovery, but be unable to deal with mitigation because of perceived cost/benefit ratios for different mitigation options.

In the final analysis, when economic and development pressures outweigh the benefits perceived from mitigation, the former wins over the latter. Far more needs to be studied about the interaction of economic and development interests with other interest groups regarding mitigation at the local level. The results could contribute significantly to understanding the dynamics of achieving mitigation which, in turn, would have a direct bearing on policies and regulations at each level of government.

Intergovernmental Relations--Bridging the Gap

On the positive side, federal officials have been working to improve federal interagency cooperation after a disaster is declared. For more than two years, there has been a process at work for flood-related disasters which is contributing to improved intergovernmental coordination and cooperation. A number of the case study analyses reflected this significant federal initiative--the Federal Interagency Hazard Mitigation Team (HMT) process. After a Presidentially-declared disaster, the FEMA Regional Director appoints a team composed of key federal agency representatives and representatives of state and local government. The Hazard Mitigation Teams are designated in accordance with the "Interagency Agreement for Nonstructural Flood Damage Reduction Measures as Applied to Common Flood Disaster Planning and Post-Flood Recovery Practices," Office of Management and Budget, Executive Order No. 11988, 1982. An HMT may make recommendations, but it has neither enforcement nor regulatory powers.

The HMT usually functions as a regional, interagency and intergovernmental team. The teams were designed to promote a comprehensive approach to flood hazard mitigation during the recovery period. The federal interagency agreement requires

that each team prepare a report within fifteen days of a Presidential Disaster Declaration, that the mitigation activities recommended in the report emphasize nonstructural measures, and that federal agencies conform their recovery actions to the recommendations in the report to the fullest extent practicable. The activities of the HMT, including preparing the report required fifteen days after the Declaration date, appear to have a significant effect on the identification and implementation of mitigative measures at the city and county levels soon after a major flood-related disaster.

We move now to three main elements of community recovery shown in the center of Figure 1. These three elements are those recovery planning and implementation actions over which local officials have the most control.

Three Elements of Community Recovery

There are three basic elements of community recovery: leadership, ability to act and knowledge. These three elements:

- * are in every community to some extent;
- * can be manipulated (i.e., increased, decreased, purchased, hired, learned);
- * interact with each other in predictable ways;
- * have an impact on the recovery process;
- * may be driven by locally-generated demands for actions; and
- * individually may be necessary, but no one of the three is sufficient to assure recovery.

It is important to recognize that all three components appear to be necessary to ensure efficient community recovery--efficiency here meaning greater speed and less cost in terms of personnel and material assistance. Understanding the relative importance of each of the three basic elements is complicated: personal leadership is an essential and almost sufficient condition of efficient recovery; ability to act must be paired with personal leadership to ensure an expeditious recovery; and knowledge of what to do is not essential initially, but it can be quickly acquired once the two prior conditions are satisfied.

Based on the above observations, a framework was developed that combines the above three conditions with "demand" parameters (at local, state and federal levels) in an interactive fashion. This framework, which is shown in Figure 1, is an approach not only to understanding recovery, but also to doing recovery. It could be used to encourage public officials to evaluate their communities regarding specific kinds of leadership,

resources, and knowledge. Much of that evaluation could be done prior to a disaster and remedial actions taken, if necessary. In addition, it can be used by state and federal officials to predict how easy or difficult the local recovery process is likely to be. If one or more key ingredients for an expeditious local recovery appear to be missing, then state or federal officials can take steps to supply it or aid the locality in acquiring it.

While the organizing framework presented in this chapter appears to indicate a one-way process, in actuality the interactions shown should be considered as a circle. Under certain conditions, such as experience with the same disaster agent, local officials may be able to influence some of the dynamic factors outside their normal zone of control. For example, Fort Wayne officials (who were experienced with flood fighting) when faced with extreme cash flow pressures, were able to negotiate a special audit procedure with FEMA so they could proceed more quickly to receive federal reimbursements for disaster-related expenditures.

