

STRENGTHENING STATE FLOODPLAIN MANAGEMENT

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FOREWORD

Floodplain management is a national concern. States can continue to play pivotal roles in cooperative efforts to reduce taxpayer costs for flood losses in coastal and riverine areas. This is an appropriate exercise of the police powers reserved to the states by the U.S. Constitution.

During the past decade many states have established standards for floodplain regulation; carried out mapping programs; coordinated federal, state and local programs; provided technical assistance to localities and landowners; carried out training and education efforts; and promoted other flood loss reduction activities. The strongest local floodplain management efforts are, with few exceptions, in states with active programs.

Despite some strong state programs, development pressures, conflicting intergovernmental policies and inadequate management have allowed and even encouraged continuing development in some flood-prone areas. Unless active measures are taken to guide future development, annual flood losses are projected to increase to between \$4 and \$5 billion by the turn of the century, despite increased use of flood control works. Much of this amount will be paid by taxpayers through subsidized flood insurance, disaster relief, low-cost rehabilitation loans and grants and flood control works. In the past, this financial burden was borne almost entirely by the federal government; but evolving cost-sharing policies will require each state to bear an increasing share--as much as hundreds of millions of dollars in a major disaster. It therefore behooves state legislatures to enact sound floodplain management programs to prevent this drain on state and local treasuries.

Seven percent of the nation's lands are floodplains; over seven million structures are located there and over 16,000 communities have flood hazard areas within their boundaries. At present, the nation's flood-prone development is insured through the National Flood Insurance Program for a staggering \$100 billion. All flood disaster relief programs--including the Internal Revenue Service casualty loss, Small Business Administration loans, Farmers Home Administration loans, disaster relief and flood insurance claims payments--cost the federal taxpayer \$3 to \$4 billion each year. This figure does not include the costs to affected state and local governments.

Losses can be minimized through careful planning, control of new construction in flood hazard areas, and other mitigation activities. But a concerted and coordinated effort by the federal, state and local sectors will be required. This partnership and the importance of state floodplain management have been discussed in the Water Resources Council report, A Unified National Program for Floodplain Management (September, 1979).

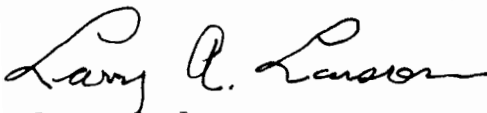
We are entering an important new era in the management of the nation's flood-prone lands. Nonstructural approaches such as regulation, acquisition and relocation, and flood warning systems have emerged as national priorities because of their cost-effectiveness and

multiple benefits. More than 16,000 communities have enrolled in the National Flood Insurance Program. Increased sophistication in combining floodplain management techniques is evident. But tailoring of plans and programs to specific situations requires improved coordination, technical expertise, and training and education at all levels. The states are in a unique position to lead this effort. Flood loss reduction is greatly enhanced in those states with strong state floodplain management programs.

We hope this report will encourage states to establish or strengthen floodplain management programs, and stimulate the federal government to assist states in strengthening floodplain management. We make specific recommendations on how these can be accomplished.

The Association of State Flood Plain Managers is pleased to have worked with the Water Resources Council in the development of this report. We appreciate the assistance of the entire council staff and particularly acknowledge the direction and assistance of Frank Thomas and Tim Maywalt. We thank Dr. Jon Kusler, who has served as a consultant to the Association and a link with the Water Resources Council. He also contributed a portion of report materials. Patricia Bloomgren, of the Flood Plain Management staff in the Minnesota Department of Natural Resources, has been our principal author. She has collected and synthesized data and prepared drafts which have been reviewed by the officers and Regional Representatives of the Association. These regional representatives coordinated review with the states in their regions:

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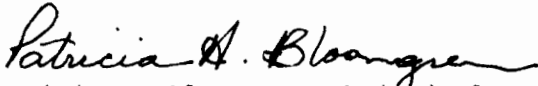
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PREFACE

This report provides an overview of existing state floodplain management, makes suggestions for strengthening existing programs and provides a framework for developing new ones. Chapter 1 is an analysis of state floodplain management statutes; Chapter 2 addresses selected aspects of implementation; Chapter 3 examines court cases relating to state floodplain management laws; and Chapter 4 provides guidance drawn from experience in implementing state floodplain management programs, and concludes with recommendations for strengthening the state role in the federal-state-local partnership necessary to achieve sound floodplain management. Appendices provide profiles on each state program and a bibliography of state floodplain management materials.

Information was gathered from each state initially through telephone contacts. This was followed by a more detailed examination of each state's continuing activities and publications. Subsequently, discussions were held with a variety of state program personnel. The materials submitted by the states were then analyzed for inclusion in the appropriate chapters of this report.

We hope that this document can serve as a valuable resource to both the federal and state establishments in developing the necessary legislative policies and programs to help the states strengthen their roles in floodplain management. This will help us both to achieve our mutual goal of reducing the nation's future flood damages.



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EXECUTIVE SUMMARY

This report provides an overview of existing state floodplain management efforts and makes suggestions for strengthening existing programs and for establishing new ones. In the last two decades state programs have increased the effectiveness of city, county, town and village efforts. Twenty-seven states have adopted statutes authorizing a state agency to regulate floodplain areas or establish standards for local regulations. Most of the remaining states have, at a minimum, provided technical assistance to local governments to help implement regulations of the National Flood Insurance Program.

Principal State Program Activities

- (1) Disseminating information about the National Flood Insurance Program and assisting FEMA to implement it;
- (2) Mapping floodplains and assisting in federal mapping efforts;
- (3) Establishing and maintaining data storage and retrieval systems;
- (4) Establishing minimum standards for local programs;
- (5) Preparing model ordinances and manuals;
- (6) Assisting in the interpretation and use of floodplain data;
- (7) Processing permits for private floodplain uses;
- (8) Reviewing and regulating public uses such as roads and bridges;
- (9) Educating local officials and the general public through workshops, preparation of materials and consultations;
- (10) Preparing disaster mitigation plans and assisting other agencies to prepare such plans;
- (11) Assisting localities in evaluating various flood damage reduction alternatives;
- (12) Coordinating other state, federal and local floodplain management efforts;
- (13) Monitoring floodplain development; and
- (14) Undertaking supplementary floodplain management measures such as land acquisition.

Key Elements in State Programs

Experience of the last decade indicates that certain elements are found in the more effective state programs. (Note that not all programs contain all elements.) The following are key elements:

(1) A lead agency. A floodplain coordinating agency, or division within an agency, is necessary. Its personnel should have expertise in floodplain management, not just water resources management or civil defense. At a minimum, the lead agency should have authority to coordinate activities, provide technical assistance and education and establish standards.

(2) Adequate funding. The lead agency must have funding sufficient to provide expert, interdisciplinary staff and mapping, technical assistance; public education; monitoring and enforcement; and nonregulatory supplementary measures such as land acquisition.

(3) Expert staff. A staff that has specific training in floodplain regulation should be provided. Mapping, acquisition, floodproofing and other related expertise is desirable.

(4) Regulation of private uses. A state agency needs statutory authority either to regulate directly private floodplain uses or to ensure local adoption and administration of floodplain regulations. Not all states have this authority.

(5) Supplementary floodplain management measures. Statutory authorization may also provide for nonregulatory floodplain management techniques such as marking flood hazard areas, operating flood warning systems, development of flood hazard mitigation plans, and acquisition of selected flood-prone areas either before or after a disaster.

(6) Rules. After a statute has been adopted, the administering agency adopts rules or regulations to supplement statutory provisions dealing with map standards, floodproofing, nonconforming uses, exemptions, project review, flood control works and other related areas.

(7) Mapping and data gathering. The state either maps floodplains or assists with federal or local mapping. The state also coordinates the collection of natural resource data that is related to floodplains--hazard mapping, topographic mapping, wetland mapping, coastal zone mapping, soils mapping and other data-gathering efforts. The state should either serve as the repository for flood insurance data and other information or is in close contact with such a repository.

(8) Technical assistance. The state should provide continuing technical assistance to communities, other state agencies and private landowners, often in cooperation with federal and regional planning agencies. Areas for technical assistance may include map interpretation, flood hazard mitigation planning, flood insurance, acquisition and project review.

(9) Education. The state needs to provide continuing educational support for local officials, landowners, state employees, lenders, lawyers and others dealing with floodplain activities. Such educational efforts may be carried out in cooperation with federal agencies, regional planning agencies, universities, and others.

(10) Planning before and after floods. It is desirable for the state to carry out flood hazard mitigation planning in cooperation with communities, federal agencies and state emergency services personnel.

Federal Role

The federal government could encourage the development of key elements in state and local programs through several initiatives:

(1) Congress and federal agencies should place nonstructural measures on an equal financial and administrative footing with structural measures by providing explicit direction to the field staff.

(2) Congress and federal agencies should require that nonstructural measures be adopted as a condition for funding structural measures.

(3) Federal agencies should increase the intermediary role played by the states to help implement federal, state and local floodplain management within watersheds.

(4) Congress and the Federal Emergency Management Agency (FEMA) should continue financial support to states to enhance floodplain management capability. Additional financial support should also be considered to supplement state monitoring, planning and other capabilities, particularly when it is cost-effective for states to help carry out federal programs such as the National Flood Insurance Program.

(5) Federal agencies should make better use of state agencies with expertise in pre-flood planning, site review and post-flood hazard mitigation.

(6) FEMA, the U.S. Army Corps of Engineers and other federal agencies should stress the limited nature of federal regulations such as the NFIP minimum elevation and encroachment standards. They should promote more stringent state and local floodway delineation, flood protection and other standards.

(7) The Office of Management and Budget (OMB), the Water Resources Council (WRC), and other federal agencies should improve federal consistency and coordination in flood control, insurance, disaster assistance, wetland protection. Federal, state and local floodplain management programs should likewise be made more compatible.

(8) Federal agencies (particularly FEMA) should improve federal floodplain mapping, map dissemination and data storage programs, especially in urban and coastal areas. Larger scale and more accurate maps should be developed in cooperation with states and localities. These maps should be on an orthophoto or topographic base. For rural areas and some urban areas, a tradeoff between map scale and accuracy and technical assistance may be possible. Wave heights are needed for coastal maps. Floodway delineations should be improved for some riverine areas. Serious legal and administrative problems as well as substantial loss of federal investment will result if the raw data developed for FEMA flood insurance studies is not retrieved from study contractors who will soon, in many areas, have no further contractual duty to store it.

(9) In cooperation with the states, federal agencies should increase technical assistance in floodplain management techniques, such as mapping, map interpretation and flood warning systems.

(10) FEMA, WRC, OMB, the Corps, the Environmental Protection Agency, the Office of Coastal Zone Management, the Fish and Wildlife Service, the Soil Conservation Service, the Small Business Administration and other agencies should vigorously enforce the Executive Orders on Wetland Protection and Floodplain Management.

(11) Federal agencies should enhance their staff training and education in flood hazard mitigation. State and local officials also need more training. Federal agencies can best provide training on federal programs and issues of national concern. States can best provide more specific training on state legislation and specific floodplain management applications.

(12) FEMA, the National Oceanic and Atmospheric Administration and other federal agencies should encourage and undertake additional cooperative federal, state and local floodplain management planning both before and after floods.

(13) The National Science Foundation, FEMA, the Corps and other agencies should research mapping, monitoring of floodplain development, floodproofing, and social factors of floodplain occupation and use. Research should be conducted in cooperation with states and localities and research results should be disseminated widely.

CHAPTER I

STATUTES ESTABLISHING STATE PROGRAMS

Introduction

State floodplain management programs have been established, in general, by specific state legislative acts authorizing designated state agencies to exercise regulatory, mapping, technical assistance and other powers.

In 1958, only seven states had enacted and were enforcing state floodplain management regulations, and these were principally for narrow channel encroachment areas (Murphy, 1958). Six of these programs had been adopted in response to catastrophic floods. By 1969, 15 states had channel encroachment statutes or regulations for broader flood hazard areas (U.S. Water Resources Council, 1971). At present, 27 states have adopted statutes authorizing state regulations for channel, floodway or flood fringe areas. States with new regulatory programs since 1969 include Arizona, Arkansas, Colorado, Maryland, Massachusetts (redefined wetland to include floodplain), New York, North Carolina (coastal), Oklahoma, Pennsylvania, Rhode Island (redefined wetland to include floodplain), Texas and Vermont.

The materials in Chapter I discuss state enabling statutes that authorize either (1) direct state regulation through permit procedures for floodway and/or flood fringe areas, or (2) the establishment, by the state, of standards for local regulation of flood hazard areas. The former programs are usually authorized by a statute principally addressing flood problems, the latter either by the type of statute or one concerned with flooding as part of coastal zone management, shoreland zoning, critical area protection or comprehensive land use management. Chapter II will consider implementation of these statutes in greater detail.

State and State-supervised Local Regulation

State Regulation

Statutes authorizing direct state regulation of floodway or floodplain areas (usually by a water resources or natural resources agency) include the following.

(1) Statutes requiring permits for dams, reservoirs, levees and other flood control works, and for fill, docks and other obstructions to navigable waters to ensure their safety, protect navigation, and protect flood flow capacity. At least 39 states require the approval of plans and designs for dams to ensure the safety of proposed structures. In some states, such as Wisconsin, the agency must account not only for safety but also the economic impact of the proposed dam, its effect on navigation and other public rights in navigable waters, and the impact on scenic beauty. Dam permit laws have been strongly endorsed by the courts because of the serious safety hazards posed by improper design.

(2) Statutes requiring permits for floodway areas. Five states exercise some measure of direct control over floodways. Floodways are delineated in some but not all of the programs. Programs usually evaluate the impact of proposed developments through backwater computations conducted on a case-by-case basis. Often, increases in flood height are permitted if flood damages on other lands are not thereby increased. Floodway controls have received strong judicial support.

(3) Statutes requiring permits for structural use in both floodway and flood fringe areas. Four states require permits for uses in both floodway and flood fringe areas. New Jersey and Washington require that floodplains be mapped prior to application of the regulatory standards. However, Iowa and Maryland require a permit for construction in the floodplain, whether or not the area has been mapped.

(4) Statutes requiring subdividers to submit their plans for state approval in areas potentially subject to flooding. State subdivision regulations take the form of interstate land sales regulations and state-level subdivision review acts. However, only a few of these programs specifically address flooding. The Michigan act is most specific and includes a wide variety of requirements related to flooding and drainage.

(5) Statutes requiring permits for structures or fill in coastal waters or wetlands. At least 13 states have adopted statutes requiring state permits for alteration of coastal wetlands and three require them for inland wetlands. Flood hazards are often considered in evaluating proposed uses. Other programs protect dune and beach areas and require permits for groins or similar construction that may accelerate shoreline erosion.

State Standard-setting for Local Regulations

In contrast with those programs involving direct state regulation, 16 states have adopted statutes authorizing a state agency to adopt standards and criteria for local regulation of flood hazard areas. The programs of California, Colorado, Nebraska and North Carolina apply only to floodway areas. The programs of Arizona, Arkansas, Indiana, Iowa, Kansas, Maryland, Minnesota, Montana, New Jersey, New York, Oklahoma, Vermont, Washington, and Wisconsin apply to both floodway and flood fringe areas. Indiana and New Jersey directly regulate floodways but establish minimum standards for local regulation of fringe areas. In most instances regulations adopted by local governments must meet state standards. However, some of the standards allow significant discretion on the part of local officials.

The statutes of Arkansas, Colorado, Minnesota, Montana, Nebraska, New Jersey, New York and Wisconsin authorize the state agency to directly regulate floodplain areas if local governments fail to adopt and administer regulations meeting state standards. Minnesota, Montana, Nebraska and New Jersey authorize direct state regulation only when local units fail to adopt regulations within a specified period after receiving flood data. Arkansas and New York authorize direct state regulation if local units of government fail to adopt regulations for flood insurance purposes.

Inland v. Coastal

Most state floodplain regulatory statutes apply only to inland areas, despite the severe flood problems and population pressures along the coast. Some states regulate coastal flood and erosion areas as part of their coastal zone management programs. Similarly, Washington addresses coastal flooding through shoreline zoning. Florida and Hawaii have adopted beach setback lines. Other coastal states regulate wetland alteration, although control of other floodplain areas is a local responsibility.

Elements of State Statutes

Statutes authorizing state regulatory programs differ from local zoning or subdivision programs in that they have flood-related objectives and apply to narrow strips of land. Local zoning or subdivision regulations have broader objectives for "comprehensive" land use control and apply to whole municipalities.

Purposes or Policy

Most statutes conclude in some manner that recurrent flooding threatens public health, safety or general welfare. Therefore, a state agency is established to regulate hazardous areas. Some statutes also have broader goals: Maryland's is particularly comprehensive, including minimization of the impacts of flooding, "comprehensive watershed management, to encourage local governments to manage flood-prone lands in a comprehensive manner; and to provide for the biological and environmental quality of watersheds of the state."*

Definitions

The definition section is very important because it often determines the scope of agency power. Terms often defined include watercourse, floodway, floodplain, and obstruction. Most statutes authorize regulation of the 100-year floodplain along rivers and streams. Colorado defines natural hazard areas of state interest to include floodplains subject to flooding by an intermediate regional flood including

- "(a.) Mainstream floodplains;
- (b.) Debris-fan floodplains; and
- (c.) Dry wash channels and dry wash floodplains"

Mapping

Most statutes require that the state agency map areas or assist local governments in mapping these areas. Mapping is usually prerequisite to adoption of regulations. However, the Iowa and Maryland statutes require permits for floodplain uses, whether or not mapping has taken place.

*See Table 1 for citations to state statutes.

Maryland directs the Department of Natural Resources to divide the state into "watersheds for the purpose of flood control planning and management and establish a schedule for completion of studies of all watersheds." Studies are to define both existing flood magnitude and frequency and the magnitude and frequency of flooding based upon ultimate planned development.

In Illinois, the Department of Transportation is directed to define floodplains on a township-by-township basis. The statute charges the department "with the planning, development and evaluation of the most effective combination of retention storage, channel improvement and floodplain preservation..."

Arizona authorizes a state commission either to directly map floodplains or to provide funds to local floodplain management boards for such mapping. However, state funds are not available for topographic mapping or gathering elevations or cross-sectional data.

Several statutes establish quite specific standards for encroachment lines. The Connecticut statute provides that:

The Commission, in establishing such encroachment lines, shall base their location on the boundaries of the area which would be inundated by a flood similar in size to one or more recorded floods which have caused extensive damages in such area or on a size of flood computed by accepted methods applicable generally throughout the state or a region thereof. The determination of the size of the flood and the boundaries of the inundated area shall take into consideration the effects of probable future developments. The position of the lines may vary from the boundaries of the inundated areas so as to minimize the area of land to be regulated when a portion of the inundated area does not contribute to the flood-carrying capacity of the waterway. The position of the lines shall, insofar as practical, equitably affect riparian properties and interests depending upon existing topography and shall be interdependent throughout the reaches of the waterway, and shall conform with the requirements of the federal government imposed as conditions for the construction of flood control projects....

The Nebraska statute specifies that the location of the encroachment lines shall be "the estimated outer boundary of the floodway of a one hundred year frequency flood, as determined from the available data."

The Arizona enabling statute authorizes local floodplain boards to shift a portion of the burden of identifying floodplains to subdividers and developers. Such a board "may require, by ordinance, developers or subdevelopers to delineate for areas where development is ongoing or imminent, and thereafter as development becomes imminent, floodplains consistent with the criteria developed by the Arizona Water Commission."

The Michigan subdivision review act similarly authorizes a shift of data gathering responsibilities to developers.

Marking Flood Hazard Areas

Several statutes specifically authorize a regulatory agency to mark floodplain areas. A New Jersey statute provides:

The division may conspicuously mark in the field (1) any flood hazard area delineated by the council, and (2) any other area the council may deem necessary to effectuate the purposes of this act. The division may erect markers on any property belonging to the State, or any agency or instrumentality thereof. Such markers may be erected on any county, municipal, or private property provided that such county, municipality, or owner shall have consented thereto.

Every person, corporation, municipality, or other public authority removing, defacing, or otherwise disturbing any marker erected under the provisions of this act shall be subject to penalty not to exceed \$50.00 for each and every offense to be collected in accordance with the penalty enforcement law.

Planning and Surveys

Some statutes vest the agency with broad flood management planning functions; others establish narrow regulatory goals. The Indiana statute is particularly broad in authorizing studies and investigations combined with an action program in regulating flood hazard areas:

The Commission shall make a comprehensive study and investigation of all pertinent conditions of the areas in the State affected by floods; determine the best method and manner of establishing flood control, giving consideration to the reservoir method, the channel improvement method, the levee method, the floodplain regulation method and any other practical method; adopt and establish a comprehensive plan or master plan for flood control for all areas of the State subject to floods; determine the best and most practical method and manner of establishing and constructing the necessary flood control works; and adopt appropriate measures for the prevention of flood damages. The Commission may construct flood control works or any part thereof.

