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The Evolution and Structure of Natural Hazard Policies

Bruce B. Clary, University of Wisconsin-Green Bay

Introduction

In 1803, Congress passed the first piece of disaster legislation. The purpose of the act was to provide assistance to Portsmouth, New Hampshire, in the wake of a disastrous fire. Until the 1930s, the response of Congress to a disaster was to pass a bill to aid victims of a specific disaster. Over 100 such pieces of legislation were enacted.

Crises have always played a role in policy formation,¹ but the entire structure of disaster response was crisis-driven. When a disaster struck, people acted. Society's attitude toward natural disasters was fatalistic: they were part of nature's order, something that had to be accepted as part of life. Consequently, management of such events was not seen as part of the proper role for government. Until 1950, the Red Cross, a largely volunteer organization operating under federal charter, was the primary disaster relief agency. It was also the major source of funds for disaster recovery.

Today, a very different system of disaster policy exists. With the passage of the Flood Control Act of 1936, Congress embarked upon a path of natural hazard control that has extended to the present, attempting to use the latest developments in science, engineering, and planning to prevent disasters or lessen their impact should they occur. The Disaster Relief Act of 1950 set in motion the first comprehensive, nationwide system of disaster response and relief. Yet, nearly one-half century after the first permanent disaster legislation was enacted, many basic policy questions remain to be answered:

- What is the proper role of the federal government in disaster management *vis-a-vis* states and localities?
- How much emphasis should be given to the control and prevention of hazards *versus* responding to them after they have occurred?
- How much of the costs of a disaster should be borne by government? By society?
- How best can government provide aid and assistance?
- How can interagency and intergovernmental cooperation be facilitated?
- What types of scientific research should be encouraged to better control and respond to natural hazards?

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- What are the best methods to educate the general public to the risks from natural hazards?

The purpose of this paper is to explore these and related questions in the context of the evolution and structure of natural hazard policy. To relate this discussion to the topic of this symposium, individual policies will be discussed within a typology of emergency management stages.²

Briefly defined, the stages are:

1. *Pre-disaster mitigation/prevention.* Steps taken to alleviate the impact of or prevent a hazard event. Examples range from structural measures such as building codes to public education.
2. *Pre-disaster preparedness.* Plans, warning systems and other means adopted in advance of a disaster to aid in its management.
3. *Disaster response.* Activities that occur during and immediately after a disaster strikes. Examples are search and rescue operations and the provision of food, shelter, and clothing.
4. *Post-disaster recovery.* The long-term reconstruction of a community. A stage that can last up to 10 years.

Rubin has noted that the stages are interrelated, so simplifications have to be made in discussing them individually. For example, the pattern of community reconstruction from a disaster bears directly on future mitigation. Adoption of new land-use patterns can move people out of hazard areas, reducing the risk; whereas continuation of past development trends can lead to reoccurrence of the disaster.³

To facilitate discussion, the pre-disaster preparedness and disaster response categories have been combined. A significant amount of pre-disaster planning is done to facilitate emergency response, so the two stages are most easily discussed in reference to each other.

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Pre-Disaster Mitigation/Prevention

Since the late 1960s, natural hazard policy at the federal, state, and local levels has been characterized by an increasing emphasis on regulation and other approaches to the control and prevention of hazard events. For the federal government, this policy orientation largely resulted from the mounting costs of providing aid after a disaster had occurred.

In many respects, the National Flood Insurance Act of 1968 represents a prototype piece of federal mitigation legislation. It links prevention of future floods with the availability of disaster recovery funds, in the form of flood insurance for individual property owners. Eligibility depends upon whether a jurisdiction has met certain planning requirements. Flood hazard areas must be identified, a hazard map prepared, and a flood plain management plan established.

It is difficult to judge the overall success of the National Flood Insurance Program (NFIP). On one hand, 80 percent of the persons living in flood hazard areas reside in communities that qualify for insurance coverage. By mid-1982, approximately 2 million policies were in force, with \$100 billion in property covered.⁴ Yet, a nationwide study of over 1,200 communities enrolled in the program indicates that controls enacted in accordance with NFIP have done little to reduce the rate of floodplain invasion.⁵ Hence, despite high levels of community participation and a greater sharing of flood disaster costs by persons at risk through the premiums paid by the insured, the program has yet to accomplish one of its main goals: effective land-use management (and implicitly, the acceptance of greater responsibility) at the local level.

Recently, the federal government has adopted a much more aggressive posture on local compliance with the provisions of the National Flood Insurance Program. It has filed suit against several jurisdictions in Louisiana, attempting to enforce through the courts the land-use sections of the act. Regardless of whether it wins the case or not, a clear signal is being sent to local government regarding the seriousness with which floodplain management is now being treated. Mitigation, as now viewed in Washington, is a necessary cost control measure for ballooning flood insurance claims being made against the government.