Experienced and aggressive local leaders, in fact, have affected one or more of the external actors (state, federal, private). For example, after extremely large and highly destructive events, such as Hurricane Camille (1969) and Hurricane Agnes (1972), many changes in federal laws, regulations, and policies were made in response to problems and complaints expressed by local and state officials about the federal disaster assistance programs and processes in effect at that time. In real life, there are many-directional interactions. Generally, local officials can only marginally influence the external forces shown in the bottom rows of the framework diagram. Figure 1 provides a simple model of a highly complex process.

The three main elements, which have been introduced briefly thus far, will now be described more fully.

Leadership

We realize that leadership is a much-studied field, ranging from studies of Presidential leadership to city governance. In addressing leadership, we will limit ourselves to highlights of what has been learned about leadership as it is formally and informally exercised in the field of emergency management.

More than a decade ago, Quarantelli and Dynes (1972:29-30) documented their preceptions of local public leadership and organization in the planning phase of emergency management. Their observations are worth reviewing with respect to the local disaster recovery process:

Patterns of leadership and of authority in disaster-impacted communities are very complex. Their complexity, however,

is usually misinterpreted as confusion and panacea of "strong leadership" is frequently offered as a solution without understanding the nature of the problem. Perhaps the beginning of understanding is to start with the observation that almost all communities are not organized to cope with disasters. This is true even in localities with extensive pre-disaster planning since there is a considerable difference in anticipating problems and facing them. What disasters do is to create a series of new problems for the community and in doing this, they necessitate new relationships among its parts. Disasters force the development of a new structure which reflects the current involvement of various parts of the community which, in turn, can make decisions "for" the community.

The scope and complexity of involvement in disaster undercuts the possibilities of centralizing authority to a much greater extent than these possibilities exist even in the pre-disaster patterns of American communities.

The (emerging) structure, therefore, reflects the social realities of the situation rather than an artificial creation based on unrealistic notions of "controlling and commanding" the situation. Authority has to be earned, not imposed, and those who wish to impose it will seldom earn it. It is earned by those whose performance shows that they deserve it and it seldom comes to those who just claim it.

More recently, Kartez (1984:10) studied the response of 26 local governments after the 1980 ash eruption of Mount St. Helens. His observations about local response also reflect emergent or "adaptive" relationships to deal with the emergency situation. In reviewing the local responses, he noted that: most localities "... relied on existing functional lines of organization in public works, safety, and management departments, rather than the countywide emergency and civil defense offices encouraged by state and federal programs." In fact, he observed that about half of the communities studied reported that they made "... no use whatsoever of a countywide, multijurisdictional plan, which is the usual centerpiece for state and federally preparedness programs." Essentially, the traditional institutional arrangements in place for use in emergencies were not used or were not useful. Instead, many local officials used "adaptive strategies" in responding to the disaster. Kartez described that adaptive behavior as follows:

Local governments learned their way into these strategies during the heat of emergency, however, through a process that compressed problem recognition, experimentation, evaluation, and implementation into less than a week. The process took place outside the institutional context in which emergency planning is organized under state and federal mandates.

Addressing the intergovernmental relations aspect of the observed responses to the ashfall in the 24 communities, Kartez (1984:19) observed a two-tier planning system, which he described as follows:

The first tier consists of the federally mandated nuclear response plans, which support the countywide planning and coordination model. The second tier comprises local procedures that develop out of adaptation to each jurisdiction's experience, potentials, and constraints. *** Learning about workable techniques and organizational approaches took place on the second level.

The two publications cited were addressing the response and short-term recovery phases primarily; however, in the long-term recovery process, the need for site specific, adaptive planning strategies is at least equally strong. Our observations about the recovery planning process could be characterized as virtually all second-tier decisionmaking. We have documented the informal means of getting things done in the hectic and demanding post-disaster period. Much of this information may be known to experienced public officials, but it has not been documented previously to our knowledge. We have noted two aspects of leadership: (1) the phenomenon or presence of leadership itself (and the importance of that trait in the community) and (2) the exercise of leadership (what was done and what resulted).

We have observed that certain leadership characteristics facilitate recovery. Among them are:

1. a flexible, creative style of problem-solving and decision-making (i.e., styles which allow for *ad hoc* behavior rather than a "by-the-book" mentality);
2. a vision of what the community could and should be like;
3. an ability to attract and motivate competent assistants; and
4. strong links to other decisionmakers, both in the public and private sectors.