Maryland requires local governments to prepare flood management plans based "upon an evaluation of the alternative management techniques and other findings." Management techniques are to include:

"Flood control dams;
Levees and dikes;
Floodways;
Stormwater detention or retention structures;
Flood warning systems;
Public acquisition;
Flood proofing;
Storm drain and stream maintenance;
Tax adjustment policy;
Subdivision, zoning, and related ordinances; and
Other practical methods."

Permits

Generally a state or local permit is required for every new structure or obstruction within the floodway or flood fringe areas. Permits are sometimes required for public as well as private uses. For example, a California statute provides that "all public agencies shall comply with floodplain regulations..." Public agencies are defined as "the state or any department or agency thereof."

The statutes of most other states are silent on public uses.

Standards for Issuing Permits

The state or local regulatory agency is required to consider impact upon flooding and adequacy of flood protection in evaluating permits. A Connecticut statute states: "The Commission shall issue or deny permits upon applications...based upon the flood-carrying capacity of the waterways, (and) hazards to life and property." The act further provides that due consideration be "given to the results of similar encroachments constructed along the reach of waterway." Cumulative impact is similarly considered in the Indiana statute, which requires that "it shall be unlawful to erect, use or maintain in or on any floodway a permanent abode or place of residence..."

A Nebraska statute specifically requires that:

...in passing upon such application, the commission shall consider (a) the danger to life and property by water which may be backed up or diverted by such obstruction, (b) the danger that the obstruction will be swept downstream to the injury of others, (c) the availability of alternative locations, (d) the construction or alteration of the obstruction in such a manner as to lessen the danger, (e) the permanence of the obstruction, (f) the anticipated development in the foreseeable future of the area which may be affected by the obstruction, and (g) such other factors as are in harmony with the purpose of this act...

Most statutes authorize regulatory agencies to establish more detailed standards for permits in their rules and regulations.

Sanctions

Statutes usually declare that uses without a required permit or in violation of state or local regulations are nuisances and may be enjoined or abated. Violations of the acts are usually declared to be misdemeanors with fines ranging from a maximum of \$50 to \$1,000 and jail sentences from ten days to one year. A continued violation is often considered a separate offense each day after conviction. Often the agency is empowered to seek injunctions to remove violations. In Iowa the agency can remove the violation and charge the landowner. In Maryland the agency can remove the violation and restore the site.

Regulations

As noted earlier, statutes in 16 states either require or encourage local regulations. Cities, villages and counties have been expressly authorized to adopt zoning, subdivision controls or building codes for flood hazards in at least 44 states. Even without such express authorization, local governments have sufficient statutory or home rule powers to adopt such regulations in most jurisdictions (Kusler, 1976).

Standards for Local Regulations--Several approaches are used in state statutes to require or encourage local regulations.

- Arizona and California induce the adoption of local floodway regulations according to minimum state standards by withholding state financial aid for the cost of land acquisition associated with federal flood control projects.
- Iowa and Washington encourage local flood plain regulations by allowing the local unit to assume control of floodplain development within its jurisdiction after such regulations are adopted. This shift is qualified by a requirement that subsequent changes in the local regulations must be approved by the state.
- Indiana and Maryland authorize both state and local regulation of certain floodplain areas; both state and local permits may be required in certain instances.
- Minnesota, Montana and Nebraska authorize a state agency to delineate floodways and floodplains and to submit this information with minimum regulatory standards to local units. The local units are given six months to one year to adopt conforming local land use regulations. If the local units fail to act, the agency itself adopts and enforces appropriate regulations.
- A Wisconsin statute provides that cities, villages and counties must adopt effective floodplain regulations. The state adopts such regulations for a local unit that fails to meet the deadline, and a state agency may charge the local unit for the cost of delineation and enforcement of the regulations. Further, the local units have a duty to enforce any regulations adopted by the state. The enforce-

ment agency has broadly interpreted the statute and has in effect a program to aid local units in gathering information and preparing regulations.

- Arkansas, New York and Pennsylvania authorize a state agency to adopt floodplain regulations if local units fail to do so in compliance with the National Flood Insurance Program. Minnesota requires that all communities included on a list developed by the Commissioner of Natural Resources adopt regulations when adequate technical data are available. The Minnesota Supreme Court has endorsed the directive of a lower court ordering (mandamus) a delinquent community to adopt regulations within 72 hours.
- In North Carolina, state permits are required for development in critical coastal flooding and setback areas if local governments fail to adopt regulations consistent with state standards.

Technical Assistance--Most statutes authorize and direct state agencies to provide maps and technical assistance to local governments. Model ordinances are often specifically mentioned.

Grants--Several states have recently adopted statutes providing grants-in-aid to local governments for floodplain management. As noted earlier, Arizona provides financial assistance to communities for mapping and relocation. Arizona and California provide 50% of the cost of easements and land acquisition for federal flood control works in communities that agree to adopt regulations meeting state standards. Pennsylvania provides grants to municipalities to help pay administrative and enforcement costs for floodplain management. The act requires that grants shall be equal to:

- (i) 50% of the allowable costs for preparation of official plans, administrative, enforcement and implementation costs required by this act, and revisions of official plans incurred by any municipality or county which prior to the effective date of this act adopted a flood area management program which complies with Title 24, section 1910.3(a) or 1910.3(d) of the regulations of the Department of Housing and Urban Development, Federal Insurance Administration, or (ii) 50% of the allowable costs for preparation of official plans, administrative, enforcement, and implementation costs required by this act, and revisions of official plans incurred by any municipality or county not covered by subclause (1); and (iii) 50% of the allowable costs for administration of official plans incurred by any municipality or county. Allowable costs for administration of official plans shall not include these costs which are offset by reasonable permit fees imposed by the municipality or county.

In a similar vein, Maryland has recently adopted a bond issue to provide money to localities for capital projects. Acquisition is to be emphasized although other measures should also be considered.

State Action in the Event of Local Inaction--In general, statutes authorize the state regulatory agency to adopt regulations in the event of local inaction only after floodplains have been delineated by the state and a prescribed period of time has passed--usually 6 months to a year. Notice and hearing are often required before regulations are put into effect.

Acquisition

Several statutes authorize the regulatory agency to acquire flood prone areas as a supplement to regulations. A new Arizona statute authorizes the governing board of a town, city or county to petition the state agency to designate specific flood hazard areas for flood relocation assistance and exchange for state land. At least five landowners must petition the state for such exchange. An eligible area must be a certified floodplain and have no authorized flood control project. Funds must be available from federal, state or local sources for the land exchange. Funds must also be available in the state floodplain land exchange fund to compensate the state land trust for estimated losses on exchanged properties.

At least four statutes authorize agencies to acquire nonconforming floodway uses. The Connecticut statute provides:

Whenever the Commissioner finds that existing structures or encroachments within the lines (encroachment lines) established constitute a hazard to life and property in the event of flood, he is empowered to take such land and structure...and cause removal of such encroachment.

Similarly the Iowa statute authorizes the regulatory agency to remove any structure which "adversely affects the efficiency of or unduly restricts the capacity of the floodway..."

TABLE 1

STATE FLOODPLAIN STATUTES

STATE	STATUTE	AREA REGULATED	PROCEDURES
Arizona	<u>Ariz. Rev. Stat. Ann.</u> <u>§45-2701, et seq.</u>		Local governments are directed to regulate floodplain areas. The state establishes criteria for mapping areas, assists communities in mapping, provides relocation and land exchange assistance, provides technical assistance, and provides financial assistance in flood control projects. Local governments failing to adopt floodplain regulations required by the acts are ineligible for state financial assistance for flood control projects. Permits issued in violation of regulations are also ineligible for relocation or land exchange.
Arkansas	<u>Ark. Stat. Ann.</u> <u>§21-1901, et seq.</u>	Floodplain	State Soil and Water Conservation Commission is authorized to adopt regulations for a city, county or town which has been denied federal flood insurance or assistance due to lack of adequate regulations.
California	<u>Cal. Water Code</u> <u>§8400-8415 (West)</u>	Floodway	State establishes floodways and minimum standards for local regulations. Failure of responsible local political subdivisions to adopt regulations meeting state standards will result in loss of state funds associated with flood control projects. Local flood control agency can adopt regulations in the event a local general purpose unit fails to do so.

PROCEDURES

STATE	STATUTE	AREA REGULATED
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Colorado	<u>Colo. Rev. Stat.</u> §24-6-104 §24-65.1-502	Floodway	<p>Land use commission is required to develop a total land use plan which must include a plan for floodway areas. If the commission discovers a dangerous land use activity, it must report it to the appropriate county board. If the county commissioners fail to stop the activity, the governor must decide whether the activity is dangerous. If so, the commission is authorized to file a cease and desist order which can be enforced by the appropriate county.</p>
Connecticut	<u>Conn. Gen. Stat. Ann.</u> §25-4a-g (West)	Floodway encroachment lines established by Commissioner of Environmental Protection	<p>Direct state regulation. Notice to affected landowners and hearing prior to adoption of lines. Also state supervised regulation of inland wetlands.</p>
Hawaii	<u>Hawaii Rev. Stat.</u> §179-1 §179-4 §205-2	Floodplain	<p>Direct and exclusive state regulation of conservation districts (which include some floodplains). County regulation of other flood hazard areas. State and local coastal setbacks.</p>
Illinois	<u>Ill. Ann. Stat.</u> ch. 19, §65f; §70-78	Floodplain and floodways	<p>Direct state regulation. Permit required for development in delineated floodplain and also in floodways throughout the state. Notice and hearing required for all orders of the department.</p>

PROCEDURES

STATE	STATUTE	AREA REGULATED	PROCEDURES
Indiana	<u>Ind. Code Ann.</u> <u>§13-2-24-1</u> <u>§13-2-25-1,2 (Burns)</u>	Flood hazard areas (including floodway and floodplain areas)	State establishes standards for local regulation of all flood hazard areas. Direct state regulation for commission floodways with permit required to construct structures, fills, etc. State approval for all local floodplain regulations is required.
Iowa	<u>Iowa Code Ann.</u> <u>§455A.33-37 (West)</u>	Floodplain and floodway	Direct state regulation in most instances. Public hearing and notice required before establishment of state floodplain regulations. Local ordinances must be submitted to state for approval. One approved, administration of permits may be a local responsibility.
Kansas	<u>Kan. Stat. Ann.</u> <u>§12-734</u>	Floodplain	No direct state regulation. State develops standards for local regulation of the 100-year floodplain. Local ordinances must be approved by state. State holds hearings and makes rules consistent with the act. State may enforce local regulations.
Kentucky	<u>Ky. Rev. Stat.</u> <u>§151.220-320</u>	Floodway	State agency has the authority to establish and enforce floodways. Permit required for construction in the floodway.
Maryland	<u>Md. Nat. Res. Code Ann.</u> <u>§8-901 to 8-9A-11</u>	All nontidal floodplains	State maps floodplains. Permits are required for development in all mapped and unmapped floodplains.

PROCEDURES

STATE	STATUTE	AREA REGULATED	PROCEDURES
Massachusetts	Mass. Ann. Laws ch. 131, §40-40A (Michie/Law Co-op)	Floodway Assabet River + its tributaries, Conant Brook Flood Control Reservoir + the Three Rivers Channel on Chico- pee River. "Wetlands" includ- ing areas subject to "coastal flood- ing" and "flooding," coastal and inland wetlands.	Direct state regulation. Public notice and hearing in each city or town in which proposed zones are located. Permits for filling, dredging and other land alterations must be submitted to local conservation commissions and state.
Michigan	<u>Mich. Stat. Ann.</u> §3.521- §3.525	Floodplain includ- ing floodways and erosion hazard areas along Lake Michigan	State permits are required for uses in identified floodway and floodplain areas, unless uses are permitted by state rule or order. State approval required for subdivision in floodplain. State establishment of flood and erosion risk areas along Lake Michigan, setback lines.
Minnesota	<u>Minn. Stat. Ann.</u> §104.01-.08 (West)	Floodplain and floodway	State establishes standards for local regulations. Local units must adopt regulations for floodplains consistent with state standards within six months of the time flood data becomes available. Local regulations must be approved by state. Once a political unit establishes

PROCEDURES

STATE	STATUTE	AREA REGULATED
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Minnesota cont.

floodplain regulations, permit is required for any major alteration to a structure, new structures, fill, etc. State adoption of regulations in the event local units do not adopt adequate regulations.

Montana
Mont. Rev. Codes Ann.
 §89-3503 to 3506
 §89-3508

Floodplain and
 floodway

State designates floodplain and floodway areas and suggests minimum standards for local regulations. Local governments have six months after receiving data to adopt ordinances meeting state standards. State regulates floodways and floodplains in the event local units of government do not adopt satisfactory regulations.

Nebraska

Neb. Rev. Stat.
 §2-1506.01 to
 §2-1501.14

Floodway

State designates floodways and suggests minimum standards for such areas. Local units have one year to adopt regulations meeting or exceeding state standards, otherwise state will directly enforce standards.

New Jersey

N.J. Stat. Ann.
 §58:1-26
 §58:16A-50 (West)

Flood hazard area
 (includes both
 floodway and
 floodplain)

State identifies floodplain and floodway areas. State directly regulates floodways. State establishes standards for local regulation of fringe areas. Local units of government must adopt regulations for floodplain areas meeting state standards within 12 months of identification of areas or state will directly regulate areas.

STATE	STATUTE	AREA REGULATED	PROCEDURES
New York	<u>N.Y. Envir. Conserv. Law</u> §36-0101 to §36-0115 (McKinney)	Floodway and floodplain	State is authorized to adopt regulations for local units of government which are qualified to participate in the National Flood Insurance Program but have not adopted adequate regulations. State provides technical assistance.
North Carolina	<u>N.C. Gen. Stat.</u> §143-215.51 to §143-215.61	Floodway, coastal flood hazard areas	State identifies floodways. Permit required from responsible local government to place any obstruction in a designated floodway (certain exceptions). No direct state control. In coastal areas local governments must regulate flood hazard areas consistent with state standards. Flood protection elevations and setbacks are required.
Oklahoma	House Bill, No. 1094 (1980)	Floodplains	State is to establish standards and criteria for local regulation of floodplain areas by local floodplain boards to qualify communities for the National Flood Insurance Program. Local regulations are to be approved by the state. No direct state regulation.
Pennsylvania	<u>Pa. Stat. Ann.</u> tit. 32, §681-691	Stream channels and associated floodways (as the act has been interpreted)	State regulation for stream channel and narrow floodways. Permits required for placing any obstruction within the encroachment lines (certain exceptions). Municipalities are required to participate in the National Flood Insurance Program and to adopt necessary regulations. The state provides technical assistance and grants-in-aid.
Rhode Island	<u>R.I. Gen. Laws</u> §2-1-18, et seq.	Inland wetlands including the 100-year floodplain	State permits are required for fills and structures in inland wetlands which are defined to include the 100-year floodplain.

STATE	STATUTE	AREA REGULATED	PROCEDURES
Texas	<u>Tex. Water Code Ann.</u> tit. 2, §16.312 (Vernon)	Floodplains	State identifies flood hazard areas and provides assistance to communities wishing to qualify for federal flood insurance. All local governments wishing to do so are authorized to adopt necessary regulations. State approval is required for levees. State studies and monitoring are provided for flood hazard areas pursuant to the Texas Disaster Act of 1975. No direct state regulation.
Vermont	<u>Vt. Stat. Ann.</u> tit. 10, §751-753, §6085 tit. 24, §4409	Floodplains and floodways	State identifies flood hazard areas and promulgates sample ordinances. Local units of government must regulate areas after detailed data is available. Permit required from local units of government with additional approval required from the state for development in designated floodplain areas. Large-scale developments also require regional permits. Flooding must be considered.
Washington	<u>Wash. Rev. Code Ann.</u> §86.16.010, et seq.	Flood Control Zones (interpreted to include both flood- way and floodplain areas)	State delineates and directly regulates flood control zones after notice. Local governments also authorized to regulate areas. State may delegate its authority to administer permits to localities with approved programs.
Wisconsin	<u>Wis. Stat. Ann.</u> §87.30 §59.97(1) (West)	Floodplain (inter- preted to include floodway areas)	Counties, cities, and villages were required to adopt floodplain zoning ordinances, or the Department of Natural Resources was authorized to delineate and directly regulate floodplains. County adoption of shoreland zoning by January 1, 1968, was also required.

CHAPTER II

STATE FLOODPLAIN MANAGEMENT IMPLEMENTATION

Overview

What sorts of activities are being carried out under these statutes? What are program priorities? The following picture emerged from extensive interviews and a questionnaire sent to all state coordinating agencies for the National Flood Insurance Program.

Over the last decades, state floodplain management activities have broadened. Activities in the 1950s and early 1960s involved administration of state channel encroachment laws. Staffing was limited. During the 1960s and 1970s, as new state floodplain management programs were adopted, the scope of activities expanded to include 1) assistance to other units of government, 2) regulation of the floodplain, and 3) adoption of supplementary measures to augment regulation.

Assisting Other Units of Government

Assisting the Federal Insurance Administration to Implement the National Flood Insurance Program

In 1973, with the adoption of mandatory requirements of the NFIP, state priorities shifted to place greater emphasis on the program. In the last seven years, states have played a major role as conduits of NFIP information (see Figure 1), in setting priorities for flood insurance study mapping, in assisting contractors by providing stored data and guidelines on state regulatory programs, and in helping communities to meet the NFIP requirements. Even in states without regulatory powers, the NFIP state coordinator maintains some contact with the study and distributes program information. Many state programs during the past five years have also begun to combine acquisition with regulation and insurance in an effort to develop more comprehensive floodplain management programs. These innovations will be considered in greater detail later in this chapter. Despite at least a modest effort in every state, inadequate enabling authority, inadequate funding, poor flood data, public apathy and lack of intergovernmental coordination still impede implementation.

Assistance to Local Governments

With few exceptions, the highest priority for state programs has been assisting in local regulatory efforts. As noted in the last chapter, most state programs do not directly regulate floodplain areas but instead establish standards and policies for local regulation. Principal activities include the establishment of map priorities, discussions with local officials, education, manual development and project review. The state is the primary contact for local officials because knowledge of state laws, regulations and programs, as well as familiarity with local needs and conditions are basic to floodplain management.