The argument being made is that enrollment in NFIP is a contractual relationship between the United States and a participating community for the adoption of effective land-use measures. Because of repeated floodings in the communities, the government is arguing that the terms of the contract have been breached. A federal district court dismissed this portion of the suit, but granted the government the right to sue for damages because of the existence of an administrative rule allowing flood insurance subrogation (i.e., paying off the insured and suing the alleged party at fault, the participating communities). The decision has been appealed by all parties to the suit.⁶

Section 406 of the Disaster Relief Act of 1974 mandates that public jurisdictions that receive aid shall evaluate natural hazards and take measures to mitigate them, the purpose being to prevent reoccurrence of the disaster or lessen its impact. State and local governments were largely unresponsive to this requirement, and it was not until 1981 that attempts were made to encourage compliance.⁷ Subsequent actions that have been taken include 406 surveys conducted by Federal Emergency Management Agency (FEMA) and the establishment of Hazard Mitigation Teams. In the wake of a flood disaster or emergency, these teams, which are interagency, interdisciplinary, and intergovernmental, produce a report detailing mitigation alternatives. FEMA also designates a state and local government "lead" agency to oversee implementation of the study's findings.⁸

An important conclusion about mitigation policy can be drawn from the administrative history of these acts: federal measures that require state and local jurisdictions to take action are not self-implementing. Federal oversight is necessary, and a FEMA official recently stated in a House hearing on the Disaster Relief Act that separate funding for hazard mitigation controls may have to be provided if the intent of Section 406 is to be realized.⁹

Difficulties inherent in the federal structure of the American political system have impeded implementation of hazard mitigation policy, in addition to factors stemming from the nature of the phenomenon itself, the natural hazard. The availability of physical or social technologies that can be used to solve a problem is an important element in determining the success of policy implementation.¹⁰ Often, policies are enacted without due consideration being given to this dimension. Natural disasters have proved to be difficult to control and prevent. Basic to the problem is their unpredictability: We know they occur, but when and where and with what intensity?

This issue has arisen in the implementation of a portion of the Earthquake Hazards Reduction Act of 1977. Section 5(c)(2) mandates:

The implementation in all areas of high or moderate seismic risk, of a system (including personnel, technology, and procedures) for predicting damaging earthquakes and for identifying, evaluating and accurately characterizing seismic hazards.

The Federal Emergency Management Agency (FEMA) has responsibility for implementation of this system, but has been criticized for delays.¹¹ Administrative problems of planning, staffing, and organizing usually slow down the development of any new program, but one factor is clearly outside the control of FEMA: the technology of earthquake prediction. As is often the case with legislation which embodies new approaches to problems, Congress was overly optimistic about the means available to accomplish the goal. In testimony to a Senate subcommittee, an expert on earthquakes stated that short-term prediction of days or weeks duration has proved far more difficult than

anticipated when the legislation was passed.¹² Hence, the delays are due, in part, to unrealistic expectations in Congress regarding the potential for scientific developments in geology and related disciplines.

There are other examples of technical and scientific problems that have affected natural hazard policy. Federally financed research on hurricane seeding to reduce storm intensity, beginning with the Cirrus Project in 1947, was discontinued in 1973, largely due to the lack of a sound theoretical foundation upon which to base field experiments.¹³

The U.S. Corps of Engineers' program of structural flood control, initiated with the Flood Control Act of 1936, has been the focus of substantial criticism, primarily because of perceived limitations in the technical fix approach to hazard mitigation. One argument has been that construction of dams, levees, and other structural measures produces changes in the hydrological structure of streams, modifying their hazard characteristics. Channelization, while relieving flood problems in one area, may create them in unprotected, downstream areas as the stream seeks to dissipate its energy during a flood stage. Dams also encourage floodplain development under the mistaken assumption that a flood cannot occur. However, if design limitations of a dam are exceeded, there will be flooding.¹⁴ An example occurred along the Colorado River in the summer of 1983 when the floodgates of upstream dams had to be opened as water from rapid snowmelt surpassed the capacity of the dams.

Dams can also suffer structural failure. Because of this risk, the National Dam Inspection Act was passed by Congress in 1972. It authorized the secretary of the Army to conduct an inspection program of more than 28,000 nonfederal dams throughout the United States. But, as is often the case with mitigation measures at all levels of government, it was not implemented because of a low priority assigned to it. Not until the collapse of a dam near Toccoa, Georgia (the home state of then President Carter), did implementation begin in earnest.¹⁵ Again, delay and crisis characterized the policy process.

State and Local Mitigation Action

In the area of natural hazard control, the role of the state has traditionally been the establishment of the legal basis for local government ordinances. In recent years, federal legislation such as the Coastal Zone Management Act of 1972 (which, among many other factors, addresses flood hazards) has moved the states into a planning role. A number of states have also enacted their own comprehensive planning processes which encompass natural hazard mitigation. Some examples of recent state action include:

- Goal No. 7 of Oregon's Statewide Land-Use Plan focuses on natural hazards. Each jurisdiction, in developing a required comprehensive plan, must inventory hazards and avoid locating damage-prone development in risk areas.