These strong linkages usually result from frequent communication, networking, and constituency building.

Effective local leaders use their networks of contacts; build support for preferred courses of action; and create linkages

with county, state, and federal officials as well as with businesspersons and others who can assist with recovery. We also have learned that leadership is not necessarily a quality that comes with an office or position. Leadership can be exercised by someone elected or appointed; by someone well-established or newly emergent; by a mayor, a city manager, a consultant, a city council member, or a concerned citizen or businessperson.

Further, leadership is not an element which is always limited to one person per disaster. In fact, the leadership characteristics that are important to recovery often have been found in several individuals, each having a different role or set of responsibilities during the recovery process. For example, an effective local public leader stays in close contact with major business and civic leaders and includes them in the key committees or task forces that make recovery decisions.

Another characteristic of capable leadership is the ability to forge new relationships--with other local and county agencies, with state, with federal agencies, and with private sector leaders. For example, the part-time mayor of the small town of Cardington, Ohio managed to create a strong tie-in with state agencies. That local/state bond was the basis for a remarkable recovery for the small city that had been devastated by a tornado. Similarly, the small city of Coalinga, California--an independent, rural community--worked more closely and successfully with the Fresno County officials during the post-earthquake period than it had at any previous time in its history.

In those communities where recovery was observed to progress rapidly and competently, community leaders exhibited vision. That is to say, they had a concept not only of what their community was at the time of the disaster but also a vision of what it should and could be in the future. When major systems and numerous structures in a community have been destroyed, local leaders have to adjust their sights and their future actions to what they envision the community will be. Having a vision for the community and setting goals for the recovery are essential to achieving a speedy and successful recovery.

Another hallmark of effective local public leaders is that they tune into what constituents want and neither greatly exceed nor underestimate the extent of the effort desired by the community. Finally, the effective leader turns adversity into opportunity. The most effective local leaders we observed saw the disaster as an opportunity to implement plans that previously may have been "pipe dreams." The key here is that a disaster may provide an opportunity to those who are assertive and know where they want to go, in terms of community development.

Ability to Act

This element speaks to resources: administrative, technical, and tangible resources, all of which determine the ability to carry out recovery over the long term. While leadership provides direction and motivation, these three types of resources enable the work to be done. Administrative capability encompasses competent local public administrators, a smoothly functioning administrative system, and adequate methods of monitoring and record-keeping. Administrative resources include personnel and financial management, material resources, and recordkeeping and other documentation. Technical knowledge and resources include land use controls, enabling legislation for needed authorities to manage recovery activities, mutual aid agreements, and urban development plans and maps. Additional technical resources are physical planning and mapping capability; geologic and hydrologic analysis capability; land use controls (zoning, building codes, construction standards, subdivision requirements); enabling legislation (emergency authorities); and technical aspects of emergency preparedness (emergency operating center). Finally, tangible resources are financial, personnel, and material; they include grant money, revenue from local taxes, municipal supplies and equipment.

Less tangible and harder to measure is local public capacity, which is the broader term for ability to act at the local level. Many volumes have been written on this subject, although virtually no attention had been paid to emergency and disaster settings.

The resources mentioned above exist at all levels of government. Consequently, one task of local officials (preferably, prior to a disaster) is to position the resources they do have effectively. For example, they should have current inventories of supplies and equipment likely to be needed; lists of organizations with large, earth-moving equipment and four-wheel drive vehicles; good methods of keeping detailed records regarding the need for major capital projects and for documenting expenses connected with works projects. In addition, municipal officials should be working to enact enabling legislation for declaring and coping with an emergency or disaster. After the disaster, they should be prepared to obtain and use resources available from external sources. The importance of identifying and effectively using these outside resources is addressed in later chapters.

Knowledge

The final element in the model is knowledge--knowledge of emergency management in general and hazard specific knowl-

edge in particular. Recovery proceeds more smoothly when the local officials know in advance:

1. what federal and state programs exist for the benefit of public and private sector disaster victims;
2. what external resources are available;
3. how to apply for a Presidential Disaster Declaration; and
4. how a community applies for grants.