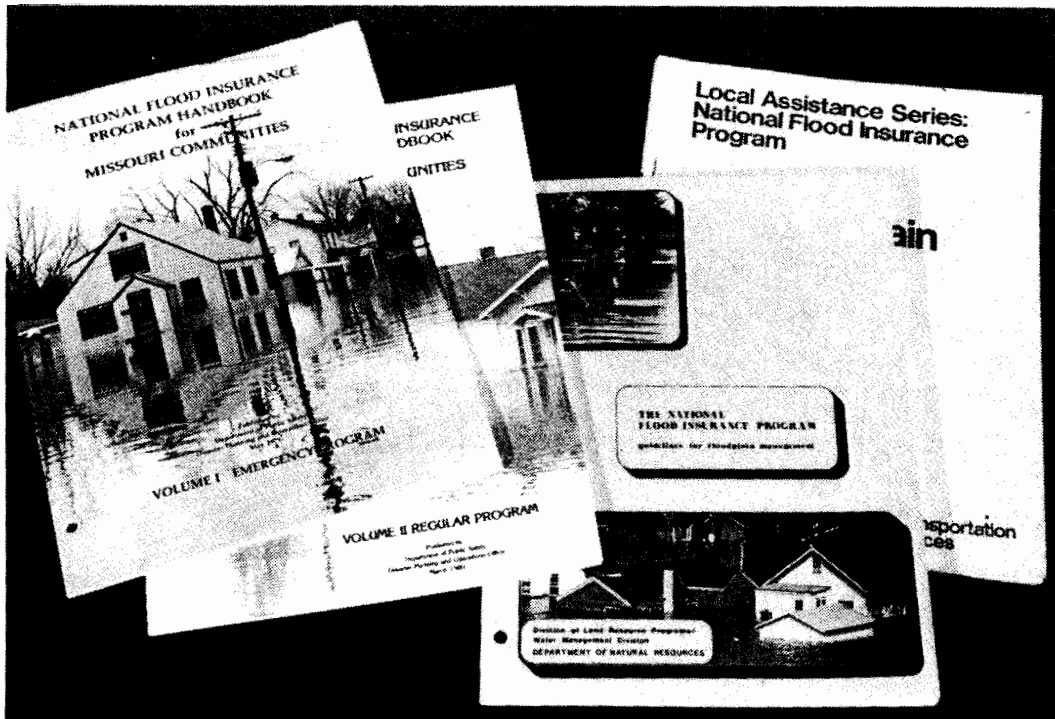


FIGURE 1
 Materials prepared by states to assist communities in meeting requirements of the National Flood Insurance Program

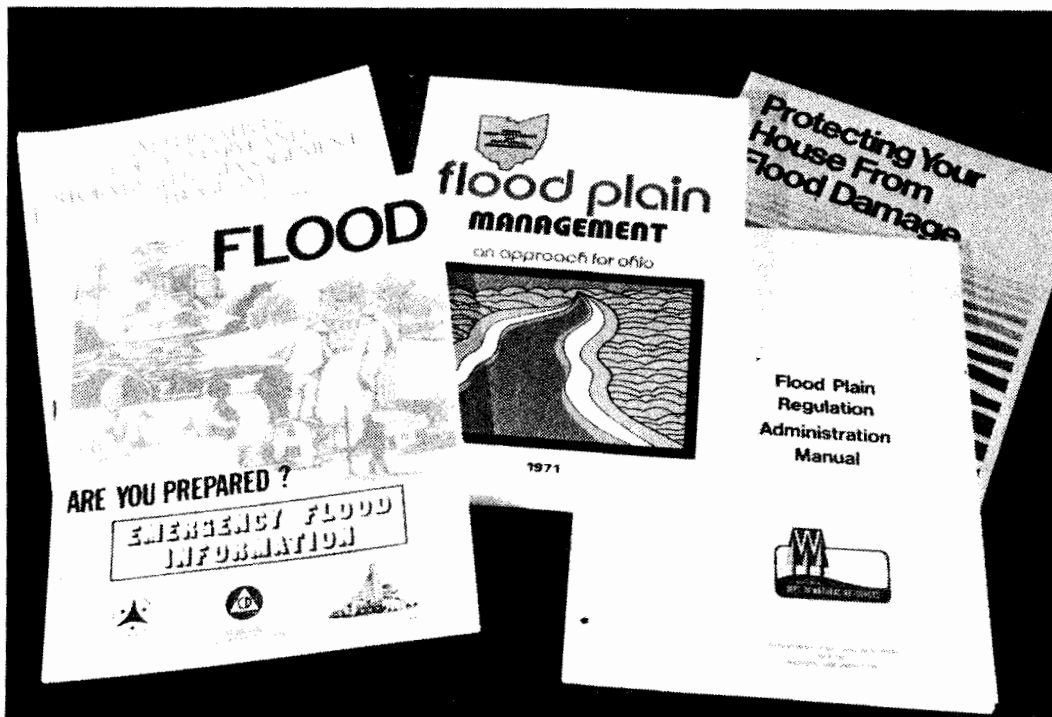


FIGURE 2
 State administrative manuals

Most states have developed program materials, especially model ordinances, and some have developed administrative manuals and a wide variety of informational material on floodplain management (see Figure 2). In fact, 50% of the states have indicated that training and education have a very high priority; the state publications bibliography contains many illustrations of state commitments to local needs, including development of program materials and floodplain management training. Staff people obtain valuable feedback from local officials at hearings, workshops, and through informal contacts. In turn, local officials are aided in integrating regulations into the routine administration of communities' comprehensive planning and regulations. This interaction helps to identify priorities for future training and information needs.

Assisting Other Agencies

State floodplain management programs often aid other state programs such as shoreline zoning in California, Michigan, Minnesota, North Carolina, Rhode Island, Washington and Wisconsin; wetland protection in Connecticut and Massachusetts; and wild and scenic rivers in Michigan and Minnesota. Floodplain management programs also typically review proposals for floodplain development proposed by other agencies such as Departments of Transportation.

Regulating the Floodplain

In a small but significant portion of the nation, states directly regulate part or all of the floodplain or floodways. Floodplain areas that are directly regulated by states are: selected inland floodways in Washington State; floodplains and floodways throughout the states of Iowa and Michigan; selected floodplains and floodways in Illinois and Montana; inland floodplains and floodways in Maryland; floodways in New Jersey; inland "wetland" floodplains in Rhode Island, large-scale development in floodplains and floodways in Florida, Maine and Vermont; and coastal wetland floodplains in Florida, Georgia, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, North Carolina and Texas.

As described in Chapter I, in a second group of states, regulatory agencies have established standards for and encouraged local regulation of floodways and floodplains.

Mapping

As part of state regulatory efforts or assistance to local efforts, many states are involved in floodplain mapping. Some states have technical standards for floodway delineation, mapping or regulation of uses that exceed the federal standards. In several instances, the state has review and approval authority on the designation of floodplains. Some states perform their own technical studies (see Figure 3). Several have performed or are performing studies as FIA contractors. These are some examples of innovative mapping efforts.

- The District of Columbia is undertaking a study of estuary and tidal flooding that will produce a hydraulic model.



FIGURE 3
 Map of Big Blue River, Nebraska
 Source: The Nebraska Natural Resources Commission

- In Arizona and Wisconsin, state money is available to local governments for developing better floodplain maps.
- Colorado has a "piggy-back" contract with FIA contractors to provide floodplain mapping in urban areas at a scale of one inch to 200 feet.
- Maryland uses state funds and Coastal Zone Management Assistance funds to develop maps at a scale of one inch to 60 feet based on FIA studies and state tax maps.

Evaluating Permits

States have played a principal role in evaluating individual subdivision and development proposals. Such evaluations have taken place not only where states exercise direct regulatory powers but where local governments and state governments require technical assistance. Such technical assistance involving case-by-case evaluation of proposals has been particularly important for rural areas without technical staff and for both rural and urban areas with approximate flood maps that lack elevations or floodways.

Measures to Supplement Regulations

Many states have recently strengthened their efforts through new funding and the adoption of nonregulatory measures to supplement regulations. New Jersey has appropriated \$22 million to a cost-sharing program with local governments to construct flood control works; Pennsylvania has allocated money to acquire flood-damaged properties; Maryland supports a cost-sharing program stressing acquisition and relocation through bonding authority; Wisconsin provides money to local units to upgrade floodplain mapping. Using money from Title III of the Water Resources Planning Act of 1965, several states are initiating pilot studies on various floodplain management strategies. Examples of other innovations are described below.

Flood Warning Systems

Pennsylvania has completed a pilot project to use flood insurance studies and maps for flood warning and evacuation. Minnesota uses Title III money to assess various types of flood warning systems in different parts of the state, with emphasis on the needs of Rochester, Minnesota.

Training and Education

Louisiana is preparing curriculum materials for planning schools that stress floodplain management and hazard mitigation. Illinois has developed manuals on various state regulatory programs and the NFIP for local governments. They have also published a homeowner's self-help manual for general distribution. Plans are under way to develop an extension course on floodplain management for local officials who administer the program.

Public Awareness

- Maryland promotes the use of signs to identify the 100-year floodplain or historical high-water marks. Montgomery and Howard Counties have "signed" their floodplains.
- Minnesota assisted the City of Crookston in placing floodplain signs identifying the 100-year elevation on all affected street corners (see Figure 4).
- Colorado has placed signs advising, "In case of flash flood, climb to safety" in Big Thompson Canyon. Signs have also been placed in other high-risk canyons along the front range of the Rocky Mountains (see Figure 5).
- Wyoming has developed a series of public service announcements; one deals specifically with the NFIP.
- California has presented public commendations to five project sponsors for wise use of flood-prone lands (see Figure 6).

Hazard Mitigation Planning and Implementation

- After the 1979 flood in English and Marengo, Indiana, the state assisted the communities in demolishing and relocating residences and businesses that had been seriously damaged, and helped the community secure a HUD Block Grant to rehabilitate other areas.
- Illinois has participated with the City of Wilmington in flood hazard mitigation planning. Several alternatives have been identified and discussed and some implementation has begun.
- Minnesota is participating in flood hazard mitigation planning leading to implementation in selected Minnesota cities where the failure of emergency levees is a major concern.

Floodproofing

- Massachusetts has developed a state floodproofing program, using federal funds, in response to the 1978 "northeaster" that destroyed many coastal residences.
- Several states, including Minnesota and Maryland, have incorporated the Corps' floodproofing regulations into their state building code. Minnesota has also developed an administrative manual to assist in implementing floodproofing measures at the local level.

Acquisition/Relocation

- Pennsylvania has provided bond money to communities to aid them in acquiring flood-damaged properties for open space use.



**100 Year
Base Flood Elevation**

**for further information
contact building inspector**

FIGURE 4

Flood warning signs, Crookston, Minnesota

Source: Minnesota Department of Natural Resources

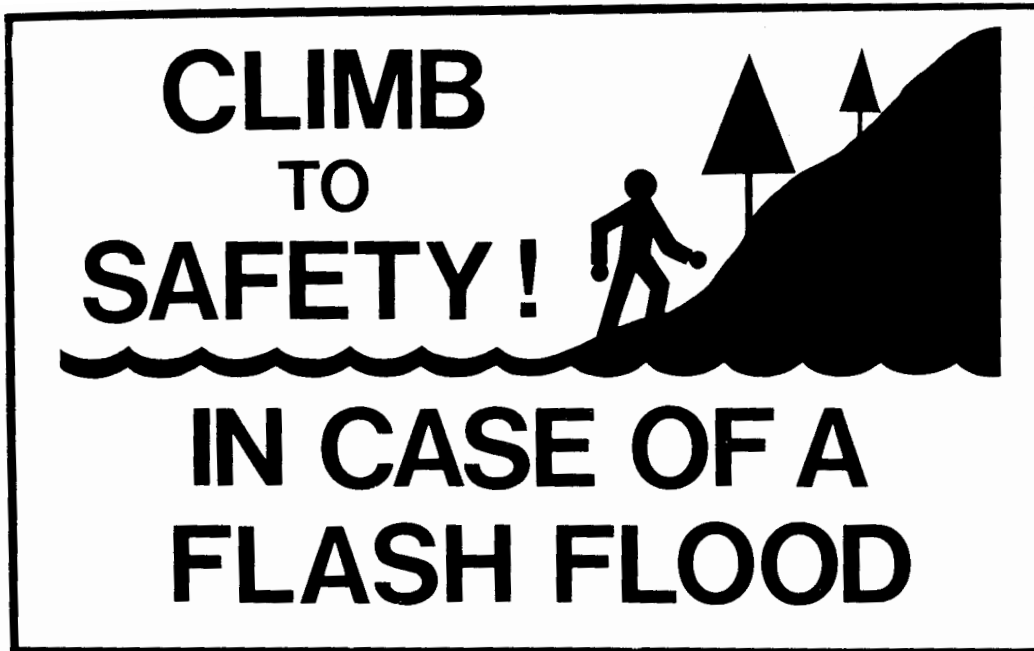


FIGURE 5
Flash flooding signs in Colorado
Source: Colorado

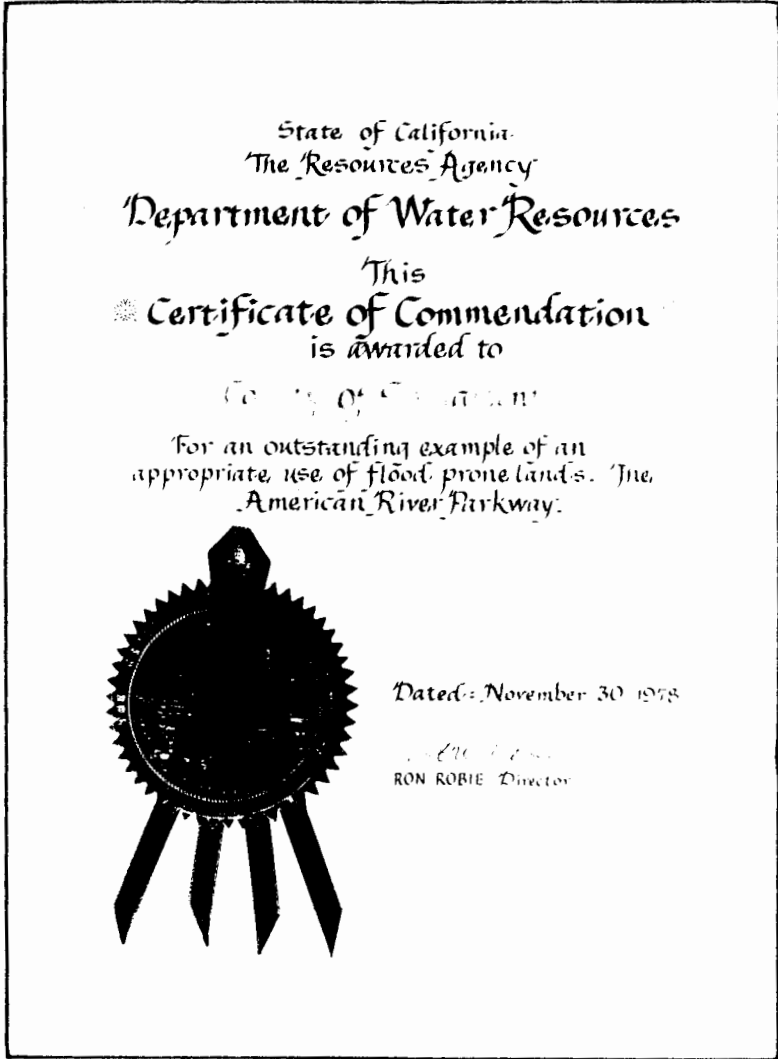


FIGURE 6
Certificate of Commendation, California
Source: California Department of Water Resources

- Maine has assisted a victim of erosion and flooding to be relocated with NFIP monies.
- Maryland's new bonding authority provides money for capital projects for flood control and stresses acquisition and relocation.
- Mississippi has designated HUD Section 407 money to relocate 292 low-income family units; 84 additional units will be rehabilitated and floodproofed by elevation.
- Rhode Island has a feasibility study under way to consider acquisition and relocation of properties in several areas that have suffered recurrent flood damages.
- Arizona, in cooperation with the Corps, is relocating Allenville and several other communities out of the floodplain to a new site on state lands (see Figure 7).
- Wisconsin has assisted Soldiers Grove in planning, gaining funds for and beginning implementation of a project that will relocate the entire business section of a community into passive solar buildings. This will be funded through several sources. Its goals are energy management, economic development and flood damage reduction.
- The Kansas State Flood Plain Coordinator's office has been relocated from its previous location in the floodplain to high ground.

Program Budget and Staffing

Program budget and staff have often been the key factors in determining the scope of agency activities. Some states, such as Illinois, Iowa, Maryland, Wisconsin and New Jersey, have large-scale programs, but funding and staffing levels vary considerably. In states where the whole effort is channeled through the state coordinator of the NFIP, a portion of one staff person's time and little additional budget are common. It should be noted that, in some instances, there is no real state outlay as the staff salaries are paid by federal money that has been allocated to for such purposes as HUD 701 planning and disaster response and preparedness. In states where floodplain management programs are active and include independent data collection and community and technical assistance, state commitment is considerable in both staff and supporting budget:

- Florida.....1 staff, part-time; however, other agencies are also involved (no additional data available).
- New Mexico.....1 staff, part-time, \$5,000 budget.
- Texas.....3 staff, \$80,000 budget.
- *New York.....3 full-time, 9 part-time staff, \$150,000 budget.
- Rhode Island..3 part-time staff, \$14,000 budget.
- *California....3.5 staff, \$164,400 budget.
- *Iowa.....10 full-time, 5 part-time, \$350,000 budget.
- *Wisconsin.....11 full-time, 16 part-time field staff, \$400,000 budget.

*Specifies states that have floodplain management enabling authority.

ARIZONA DIVISION OF EMERGENCY SERVICES

RELOCATION PROGRAM OCTOBER 1980

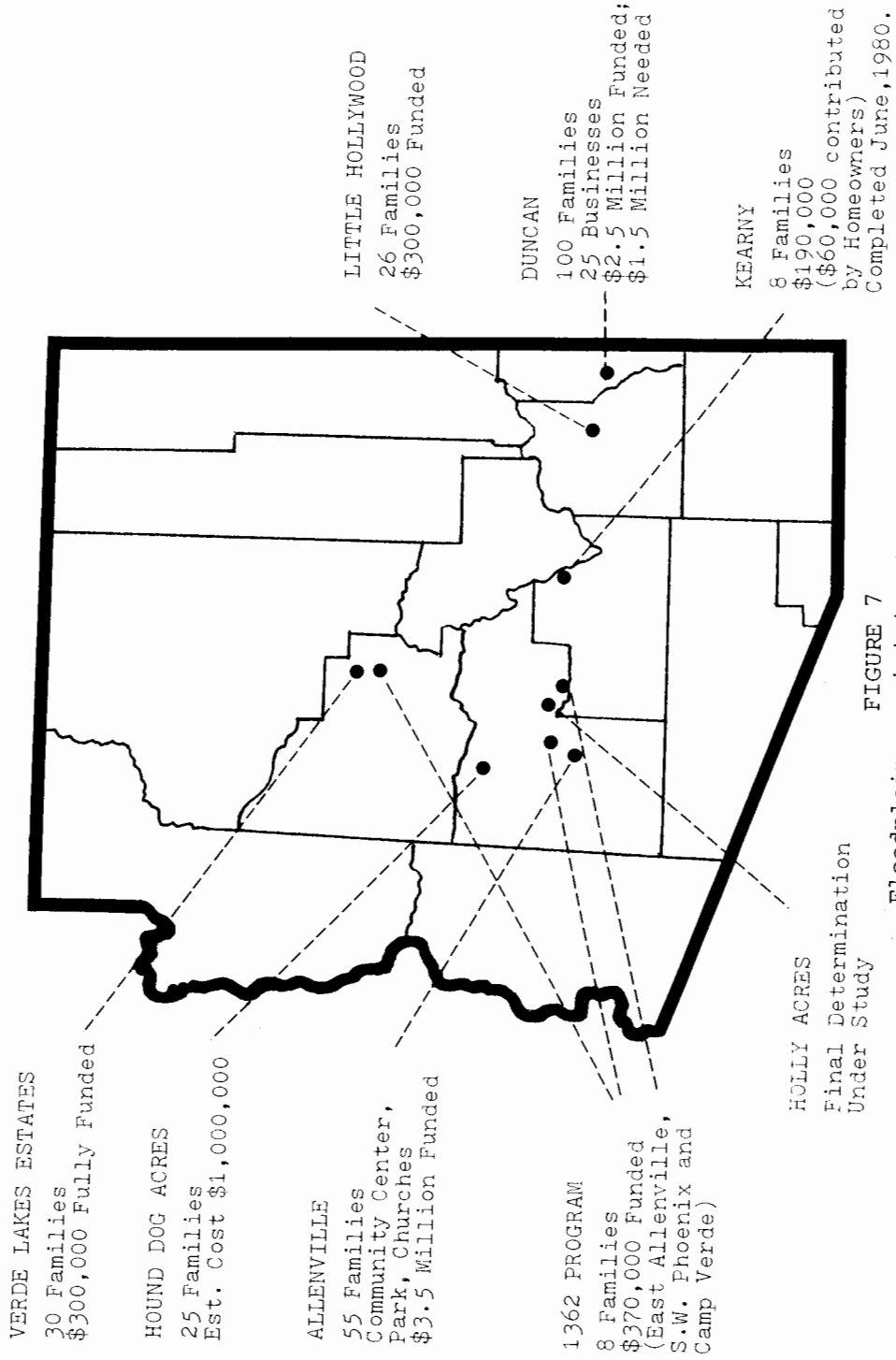


FIGURE 7

Floodplain acquisition in Arizona
Source: Arizona Division of Community Services

Part-time staff are not necessarily part-time employees, but staff who may also be responsible for other resource management and/or regulatory programs. They are typically assigned either to the field or have a specific area of the state where they serve as contacts with local officials and the public. Locally available staff who are knowledgeable about the variety of resource management/regulatory programs are often major contributors to the success of a floodplain management program. This is especially true for community assistance and the integration of floodplain management with other management efforts.

Problems Hindering State Floodplain Management

Development and implementation of state programs have often been hindered by combination of factors. Lack of strong and focused hazard mitigation leadership is one. Another is that some federal agencies have administered their programs directly with local governments, bypassing the state. In these situations, states have developed a misconception about "federal-local" programs and have seen little reason to become involved. Another important factor is that the increased fiscal burden for implementing comprehensive floodplain management must be assumed by a state. But new federal cost-sharing policies, particularly those associated with flood disaster recovery, will provide strong incentives for a state to promote relatively modest expenditures for floodplain management rather than endure the massive capital outlays required when a flood disaster occurs.

Many resource management and regulatory programs can be used to achieve flood damage reduction. Often sub-state government entities (watershed districts, water management boards, etc.) can achieve this goal through their programs. However, there is no substitute for a vocal advocate at the state level to coordinate these related programs. Staff persons in this advocacy role must have authority and expertise to ensure consistent implementation of statewide regulatory standards. They must also have training and experience in comprehensive floodplain management. Just as Executive Order 11988 has brought floodplain management to the attention of the federal agencies, the state coordinator must bring this issue to the attention of state and sub-state entities.