- California's Cobey-Alquist Act requires that local floodplain regulations be consistent with state standards. If not, the state will not participate in cost sharing on federal flood control projects.
- In Arizona, the Flood Relocation and Land Exchange Law allows the state to designate land as flood-prone, condemn private lands within such areas, and exchange state land for these properties.
- Geologic maps of known seismic zones in California were prepared in accordance with the Alquist-Priolo Special Studies Zone Act. Local governments are required to use these maps in making land-use decisions regarding proposed projects.

State enabling statutes and home-rule powers underlie the adoption of hazard prevention ordinances by local government. They can be enacted in a number of different ways. Typically, they are passed as part of broader zoning, subdivision, or building regulations. The most frequent type of action on natural hazards is land-use regulation. Other controls, such as easements, acquisition, or moratoria, have been used, but they are often too costly or controversial to implement.¹⁶ A number of specific examples appear below:

- Warrick, Rhode Island, has used risk zoning to mitigate storm surge problems associated with a hurricane. Graduated-use zones are specified, resulting in more severe restrictions for areas subject to greater damage.
- Portsmouth, Virginia, does not allow land to be subdivided unless protective measures are enacted, if the risk from natural hazards is high.
- The city of Los Angeles passed an ordinance requiring certain types of pre-1938 buildings with unreinforced masonry bearing walls to be retrofitted so as to withstand earthquake shocks.
- In the wake of the eruption of Mt. St. Helens, Cowlitz County enacted a moratorium on growth in areas subject to volcano-related flooding.
- Sanibel Island, Florida, has established a growth lid based on the number of people who can be evacuated in the event of a major hurricane.

In discussing natural hazard mitigation, the role of the states and localities cannot be underestimated. In virtually all areas of federal domestic policy, the primary responsibility for implementation rests with these units of government. Federal initiatives, such as insurance, planning grants, or even the threat of a lawsuit, are factors that must be considered but are only part of the overall equation. Many communities have enacted innovative control measures, especially if they have experienced a disaster. But the lack of success that federal mitigation policy has enjoyed to date must lead to questions about the capacity and/or willingness on the part of state and local governments to undertake strong mitigation measures. Many communities lack the necessary technical expertise in planning to fully implement and monitor programs. FEMA has taken major steps toward ensuring more effective administration

through its training sessions at the Emergency Management Institute and technical assistance programs. But such actions do not solve the problem of the commitment of officials, particularly elected ones, to hazard mitigation. Is there a willingness to bear the financial costs of enacting strong measures, especially if such actions may have a negative impact on economic development? Strong pressures are often present in communities that militate against effective mitigation practices. Studies of disaster recovery indicate that the marketplace is the usual determinant of locational decisions, frequently leading to rebuilding in a hazard area.¹⁷ Therefore, any predictions about the success of hazard mitigation policy must not only address technical issues of control, planning, and administration, but also political and economic constraints on the rationality of the process.

Pre-Disaster Preparedness and Disaster Response

Preparedness efforts taken prior to a disaster are designed to coordinate the response to it and reduce its impact. In recent years, Executive Order 12127 (1979), which created FEMA, has been the most significant of the decisions in this area.

The Carter administration created the agency in response to a longstanding perception that the federal disaster effort was fragmented and uncoordinated. Prior to this administrative action, the primary disaster functions were divided across four agencies housed in the Department of Housing and Urban Development (two agencies), General Services Administration, and the Department of Defense. Separation of emergency management functions across these agencies often resulted in problems of interagency and intergovernmental coordination. For example, natural disaster and defense preparedness planning were handled by different agencies which frequently led to unnecessary confusion and duplication in state and local government planning efforts. FEMA itself has taken steps to reduce problems of this type with the development of its Integrated Emergency Management System (IEMS) which attempts to develop a comprehensive approach to all-hazards planning.

If a disaster situation is beyond the capabilities of state and local governments to handle, a governor may request that the president declare a major disaster or an emergency—the primary difference between the two being the type of federal aid that is made available. When such a declaration is issued, a federal coordinating officer is appointed and a disaster field office is established. An assistance agreement is drawn up between FEMA and the state governments affected by the disaster. The document specifies the manner in which federal aid is to be made available and includes reference to items such as federal-state cost sharing, type of aid (e.g., temporary housing), and duration of the aid period.