The above three elements are propelled by community-based demands for action. After a major disaster, local officials usually experience a heavy barrage of demands for assistance and services from individuals, existing groups, and newly-emergent groups. When many sets of demands coalesce and support a line for action, that coalition may generate enough force to achieve the action desired. On the other hand, it is possible for competing forces to cancel each other out. Or, moderate pressure for a wide array of actions may not provide enough impetus for a main line of action. Finally, significant pressure for no action--e.g., no mitigative action for a barrier island slated for residential development--may result in a *laissez-faire* outcome. This then is the local context in which local leadership operates.

When leadership, resources, and knowledge are driven by community-based demands for action, many outcomes are possible. Residents of different communities have different expectations and preferences; therefore, they have differing standards of what is acceptable locally in terms of leadership or of local administrative capability. For example, in Marin County, California, where the socio-economic status is probably higher than in any of the other communities studied, local residents had very high levels of expectation from their elected and administrative officials. They pay high taxes, and generally they expect high performance from their public officials. More importantly, they elect and appoint officials capable of meeting their standards. After the 1983 disaster in Marin County, citizen groups pressured the county not only for recovery actions but for improved emergency preparedness. Federal and state officials also made their requirements and recommendations known in the post-disaster period, particularly via the Federal Interagency Hazard Mitigation Team process. But, what stood out in Marin was the well-articulated and consistent community-based pressures for action and improvements regarding emergency management. The extent of community-based interest and support for effective emergency management, as observed in Marin, was not seen in any other case study site. These characteristics appear to have contributed to the notable competence Marin County showed in its recovery efforts. It is unfortunate that

these conditions occur so infrequently.

Community residents may set the recovery agenda, determining what, if anything, gets done. While leaders can shape the agenda, usually the actions of leaders ultimately reflect some prevailing or dominant point of view. An effective local leader neither overstates nor underestimates the will of the community's citizens. Most important, he/she responds promptly and effectively to reasonable community requests.

The knowledge of what to do during and after a major disaster can be experienced, learned, or hired. Since the first year of our field studies, we have noticed a disproportionate reliance on experience. At that time we noted that prior experience with the same or a similar disaster agent usually means that local capability is higher; organizational arrangements and coordination are in place; seasoned local leaders are familiar with the Presidential Disaster Declaration process and resulting activities; and local businesses and other community groups know what needs to be done and do it. In addition, we found that prior disaster experience tends to lead to greater knowledge and application of mitigation measures. The earlier experience(s) provided opportunities for local officials to meet the key decisionmakers at each level--such contacts became very useful the next time outside assistance was needed.

Small communities are not necessarily at a disadvantage during recovery if they have experience with a similar disaster agent and if they have continuing, effective relationship with state and federal officials concerned with emergency management and recovery. In other words, experience, practice, and coordination are attributes that small cities recovering from a disaster may have, although perhaps on a smaller scale.

We think that strong leadership contributes to a high level of resources because strong leaders recognize the need for them and work to get them. We also think that "knowledge" acquired prior to a disaster may encourage a community to upgrade its resources. Finally, strong leadership makes the acquisition of hazard specific knowledge relatively easy because the important links to the proper external agents and essential organizations have already been established.

Among the advantages of the approach to recovery explained here is that it pertains to communities of all sizes. The three main elements are present to some extent after disasters of varying severity; and they hold true for different natural disaster agents. While the foundation has been laid for understanding recovery at the local level in the U.S., much remains to be done to determine possible applications at other levels of government and in other countries.

Conclusion

In conclusion, greater experiential knowledge about the recovery process, including the mitigation activities during that period, should have several practical benefits. We think that practical knowledge about recovery would (a) help local officials manage recovery more efficiently; (b) improve the ability predict the relative ease or difficulty that a community will experience in recovering from a major disaster; and (c) enhance understanding of how and why communities choose to take mitigative steps after a disaster. Improving the ability to predict the relative ease of community recovery also should be helpful to officials at other levels of government for determining the type and amount of assistance and resources to be provided to a disaster-impacted locality. Although all of the case studies and analysis completed to date are of U.S. communities, we think this new organizing framework provides a good first step for other researchers interested in the recovery process. We are not sure how the model will fit in other societal settings, but we think it might give researchers some clues about what might be important in their own countries.

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