Each state was queried as to the major problems hindering program development and/or implementation. Sixty percent of the states identified lack of staff and funding as problems, while 50% needed better flood data. Thirty percent recognized their major constraint as inadequate enabling authority. Other problems included apathy, no sense of urgency, political resistance to land use management and lack of coordination of state programs with the various federal agencies involved.

FEMA State Assistance Program

The FIA is actively promoting the role of the states in floodplain management through cooperative agreements under the State Assistance Program. In early 1980, each state was given the opportunity to contract with FIA to perform a variety of tasks that would expand their floodplain management capabilities. First-year agreements have now been

signed. Most activities fall into five categories: training and education, development of promotional and informational materials, technical assistance, flood hazard mitigation and legislative/regulatory analysis. Selected examples will be used to illustrate proposed activities.

Training and Education

The need for training and education programs was widely recognized in proposals to FIA. Since much of the success of the nation's flood damage reduction depends upon actions taken at the local level, it is not surprising that 60% of the states are planning to conduct workshops for communities that have detailed information and floodplain management ordinances in effect. Pennsylvania will prepare and present a training course in several locations to explore options for improving coordination of floodplain management programs. Texas will work with communities that are not participating in the NFIP to provide information on flood hazard mitigation, floodplain management and flood insurance; the State of Washington will develop an informational program for use at workshops, briefings and conferences. Montana will work with local officials, representatives of various state agencies and professional organizations whose responsibilities and actions may be affected by the NFIP.

Development and/or Distribution of Promotional Materials

Most states involved in training and education will develop materials for such efforts. In addition, many states will prepare promotional materials for more general distribution. Colorado will prepare a brochure listing the range of floodplain management concepts and a compendium of agencies that can assist in specific program objectives. Idaho plans to distribute more actively available NFIP materials. Nebraska will establish a toll-free telephone line to furnish floodplain information to the public. Missouri proposes to build a physical model showing the relationship between the loss of conveyance and floodplain storage and the higher water surface elevations attributable to such losses. Puerto Rico, among others, will design and implement a program to promote public awareness of flood hazards so that actions can be taken to reduce loss of life and damage to property. In all, 80% of the states will develop and/or distribute promotional information as a component of their State Assistance Programs.

Technical Assistance

Most states are proposing various types of technical assistance to local governments. Connecticut will provide engineering assistance to municipalities to help analyze local development plans. The state will stress technical aspects of floodplain development and will develop a clearinghouse for flood data. Delaware will develop an inventory of USGS benchmarks and other land reference marks and assess the feasibility of a computerized recording and access system for such data. Other types of technical assistance include the Michigan proposal to work with

a unit of government to develop a regulatory alternative to zoning and an Ohio proposal to provide flood markers for communities to post on publicly-owned buildings that have suffered or may be subject to flood damage. Approximately 75% of the states will perform technical assistance tasks.

Hazard Mitigation

Measures to reduce future flood damages through actions before and after major floods will be addressed by 30% of the states. Mississippi will identify high-risk areas in a number of communities and help nine to develop pre-flood hazard mitigation strategies. In addition, the state will improve its flood warning system as was recommended in its first approved post-flood hazard mitigation plan. South Carolina will list state-owned structures in floodplains and identify ways the buildings could be altered to reduce susceptibility to flood damage. They will also explore ways to implement these changes. Florida and Alabama will work with recently flooded communities to improve future mitigation.

Legislative/Regulatory Analysis

Over half of the states (54%) proposed to assess their current enabling legislation, regulations and procedures to determine what changes could be made to strengthen floodplain management. Potential programs and the use of related programs to achieve flood damage reduction goals will be assessed. Kansas, Massachusetts, Montana, New Hampshire, Rhode Island, Tennessee, Vermont and Wyoming proposed to promote more aggressively federal agency compliance with Executive Order 11988 through existing institutional arrangements such as the A-95 review process.

CHAPTER III

JUDICIAL REACTION TO STATE REGULATIONS

At least 14 state supreme court decisions have considered the validity of state or state-supervised local floodplain regulations. All decisions have strongly endorsed state floodplain regulations against claims that they violate local home rule, are unreasonable, or take property. State supreme courts have uniformly upheld state regulation in light of the occasional judicial disapproval of local regulations. These decisions suggest that future judicial approval will also be likely for soundly conceived state efforts.

In Vartelas v. Water Resources Commission, 146 Conn. 650, 153 A.2d 822 (1959), the Connecticut Supreme Court upheld a regulatory agency denial of a permit for a small structure within a delineated floodway area, despite a showing that there were few economic uses for the land. The court noted that encroachment in the area would increase flood damages on other lands. Significantly, the court also noted that the landowner could not claim a taking of his property merely because a single permit application was denied since there might be other acceptable uses.

In Iowa Natural Resources Council v. Van Zee, 261 Iowa 287, 158 N.W.2d 111 (1968), the Iowa Supreme Court upheld the state floodplain regulatory law which required a permit for all structures and obstructions in the floodplain. A landowner claimed that the statute denied due process of law since the floodplain area in question was not mapped and the landowner was left to his own devices to determine whether he was in the floodplain. The court did not consider this a valid argument, particularly in the light of the landowner's contested use of the floodplain for construction of a levee.

In Turner v. County of Del Norte, 24 Cal. App. 3d 311, 101 Cal. Rptr. 93 (1972), a California court upheld a county floodplain zoning ordinance required by the state floodplain management program. The ordinance limited the floodplain, which had been devastated by flooding, to parks and other open-space uses (see Figure 8).

In Parkway Mall Associates v. Water Policy and Supply Council of Division of Water Resources of Department of Environmental Protection, 157 N.J. Super. 169, 384 A.2d 857 (App. Div. 1978), a New Jersey court held that the Water Policy and Supply Council had authority to impose a 3-year time limit for compliance with requirements of a conditional stream encroachment permit.

In A.H. Smith Sand and Gravel Co. v. Dept. of Water Resources, 270 Md. 652, 313 A.2d 820 (Md. App. 1974), a Maryland court upheld the Maryland Department of Natural Resources order prohibiting filling on land within 50-year floodplain boundaries but redefined floodplain boundaries.

In Iowa Natural Resources Council v. Mapes, 164 N.W.2d 177 (1969), the Iowa Supreme Court endorsed the general concept of state regulations

but refused to issue an injunction to remove stream straightening undertaken without approval of the state floodplain agency.

In State v. Capuano Bros., Inc., 384 A.2d 610 (R.I. 1978), the Rhode Island Supreme Court held that two landowners prosecuted under the inland wetlands act (under which wetlands were defined to include the 50-year floodplain) received adequate notice that they were in fact located in wetlands and that the regulations did not constitute a taking of their property.

In Maple Leaf Investors v. Department of Ecology, 88 Wash.2d 726, 565 P.2d 1162 (1977), the Washington Supreme Court upheld a denial of a state permit for proposed houses in the floodway of the Cedar River. The court held that both the statute and regulations adopted pursuant to them were valid.

In Pope v. City of Atlanta, 240 Ga. 177, 240 S.E.2d 241 (1977), the Georgia Supreme Court upheld the Georgia River Protection Act, which was designed in part to address flooding and erosion problems. The court held that the statute was adopted to serve valid objectives and did not violate home rule powers.

In Pope v. Atlanta, 242 Ga. 331, 249 S.E.2d 16 (1978), the Georgia Supreme Court again endorsed the River Protection Act but this time more specifically addressed the application of standards to a special permit.

In Young Plumbing Co., et al. v. Iowa Natural Resources Council 276 N.W.2d 377, (Iowa 1979), the Iowa Supreme Court sustained denial of a permit for a condominium in a floodway where such a structure would have raised the level of flood waters on property on the other side of the creek. The concept of "equal degree of encroachment" was strongly endorsed as were efforts to anticipate future watershed conditions. Strong deference was given to the state's expertise (see Figure 9).

In Foreman v. State et al. Department of Natural Resources, 387 N.E.2d 455 (Ind. App. 1979), an Indiana court sustained an injunction that prohibited defendants from making deposits on a floodway of a river and that compelled removal of deposits previously made. The court refused to consider this a taking of property, although the state agency had the statutory power to acquire flood easements.

In Citizens for Sensible Zoning, Inc. v. Department of Natural Resources, 90 Wis.2d 804, 280 N.W.2d 702 (1979), the Wisconsin Supreme Court held that adoption of a floodplain zoning ordinance by the Wisconsin Department of Natural Resources was subject to the Wisconsin Administrative Review Act.

In Ramsey County v. Stevens, 283 N.W.2d 918 (Minn. 1979), the Minnesota Supreme Court indirectly but strongly endorsed the Minnesota state floodplain management statute, which required communities on a list prepared by the Commissioner of Natural Resources to adopt floodplain regulations in order to qualify for the NFIP. The court agreed with the decision of a lower court order that the city council of Lilydale, Minnesota, adopt regulations within 72 hours.

CHAPTER IV

OPTIONS FOR STRENGTHENING STATE PROGRAMS

Overview

Much has already been achieved by state programs. Initiatives underway in 1980 with State Assistance Program funds from FEMA will further increase state capability. What additional initiatives are desirable or necessary?

As noted earlier, many states have only partially effective programs. In some, program success is hampered by fragmented floodplain management powers, lack of clear floodplain management goals, inadequate funding and staffing, exemptions, inadequate control of public uses, inadequate maps and lack of public awareness.

Members of the Association of State Flood Plain Managers were posed the question, "How could your legislature best strengthen floodplain management in your state?" The following are the most common responses.

- State legislation is needed to strengthen state and local floodplain management authority. A lead state agency is needed, preferably with regulatory powers. Only a few states have regulatory programs for coastal areas and some southern and western states lack regulatory powers for inland floodplains. In some states, needed legislation would involve modifications to existing laws. In other states, entirely new floodplain management statutes would be needed.
- More state funding is needed for state programs and for grants-in-aid for local efforts. These grants would allow for cost-sharing to plan and implement a wide range of floodplain management measures, both structural and nonstructural.
- Higher salary scales are needed to attract personnel with the proper level of expertise and training.
- A mechanism--executive order, regulation or statutory directive--is needed to ensure that sound floodplain management measures are applied to the planning and construction of state public works (bridges, culverts, roads).
- Measures such as acquisition and relocation, flood warning, floodproofing and floodplain marking need to be adopted to supplement or complement regulations.
- Increased training and education in floodplain management and flood hazard mitigation are needed for local officials, state agency personnel, lenders, special interest groups, attorneys, developers and others.

Options for State Legislatures and Agencies

Measures needed to strengthen state programs could take the form of executive leadership, new legislation or appropriations by state legislatures and new program priorities by agencies. Needed measures depend on the strength or weakness of the individual elements of the existing program and state preferences.

Designating a Lead Agency

Where floodplain management powers are fragmented or minimal, a lead agency should be designated to coordinate floodplain regulation and other floodplain management activities and to serve in an advisory capacity to other state agencies, including those responsible for the A-95 review, the state environmental programs, emergency services and resource management. It is essential that this lead agency have expertise in the implementation of floodplain management, not simply general familiarity with the subject of disaster preparedness and response. The lead agency may be designated by the governor through an executive order or through state legislation.

Funding

Certain minimal levels of funding are essential for program implementation. Monies are needed for expert staff, floodplain mapping, equipment, technical assistance, project review, monitoring, enforcement, and for education of the public, local officials and other state agencies. The proven cost-effectiveness of strengthened regulations in reducing future flood losses and meeting broader objectives should be used to support such expenditures. The most common source of funds is legislative appropriation from general revenues.

Federal funds may also be available through FEMA's State Assistance Program and from the Office of Coastal Zone Management.

State programs have applied a variety of approaches to "make do" with existing funding levels including: using federal mapping; shifting to developers a portion of the data-gathering burden in evaluating permits; utilizing federal technical assistance from the Corps' Floodplain Management Services Program, USGS, SCS, and NOAA; relying on local and regional governments for most permit processing, monitoring and enforcement; using trade associations and environmental groups for spreading the flood hazard message; and cooperating with other state agencies such as transportation departments for air photo development; conservation agencies for wetland and floodplain acquisition; wild and scenic river programs for shoreland corridor management; critical areas programs for wetland and floodplain management; dredge and fill programs for control of navigable waters use; coastal zone management programs for guiding coastal area use; and state planning agencies for comprehensive land use planning.

Staff

An expert staff has proved essential to successful state programs. Attracting and maintaining such a staff depends, in large measure, upon funding and the ability to pay competitive salaries.

Experts in engineering, geology, planning, mapping, biology and other disciplines are desirable; however, professional qualifications in themselves have rarely been sufficient. Knowledge of local social, economic and political conditions is another key factor.

Some states have developed effective programs without large budgets or staffs. Many states have also used universities and colleges to assist in education and federal agency personnel in evaluating permits and providing other types of assistance.

Some states have quite effectively used coastal and related wetland protection efforts to control floodplain development. However, state and local wetland boards usually lack expertise in flood problems and their jurisdiction is normally limited to a portion of the floodplain. Pollution control programs have also been used in some instances to control septic tank use in floodplain areas. Multipurpose resource management efforts can be cost-effective, although dilution of the goals past the point of effectiveness must be avoided.

Regulation of Private Uses

Even without regulatory authority, a state water resource or natural resource agency may accomplish much by mapping floodplains, assisting local governments and coordinating state and federal activities. This assumes adequate funds and staff. Nevertheless, a statute creating a strong and independent state program with regulatory powers gives teeth to the program and can help establish a clear state hazard mitigation policy with ramifications for many state and local programs.

A statute should provide an agency with clear authority either to regulate floodplain development directly or ensure local adoption of regulations and to monitor administration of floodplain management provisions. States with enabling legislation may need to review their statutes to define areas that need clarification or amplification of powers. Special treatment of several subject areas is often necessary: gradual elimination of nonconforming uses, hazard mitigation planning, agricultural uses, bridges, public works, subdivisions, flood control structures, flood warning systems, acquisition and public education. The suggested elements of a statute incorporating regulatory powers are considered later in this chapter.

In coastal areas, statutes should either authorize an independent program or incorporate coastal protection standards into broader coastal zone management programs. Wave heights, dunes, setbacks, erosion and storm surges should be addressed. Inland programs can be either independent or part of broader water regulatory efforts and should address both floodway and flood fringe areas. New legislation is particularly

needed in some southern and western states with severe hazards but limited management programs.

Control of Public Works

In some states, dealing with federal, state and local public works agencies (transportation, sewers, housing and finance, water supply, utilities, etc.) is a major problem which is compounded by the uncertainty of federal agencies compliance with Executive Order 11988. Adoption of an executive order or a legislative directive that requires state and local compliance with floodplain regulations is desirable. Public works agencies should set an example for sound floodplain management by incorporating into their operating procedures such measures as marking the floodplain, and designing and implementing floodproofing techniques for public buildings.

Use of Nonregulatory Techniques

With few exceptions, regulations do not effectively reduce damages to existing structures. The major political impediment to adoption and enforcement of regulations has often been existing uses. To deal with them, the state floodplain management agency should be authorized to provide technical assistance, construct flood warning systems, mark flood hazard areas, undertake acquisition and relocation (if considered desirable by the state) and actively participate in pre-flood and post-flood hazard mitigation planning.

Public Education

Public education both for local officials and the general public need not be complicated or formal but it is an essential component of a strong state program. Many states have used public hearings and workshops but those are not the only approaches.

In cooperation with FEMA and other agencies, states can conduct more specialized training sessions in floodplain management and hazard mitigation for local officials, lawyers, lenders, and environmental groups. Information can also be spread through press releases, public service announcements, newspaper articles, and articles in trade or professional magazines. Guidebooks can be published for specific actions such as: how to administer an ordinance; how to use the data in the flood insurance study; definition of the proper roles of community officials; how to use related state and federal programs to help meet the goals of floodplain management; or what to do after a disaster. Promotional material can be developed on successful case studies in nonstructural flood damage reduction techniques. Other public education approaches include signing floodplains, announcing the availability of flood insurance in telephone directories, and using billboards and placards on buses to remind the public to renew flood insurance policies.

Data Collection

Detailed flood maps have proved essential for many urban areas. Less detailed and accurate data may suffice for rural areas, particularly where case-by-case data gathering on individual development permits is provided. In addition, state natural resources data collection should be coordinated to serve floodplain management purposes. States should also coordinate federal mapping that is related to floodplain management such as wetlands, soils, topographic and aerial photo mapping.

Capable and willing states should become repositories for raw flood insurance study data to ensure that the data will be available to users. The availability of data would benefit private users, local communities, and state and federal agencies, particularly those that perform technical assistance for communities.

Technical Assistance

Technical assistance to communities has also proved essential in state programs. States can develop technical assistance materials that promote floodplain management for local officials and other agencies. They can prepare descriptions of state standards as well as model ordinances that can be tailored to the needs of individual communities. States can assist communities that have approximate studies by instructing local staffs how to perform case-by-case engineering back-water computations.

Planning

States in cooperation with communities and federal agencies should take the lead in planning for hazard mitigation both before and after flooding occurs. This is an emerging action in state programs. Hazard mitigation planning should be coordinated with other state programs, and must be carried out by an agency with specific expertise. Plans should address floodproofing, warnings, relocation, evacuation, cleanup, water quality, economic development, and other factors.

Research

States can cooperate with universities, federal agencies, and organizations such as the Office of Water Research and Technology and the National Science Foundation in designing and carrying out research on improved and cost-effective aerial mapping, floodplain and floodway delineation, profile development, permit analysis, regulatory enforcement, mitigation and other matters. States can also seek out examples of innovative hazard mitigation activities within their states and serve as clearinghouses to facilitate the exchange of these success stories.

Strategies for Adoption of a Statute

Many measures may be implemented under existing state water resources and conservation legislation if funding is available and agency or executive leadership is provided. However, new legislation or amendment of existing legislation may be needed to strengthen powers.

A draft statute prepared in anticipation of future floods is one strategy for encouraging adoption. Statutes for existing programs have usually been adopted either: (a) after a major flood, or (b) under the stimulus of the NFIP.

A showing of cost-effectiveness may also encourage a legislature to adopt new legislation. Recent NFIP provision of cooperative funding to each state to expand state floodplain management programs is a positive incentive. Additional incentives include NFIP acquisition programs to purchase flood-prone and flood-damaged property, federal technical assistance and the mandates of Section 406 of the Flood Disaster Relief Act of 1974 that require state and local hazard mitigation plans.

The financial community has recently become increasingly supportive of floodplain regulations as a component of risk analysis and minimization of risk to their investments. Training for lenders and realtors may facilitate adoption of a state program.

Elements of a Floodplain Management Statute

Experience with specific state enabling statutes suggests the following desirable components for a coastal or inland statute. These could be included in a new statute or added by amendment to an existing one. Examples of components are provided in Chapter I.

Goals

The statute should clearly define program goals to reduce threats to life and property, preserve floodways, reduce the cost of public services, protect the tax base and jobs, mitigate flood loss potential of existing uses, and meet other objectives. Environmental protection and other goals may also be stated.

Definitions

The statute should define floodplains to include, at a minimum, the 100-year coastal and inland floodplains. All state programs have now incorporated the 100-year standard, either administratively or by statute. Regulated activities should be defined to include both private and public works, subdivisions and alterations to nonconforming uses. Open space uses such as agriculture should be regulated for fill, drainage and structures. Exceptions should be carefully qualified.

Mapping

The agency should be authorized to map hazard areas and to establish standards for local mapping. Standards for rural areas may differ from those for urban areas, and changing rural and urban watershed conditions should be reflected. Detailed and accurate maps are desirable, but the scale should be left to the discretion of the administering agency. Since written notice to individual property owners that floodplain boundaries have been established has been an administrative nightmare (e.g., Massachusetts' inland wetland restriction procedure), notices should not be required.

Sometimes flexibility is needed in map standards, permissible floodway rises, and regulatory tools to meet local conditions. Responsiveness and creativity have led to state and local program innovations.

Marking Flood Areas

The agency should be authorized and encouraged to place signs identifying hazard areas, either independently or in coordination with localities and federal agencies. The value of this for consumer awareness is just being realized and ultimately may be one of the most effective public education tools.

Plans

The agency should be authorized to prepare or to participate in comprehensive state floodplain management planning, as is done through the Maryland statute. Regulations, warning systems, evacuation routes, flood control measures and other techniques should be integral to the plan. Plans should be for a watershed and should have both pre-flood and post-flood components. The agency should be authorized to encourage and aid local flood hazard mitigation planning.

Permits

Statutes should require state or state-supervised local permits for regulated activities in both floodway and flood fringe areas, as well as coastal high hazard areas, unless a local regulatory program meeting state standards has been adopted (similar to those in Iowa and Washington). Both state and local permits may be desirable for floodway and coastal high hazard areas after a state-approved local program has been adopted, as in Indiana and New Jersey. Statutory standards for issuance of permits should include protection of floodways with no substantial increase in stage unless easements are purchased and the proposed use reasonably anticipates future uses along both sides of the stream.