A significant challenge facing FEMA is the independence that federal agencies have traditionally had in disaster management. Congressional oversight has been limited. Many of the agencies can carry forward disaster funds from one fiscal year to the next and re-program them; thus, substantially increasing their operational flexibility. The result has been a very decentralized system of disaster response. In light of the autonomy these agencies have had, questions have been raised about the extent to which FEMA will be able to exercise a significant coordinating influence.¹⁸

In general, FEMA faces an existing structure of disaster management that has been characterized as lacking control and direction. Norton reaches the following conclusion after an exhaustive review of federal disaster policy:

Operational responsibility has been scattered among various departments and agencies. Concurrently, a marked growth in functions and services, especially in the providing of aid for disaster losses, has occurred. Likewise, individual programs have been created, expanded, altered, transferred or abolished from time to time without any apparent overall plan or guiding principle.¹⁹

The state plays a central role in preparedness planning and disaster response since the 10th Amendment reserves to the states the power to conduct their internal affairs. States have delegated to local government the responsibility for first response, but, nevertheless, they perform important integrative and informational functions in disaster management. They maintain emergency operating centers which serve to coordinate activities of governmental agencies and voluntary organizations in large, multi-jurisdictional disasters. Various forms of individual assistance based on federal-state shared grant programs are provided. Ongoing programs include development of statewide emergency plans, review of local plans for conformance with state requirements, and the conduct of disaster training programs.

Congress has attempted to strengthen state emergency management through the provision of planning grants. Section 8 of the Disaster Relief Act Amendments of 1969 provided up to \$250,000 to individual states for this purpose. Available evidence suggests the effort has fallen short of the congressional objective in providing the money. A General Accounting Office (GAO) study found that, 10 years later, many states still had not fully implemented preparedness plans. Specific elements of six states' emergency plans were reviewed and a number of problems were evident. Most state agencies did not have standard operating procedures governing the emergency tasks they were to perform. Many local communities' emergency plans were not compatible with the state's or had never been reviewed. In several cases, training programs had not been developed.²⁰

Several reasons can be offered as explanations for these problems in state planning. Emergency response is not the primary mission of most state agencies. It is usually an add-on responsibility, and there is a reluctance to assign regular staff to such tasks. State emergency management agencies have a limited ability to

review the emergency planning of other state departments and local governments. In most cases, they lack sufficient staff resources for this purpose, and political factors involving local government autonomy often preclude effective action. Funding limitations hamper the development of training programs.

The GAO study also reviewed FEMA-administered grant programs to the states. It concluded that the narrow, categorical focus of many of the funding programs reduced the flexibility of the states in responding to disasters. Under the present system, states are unable to transfer funds across programs, limiting the ability of agencies to target aid—another example of how problems of intergovernmental coordination have hindered program development in emergency management. Specifically, legislative constraints set by Congress and administrative procedures adopted by the agency were seen as contributing to the problem. Congress often places statutory restrictions on the reallocation of funds. As an example, it required FEMA to develop an earthquake planning and preparedness program (under the Earthquake Hazards Reduction Act) and restricted funding to that purpose. While such measures are necessary to ensure bureaucratic accountability, they can limit flexibility in program management. FEMA has also imposed similar categorical restrictions on state agencies, even if not required by statute, again largely to control the purposes for which federal dollars are spent. In recognition of some of the defects in the present arrangement, FEMA has entered into a pact with two states, entitled the Comprehensive Cooperative Agreement, which allows for the consolidation of resources, cross-training of personnel, and the re-programming of surplus assistance.²⁶ This program has now been extended to other states.

As mentioned earlier, local government has traditionally had the responsibility for first response to a disaster. In many states, this role is a statutory requirement placed on cities and/or counties. There is a trend throughout the United States, especially at the county level, to create offices of emergency government which perform a disaster planning function as well as serving as a coordinating mechanism for police, fire, and other services that are activated during an emergency. A recent survey of over 1,200 cities and counties conducted by the International City Management Association provides a useful overview of local efforts. Eighty-seven percent of local governments have formal emergency plans, 76 percent have installed warning systems, and 82 percent can declare a local state of emergency. Yet, just 63 percent actually test their plans on an annual basis. Testing emergency measures in simulated conditions is crucial to their effective functioning during an actual disaster. Again, as with state preparedness planning, there is evidence of shortcomings in implementation.²⁷

In general, what might be the reasons behind these problems? Normal political and administrative constraints on the implementation of any program provide part of the explanation, but the nature of planning for emergencies itself must be considered.