State and local approval for flood-prone subdivisions should also be provided. Permits should specify that adequate drainage, access, marking, water supply, sewage systems and flood-free building sites are

a part of the development planning. The burden of complying with state standards should be put upon the developer or subdivider, including a portion of the data-gathering and analyzing responsibilities.

Standards for permits in coastal areas should consider storm surge, waves and erosion. Flood, erosion and wind hazards should be accounted for in site selection and structure design. Protection from wave heights, including wave run-up and set-up, should be provided. Statutes should require that structures in inland and coastal fringe areas be protected to the 100-year flood elevation with additional freeboard as required by map studies.

Specific statutory standards should provide for nonconforming uses to control their alteration, expansion, rehabilitation, and repair, particularly after a flood disaster where floodproofing or relocation may be appropriate. Amortization should be provided in appropriate circumstances.

Specific statutory standards should be provided for areas with existing or proposed flood control measures to ensure adequate protection until the measures are implemented. Plans for flood control works should not preclude aggressive enforcement of regulations.

Standards should require that proposed uses be consistent not only with hazard mitigation standards but also with other applicable federal, state and local plans and regulations, including environmental protection standards.

Penalties

Statutes should clearly delineate penalties for violations, including fines. The agency and local government should also be authorized to seek injunctions to prevent or to remove and require compensation for adverse impacts arising from violations. More specific rules and regulations should be authorized as needed.

Local Regulations

State statutes should specifically authorize local governments to adopt floodplain zoning, subdivision regulations, building codes and other regulations. At least 44 states have adopted such legislation. Experience indicates that despite the sufficiency of broader enabling authority, specific floodplain authorization is highly desirable especially to promote the use of innovative techniques to supplement the regulatory approach.

Once the floodplain areas have been satisfactorily mapped on an interim or long-term basis and the affected localities notified, local governments should be required to adopt regulations meeting state standards within a specified time period. State standards should be minimal with strong encouragement and incentives to local governments to go beyond the minimum standards as appropriate. If the local government fails to adopt standards in a timely manner, the state should be

authorized to adopt regulations for them, with the cost being borne by the local entities, as in the Minnesota enabling statute.

The enabling statute should direct the state to assist local governments in adoption and administration of regulations by preparing sample ordinances, providing technical assistance, evaluating permits, monitoring administration and aiding in enforcement.

The enabling statute could provide state grants-in-aid to assist localities in the adoption and administration of plans, regulations and supplementary actions. However, such grants should not substitute for adequate funding for the state program.

Acquisition

State agencies and local governments could also be authorized to acquire nonconforming floodplain uses and structures that obstruct flood flows or otherwise increase flood damages. The agency should also be authorized to provide grants-in-aid for local acquisition and relocation efforts, as in Arizona.

Federal Options

Recent initiatives of FEMA to establish the state assistance program, increase the state role in the NFIP, and promote state pre-flood and post-flood mitigation planning are strengthening state programs. Promotion of the state role by the WRC and involvement of states in workshops, task forces and projects dealing with national floodplain management policy are other important measures. These activities should be continued and other federal agencies should take similar action to provide a stronger state role in the implementation of their policies and programs.

State Help for Federal Programs

Why should the federal government strengthen state programs? The states are uniquely positioned to facilitate implementation of federal programs such as the NFIP for several reasons:

- States have developed considerable expertise in floodplain management, which is essential to help formulate national policy and to implement sophisticated federal, state and local programs.
- In many cases, states can monitor and supervise local governments better than the federal government. State oversight is often more acceptable than federal, due to traditions of states' rights and home rule. In addition, a centrally located state agency, often with field staff, can provide services to individuals and local governments with lower travel expenditures. In contrast, federal agency staff usually must travel long distances.

- States can provide technical and educational services to local governments because they are familiar with state laws and state and local conditions.
- States can coordinate and help package federal, state and local programs. Federal agencies can more easily deal with 50 states than with 16,000 individual communities.
- States can address technical matters that transcend local jurisdiction, such as floodway delineation and enforcement and watershed planning, which are difficult, if not impossible, for a single local government.
- States can carry out monitoring, technical assistance, education and other activities at reduced cost because of modest state salary scales.

For these reasons, added federal support for state programs is justified. Specific support measures may include the following:

General Federal Initiatives

Most federal initiatives to strengthen state programs discussed below could be implemented without new Congressional action and with minimum new federal expenditures. Some of the measures, such as equal treatment for nonstructural and structural measures, reduce federal outlays for capital intensive projects and for long-term operation and maintenance.

- Equal Treatment for Nonstructural and Structural Measures

The federal government should continue moving toward a balanced approach to floodplain management where regulations, flood warning systems, floodplain acquisition, floodproofing, etc., are on an equal funding and priority basis with the more traditional structural approaches. This balance should be reflected in federal subsidies and cost-sharing, planning, project review and program priorities.

- Nonstructural Measures as a Condition to Structural Measures

To ensure that states give nonstructural solutions balanced consideration, Congress and the executive branch might require that state and local floodplain regulations be adopted as a prerequisite to federal investment in structural solutions.

- Use of States in Regional Floodplain Management

The federal government should expand the states' regional, intermediary role in floodplain management on a watershed basis. This can be done by increasing state responsibility for education, pre-disaster and post-disaster planning and regulation and other measures. Floodplain management on a watershed basis is beyond the geographical and technical capabilities of most local governments and beyond the powers of regional planning agencies and river basin commissions.

- Capitalizing On State Expertise

When the federal government funds research, planning, technical assistance, training and education, agencies should ensure that funds are targeted to individuals and/or agencies with real expertise in floodplain management, a highly technical subject. Training of local officials in floodplain management by those who are not themselves thoroughly familiar with it has limited value.

- "Packaging" of Federal Programs

Federal, state and local programs can combine or "package" a variety of federal programs on flood loss reduction. Coordinated federal programs for mapping, flood control, insurance, disaster assistance, acquisition, relocation and rehabilitation can often be packaged for post-disaster recovery. Mapping, technical assistance, planning grants, and other measures may also be packaged for use before flooding occurs.

- Emphasis On the Minimum Nature of FIA and Other Regulations

Federal agencies should stress the minimum nature of their regulations and should actively encourage and promote more stringent local regulations that meet the individual community's unique needs, particularly for nonconforming uses, relocation, valley storage preservation and stormwater management. When a community adopts more restrictive regulations, all federal actions should be equally rigorous.

- Federal Consistency and Coordination

Consistency and coordination are needed among individual federal programs as well as among federal, state and local programs. Federal projects, even those of a local nature, should be designed, constructed and maintained in accordance with state and local floodplain management regulations and plans. Consistency and coordination are needed between individual federal programs including, specifically, policies for structural works (dams, levees, and sea walls) and nonstructural alternatives (regulations, acquisition, and flood insurance). There is a need for a consistent federal policy on channelization and levees, including design, construction and maintenance and their subsequent impact on standards for floodplain regulations and rating for flood insurance. FEMA, the WRC and OMB should play leadership roles in such coordination. The recently developed Interagency Agreement for Nonstructural Damage Reduction Measures as Applied to Common Flood Disaster Planning and Post-Flood Recovery Practices is an appropriate step in improving federal consistency and coordination.

- Data Collection and Mapping

The federal government should reassess its data-gathering efforts, including floodplain mapping, with an emphasis on data products meeting state and local needs. Continued emphasis should be placed upon

accurate flood maps, although a trade-off between map scale and accuracy and technical assistance for case-by-case analysis should be recognized and explored. Base maps should be useable, preferably on an orthophoto or detailed topographic base. Hydrology should be developed on a watershed basis. New data should be stored by the state and made available to all potential users.

Federal agencies should be more flexible in the type of data gathered for floodplain mapping and management. Communities could benefit from supplemental data on maps or in studies to be used for hazard mitigation planning. Examples of supplemental data include: nature and distribution of existing uses; structures that could be acquired in both pre-disaster and post-disaster mitigation; usefulness of flood warning systems; data on floods of record; depth and duration of flood waters on selected public buildings; feasibility of floodproofing critical facilities and public structures; first floor elevation of flood-prone structures; evacuation routes; and wetlands boundaries. The additional cost, in most cases, would be minimal since most of the necessary data are developed during floodplain study. If a community or state desires data that are not readily available, a cost-sharing program should be instituted to help finance its acquisition. The supplemental data would also assist federal agencies in providing technical assistance to communities and in implementing Executive Orders 11988 and 11990.

- Financial Assistance

The federal government should continue to provide "state assistance" funds to help states, as in FEMA's state assistance program. With these funds, states can, in turn, assist the federal government in implementing the NFIP and other federal programs and can help local governments plan and manage floodplain areas.

- Technical Assistance

Federal technical assistance to communities is needed in map interpretation, drafting and administering regulations, planning and use of flood control works, pre-flood and post-flood planning and other matters. FEMA, the Corps, the SCS, NOAA and the USGS all have expertise that could support state technical assistance programs. In some cases, this would require Congressional amendment to existing legislation for floodplain management services.

- Implementation of the Executive Orders 11988 and 11990

Vigorous implementation of the Executive Orders is needed by all federal agencies, particularly construction and land management agencies (Agriculture, Interior and the Corps). Implementation is also needed by agencies funding state or local sewers, water systems, roads, or other infrastructure (Environmental Protection Agency, Transportation, Economic Development Administration) and those making loans to private individuals (Federal Housing Administration, Farmers Home Administration and Small Business Administration). In both pre-flood and post-disaster

contexts, emphasis should be placed upon Executive Order requirements that mandate location of development outside of the floodplain wherever practicable; hazard mitigation; protection of natural values; and marking of hazard areas.

- Training and Education

The growing agency emphasis on staff training in flood hazard mitigation and on either directly training state, local and private individuals or funding state-initiated training and education efforts should be continued. Training and education may take the form of brochures, workshops, films, slide shows, booklets, symposia and other methods. Direct federal training should be provided for federal staff and for state and local staff for matters uniquely federal or regional in nature. Funding for state training and education is needed for efforts specifically tailored to state and local needs in floodplain management.

- Planning (Pre-Disaster and Post-Disaster)

Cooperative federal, state and local flood management planning is needed. Most emphasis to date has been on post-disaster planning, particularly since Section 406 of Public Law 93-288 deals specifically with state hazard mitigation plans done in conjunction with a disaster. However, understanding and acceptance of the value of pre-flood damage reduction is increasing.

For effective pre-flood and post-flood hazard mitigation planning, the federal government must develop an active partnership with the state floodplain regulatory personnel and appropriate local officials specifically. Planning will not be successful without hazard management expertise. Additionally, the plans will have little chance of implementation if those responsible are not involved in the planning and data gathering. Previous planning has not lead to implementation because specificity, proper expertise, adequate data base and local support were lacking. These pitfalls can be avoided if all the appropriate local, state and federal agency personnel are involved in planning.

The federal government should provide background data for planning: high-resolution base maps with an adequate scale, historical data on flood elevations and damages, economic data on the costs of previous flood fighting activities, damages and disaster relief, etc. Hazard mitigation planning, particularly pre-flood, would be greatly enhanced by full funding of Title III of the Water Resource Planning Act with direction by the WRC setting a priority use of Title III money for floodplain management. The results of other federal planning programs such as the 208 program of EPA, NOAA's coastal zone management program and HUD's 701 planning program should be made available to hazard mitigation planning. Resource data, soils and vegetation mapping should be provided and integrated into the plans as well.

- Research

In close cooperation with the states, federal agencies should carry out research on improved and cost-effective mapping, definition and quantification of erosion hazards, the coordination of hazard mitigation and broader resource and land use management efforts, evacuation and other mitigation techniques. The agency funding the research should ensure that the researchers have expertise and experience in floodplain management so that their findings can improve the implementation of management techniques.

Specific Agency Actions

Individual federal agencies should strengthen state programs through the following actions.

1) Federal Emergency Management Agency

The present initiatives of the FIA to relieve taxpayer costs for flood disaster relief should be continued, including redirection of federal flood insurance to: emphasize hazard mitigation; provide funds for state assistance; facilitate acquisition assistance pursuant to Section 1362 of the National Flood Insurance Act and the NFIP's Constructive Total Loss provisions; add wave heights to coastal flood elevations; and provide technical assistance to states and communities. Similarly, the present Office of Disaster Response and Recovery initiatives that emphasize hazard mitigation in relief and recovery efforts should be continued and strengthened. The FEMA rule for implementing the floodplain and wetland executive orders appears to be an excellent approach to complying with the directives of these orders. We encourage its wide applicability. Other specific recommendations include:

- The NFIP mapping and remapping program should be continued and expanded, not decreased. New base maps (photos or detailed topographic maps) are needed for some areas. The possibility of tradeoffs between mapping and technical assistance should be explored, particularly for rural areas. State storage of raw flood data is needed.
- More flexibility should be provided in mapping and regulation to deal with the unique needs of states and communities, including zero-rise floodways if states request or require them, and freeboard. Coordination of mapping and regulatory efforts with state coastal zone, shoreland, wild and scenic rivers, wetland and other programs should be improved.
- NFIP regulations should be strengthened. Principal options include: prohibiting rebuilding in the floodway and coastal high hazard areas or denial of reinsurance for structures in these areas after a flood loss of some prescribed amount; adding a prescribed amount of freeboard to first floor building elevations; enforcing the "substantial improvements" clause; dealing with nonconforming uses, par-

ticularly in post-disaster situations; requiring the purchase of property rights where appropriate; requiring protection of structures from wave impact and ensuring the minimization of harm to natural floodplain values, including specific provisions for dune and wetlands protection.

- FEMA should more carefully monitor and enforce FIA regulations and suspend noncomplying communities. Cooperative agreements for monitoring and enforcement should be negotiated with the states.
- FEMA should vigorously enforce Section 406 of the Flood Disaster Relief Act of 1974 and the floodplain management and wetland protection executive orders. Closer coordination with state regulatory programs should be established both before and after floods.
- Strengthened training and education should provide both direct federal training in some instances and state assistance in others.

2) Corps of Engineers

The Flood Plain Management Services Program of the Corps should be strengthened and continued with emphasis on services involving floodproofing, supplemental mapping, technical assistance, stormwater management and other matters. The Corps should continue to emphasize nonstructural approaches in all of its project review and project planning, especially at the field level. The Corps should emphasize hazard evaluation and mitigation in evaluating permits for wetland areas under Section 404. More cooperative agreements should be reached for floodplain management with states; additionally, the Corps should expand technical services activities to support community and state programs.

3) Water Resources Council

The leadership role in floodplain management should be continued by the WRC or its successor agency with emphasis on a balanced approach between structural and nonstructural measures, a recognition of natural floodplain values, and a partnership between federal agencies, the states and local governments. The WRC has taken a positive step toward creating the partnership approach by using the states on its Floodplain Management Task Force. Such participation should be continued. The state role could be further strengthened by establishing as a Title III funding priority the expansion of state floodplain management programs. The WRC's or its successor's role as a clearinghouse for floodplain publications and research should be expanded.

4) Office of Management and Budget

OMB should strengthen its emphasis on nonstructural floodplain management and hazard mitigation by all agencies because of the long

term cost-effectiveness of these approaches. The eventual costs of floodplain occupancy and of flood control measures, when extraordinary floods occur, should be more carefully considered. Floodplain acquisition, state assistance programs, floodplain regulations and the packaging of a variety of flood loss reduction alternatives should be specifically supported. OMB has supported nonstructural floodplain management in pre-flood and post-flood planning and recovery. We strongly urge a sustained effort to ensure implementation.

5) Soil Conservation Service

SCS assistance should continue with more emphasis on nonstructural measures for flood damage reduction and increased use of Flood Plain Management Studies. Soil mapping should be carried out on a priority basis for wetlands and floodplains. SCS should increase its participation in floodplain acquisition, relocation, and other nonstructural measures to reduce flood losses.

6) Office of Coastal Zone Management

OCZM has recently required states to address coastal hazards in pre-flood and post-flood contexts in implementation of coastal plans. This must be continued and strengthened. OCZM should emphasize that planning concepts of the floodplain and wetland executive orders should be integrated into all state plans, especially standards for the protection of coastal construction on barrier islands and beaches.

7) Heritage Conservation and Recreation Service

The Service recently emphasized hazard mitigation, including acquisition of floodplain areas and protection of barrier islands through the Land and Water Conservation Fund and urban waterfront renewal for relocation and floodproofing. These should continue. The HCRS program would be a more valuable flood loss reduction tool if regulations could include appraisal costs and state-mandated relocation benefits as eligible costs.

8) Small Business Administration and Farmers Home Administration

These agencies need to take immediate action to implement effective procedures in accordance with the floodplain and wetlands executive orders. Additionally, SBA should consider regulatory changes required to enable the application of mitigation monies to voluntary relocations.

9) Fish and Wildlife Service

FWS should expand its aid to states in establishing wetland regulatory programs protecting riparian habitats. We fully support the FWS review of other agencies in their implementation of Executive Orders 11988 and 11990.

10) Department of Housing and Urban Development

HUD needs to take immediate action to implement effective procedures in accordance with the floodplains and wetlands executive orders. It should continue to encourage relocation outside of the floodplain and floodproofing of existing uses through the Community Development Block Grant Program. Encouragement of urban drainage consistent with floodplain management standards should also be strengthened.

11) Council on Environmental Quality

CEQ's recent initiatives emphasizing wetland protection, protection of barrier islands, and nonstructural approaches to floodplain management should be strengthened.

12) Environmental Protection Agency

EPA should continue to implement the floodplains and wetlands executive orders through the 201 facilities program. It should emphasize wetland and floodplain delineation in the 208 program. The guideline for 208 plan preparation should provide explicit integration of the planning concepts of the floodplain and wetland executive orders into the plans.

13) Department of Transportation

DOT should vigorously enforce the floodplain and wetlands executive orders in providing grants-in-aid for transportation facilities in both pre-flood and post-flood contexts, including: the location of facilities at upland sites whenever practicable; consideration of non-floodplain structures and alternatives in planning; hazard mitigation in the design of facilities; and the marking of structures located in the floodplain. The department should recognize that risk analysis can potentially undermine state or local floodplain management. This possibility should be carefully evaluated to obviate any such weakening.

14) Department of Energy

DOE should vigorously enforce the floodplain and wetlands executive orders to emphasize development on upland rather than in floodplain locations, wherever practicable, and the use of nonstructural as well as structural solutions, especially since the former are often more energy efficient. The potential to integrate flood hazard mitigation goals with those of energy efficiency in rehabilitation and relocation should be fully explored.

15) Economic Development Administration

The EDA rule to implement the floodplain and wetland executive orders should be strongly enforced. Priority should be placed on adequate staffing for effective field implementation.

16) Resource and Land Management Agencies

Agencies such as the Bureau of Land Management, the National Park Service and the U.S. Forest Service should perform their land management responsibilities in a manner that is consistent with Executive Orders 11988 and 11990. Additionally, they should provide technical assistance to other federal agencies in complying with the natural values protection aspects of the executive orders.

APPENDIX 1

STATE PROFILES

Not all states were able, in the short time available, to provide specific details on staff and budget.

State: ALABAMA

1. Number of Communities Subject to Flooding:
241
2. Local Enabling Authority:
Cities have general zoning authority. A special statute authorizes counties to adopt regulations for flood insurance purposes.
3. Existing State Floodplain Management:
There is no statewide floodplain management program or direct state regulation of floodplains. The state coordinating office is the office of State Planning and Federal Programs. Two staff members and a budget of \$75,000 are allocated.
4. State Floodplain Management Activities:
The staff trains local officials, reviews hydrology and hydraulics of studies, and distributes information on the NFIP.
5. Problems:
Problems include inadequate staff and lack of enabling authority.

For further information, contact:

State Coordinator
National Flood Insurance Program
Alabama Development Office
State Planning Division
State Capitol Building
Montgomery, Alabama 36130

State: ALASKA

1. Number of Communities Subject to Flooding:
27
2. Local Enabling Authority:
Local political subdivisions are authorized to zone with emphasis on local planning and implementation.
3. Existing State Floodplain Management:
There is no statewide floodplain management program. The state coordination agency is the Department of Community and Regional Affairs. No budget is specifically authorized for this purpose although one part-time person is assigned to NFIP coordination.
4. State Floodplain Management Activities:
The staff prepares model ordinances, trains local officials and distributes information. Technical assistance and development of state floodplain management/hazard mitigation programs and data collection are the priority activities.
5. Problems:
Problems include inadequate data and enabling authority.
6. Innovation:
 - a. The municipality of Anchorage has purchased floodplains to use as greenbelts.
 - b. A study is presently under way to evaluate the feasibility of relocating an entire community.
 - c. Rivers are "dusted" in winter to ease spring flooding at breakup.
7. Selected State Floodplain Management Publications:
 1. Local Floodplain Management Model Ordinance.
 2. National Flood Insurance Program, A Manual for Community Participation.

For further information, contact:

State Coordinator
National Flood Insurance Program
Dept. of Community and Regional Affairs
Pouch B
Juneau, Alaska 99801

State: ARIZONA

1. Number of Communities Subject to Flooding:
83
2. Local Enabling Authority:
Cities, towns and counties have broad enabling authority with specific flood language and a special enabling act requiring floodplain regulations.
3. Existing State Floodplain Management:
There is no direct state regulation of floodplains, but local units of government are mandated to adopt floodplain regulations consistent with state minimum standards.

The Arizona Water Commission is the state coordinating agency. One person and an approximate budget of \$65,000 are authorized.
4. State Floodplain Management Activities:
The staff prepares model ordinances, trains local officials, reviews and approves technical data, distributes information, supports insurance activities, monitors community administration and enforces violations. Priorities are the model ordinance, training, monitoring and enforcement.
5. Problems:
Problems include inadequate staff, funding and enabling legislation.
6. Innovations:
In Allenville, the Corps and the state are involved in a major relocation project to move the entire community outside the floodplain into a new community on state lands. Portions of other communities are also being relocated.

For further information, contact:

State Coordinator
National Flood Insurance Program
Arizona Water Commission
Flood Control Division
222 North Central
Phoenix, Arizona 85004

State: ARKANSAS

1. Number of Communities Subject to Flooding:
415
2. Local Enabling Authority:
Local units of government are authorized to adopt zoning, subdivision regulations and building codes for flood insurance purposes.
3. Existing State Floodplain Management:
The state is authorized to adopt and enforce floodplain regulations for any community that has not adopted adequate regulations to qualify for flood insurance or other federal assistance. The Arkansas Soil and Water Conservation Commission is the state coordinating agency. Six staff members are assigned with a limited budget.
4. State Floodplain Management Activities:
The staff prepares model ordinances, supports ordinance adoption, administration and enforcement, supports flood insurance activities and distributes program materials. Ordinance adoption is a priority activity.
5. Problems:
The major problem has been inadequate funds.

For further information, contact:

State Coordinator
National Flood Insurance Program
Division of Soil and Water Resources
State Department of Commerce
1818 W. Capitol Building A
Little Rock, Arkansas 72202

State: CALIFORNIA

1. Number of Communities Subject to Flooding:
438
2. Local Enabling Authority:
Cities and counties have broad, general enabling authority.
3. Existing State Floodplain Management:
Local floodplain regulations consistent with state standards are required as a precondition to state cost-sharing in federal flood control projects. The state must review local regulations and, if they are inadequate or if the local unit fails to adopt them within a specified time, the local flood control agency with jurisdiction over the project area may adopt regulations. The Department of Water Resources is the state coordinating agency. Two staff persons with a budget of \$200,000 are authorized.
4. State Floodplain Management Activities:
The staff monitors community administration, enforces violations, both as a state action and as a community assistance measure, and trains local officials. Priority is assigned to community assistance and monitoring.
5. Problems:
The major problem has been local government resistance to any restrictions on land use.
6. Innovations:
Certificates of commendation were awarded to projects in which the sponsors made wise use of floodplain areas. Letters were written to commend communities that took action to support floodplain management practices.
7. Selected State Floodplain Management Publications:
State of California. Bulletin 199. California Flood Management: an Evaluation of Flood Damage Prevention Programs, September 1980.

State of California, Governor Edmund G. Brown, Jr. "A Message to All Californians Regarding Flood Insurance."

State of California, Department of Water Resources. "Flood Control Operation in Northern California."

State of California, Department of Water Resources. "Flood Damage Prevention."

State of California, Department of Water Resources, in cooperation with the National Oceanographic and Atmospheric Administration, National Weather Service. "Flood Forecasting in California." December, 1974.

For further information, contact:

State Coordinator
National Flood Insurance Program
Department of Water Resources
P.O. Box 388
Sacramento, California 95802

State: COLORADO

1. Number of Communities Subject to Flooding:
150
2. Local Enabling Authority:
Cities, towns and counties all have broad enabling authority with specific flood language.
3. Existing State Floodplain Management:
The state is required to consider floodway areas in land use plans. If a dangerous land use activity is discovered, it must be reported to the local county board. If the county commissions fail to stop the action, the governor must decide whether the activity is dangerous. If so, the commission is authorized to file a cease and desist order, which can be enforced by the county.
4. State Floodplain Management Activities:
The staff distributes and prepares model ordinances, NFIP information, assists communities to enforce violations, reviews and approves technical data, and does some training of local officials.
5. Problems:
Problems have largely concerned inadequate coordination and communication by representatives of the federal government, where the federal agencies deal directly with the local units and do not properly involve the state. Inadequate enabling authority and lack of a full commitment of state officials and the legislature are also problems.
6. Innovations:
Through its review and approval process, the state ensures technical data and floodplain delineation. Additionally, the state "piggy-backs" on the FIA contract to provide the additional funding needed to perform floodplain studies at a scale of one inch to 200 feet and with two-foot contour topographic mapping.
7. Selected State Floodplain Management Publications:
Colorado Water Conservation Board. Manual for Local Government - Flood Plain Management, Flood Control and Flood Disaster Programs. June 1976.

For further information, contact:

State Coordinator
National Flood Insurance Program
Colorado Water Conservation Board
Room 823, State Centennial Building
1313 Sherman Street
Denver, Colorado 80203

State: CONNECTICUT

1. Number of Communities Subject to Flooding:
169
2. Local Enabling Authority:
General zoning authority with specific flood language is delegated to cities, towns and boroughs.
3. Existing State Floodplain Management:
The state is authorized to establish stream encroachment lines for waterways or flood prone areas considered for any flood alleviation measures. Permits are required for any structures or obstructions within the lines. The Department of Environmental Protection Water Resources Unit is the state coordinating agency. Two staff people and a budget estimated at \$35,000 are allocated.
4. State Floodplain Management Activities:
The staff distributes National Flood Insurance Program materials and provides technical assistance to communities on floodplain management matters.
5. Problems:
Problems are inadequate staff, funding and data. Although the state pioneered in floodplain zoning during the 1950's with its Stream Channel Encroachment Line Program, the program needs updating to bring it into line with state-of-the-art methods and philosophies.

For further information, contact:

State Coordinator
National Flood Insurance Program
Department of Environmental Protection
Division of Water and Related Resources
Room 215, State Office Building
Hartford, Connecticut 06115

State: DELAWARE

1. Number of Communities Subject to Flooding:
42
2. Local Enabling Authority:
Cities, towns and certain counties have broad zoning enabling authority. Some includes specific flood language.
3. Existing State Floodplain Management:
There is no specific state floodplain management program although state laws regulate beaches, wetlands and coastal areas. The Office of Management, Budget and Planning is the state coordinating office; one staff person is assigned on a part-time basis.
4. State Floodplain Management Activities:
Principal activities are distribution of information and monitoring local administration.
5. Problems:
Problems are inadequate staff and enabling authority, and lack of funds.

For further information, contact:

State Coordinator
National Flood Insurance Program
Office of Management, Budget and Planning
Townsend Building, 3rd Floor
Dover, Delaware 19901

DISTRICT OF COLUMBIA

1. Number of Communities Subject to Flooding:
1
2. Local Enabling Authority:
The District has zoning, subdivision control and other authorities that can be used for floodplain management.
3. Existing State Floodplain Management:
The District is presently conducting a study (see #6, below) and planning to adopt an improved management ordinance when the study is completed. No construction will be permitted in floodways. The Department of Environmental Services is the state coordinating agency. A staff of eight part-time workers with a budget of approximately \$33,000 is authorized.
4. State Floodplain Management Activities:
The staff adopts and administers ordinances; trains local officials; reviews technical data, enforces violations and distributes materials. Review and approval of technical data and ordinance adoption are the priority activities.
5. Problems:
Problems include inadequate staff, funds and flood data.
6. Innovations:
Fluvial and tidal flooding in the Potomac River Estuary have been hydraulically modelled.
7. Selected State Floodplain Management Publications:
Department of Environmental Science. Handbook, Erosion and Sediment Control.

_____. Flood Emergency Manual. August 1976.

For further information, contact:

State Coordinator
National Flood Insurance Program
Office of Environmental Planning
and Management
415 12th Street N.W.
Washington, D.C. 20004

State: FLORIDA

1. Number of Communities Subject to Flooding:
402
2. Local Enabling Authority:
Municipalities and counties have broad zoning enabling authority with specific flood language.
3. Existing State Floodplain Management:
The state program for floodplain management is administered by several agencies. The Department of Environmental Regulation is involved in floodplain management through the five water management districts that deal with water quantity (conservation and flood control) and water quality. The Department of Natural Resources administers the "coastal construction control line" for protection of beaches. The Department of Community Affairs (DCA) is the state disaster preparedness agency and the coordination office for the NFIP. DCA also administers the Areas of Critical State Concern program whereby state regulation of critical areas is authorized in the absence of adequate local controls. State agency building construction in floodplains is supervised by the Department of General Services.
4. State Floodplain Management Activities:
The coordinating office has provided technical assistance concerning the NFIP to local governments and distributes NFIP information to lending institutions, insurance companies and the general public. Priorities are completion of studies, development of floodplain management ordinances and information workshops.
5. Problems:
The primary problem has been inadequate flood data.

For further information, contact:

State Coordinator
National Flood Insurance Program
Department of Community Affairs
2571 Executive Center Circle East
Tallahassee, Florida 32301

State: IDAHO

1. Number of Communities Subject to Flooding:
156
2. Local Enabling Authority:
Cities and counties are authorized to zone.
3. Existing State Floodplain Management:
There is no statewide floodplain management program or direct state regulation of floodplains. The Department of Water Resources is the state coordinating agency. General staff are involved part time, but total effort is less than one staff person per year. No budget has been established for the activity.
4. State Floodplain Management Activities:
The staff provides information and technical assistance. Priority actions include assisting local government in compliance with NFIP requirements and providing and interpreting flood information for lenders and the general public.
5. Problems:
A significant problem has been lack of staff. Lack of funding and enabling legislation also present difficulty.

For further information, contact:

State Coordinator
National Flood Insurance Program
Department of Water Resources
State House
Boise, Idaho 83720

State: GEORGIA

1. Number of Communities Subject to Flooding:
445
2. Local Enabling Authority:
Cities, incorporated towns and counties have broad zoning authority with specific flood language.
3. Existing State Floodplain Management:
There is no state floodplain management program or direct state regulation of floodplains. The Department of Natural Resources, Environmental Protection Division, is the state coordinating agency. One staff member with a budget of \$24,000 is authorized.
4. State Floodplain Management Activities:
The staff assists in ordinance adoption and administration, monitoring and distribution of information. Priority activities are community assistance and public education.
5. Problems:
Problems include inadequate staff and flood data and inaccurate flood hazard boundary maps. Community involvement is lacking due to infrequent flooding.

For further information, contact:

State Coordinator
National Flood Insurance Program
Environmental Protection Division
270 Washington Street, S.W.
Atlanta, Georgia 30334

State: HAWAII

1. Number of Communities Subject to Flooding:
25
2. Local Enabling Authority:
Hawaii's four counties have enabling authority to adopt zoning, subdivision and building codes. Specific ordinances on regulating developments in floodplains are being finalized for lands zoned urban, rural and agricultural. Counties also issue specific management area permits under the state's coastal zone management program.
3. Existing State Floodplain Management:
Although there is no direct state floodplain management program, statewide floodplain regulation is indirectly provided by the State Land Use Zoning Program under the Conservation District Use Application system administered by the Department of Land and Natural Resources (DLNR). The DLNR's Division of Water and Land Development is the state flood control coordinating agency.
4. State Floodplain Management Activities:
Major activities include review of state land use boundary change proposals, coordination of flood control projects for structural and nonstructural solutions, review of state grants to counties for flood control projects, collection and analysis of flood flow data in cooperation with the USGS, preparation and dissemination of post-flood reports, maintenance of a statewide flood control plan and technical assistance to counties.
5. Problems:
Federal, state, and county agencies involved in floodplain management need to increase coordination and communication. Floodplain mapping and flood routing analysis need to be refined and state and county enforcement and monitoring activities need to be bolstered with additional personnel and financial resources.
6. Innovations:
The State Department of Land and Natural Resources is concluding a statewide silt basin study to assess critical erosion and sedimentation areas and to prepare preliminary engineering designs for a demonstration silt basin facility.

For further information, contact:

State Coordinator
National Flood Insurance Program
Department of Land and Natural Resources
Division of Water and Land Development
P.O. Box 373
Honolulu, Hawaii 96809

State: ILLINOIS

1. Number of Communities Subject to Flooding:
804
2. Local Enabling Authority:
Cities, villages, incorporated towns and counties are granted broad general authority to zone with specific building code authority for flood protection.
3. Existing State Floodplain Management:
There is direct state regulation of certain mapped floodplain areas. A permit is required for structures in these floodplains. A separate statutory authority provides state regulation of floodways throughout the state. The Division of Water Resources of the Illinois Department of Transportation is the state coordinating agency. Three and one-half people, with a \$150,000 budget, coordinate the National Flood Insurance Program and provide local assistance for the program. Additionally, there are eight staff members in the state permit program in Springfield (\$700,000 budget). The regional field office in Schaumburg has five people and a budget of \$250,000. The Illinois Institute of Natural Resources, State Water Survey, in Champaign has three and one-half staff members and a \$100,000 budget for the floodplain data repository.
4. State Floodplain Management Activities:
The staff is assigned to an array of floodplain management activities. Priority is placed on training local officials and enforcing of violations, both as a state action and as a community assistance measure.
5. Problems:
Problems cited include inadequate staff and funds.
6. Innovations:
The hazard mitigation study for Wilmington, Illinois, was particularly comprehensive. Considerable emphasis has been placed on the development of public informational materials, e.g., a manual on regulations, which discusses coordination of state and local permits, and a homeowner's self-help manual.
7. Selected State Floodplain Management Publications:
Illinois Department of Transportation, Division of Water Resources.
Information Sheet:
 1. "Publication Order Form."
 2. "Illinois Water Resources--Where to Get Help."
 3. "National Flood Insurance Program--Reading Flood Hazard Boundary Maps."
 4. "National Flood Insurance Program--Appealing Flood Insurance Maps."
 5. "National Flood Insurance Program--Floodplain Development Regulations."
 6. "National Flood Insurance Program--Flood Insurance."
 7. "National Flood Insurance Program--Rules for Lenders."
 8. "Floodplain Management Measures."

Illinois Department of Transportation, Division of Water Resources.
Local Assistance Series:

- 1A. "Floodplain Publications," prepared for the state by U.S. Army Corps of Engineers, Chicago District, Floodplain Management Services. January 1980.
- 1B. "Directory of Floodplain Agencies," prepared for the state by U.S. Army Corps of Engineers, Chicago District, Floodplain Management Services. January 1980.
- 2A. "Program Summary," January 1980.
- 2B. "Local Government Application Procedure," March 1980.
- 2C. "Floodplain Regulations," February 1980.
- 2F. "NIPC Planning Aid No. 9," February 1978.
- 3B. "Protecting Your House From Flood Damage," January 1980.
- 5A. "River Stages in Illinois: Flood and Damage Data," March 1980.

Illinois Department of Transportation, Division of Water Resources.
Report on Wilmington's Floodplain Programs, City of Wilmington, Illinois, July 1979.

Illinois State Water Survey in cooperation with Illinois Department of Transportation, Division of Water Resources. Floodplain Information Assistance. July 1979.

Illinois State Water Survey. Circular 137. "Floodplain Services Available from the Illinois State Water Survey," 1979.

Illinois Department of Transportation, Division of Water Resources. "Notifying Floodplain Residents: An Assessment of the Literature," July 1980.

Illinois Department of Transportation, Division of Water Resources. "Report on the Executive Order," May 1979.

State Permit Publication:

"Rules and Regulations, Regulation of Construction within Floodplains Established Pursuant to Section 65f, Chapter 19, Illinois Revised Statutes," July 1979.

"Guide to the Hydraulic Design of Bridges and Culverts on Local Systems," August 1979.

For further information, contact:

State Coordinator
National Flood Insurance Program
Illinois Department of Transportation
Division of Water Resources
300 North State Street
Room 1010
Chicago, Illinois 60610

State: INDIANA

1. Number of Communities Subject to Flooding:
400
2. Local Enabling Authority:
Cities, counties and incorporated towns all have general zoning authority with specific flood language. A special act also authorizes floodplain regulations consistent with state standards.
3. Existing State Floodplain Management:
The state directly regulates floodways and requires permits for developments within them. The state must also approve local floodplain zoning ordinances.

The Division of Water of the Department of Natural Resources is the state coordinating agency. Four professional and two clerical staff members have a budget of approximately \$100,000.

4. State Floodplain Management Activities:
A wide range of activities are undertaken. Priorities include the review and approval of hydrologic and hydraulic studies, approval of local ordinances and assistance to communities in ordinance adoption.
5. Problems:
Problems include inadequate staff, funds and data. Local efforts and programs are not fully utilized in the state regulatory program.
6. Innovations:
After the 1979 flood disaster in English and Marengo, Indiana, the following hazard mitigation was accomplished: 20 heavily damaged structures were demolished, several businesses were relocated and a HUD Community Development Block Grant was received, which will help improve streets and gutters and rehabilitate the less seriously damaged structures.
7. Selected State Floodplain Management Publications:
State of Indiana, "Hazard Mitigation Plan." 1979 Flood Disaster in English and Marengo.

For further information, contact:

State Coordinator
National Flood Insurance Program
Department of Natural Resources
Division of Water
605 State Office Building
Indianapolis, Indiana 46204

State: IOWA

1. Number of Communities Subject to Flooding:
580
2. Local Enabling Authority:
Cities and counties have broad general authority to zone. The legislation has specific flood enabling language to regulate subdivisions and to adopt building codes. In addition, limited home rule powers have been granted to both cities and counties.
3. Existing State Floodplain Management:
There is direct state regulation in most instances. The state must also review and approve local regulations for flood areas before they become effective. The Natural Resources Council is the state coordinating agency. The Flood Plain Management Division has a staff of 15, two of which are assigned to deal with local governments in floodplain management, including coordination of the NFIP. A budget of \$350,000 is allocated.
4. State Floodplain Management Activities:
The staff undertakes a wide range of activities, with priority given assisting local communities in ordinance adoption, reviewing flood insurance studies and public education.
5. Problems:
Problems include inadequate staff, funds and flood data.

For further information, contact:

State Coordinator
National Flood Insurance Program
Iowa Natural Resources Council
Wallace State Office Building
Des Moines, Iowa 50319

State: KANSAS

1. Number of Communities Subject to Flooding:
461
2. Local Enabling Authority:
Cities and counties have power to zone. A special act provides specific floodplain regulatory powers.
3. Existing State Floodplain Management:
Although there is no direct state regulation, the state has developed standards for local regulation and the state must also approve local ordinances. The state coordinating agency is the Division of Water Resources of the State Board of Agriculture. A staff of 1.8 persons with a budget of \$53,192 is assigned to floodplain zoning. Additional staff are involved in the dam section, which covers other structural approaches such as levees, channel changes, etc.
4. State Floodplain Management Activities:
The staff has a wide range of activities but a priority is local coordination, including variance approval and ordinance adoption.
5. Problems:
Problems have been inadequate staff, flood data and enabling authority in that there is statutory duplication of concepts without integration.
6. Innovations:
The state program has consistently assisted the local community to use NFIP as a flood damage reduction goal in state water planning.
7. Selected State Floodplain Management Publications:
Bell, Fletcher. "Flood Insurance Facts to Help You." Kansas Insurance Department, State Office Building, Topeka, Kansas 66612.

Eberle, William M. "Alternatives and Actions for the Community, National Flood Insurance Program." Kansas State University, Community Resource Development Cooperative Extension Service.

For further information, contact:

State Coordinator
National Flood Insurance Program
Division of Water Resources
State Board of Agriculture
901 Kansas Avenue, Second Floor
Topeka, Kansas 66612

State: KENTUCKY

1. Number of Communities Subject to Flooding:
339
2. Local Enabling Authority:
Cities and counties have broad zoning power with specific flood language in the legislation.
3. Existing State Floodplain Management:
The state requires permits to regulate the placement of obstructions in the floodway. The state coordinating agency is the Department of Natural Resources and Environmental Protection. One staff person (budget about \$15,000) coordinates the NFIP and eight persons work with regulations. Total budget is approximately \$280,000.
4. State Floodplain Management Activities:
The staff trains local officials, agents and lenders, reviews and approves hydrology and hydraulics of studies, distributes program information and enforces violations. Review and approval of the technical data are priorities.
5. Problems:
Inadequate staff, funds and flood data are problems. Obtaining legal assistance has also been a problem.
6. Innovations:
Commonwealth funds are available to provide local communities with grants for engineering plans to repair public water supply dams; to administer community flood damage abatement programs; and to alleviate persistent flood damage problems.
7. Selected State Floodplain Management Publications:
Kentucky Department of Natural Resources and Environmental Protection. Staff Report. "The Floods of April." 1977.