Planning in this environment is impeded by constant uncertainty: How are programs to be developed when the type of hazard, its location, time of occurrence, and magnitude are frequently unknown?²³ A general pattern in state and local government, especially among elected officials, is to assign emergency management a lower priority than other program areas. Natural disasters are hypothetical matters; there are always more immediate, pressing demands. In dealing with the question of risk, policy makers often make what amount to non-decisions: It is more politically acceptable to gamble that a hazard event will not happen than to incur the long-term costs of emergency preparedness, even if that means that when a disaster strikes, the community may have to absorb greater costs than the expense a program would be. In short, decision makers have a strong tendency to discount the future costs of natural disasters.²⁴

Post-Disaster Recovery

In an oft employed typology, Lowi divides public policy into three groups: distributive, redistributive, and regulatory.²⁵ Prior to the enactment of legislation pertaining to hazard mitigation in the late 1960s, federal disaster efforts were almost entirely distributive. The federal role was to respond to the damage produced by a disaster, especially to assist in the long-term reconstruction of communities. By 1978, total federal aid had exceeded \$7 billion.²⁶

The basic legislative framework for federal action is the Disaster Relief Act of 1950 and its updated versions enacted in 1970 and 1974. Amendments and related acts have also changed its provisions.²⁷ The 1950 act only provided aid to state and local governments. Public Law 83-134 (1953) authorized assistance for individual victims by allowing states to distribute surplus federal equipment and supplies to local residents of disaster areas.

The latter act was one of the first in a series of congressional actions that provide a textbook example of incremental decision making. The scope of a presidential declaration of a major disaster was expanded to include such disparate items as tax relief, free legal advice, and psychological counseling. In contrast, the original intent of the 1950 act was only to provide funds for repair of flood-damaged, farm-to-market roads and local government facilities.

The pattern of increasing benefits, along with progressively more liberal eligibility criteria and decreasing interest rates for federal loans, continued into the mid-1970s. By this time, the federal share of disaster costs had risen to 70 percent (from 1 percent in 1953).²⁸ The net effect was to lessen significantly the likelihood of large property loss from a natural disaster but, in many cases, it promoted poor locational decisions, since the federal government was subsidizing much of the risk.

In the 1970s, Congress finally took steps to stem this fiscal tide. More stringent terms were placed on disaster grants, and principal forgiveness, allowed some agencies, was no longer permitted. In the 1974 act, Congress

for the first time attached strings to the aid. Section 406 requires that recipient jurisdictions take steps to evaluate and mitigate natural hazards. The assumption was that such action would reduce the impact of natural disasters and, consequently, the demand for federal assistance (to date, as discussed earlier, this objective has yet to be realized). In the wake of the eruption of Mt. St. Helens, FEMA imposed a 75-to-25-percent cost-sharing agreement for permanent restorative work on public facilities and debris removal. Previously, the level of aid was negotiable and the federal government usually assumed 90 percent of the costs. Predictably, this policy has encountered stiff opposition from both state and local officials.²⁹

There are five major disaster assistance programs that have been created by statute: (1) the Small Business Administration's disaster loan program; (2) Farmer's Home Administration's emergency loan program; (3) Disaster Payments Program, administered by the Department of Agriculture; (4) Federal Crop Insurance Program, Federal Crop Insurance Corporation; and (5) the National Flood Insurance Program of FEMA.

These programs provide either loans, grants, or insurance to state and local governments, individuals, businesses, or farmers. They represent a decision by Congress to treat loss from natural disasters as a problem requiring governmental action, entailing the provision of some level of aid. Legislation of this type goes back to the 1930s when the Federal Crop Insurance Corporation was created through the Agricultural Adjustment Act. The main sections of the disaster relief acts have primarily dealt with financial assistance.

Although the intent of these programs has been distributive, some of them have produced significant redistributions of resources among disaster victims and between the recipients and the taxpayer. The Internal Revenue Service allows tax deductions for the value of property lost due to a natural disaster. These income transfers usually are of more benefit to wealthier persons, since they own more property.

In a review of grant and loan programs, GAO found that some provide higher subsidy levels than others, producing benefits which are independent of actual loss. Secondly, the more geographically widespread (and consequently, publicized) a disaster, the greater the level of assistance.

GAO has argued that insurance is the most efficient and equitable form of federal disaster aid. In contrast to grants and loans, insurance tends to produce lower income differentials among victims and between them and society. The insured, by putting money up front (in the form of premiums), reduces the level of federal liability, since a reserve fund has been built up should a disaster occur.³⁰

Dissatisfaction with the current state of federal disaster assistance has led some in Congress to argue for the adoption of a nationwide, all-perils insurance program for property and crop loss. Under this proposal, most existing programs would be abolished, presumably reducing the lack of coordination which many feel ham-

pers the present system and produces substantial inequities. One alternative would place a 5 percent surcharge on existing homeowner insurance (hence, general tax revenues, as is the case with grants and loans, would not be tapped). Rates would vary by region of the country according to a calculated level of risk from natural hazards.

Clearly, the most controversial element of natural hazard policy has been disaster relief: What should the type and extent of federal involvement be? In a shift from the incremental pattern of increasing benefits that characterized past legislation, the prevailing sentiment in Congress is to decrease the level of federal subsidy for natural hazard risk and, when possible, link it to hazard prevention measures. The policy system is moving away from a primarily distributive focus to one also characterized by a federal push for regulation and control of hazards at the state and local level. In significant respects, the federal government is reasserting the original intent of the Disaster Relief Act of 1950 that the basic responsibility for the management of disasters lies with the states and their localities.

Conclusion

In Table 1, the various natural hazard policies and related actions discussed in this article are categorized according to stages of emergency management. A number of conclusions about the development and present structure of natural hazard policy can be made.

Clearly, a significant proportion of actions in recent years at all levels of government has been regulatory in intent. Regulation means, in this context, the attempt by government to mitigate hazards through comprehensive planning requirements, zoning, building codes, and other forms of control. The federal government has moved from an exclusive distributive orientation, the provision of aid to hazard victims, to one also emphasizing planning and mitigation. However, most of these programs have yet to be fully implemented or have only met with mixed success. Delays in implementation have been common along with difficulties in getting state and local governments to comply with federal mandates.

Yet, many states and localities have acted on their own in developing innovative approaches to hazard control: Several statewide comprehensive plans address natural hazards, and many communities employ new land-use techniques such as risk zoning. Consequently, when examining state and local participation in the development of hazard programs, the picture is mixed. Some jurisdictions have taken strong steps; others have adopted regulations but have been lax in their enforcement; and many have taken no action at all. One explanation may be the level of exposure that a governmental entity has had to natural hazards. In areas with a past history of severe hazard events, such as the state of California and the city of Los Angeles with earthquakes, the likelihood of effective action is high. The crisis atmosphere produced by a natural disaster has also played a decisive role in stimulating action.

TABLE 1
Natural Hazard Policies and Related Developments by Stages of Emergency Management

Level of Government	Emergency Management Stage		
	Pre-Disaster Mitigation/Prevention	Pre-Disaster Preparedness/ Disaster Response	Post-Disaster Recovery
Federal	<ul style="list-style-type: none"> • U.S. Corps of Engineers' structural flood control program (Flood Control Act of 1936) • Cirrus and Stormfury hurricane-seeding projects (1947-73) • Flood hazard maps and floodplain management plan (National Flood Insurance Act of 1968) • Funds for state coastal land-use planning (Coastal Zone Management Act of 1972) • Inspection of nonfederal dams (National Dam Inspection Act of 1972) • Public recipients of disaster relief funds must evaluate natural hazards and take action to mitigate them (Section 406, Disaster Relief Act of 1974) • Mandates development of earthquake prediction methodology (Section 5(c), (2), Earthquake Hazard Reduction Act of 1977) • Preservation and restoration of natural floodplains (Executive Orders 11988 and 11990, 1977) • Damage suit filed under the National Flood Insurance Program (U.S. v. Parish of St. Bernard and Jefferson, 1981) 	<ul style="list-style-type: none"> • Procedures establishing disaster declaration (Disaster Relief Act of 1950) • State grants for disaster relief planning (Section 8, Disaster Relief Act of 1969) • Creation of the Federal Emergency Management Agency (Executive Order 12127-1979) 	<ul style="list-style-type: none"> • Creation of Federal Crop Insurance Corporation (Agricultural Adjustment Act of 1938) • Administrative framework for disaster relief (Disaster Relief Act of 1950 and subsequent acts and amendments) • Disaster-specific relief acts, often expanding aid programs (e.g., Pacific Northwest Disaster Relief Act of 1965) • Flood Insurance (National Flood Insurance Act of 1968) • FEMA administrative rule establishing non-negotiated cost split (1980)
State	<ul style="list-style-type: none"> • Earthquake building standards for public schools (Field Act of 1933—California) • Local floodplain regulations must be consistent with state standards (Cobey-Alquist Floodplain Management Act of 1965—California) • Regulation of construction practices in zones of known seismic hazard (Alquist-Priolo Special Studies Zone Act of 1972.—California) • Natural hazard prevention as a goal of comprehensive statewide planning (Oregon Statewide Land-Use Planning Program—Act of 1973) • State land trade for property in floodplains (Arizona Flood Relocation and Exchange Law of 1979) 	<ul style="list-style-type: none"> • Emergency management powers as implied in the 10th Amendment of the U.S. Constitution, the reserve clause • Comprehensive Cooperative Agreement between FEMA and state emergency agencies (1981) 	
Local	<ul style="list-style-type: none"> • Regulations and other hazard control techniques: risk zoning, subdivision control, hazard building codes, acquisition of hazard area, lease of hazard-prone land with restrictive covenants, hazard easements, development moratoria, and growth controls 	<ul style="list-style-type: none"> • State delegation of emergency responsibility or exercise of home-rule power, e.g., declaration of a state of emergency and/or curfew 	

Available evidence indicates that improvements can be made in emergency preparedness planning, especially where intergovernmental and/or interagency coordination is required. A significant constraint on planning for emergencies has been the low priority given this activity. Unfortunately, a widespread attitude among public officials, especially elected ones, is that because of the infrequent occurrence of natural disasters, resources should be targeted for more immediate, pressing issues. It will be difficult to achieve marked gains in the quality of emergency preparedness unless such perceptions change.