For further information, contact:

State Coordinator
National Flood Insurance Program
Kentucky Department of Natural Resources
Division of Water Resources
Old Wilkinson Street
School Building
Frankfort, Kentucky 40601

State: LOUISIANA

1. Number of Communities Subject to Flooding:
259
2. Local Enabling Authority:
Parishes and municipalities are authorized to enact zoning laws, subdivision regulations and building codes in order to satisfy NFIP requirements.
3. Existing State Floodplain Management:
There is no state floodplain management program or direct state regulation of floodplains. The Department of Urban and Community Affairs is the state coordinating agency. A staff of three with a budget of \$70,000 are assigned to the program.
4. State Floodplain Management Activities:
Staff activities cover a range of areas, including community training, enforcement of violations, and distribution of materials. A priority is the adoption of strong ordinances.
5. Problems:
In addition to inadequate staff, funds, data and enabling legislation, the general public believes that the solution to every flood is another levee.
6. Innovations:
A proposed action that deserves attention is the plan to develop curriculum materials in floodplain management.

For further information, contact:

State Coordinator
National Flood Insurance Program
Department of Urban and Community Affairs
5790 Florida Boulevard
Baton Rouge, Louisiana 70806

State: MAINE

1. Number of Communities Subject to Flooding:
948
2. Local Enabling Authority:
Cities and towns are broadly authorized to adopt zoning regulations; the state regulates unorganized territories.
3. Existing State Floodplain Management:
There is no formal floodplain management program but the state regulates certain floodplains through the River and Stream Act. The state coordinating agency is the Bureau of Emergency Preparedness.
4. State Floodplain Management Activities:
Principal activities include assisting in ordinance development and adoption, training local officials and promoting flood insurance. Assisting the community and citizens in the promotion of the NFIP is a priority action.
5. Problems:
Problems are lack of staff and funds and inadequate flood data.
6. Innovations:
A citizen in Maine, located in an area being eroded by the Sandy River, was relocated through the NFIP.

For further information, contact:

State Coordinator
National Flood Insurance Program
Bureau of Civil Emergency Preparedness
State House
Augusta, Maine 04330

State: MARYLAND

1. Number of Communities Subject to Flooding:
115
2. Local Enabling Authority:
Cities, counties, incorporated towns and villages have broad zoning enabling legislation. To qualify for the NFIP, communities have only to adopt a resolution recognizing the state's authority. The FIA has approved the state as having authority over all floodplain development.
3. Existing State Floodplain Management:
There is a statewide floodplain management program and direct regulation of floodplains through a state permit. No filling is allowed if the tractive force (depth X slope) or stream powers (velocity X slope) would be increased by more than 5%. No increase is allowed until an easement is secured from affected property owners. The state coordinating agency is the Water Resources Administration, Flood Plain Management Division.
4. State Floodplain Management Activities:
A wide variety of activities is undertaken by state staff. Priority activities include analysis of detailed data, training of insurance agents and monitoring of community administration.
5. Problems:
Problems include inadequate staff, funds, data, enabling legislation and a public misinformed about the true risks of occupying flood hazard areas.
6. Innovations:
Innovations include a local government 50-50 cost-sharing program for capital projects with an emphasis on acquisition. Present financing is a bonding authority, with plans to have funding transferred to general revenues. The state is considering this program for post-disaster recovery.

Several counties have highly visible signs to mark the floodplain or identify historical high-water marks.

7. Selected State Floodplain Management Publications:
Maryland Department of Natural Resources. "If You're Planning...You Need A Permit." March 1979.

Maryland State Coordinator's Office, National Flood Insurance Program. "Appealing the FIA Maps."

_____ . "Flood Insurance Facts and Procedures for Appraisers."

_____ . "Model Flood Plain Ordinance."

University of Maryland, Cooperative Extension Service. Information Sheet No. 2. "Intertidal Zone Uses--A Program for Regulation of Tidal Wetlands Alteration." January 1979.

_____. Information Sheet No. 7. "Water Uses--A Program for State Assistance in Flood Management." April 1979.

For further information, contact:

State Coordinator
National Flood Insurance Program
Department of Natural Resources
Water Resources Administration
Flood Control Section
Tawes Office Building
Annapolis, Maryland 21401

State: MASSACHUSETTS

1. Number of Communities Subject to Flooding:
350
2. Local Enabling Authority:
Cities and towns have broad zoning authority with specific flood language.
3. Existing State Floodplain Management:
There is direct state regulation of certain inland and coastal floodplains as part of the wetland protection programs (which define wetland to include floodplains). The Division of Water Resources, the Water Resources Commission, is the state coordinating agency. One person with a limited budget handles the NFIP.
4. State Floodplain Management Activities:
The principal activity is program information distribution. Assisting communities to adopt and enforce, training local officials, and reviewing and approving technical data are priorities.
5. Problems:
Problems include inadequate staff and funding.
6. Innovations:
The Coastal Flood Proofing Program is designed to ultimately reduce the amount of housing damage sustained from flooding of low-lying coastal areas. The program will have a sliding scale of rebates granted after approved residential flood proofing has been completed.

The state has issued a \$5 million bond to acquire flood-damaged properties.

The Charles River Project is a nonstructural approach with emphasis on maintaining valley storage.
7. Selected State Floodplain Management Publications:
State of Massachusetts. "Coastal Floodproofing Program." May 1979.

For further information, contact:

State Coordinator
National Flood Insurance Program
Division of Water Resources
Water Resources Commission
State Office Building
100 Cambridge Street
Boston, Massachusetts 02202

State: MICHIGAN

1. Number of Communities Subject to Flooding:
607
2. Local Enabling Authority:
Cities, villages, townships and counties have broad zoning authority. They are authorized and encouraged to zone wetlands, natural river areas, and erosion and flood risk areas along the Great Lakes.
3. Existing State Floodplain Management:
A statewide floodplain management program regulates floodplain occupation, land subdivision and coastal flood risks. The state requires permits for filling or otherwise occupying riverine floodplains. Floodplains in new subdivision developments must be identified and minimum building areas must be provided above these defined elevations. The Department of Natural Resources, which is the state coordinating office, handles the entire program. There are presently 20 full-time employees and a budget of \$570,000.
4. State Floodplain Management Activities:
The staff performs a wide array of floodplain management activities. Priorities include review and approval of hydrologic and hydraulic studies, distribution of NFIP information, estimating floodplain elevations and enforcement of violations. They also coordinate floodplain management with other regulatory programs.
5. Problems:
Problems include inadequate staff, funding, data and enabling legislation. In rapidly urbanizing communities, loss of storage and inadequate storm water management present particular problems.
6. Innovations:
The regulatory program allows the state to review floodway encroachments to determine whether future urbanization will impact flood stage and discharges. The state program can regulate storage areas once data is developed to define how the removal of flood storage will impact flood stages.
7. Selected State Floodplain Management Publications:
Michigan Department of Natural Resources, Division of Land Resources Programs/Water Management Division. The National Flood Insurance Program--Guidelines for Floodplain Management. April 1978.

For further information, contact:

State Coordinator
National Flood Insurance Program
Michigan Department of Natural Resources
Water Management Division
Steven T. Masons Building
P.O. Box 30028
Lansing, Michigan 48909

State: MINNESOTA

1. Number of Communities Subject to Flooding:
645
2. Local Enabling Authority:
Cities, counties and townships have broad authority to zone; the legislation has specific flood language. A special floodplain management act requires flood-prone communities to participate in the NFIP and to adopt floodplain regulations.
3. Existing State Floodplain Management:
There is a statewide floodplain management program. The state has minimum standards that must be adopted and administered by local governments. The state has power to adopt regulations if a local unit of government fails to act within a specified time. The Division of Waters of the Department of Natural Resources is the state coordinating agency. Two full-time central office staff people are assigned to floodplain management. Twenty-five field personnel spend some portion of their time on floodplain management. The budget is approximately \$200,000.
4. State Floodplain Management Activities:
Staff activities cover a wide range. Priorities are ordinance adoption and administration and training of local officials.
5. Problems:
Problems include inadequate staff and, in the past few years, frequent internal reorganizations.
6. Innovations:
The state has a long-standing commitment to develop informational materials; e.g., technical report series, model ordinance series and floodplain management informational brochures. A state building code for floodproofing has been adopted and an administrative manual has been developed to aid in implementation. Acquisition and relocation have occurred in several communities.
7. Selected State Floodplain Management Publications:
Minnesota Department of Natural Resources, Division of Waters, Land Use Management Section. "Hazard Mitigation Plan--FDAA 5822."

_____. "Minnesota Status of Flood Plain Management." October 1979.

_____. DNR Reports No. 88. "New Ways to Reduce Flood Damage." March 1980.

_____. Flood Plain Management Informational Brochure No. 1. "Reducing Flood Damages by Acquisition and Relocation: The Experiences of 4 Minnesota Communities."

_____. Technical Report No. 1. "Field Surveys for Flood Hazard Evaluation." January 1971.

_____. Technical Report No. 2. "Normal Depth Analysis." January 1971.

_____. Technical Report No. 3. "Local Flood Data Collection." March 1971.

_____. Technical Report No. 4. "Use of Experienced Flood Data in Flood Plain Regulation." November 1971.

_____. Technical Report No. 5. "On-site Sewage Disposal in Flood Plain Areas." December 1974.

_____. Technical Report No. 6. "The Regulatory Floodway in Flood Plain Management." September 1977.

_____. Technical Report No. 7. "Procedures and Requirements for Flood Hazard Evaluation." April 1980.

_____. "Sample Flood Plain Zoning Ordinance for Local Units of Government." September 1978.

_____. "Flood Plain Management Program--Operations Manual." November 1979.

Minnesota Department of Natural Resources in cooperation with the League of Minnesota Municipalities and the Association of Minnesota counties. "Sample Flood Plain Zoning Ordinance for Local Units of Government (Using Available Flood Information in the Absence of Detailed Engineering Studies)." December 1971.

_____. "Sample Flood Plain Zoning Ordinance for Local Units of Government (Using Detailed Engineering Studies)." February 1971.

U.S. Army Corps of Engineers, St. Paul District in cooperation with the Minnesota Department of Natural Resources, Division of Waters. Flood-proofing Administrative Manual for Minnesota. 1977.

For further information, contact:

State Coordinator
National Flood Insurance Program
Department of Natural Resources
Division of Waters
Space Center Building, Third Floor
444 Lafayette Road
St. Paul, Minnesota 55101

State: MISSISSIPPI

1. Number of Communities Subject to Flooding:
307
2. Local Enabling Authority:
Cities, incorporated towns and counties have broad zoning authority.
3. Existing State Floodplain Management:
There is no statewide floodplain management program.
4. State Floodplain Management Activities:
Principal activities include preparing a model ordinance, training local officials, supporting insurance activities, distributing materials, and assisting communities in enforcement. A priority is training local officials. The state coordinating agency is the Mississippi Research and Development Center.
5. Problems:
Problems include inadequate funds and flood data.
6. Innovations:
Using HUD Section 407 funding, plans are being made to relocate 292 low income family units out of the floodplain and to elevate approximately 84 units.
7. Selected State Floodplain Management Publications:
State of Mississippi. Flood Hazard Mitigation Plan--FDAA-577-Dr.
July 31, 1979.

For further information, contact:

State Coordinator
National Flood Insurance Program
Mississippi Research and Development Center
P.O. Drawer 2470
Jackson, Mississippi 39205

State: MISSOURI

1. Number of Communities Subject to Flooding:
411
2. Local Enabling Authority:
Cities, villages and incorporated towns all have broad power to zone. Counties zone according to class.
3. Existing State Floodplain Management:
There is no state floodplain management program. The state coordinating agency for the NFIP is the Disaster Planning and Operation Office. One staff member handles the program on a limited budget.
4. State Floodplain Management Activities:
Principal activities include preparation of a model ordinance and distribution of materials.
5. Problems:
Problems include inadequate staff, funds, and enabling authority for some communities which thereby precludes their participation in the NFIP.
6. Selected State Floodplain Management Publications:
Missouri Department of Consumer Affairs in cooperation with the Missouri Department of Public Safety, Disaster Planning and Operations Office. "Flood Insurance Facts--A Consumer Guide to the National Flood Insurance Program in Missouri." August 1979.

Missouri Department of Public Safety, Disaster Planning and Operation Office. National Flood Insurance Program Handbook for Missouri Communities--Vol I, Emergency Program. May 1979.

_____ . National Flood Insurance Program Handbook for Missouri Communities--Vol. II, Regular Program. March 1980.

For further information, contact:

State Coordinator
National Flood Insurance Program
Disaster Planning and Operations Office
P.O. Box 116
Jefferson City, Missouri 65102

State: MONTANA

1. Number of Communities Subject to Flooding:
122
2. Local Enabling Authority:
Broad zoning authority is granted to cities, incorporated towns and counties. Localities must adopt regulations meeting state standards for floodplain areas.
3. Existing State Floodplain Management:
The state designates floodway and floodplain areas. If localities fail to adopt adequate regulations, the state will directly regulate designated areas. The Department of Natural Resources and Conservation is the state coordinating agency. NFIP coordination is part of the statewide program, which two staff persons handle on a limited budget.
4. State Floodplain Management Activities:
The staff prepares model ordinances, assists in the adoption of ordinances, reviews technical data, assists local communities in enforcement, trains local officials and distributes information. The public hearing and state designation procedure for floodplain delineation are priority activities.
5. Problems:
Inadequate staff has been a major problem. The state hearing and notification requirement is cumbersome and time-consuming.
6. Selected State Floodplain Management Publications:
Montana Department of Natural Resources and Conservation, Flood Plain Management Section, Engineering Bureau. "Before You Buy or Build Near a Stream."

For further information, contact:

State Coordinator
National Flood Insurance Program
Montana Department of Natural Resources
and Conservation
Water Resources Division
32 South Ewing Street
Helena, Montana 59601

State: NEBRASKA

1. Number of Communities Subject to Flooding:
338
2. Local Enabling Authority:
Cities, villages and counties have general authority to zone. Legislation has specific flood language.
3. Existing State Floodplain Management:
The state designates floodway areas. Local units are required to adopt adequate regulations to meet state standards. Failure to adopt such regulations will result in direct state regulation. The Natural Resources Commission is the state coordinator with a staff of three and budget of \$144,000 allocated. The Department of Water Resources also has two staff members assigned to floodplain management.
4. State Floodplain Management Activities:
The staff participates in a wide range of activities; priority actions include ordinance adoption, training local officials, and delineation of hazard areas.
5. Problems:
Problems include inadequate funds and flood data.
6. Selected State Floodplain Management Publications:
Nebraska Civil Defense Agency. Emergency Assistance Handbook for Local Government Officials of Nebraska. June 1979.

Nebraska Natural Resources Commission. Flood Plain Study--Big Blue River, Vols. I-III. March 1977.

Nebraska Institute of Agriculture and Natural Resources, Nebraska Civil Defense Agency, and the Nebraska Natural Resources Commission. "Flood--Are You Prepared? Emergency Flood Information." 1979.

For further information, contact:

State Coordinator
National Flood Insurance Program
Nebraska Natural Resources Commission
301 Centennial Mall
P.O. Box 94876
Lincoln, Nebraska 68509

State: NEVADA

1. Number of Communities Subject to Flooding:
25
2. Local Enabling Authority:
Broad zoning authority exists for cities and incorporated towns. Cities, counties and regional planning commissions have general enabling legislation for regulations to protect life and property in areas subject to flood.
3. Existing State Floodplain Management:
There is no statewide floodplain management program. The state staff and budget are limited. Coordinating agency is the Department of Conservation and Natural Resources, Division of Water Resources.
4. State Floodplain Management Activities:
Principal activities include information distribution and training.
5. Problems:
Problems have been funds, staff and inadequate state enabling legislation.

For further information, contact:

State Coordinator
National Flood Insurance Program
Department of Conservation and Natural Resources
Division of Water Resources
201 S. Fall Street
Carson City, Nevada 89710

State: NEW HAMPSHIRE

1. Number of Communities Subject to Flooding:
222
2. Local Enabling Authority:
Cities and towns have broad authority to zone.
3. Existing State Floodplain Management:
There is no statewide floodplain management program or direct state regulation of floodplains. The Office of State Planning is the state coordinating agency. One person with a limited budget is assigned responsibility to coordinate the NFIP.
4. State Floodplain Management Activities:
Principal activities include assisting local communities in ordinance development, adoption and administration; information distribution; monitoring of community administration and assisting communities in the enforcement of violations.
5. Problems:
The primary problem has been inadequate funds.

For futher information contact:

State Coordinator
National Flood Insurance Program
Office of State Planning
2 1/2 Beacon Street
Concord, NH 03301

State: NEW JERSEY

1. Number of Communities Subject to Flooding:
549
2. Local Enabling Authority:
Cities, villages, boroughs, towns and counties have broad zoning authority with specific flood language. Municipalities must adopt floodplain regulations consistent with state standards.
3. Existing State Floodplain Management:
The state identifies floodplain and floodway areas and directly regulates floodways. Local governments regulate flood fringe areas according to the state's minimum criteria. The state will adopt regulations for areas that fail to adopt adequate regulations within a certain time. The state coordinating agency is the Department of Environmental Protection, Division of Waters Resources, Bureau of Flood Plain Management. A staff of 35 are involved; 25 of them are assigned to project review and permitting functions.
4. State Floodplain Management Activities:
The staff delineates flood hazard areas, prepares model ordinances, trains local officials, develops and reviews technical data, distributes program materials, monitors community administration and enforces violations. Priority actions are the delineation of floodways and flood hazard areas, issuance of floodway stream encroachment permits and coordination.
5. Problems:
Problems include inadequate staff and funds and legal challenges.
6. Innovations:
The state, under the Emergency Flood Control Board Act of 1978, is providing \$22 million in matching funds to local governments to construct flood control works, and \$3 million for preparation of a statewide flood control master plan and regional flood control planning.

For further information, contact:

State Coordinator
National Flood Insurance Program
Department of Environment Protection
Bureau of Flood Plain Management
Division of Water Resources
P.O. Box CN 029
Trenton, New Jersey 08625

State: NEW MEXICO

1. Number of Communities Subject to Flooding:
82
2. Local Enabling Authority:
Incorporated municipalities, villages and counties are authorized to zone with specific flood language. A special statute authorizes municipal and county floodplain regulations.
3. Existing State Floodplain Management:
There is no statewide floodplain management program. The state coordinator's role for the NFIP is assigned to the Office of the State Engineer. Three staff persons are involved on a part-time basis with a budget allocation of \$5,000.
4. State Floodplain Management Activities:
The staff prepares model ordinances and distributes information about the NFIP. A priority activity is assisting communities to gain eligibility for the NFIP.
5. Problems:
Problems have largely concerned inadequate coordination and communication by representatives of the federal government, where federal agencies deal directly with the local units and do not properly involve the state. It was suggested that these problems would be reduced if an FIA representative were located in the state.

For further information, contact:

State Coordinator
National Flood Insurance Program
State Engineer's Office
Bataan Memorial Building
Santa Fe, New Mexico 87501

State: NEW YORK

1. Number of Communities Subject to Flooding:
1,475
2. Local Enabling Authority:
Cities, towns, and villages are authorized to regulate floodplains. All federally designated flood-prone communities must participate in the NFIP.
3. Existing State Floodplain Management:
The state is authorized to regulate floodplains directly if local governments fail to do so. Other state regulatory programs impose indirect control over certain types of floodplain development. The Department of Environmental Conservation is the state coordinating agency. Three full-time staff, nine field staff (on a part-time basis) and a budget of \$150,000 are allocated for administration of the floodplain management program.
4. State Floodplain Management Activities:
The staff participates in a wide range of floodplain management activities with priority placed on assisting communities with adoption of ordinances, monitoring community administration and training local officials.
5. Problems:
Problems include inadequate staff and funding.
6. Selected State Floodplain Management Publications:
State of New York. Department of Environmental Conservation and the Office of Planning Services. "Flood Plain Management and the National Flood Insurance Program."

New York State Water Resources Commission, Division of Water Resources Conservation. "Flood Plain Management--A Challenge for the State." September 1967.

State of New York. Department of State, Division of Community Affairs. "Model Zoning and Subdivision Provisions for Flood Hazard Areas in New York State." April 1979.

For further information, contact:

State Coordinator
National Flood Insurance Program
New York State Department of Environmental
Conservation
Water Management
50 Wolf Road - Room 618
Albany, New York 12233

State: NORTH CAROLINA

1. Number of Communities Subject to Flooding:
410

2. Local Enabling Authority:
Cities and counties have broad general authority for zoning, subdivision regulation, and control of construction standards through building permits. The Floodway Regulation Act provides additional specific enabling authority to local governments to regulate development in the 100-year floodplain. The Coastal Area Management Act requires land use planning in the coastal area and regulation of development by local governments in designated areas of environmental concern, including coastal flood hazard areas.