An issue that Congress has been debating and will continue to do so in the future is the type and level of benefits that the federal government should provide to states, localities, and individuals in meeting the costs of natural disasters. The broader issue of governmental responsibility in assuming individual risk and the impact that subsidization of risk has on the federal budget is currently being debated in Washington. Even if levels of disaster aid are not substantially cut in response to changes in attitudes toward the risk question, the federal government will continue to take stronger

measures to ensure that legal requirements of disaster assistance are met, including provisions regarding disaster mitigation. In other words, disaster aid has become part of the cost-control question.

In 1977, several experts on natural hazards observed that there is no one national policy. Legislation has expressed a variety of goals, which have been described in this article: enhancement of human health, avoidance of surprise and disruption, environmental protection or enhancement. Some goals have even been contradictory: national economic efficiency *versus* equity in the distribution of costs and benefits.¹¹ There has been some interest in Congress in an omnibus piece of disaster legislation that would establish a uniform national policy. Passage of such an act in the near future is unlikely (an all-perils insurance program has been debated for a decade). But natural hazards is a policy area in transition. Much greater emphasis is being given to pre-disaster planning and mitigation. It is likely to be through the effective implementation of these measures, not in the formulation of new legislation, that significant gains in natural hazard control will be made in future years.

Notes

1. James F. Anderson, *Public Policy-Making* (New York: Holt, Rinehart and Winston, 1984), p. 50; and George C. Edwards III and Ira Sharkansky, *The Policy Predicament* (San Francisco: W.H. Freeman, 1978), pp. 280-282. For a discussion of the role of crisis in natural hazard decision making, see Ian Burton *et al.*, *The Environment as Hazard* (New York: Oxford University Press, 1978), pp. 136-139.
2. Claire Rubin, *Managing the Recovery From a Natural Disaster*, Management Information Service Report, Vol. 14 (February) (Washington, D.C.: International City Management Association, 1982).
3. *Ibid.*, p. 2.
4. Lee M. Thomas, Statement at the Hearings Before the Subcommittee on Water Resources, U.S. House of Representatives, 97th Cong. 2nd Sess. on "Disaster Relief Act Amendments of 1982," Aug. 13 and 17, 1982, p. 64.
5. Raymond J. Burby and Steven P. French, "Coping with Floods: The Land Use Management Paradox," *Journal of the American Planning Association* 3 (July 1981), p. 294.
6. Findings and Recommendations, United States Magistrate, 5th Cir., April 1983 on *United States of America v. The Parish of St. Bernard, et al.*, No. 81-1808 (5th Cir. May 1, 1981) and *United States of America v. The Parish of Jefferson, et al.*, No. 81-1810 (5th Cir. May 1, 1981). A number of other legal cases have involved the National Flood Insurance Program (NFIP). The government's right to deny insurance to persons who live in non-participating communities has been upheld: *Texas Landowners Rights Association v. Harris*, 453 F. Supp. 1025 (D.C.C. 1978). The right of suit against a federal savings and loan association for failure to require the purchase of federal flood insurance was denied an owner of a flood damaged home: *Till v. Unifirst Federal Savings and Loan*, 653 F.2d 152 (5th Cir. 1981). The authority of the federal government to suspend communities from participation in NFIP due to failure to adopt or adequately enforce flood control measures was upheld: *Town of Falmouth, Mass. Board of Selectman v. Hunter*, 427 F. Supp. 26 (D. Mass. 1976).
7. William J. Petak and Arthur A. Atkisson, *Natural Hazard Risk Assessment and Public Policy: Anticipating the Unexpected* (New York: Springer-Verlag, 1982), pp. 448-451.
8. Federal Emergency Management Agency, *Interagency Agreement for Nonstructural Damage Reduction Measures as Applied to Common Disaster Planning and Post-Flood Recovery Practices* (Washington, D.C.: Federal Emergency Management Agency, December 15, 1980). Besides the creation of Hazard Mitigation Teams, an interagency policy on flood planning and recovery was established. The policy was formulated in accordance with a position developed in U.S. Water Resources Council, *A Unified National Program for Floodplain Management* (Washington, D.C.: U.S. Water Resources Council, September 1979) and Executive Orders 11988 and 11990 (1977). These EOs require federal agencies to emphasize the restoration and preservation of the natural features of floodplains and wetlands in project planning.
9. Thomas, *op. cit.*, pp. 23-25.
10. Daniel Mazmanian and Paul Sabatier, *Implementation and Public Policy* (Dallas: Scott, Foresman, 1983), pp. 21-25.
11. Lowell Dodge, Statement at the Hearing Before the Subcommittee on Science, Technology and Space, U.S. Senate, 98th Cong. 1st Sess. on "Earthquake Hazards Reduction Act Reauthorization," March 3, 1983, p. 35.
12. Karl V. Steinbrugge, Statement at the Hearing Before the Subcommittee on Science, Technology and Space, U.S. Senate, 98th Cong. 1st Sess. on "Earthquake Hazards Reduction Act Reauthorization," March 3, 1983, p. 45.
13. Alan L. Sorkin, *Economic Aspects of Natural Hazards* (Lexington, Mass.: Lexington Books, 1982), pp. 93-96.
14. Rutherford H. Platt, *Intergovernmental Management of Flood-*

- plains (Boulder, Colo.: Institute of Behavioral Science, University of Colorado, 1980), pp. 16-25.
15. Petak and Atkisson, *op. cit.*, pp. 71-72.
 16. A summary of various techniques employed in flood hazard control can be found in Ralph M. Fields Associates, *State and Local Acquisition of Floodplains and Wetlands* (Washington, D.C.: U.S. Water Resources Council, 1981). For a related discussion, see J. A. Kusler, *Statutory Land Use Control Enabling Authority in the Fifty States* (Washington, D.C.: Federal Insurance Administration, 1976).
 17. J. Eugene Haas, *et al.*, eds., *Reconstruction Following Disaster* (Cambridge, Mass.: The M.I.T. Press, 1977), pp. xxxiii-xxxiv.
 18. Leonard D. Goodisman, "Budgeting and Field Discretion in Disaster Relief," *Public Budgeting and Finance* 3 (Spring 1983), pp. 100-101.
 19. Clark F. Norton, *Emergency Preparedness and Disaster Assistance: Federal Organization and Programs*, Report No. 78-102 (Washington, D.C.: Congressional Research Service, 1978), p. 70.
 20. U.S. General Accounting Office, *States Can Be Better Prepared to Respond to Disasters*, Report CED 80-60 (Washington, D.C.: U.S. General Accounting Office, March 31, 1980).
 21. U.S. General Accounting Office, *Consolidation of Federal Assistance Resources Will Enhance the Federal-State Emergency Management Effort*, Report GAO/GAD-83-92 (Washington, D.C.: U.S. General Accounting Office, August 30, 1983).
 22. Gerard J. Hoetmer, *Emergency Management*, Baseline Data Report, Vol. 15 (April) (Washington, D.C.: International City Management Association, 1983).
 23. This element of hazard planning is discussed in Duane D. Baumann and Clifford Russell, *Urban Snow Hazard: Economic and Social Implications* (Urbana, Ill.: Water Resources Center, University of Illinois, 1971), p. 103.
 24. An analysis of the relationship between hazard perception and community decision making can be found in Alan J. Wyner and Dean E. Mann, *Seismic Safety in California: Local Governments and Earthquakes: A Report to the National Science Foundation* (Santa Barbara, Calif.: Department of Political Science, University of California, 1983), pp. 318-324.
 25. Theodore J. Lowi, "American Business Public Policy: Case Studies and Political Theory," *World Politics* 16 (July 1964), pp. 677-715.
 26. Norton, *op. cit.*, p. 70.
 27. The legislative history of disaster relief is complex and involves many separate acts and amendments. For example, even after the enactment of the Disaster Relief Act of 1950, Congress passed individual pieces of legislation, such as the Pacific Northwest Disaster Relief Act of 1965, to deal with specific disaster occurrences. For a brief, but up-to-date summary of the legislation see: Report from the Committee on Environment and Public Works, U.S. Senate, 97th Cong. 2nd Sess. on "Disaster Relief Act Amendments of 1982," May 28, 1982, p. 1.
 28. Sorkin, *op. cit.*, p. 146.
 29. For a discussion of the politics of the Mt. St. Helens case, see Peter J. May, "Federal-State Relations and Disaster Relief Formulation." Paper presented at the Western Political Science Association Meetings, San Diego, Calif., March 1982. This disaster event also raised a number of other important issues of emergency management. For an analysis of these questions, see Bruce Clary *et al.*, "Floodplain Management in the Mt. St. Helens Watershed: Implications for Local Government," in *Proceedings from the Conference, Mt. St. Helens: Effects on Water Resources*, Report 41 (Pullman, Wash.: State of Washington Water Research Center, 1982), p. 73.
 30. U.S. General Accounting Office, *Federal Disaster Assistance: What Should the Policy Be*, Report PAD 80-39 (Washington, D.C.: U.S. General Accounting Office, June 16, 1980).
 31. Gilbert F. White and J. Eugene Haas, *Assessment of Research on Natural Hazards* (Cambridge, Mass.: The M.I.T. Press, 1975), pp. 117-121.

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²⁵ **Review: American Business, Public Policy, Case-Studies, and Political Theory**

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