3. Existing State Floodplain Management:
The Floodway Regulation Act authorizes the Department of Natural Resources and Community Development to provide technical assistance to local governments and to delineate floodways if local governments do not take action. The state has not done any delineations due to lack of appropriations and the availability of this service from federal agencies. The Office of Water Resources provides two full-time positions for technical assistance to communities in floodplain management. The Division of Community Assistance provides a full-time state coordinator for the NFIP and part-time assistance to communities through seven planners in regional offices. Under the Coastal Area Management Act, the state office of coastal management established regulations for local government land use planning and for the regulation of coastal development, and for exercising direct state control over certain types of coastal development. The Division of Emergency Management of the Department of Crime Control and Public Safety is the lead state agency for flood warning, evacuation, response and recovery.

4. State Floodplain Management Activities:
The Division of Community Assistance assists communities in preparing ordinances, entering the NFIP, and in administering the program. The Office of Water Resources coordinates the North Carolina Flood Damage Reduction Task Force, made up of about 20 state and federal agencies. The purpose of the Task Force is to provide a comprehensive package of flood damage reduction assistance to communities. Pilot Task Force projects to develop comprehensive flood damage reduction plans are under way in Mt. Airy and Lumberton.

5. Problems:
Problems include inadequate state appropriations for staff, weak state legislation, inaccurate maps, and a lack of statewide awareness of the seriousness of the flood potential.

For further information, contact:

State Coordinator
National Flood Insurance Program
Division of Community Assistance
Department of Natural & Economic Resources
Development
P.O. Box 27687
Raleigh, North Carolina 27611

State: NORTH DAKOTA

1. Number of Communities Subject to Flooding:
220
2. Local Enabling Authority:
Cities, counties and townships have general authority for zoning.
3. Existing State Floodplain Management:
There is no statewide program or direct state regulation of floodplains. The North Dakota State Water Commission is the state coordinating agency. One staff person is assigned to NFIP coordination with a budget of \$24,000.
4. State Floodplain Management Activities:
Principal activities include assistance to local communities for ordinance adoption and administration, review of hydrologic and hydraulic studies, distribution of National Flood Insurance Program materials, monitoring local programs, assisting local enforcement, and educating the public.
5. Problems:
Problems include inadequate staff, funds, data and enabling legislation. Efforts are under way, however to develop comprehensive floodplain management enabling legislation.

For further information, contact:

State Coordinator
National Flood Insurance Program
State Water Commission
State Office Building
900 East Boulevard
Bismarck, North Dakota 58505

State: OHIO

1. Number of Communities Subject to Flooding:
728
2. Local Enabling Authority:
Cities, villages, townships and counties are authorized to zone.
3. Existing State Floodplain Management:
There is no statewide floodplain management program for regulation of floodplains. The Department of Natural Resources is the state coordinating agency. One full-time and one part-time staff member and one intern are assigned to coordinate the NFIP. The budget for this is approximately \$45,000.
4. State Floodplain Management Activities:
The staff prepares model ordinances, assists communities in ordinance adoption and enforcement of violations, supports insurance activities, provides a limited review of technical data, trains lenders and agents, and monitors community enforcement. A priority is training local officials to properly regulate floodplains.
5. Problems:
Problems include inadequate staff, funds and flood data.

For further information, contact:

State Coordinator
National Flood Insurance Program
Ohio Department of Natural Resources
Flood Plain Planning
Fountain Square - Building E
Columbus, Ohio 43224

State: OKLAHOMA

1. Number of Communities Subject to Flooding:
369
2. Local Enabling Authority:
Cities and incorporated towns and counties have zoning legislation with sufficient authority to allow them to participate in the NFIP.
3. Existing State Floodplain Management:
A statewide floodplain management act was signed into law in May 1980. Administrative regulations were to be developed in 180 days. The Oklahoma Water Resources Board is the state coordinating agency. Two part-time staff members are assigned with limited budget.
4. State Floodplain Management Activities:
Principal activities are monitoring community administration and distributing floodplain information. A priority is placed on training local officials and informing the public.
5. Problems:
The major problem is lack of funds.

For further information, contact:

Water Resources Board
1000 N.E. 10th St.
P.O. Box 53585
Oklahoma City, Oklahoma 73152

State: OREGON

1. Number of Communities Subject to Flooding:
253
2. Local Enabling Authority:
Cities and counties have broad zoning powers. Zoning is mandatory.
3. Existing State Floodplain Management:
Floodplain management is primarily a county and local responsibility. Zoning ordinances are adopted to regulate development in the floodplain. The Land Conservation and Development Commission has adopted goals and policies relating to natural hazards, and all planning activities must address them. The Water Resource Department is the state coordinating agency. Staff and budget are limited.
4. State Floodplain Management Activities:
Principal activities are review of technical data, distribution of information and materials and training of affected parties. Enforcement is done through zoning ordinances and land use goals.
5. Problems:
There is a lack of informational material explaining the NFIP to lenders, insurance agents, citizens and zoning departments.
6. Selected State Floodplain Management Publications:
Oregon Land Conservation and Development Commission. Oregon Coastal Management Program. 1976.
_____ . Statewide Planning Goals and Guidelines.

For further information, contact:

State Coordinator
National Flood Insurance Program
Water Resources Department
555 - 13 Street, N.E.
Salem, Oregon 97310

State: PENNSYLVANIA

1. Number of Communities Subject to Flooding:
2,408
2. Local Enabling Authority:
State statutes grant broad enabling authority for zoning and subdivision control with specific flood language to all boroughs, incorporated towns, townships and certain classes of cities and counties. The new floodplain management program requires municipalities to adopt floodplain management regulations that meet both NFIP and state regulations. Municipalities can also enact single-purpose floodplain management ordinances and building codes.
3. Existing State Floodplain Management:
The state regulates the floodplain in certain instances. The Department of Environmental Resources has 18 staff members assigned to regulatory functions dealing with floodplain development including public utilities, other state agencies, local flood control and all floodway activities. The Department of Community Affairs (DCA) is the state coordinating agency. Twelve staff members are assigned to oversee implementation of DCA responsibilities under the state program, including coordination of the NFIP.
4. State Floodplain Management Activities:
The staff provides technical and financial assistance to communities and monitors their activities in floodplains. Among a wide range of activities, priority actions are technical assistance for ordinance adoption, administration and enforcement and providing a continuing training program for local officials on floodplain management.
5. Problems:
Problems include lack of state and local staff, inadequate flood data, changing FIA policy and past insensitivity of the FIA to local needs.
6. Innovations:
A pilot project on the feasibility of adopting the flood insurance study maps for flood warning and evacuation purposes has been completed. Utilization of a state flood disaster bond issue has permitted communities to acquire flood-damaged properties for open-space purposes.
7. Selected State Floodplain Management Publications:
Flood Plain Management Subcommittee of the Pennsylvania Water Resources Coordinating Committee. A Technical Manual for Implementation of Flood Plain Management by Local Governments. July 1977.

State of Pennsylvania. Bureau of Community Planning, Planning Services Division. "Suggested Provisions to be Used in Zoning Ordinances for Compliance with National Flood Insurance Program Sections 60.3 (b) (c) and (d)." These provisions are available for building codes, subdivision regulations and in a single-purpose ordinance format.

Proceedings: Flood Warning and Flood Proofing Seminar for Industry.
"Industrial Flood Preparedness." Williamsport, Pennsylvania. April
16-17, 1979.

For further information, contact:

State Coordinator
National Flood Insurance Program
Department of Community Affairs
Bureau of Community Planning
Capitol Complex - Forum Bldg., Room 551
Harrisburg, Pennsylvania 17120

PUERTO RICO

1. Enabling Authority

Municipality governments in Puerto Rico do not have zoning or land use powers. All such powers are vested in the Puerto Rico Planning Board, at the level of the central (state) government. The entire island is considered a single community for the purposes of the NFIP. Specific legislation enables control of development in areas susceptible to flooding.

2. Coordination

The state coordinating office is the Puerto Rico Planning Board, which has first review of major changes in land use. Implementation of the Planning Regulations is through the Regulations and Permits Administration (RPA), which operates 11 regional and subregional offices for the issuance of construction and use permits. Neither agency has budget or staff assigned specifically to floodplain management.

3. Floodplain Management Activities

Principal activities of the Planning Board are the dissemination of materials to municipal and agency officials, property owners, developers and others in real estate, including appraisers, architects, engineers and lenders. RPA maintains data on floor elevations of new structures. Planning Board staff (as the State A-95 Clearinghouse) review proposals for location in or near flood-prone areas. The staff is also involved in a flood hazard mitigation effort, which is led by the Department of Natural Resources.

4. Problems

Problems include lack of adequately trained inspectors and other staff, limited public funds for hiring additional specialized staff, and inadequate flood data. Local attitudes on the value and usefulness of land and the division of institutional responsibilities for land and water plans are impediments to effective monitoring of development.

5. Innovations

The high proportion of low-income families living in flood hazard areas led to the consideration of subsidies on flood insurance at the state level early in 1979. After Hurricane David (August 1979), some 70,000 low-income families did not qualify for SBA loans, but did receive disaster assistance grants, from which the \$25 minimum flood insurance premium was deducted. Local insurance agents refused to handle individual policy applications at the minimum fee. The FIA solution was to issue a single policy in the name of the Commonwealth of Puerto Rico, for which the Department of Social Services certified the families that were eligible to participate. Some problems will probably occur when the group policy expires and must be replaced by individual policies. The governor is seriously

considering a state subsidy for the minimum premium, which will more than offset the amount of emergency claims paid out for disaster relief.

For further information, contact:

State Coordinator
National Flood Insurance Program
Puerto Rico Planning Board
P.O. Box 41119, Minillas Station
Santurce, Puerto Rico 00940

State: RHODE ISLAND

1. Number of Communities Subject to Flooding:
39
2. Local Enabling Authority:
Cities and towns have broad general zoning authority including flood language.
3. Existing State Floodplain Management:
There is no statewide floodplain management program as such, but the State Building Code governs construction and the Coastal Resources Management Council regulates high hazard zone development. In addition, wetland controls apply to floodplain areas. The Statewide Planning Program is the state coordinating agency. A budget of \$14,000 and three part-time staff persons are allocated to it.
4. State Floodplain Management Activities:
The staff prepares model ordinances, distributes information and enforces violations through the Coastal Council Permit Review. Training local officials, information dissemination, monitoring community administration and coordination are considered priorities.
5. Problems:
Problems include inadequate staff, funding, enabling authority and data. An additional problem is that local administration relies on building inspectors, some of which are part-time. NFIP requirements are a small part of each community's overall responsibility and may not be receiving adequate attention and priority.

For further information, contact:

State Coordinator
National Flood Insurance Program
R.I. Statewide Planning Program
265 Melrose Street
Providence, Rhode Island 02907

State: SOUTH CAROLINA

1. Number of Communities Subject to Flooding:
216
2. Local Enabling Authority:
Cities, villages, incorporated towns and counties have general enabling legislation some of which has specific flood language.
3. Existing State Floodplain Management:
There is no statewide floodplain management program. The state coordinating office is the South Carolina Water Resource Commission.
4. State Floodplain Management Activities:
Principal activities are assisting in ordinance adoption and administration, information distribution and limited monitoring of community ordinance administration.
5. Problems:
Problems have been inadequate funds, staff and enabling legislation.

For further information, contact:

State Coordinator
National Flood Insurance Program
P.O. Box 4515
3830 Forest Drive
Columbia, South Carolina 29240

State: SOUTH DAKOTA

1. Number of Communities Subject to Flooding:
146
2. Local Enabling Authority:
Cities, counties and incorporated towns have general zoning authority.
3. Existing State Floodplain Management:
There is no statewide floodplain management program. The state coordinating office is the Planning Bureau where one staff member with a limited budget is assigned to coordinate the NFIP.
4. State Floodplain Management Activities:
Principal activities are training of local officials and distribution of materials.
5. Problems:
The major problem is apathy.

For further information, contact:

State Coordinator
National Flood Insurance Program
State Planning Bureau
State Capitol
Pierre, South Dakota 57501

State: TENNESSEE

1. Number of Communities Subject to Flooding:
348
2. Local Enabling Authority:
Cities, incorporated towns and counties have broad power to zone. The legislation contains specific flood language and provides for response to the NFIP.
3. Existing State Floodplain Management:
There is no statewide floodplain management or direct state regulation of floodplains. The Local Planning Division of the Tennessee State Planning Office is the state coordinating office.
4. State Floodplain Management Activities:
Principal activities are preparing model ordinances, training local officials, distributing materials and monitoring community administration. The model ordinance, distribution of materials and monitoring are considered top priorities.
5. Problems:
Inadequate flood maps are cited as a chief problem.

For further information, contact:

State Coordinator
National Flood Insurance Program
Tennessee State Planning Office
660 Capitol Hill Building
Nashville, Tennessee 37219

State: TEXAS

1. Number of Communities Subject to Flooding:
1,229
2. Local Enabling Authority:
A special act authorizes all political subdivisions to adopt floodplain regulations for flood insurance purposes.
3. Existing State Floodplain Management:
There is no statewide program or direct state regulation of floodplains. The Department of Water Resources is the state coordinating agency. Three staff members and a budget of \$80,000 are allocated.
4. State Floodplain Management Activities:
The staff prepares model ordinances, assists in adoption and administration of ordinances, trains local officials and distributes materials. Priorities are monitoring community administration and enforcement and training local officials.
5. Problems:
Problems include inadequate staff and funds.

For further information, contact:

State Coordinator
National Flood Insurance Program
Texas Department of Water Resources
Community Services Unit
1700 North Congress Avenue
Austin, Texas 78701

State: UTAH

1. Number of Communities Subject to Flooding:
199
2. Local Enabling Authority:
Cities, towns and counties have broad general zoning authority that allows them to regulate floodplains.
3. Existing State Floodplain Management:
There is no state floodplain program or direct state regulation of floodplains. The Department of Natural Resources is the state coordinator for the NFIP. Two staff positions are involved in this agency, but the Office of Engineering Services will be administering the State Assistance Program.
4. State Floodplain Management Activities:
The staff distributes materials and assists in ordinance adoption.
5. Problems:
Problems include inadequate staff, funding, data, and enabling legislation. There is no real sense of importance or urgency in addressing floodplain management.

For further information, contact:

State Coordinator
National Flood Insurance Program
Department of Natural Resources
Division of Water Resources
Suite 300 Empire Building
321 East 400 South
Salt Lake City, Utah 84114

State: VERMONT

1. Number of Communities Subject to Flooding:
277
2. Local Enabling Authority:
Cities, villages, incorporated and unorganized towns and fire districts all have zoning and subdivision authority with specific flood language. A special statute authorizes towns, cities and incorporated villages to regulate floodplains.
3. Existing State Floodplain Management:
The state identifies flood hazard areas. Local governments are required to regulate state-designated floodplains. The Department of Water Resources is the state coordinating agency. One engineer and one secretary handle the program with a limited budget.
4. State Floodplain Management Activities:
Principal activities are preparation of model ordinances, assisting in local ordinance administration and enforcement, and distribution of materials. Priority activities are monitoring of local administration and providing technical assistance to communities.
5. Problems:
Problems include inadequate staff, funds and flood data. This last problem particularly impedes the State Designation Program.

For further information, contact:

State Coordinator
National Flood Insurance Program
Management & Engineering Division
Water Resources Department
State Office Building
Montpelier, Vermont 05602

State: VIRGINIA

1. Number of Communities Subject to Flooding:
251
2. Local Enabling Authority:
All local political jurisdictions have broad zoning authority with specific flood language.
3. Existing State Floodplain Management:
The Flood Damage Reduction Act authorizes the State Water Control Board to administer a floodplain management program and to preserve stream capacity to carry the 100-year flood. The uniform statewide building code regulates building construction practices in coastal hazard areas and 100-year floodplain. The state coordinating office is the State Water Control Board.
4. State Floodplain Management Activities:
Principal activities are coordination of the NFIP and assisting local communities in flood alert systems and ordinance review. The collection, review and distribution of floodplain management information and hydrologic data and coordination of federal floodplain management activities and studies are also part of the program.
5. Problems:
Problems are inadequate staff and flood data.

For further information, contact:

State Coordinator
National Flood Insurance Program
State Water Control Board
P.O. Box 11143
2111 No. Hamilton St.
Richmond, VA 23230

State: WASHINGTON

1. Number of Communities Subject to Flooding:
267
2. Local Enabling Authority:
Cities, counties and towns are all delegated broad zoning authority. There is special county enabling authority for flood control.
3. Existing State Floodplain Management:
The state delineates and directly regulates flood control zones. The state may delegate authority to city, county or town. The Department of Ecology is the state coordinating agency. Five staff and a budget of approximately \$100,000 are involved.
4. State Floodplain Management Activities:
The principal activity is distribution of materials. Priority activities are training local officials and enforcement of violations.
5. Problems:
Problems include inadequate staff, funds, and flood data and a lack of clear definition of statutory responsibilities for floodplain management.

For further information, contact:

State Coordinator
National Flood Insurance Program
Department of Ecology
Olympia, Washington 98504

State: WEST VIRGINIA

1. Number of Communities Subject to Flooding:
210
2. Local Enabling Authority:
Cities, villages, towns and counties have broad zoning authority with specific flood language.
3. Existing State Floodplain Management:
There is no statewide floodplain management program or direct state regulation of floodplains. The state coordinating office is the Disaster Recovery Office within the Office of Economic and Community Development. One staff person with a budget of \$20,000 is authorized.
4. State Floodplain Management Activities:
Principal activities are training local officials, lenders and agents; distribution of information; and monitoring of community administration. Distribution of material and monitoring community administration are considered priority activities.
5. Problems:
Problems include inadequate staff, funds, flood data and enabling authority.

For further information, contact:

State Coordinator
National Flood Insurance Program
Governor's Disaster Recovery Office
State Capitol Complex
Charleston, West Virginia 25305

State: WISCONSIN

1. Number of Communities Subject to Flooding:
557
2. Local Enabling Authority:
Cities, villages and counties have broad zoning authority.
Floodplain zoning is mandatory under a special act.
3. Existing State Floodplain Management:
The state establishes mandatory standards for floodplain regulations to be adopted by local governments. The state coordinating agency is the Department of Natural Resources. In the Department of Natural Resources, the Flood Plain-Shoreland Management Section has 10 central office positions and 17 field positions, with a budget of approximately \$400,000.
4. State Floodplain Management Activities:
The staff is involved in a wide range of activities, but priority is placed on training local officials and providing planning and engineering assistance to local units of government.
5. Problems:
Problems include inadequate staff, funds, and flood data, particularly good base maps.
6. Innovations:
Innovations include acquisition and relocation projects that represent alternatives to structural solutions:
 - a. Soldier's Grove: downtown area is being relocated out of the floodway to high ground. The project has multiple objectives, with emphasis on energy management, economic development and flood hazard mitigation.
 - b. Prairie du Chien: over 100 homes on an island in the floodway of the Mississippi River are being acquired and relocated.

A key to success in both projects has been strong local involvement.

 - c. Kickapoo Valley Flood Hazard Mitigation Study. FEMA funded an effort to help all communities in the Kickapoo River basin identify their problems and needs and to package existing federal programs to achieve the multiple goals of flood damage reduction, energy conservation, economic development, open-space recreation, and water quality.
 - d. State-funded mapping grant program. A program that provides financial aid to communities to cover 50% of the cost of developing large-scale topographic maps.
7. Selected State Floodplain Management Publications:
Wisconsin Department of Natural Resources. "Flood Plain and Shoreland Mapping Grants." 1979.

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Flood Plain Management Technique."

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September 1977.

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1978.

For further information, contact:

State Coordinator
National Flood Insurance Program
Department of Natural Resources
Flood Plain-Shore and Management Section
P.O. Box 7921
Madison, Wisconsin 53707

State: WYOMING

1. Number of Communities Subject to Flooding:
55
2. Local Enabling Authority:
Cities, towns and counties are delegated broad zoning authority.
3. Existing State Floodplain Management:
There is no statewide floodplain management program. The Wyoming Civil Defense Agency is the state coordinating agency for the NFIP. This is an additional duty without specific staff or budget allocation.
4. State Floodplain Management Activities:
Principal activities are preparation of a model ordinance, training of local officials and distribution of information. All are considered priorities.
5. Problems:
Problems include inadequate staff, funds, flood data, and specific enabling authority.

For further information, contact:

State Coordinator
National Flood Insurance Program
Wyoming Disaster and Civil Defense Agency
P.O. Box 1709
Cheyenne, Wyoming 82001

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