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DISASTER ASSISTANCE

Information on Federal Disaster Mitigation Efforts

Statement for the Record by
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Mr. Chairman and Members of the Subcommittee:

We appreciate the opportunity to provide this statement for the record, which discusses issues related to our past work on federal disaster mitigation efforts. Mitigation consists of measures taken to prevent future losses or reduce the losses that might otherwise occur from disasters. While several federal agencies undertake mitigation activities, this statement focuses primarily on those of the Federal Emergency Management Agency (FEMA). Our statement is based on our work for the Senate Bipartisan Task Force on Funding Disaster Relief,¹ our past reviews of various federal disaster assistance programs, and our review of FEMA's strategic plan prepared pursuant to the Government Performance and Results Act. Our statement briefly discusses (1) the reasons why disaster mitigation efforts are not always undertaken by state and local governments and individuals, (2) FEMA's efforts to encourage mitigation, and (3) issues that we believe are pertinent to ensuring the cost-effective use of federal dollars for hazard mitigation.

In summary:

- Hazard mitigation is primarily the responsibility of state and local governments, and individuals; however, mitigation actions are not always taken. The reasons for this include local sensitivity to such measures as building code enforcement and land use planning; conflict between mitigation and developmental goals; and individuals' perceptions that the possibility of a disaster's occurrence is low.
- FEMA's hazard mitigation efforts include grants and training for state and local governments, funding for mitigating damage to public facilities and purchasing and converting flood-prone properties to open space, federal flood insurance, and programs targeted at reducing the loss of life and property from earthquakes and fires. In recent years, FEMA has taken a strategic approach to mitigation by publishing a 15-year national mitigation strategy and establishing 5-year mitigation objectives in its strategic plan pursuant to the Results Act. FEMA expects to reflect its strategic goal and objectives in future performance partnership agreements with states.
- Our work has identified several issues pertinent to ensuring the cost-effective use of federal dollars for hazard mitigation. Studies have shown a variety of approaches with the potential for increasing the level of mitigation, including regulatory and financial incentives proposed by FEMA,

¹See Federal Disaster Assistance, Document No. 104-4, U.S. Senate (Washington, D.C.: U.S. Government Printing Office [GPO], 1995).

the National Research Council, and the National Performance Review; however, these and other proposals require analysis to determine their relative costs and benefits. Under existing approaches, it is uncertain that, collectively, federal funds are effectively targeted to projects where the risk of loss is greatest because (1) limitations on data needed to estimate risks often make it difficult to determine the cost-effectiveness of specific actions and (2) federal hazard mitigation funds are provided through a number of different programs and agencies—some limited to particular hazards. Finally, the extent to which cost-effective mitigation projects will result in federal dollar savings is uncertain, depending upon the actual incidence of future disaster events and the extent to which the federal government would bear the resulting losses.

Background

Mitigation efforts are often characterized as structural—for example, building codes and flood control projects, such as dams and levees—and nonstructural—for example, land use planning, zoning, or other methods of minimizing the development of hazardous areas. A well-designed disaster mitigation program is perceived as a good way to reduce the overall exposure to risk from a disaster. For example, building codes that incorporate seismic design provisions can reduce earthquake damage. Additionally, floodplain management and building standards required by the National Flood Insurance Program may reduce future costs from flooding. For example, FEMA estimates that the building standards that apply to floodplain structures annually prevent more than \$500 million in flood losses.

In addition to FEMA, other federal agencies have a role in natural hazard mitigation. The Army Corps of Engineers' major role in disaster mitigation includes providing assistance in constructing structural flood control facilities and maintaining them. According to its records, the Corps' levees found in areas affected by the Midwest floods of 1993 prevented \$7.4 billion in damage.² The Tennessee Valley Authority provides information, technical data, and other assistance to promote the wise use of flood-prone areas. The Department of the Interior has mitigation responsibilities in a number of areas, including programs that help to develop scientific and technical information and procedures for reducing potential casualties and damage from earthquakes and volcanos, and a geologic-related hazards warning program that provides states and local governments with technical assistance to help ensure the timely warning

²See *Midwest Flood: Information on the Performance, Effects, and Control of Levees* (GAO/RCED-95-125, Aug. 7, 1995).

of various geological disasters. The Departments of Agriculture and Commerce have roles in mitigation through their respective programs designed to conserve and develop soil and water resources and to assist states in setting up coastal management programs.

As we reported in 1995, mitigation is one of three general approaches that have been proposed for reducing the costs of federal disaster assistance.³ For a number of reasons, including a sequence of unusually large and costly disasters, federal disaster assistance costs have soared in recent years. Obligations from the Disaster Relief Fund totaled some \$3.6 billion in fiscal year 1996 and about \$4.3 billion in fiscal year 1997. FEMA can influence program costs by establishing and enforcing procedures and criteria for assistance within the eligibility parameters established in statutes. We have recommended that FEMA improve program guidance and eligibility criteria in part to help control these costs.⁴

Factors That Deter Mitigation

Historically, hazard mitigation has been considered primarily a responsibility of local and state governments as well as private citizens. These entities often control the decisions affecting hazard mitigation. For example, building code enforcement and land-use planning are generally under local jurisdictions.

However, research suggests that, for a number of reasons, state and local governments may be reluctant to take actions to mitigate natural hazards. The reasons include local sensitivity to such measures as building code enforcement and land-use planning, conflict between hazard mitigation and development goals, the lack of an understanding of mitigation and political support, and the perception that mitigation is costly and involves solutions that are overly technical and complex. Also, while increased mitigation can be justified only to the extent to which averted losses exceed the increased costs of mitigation, mitigation policies often do not systematically compare the costs of mitigation with the losses expected to be averted, and data on which to base cost-effective mitigation may be incomplete and/or inaccurate.

³Disaster Assistance: Information on Expenditures and Proposals to Improve Effectiveness and Reduce Future Costs (GAO/T-RCED-95-140, Mar. 16, 1995). The other approaches are (1) establishing more explicit and/or stringent criteria for providing federal disaster assistance and (2) relying more on insurance. The extent to which any of these approaches would reduce federal disaster assistance costs is uncertain.

⁴See Disaster Assistance: Guidance Needed for FEMA's "Fast Track" Housing Assistance Process (GAO/RCED-98-1, Oct. 17, 1997); and Disaster Assistance: Improvements Needed in Determining Eligibility for Public Assistance (GAO/RCED-96-113, May 23, 1996).

Individuals may also lack incentives to take mitigation measures. Studies have shown that increasing the awareness of the hazards associated with living in a certain area or previous experience with disasters do not necessarily persuade individuals to take preventive measures against future disasters. Residents of hazard-prone areas tend to treat the possibility of a disaster's occurrence as sufficiently low to permit them to ignore the consequences.

Finally, some research suggests that the availability of federal relief inhibits actions that would mitigate losses from disasters. For example, we noted in a 1980 report that the greater the degree of federal subsidization of disaster losses, the less the incentive for individuals to take action to minimize damage from natural disasters.⁵ The National Performance Review found that the availability of post-disaster federal funds may reduce incentives for mitigation.⁶ FEMA's 1993 review of the National Earthquake Hazards Reduction Program (NEHRP) concluded that at the state level there is "the expectation that federal disaster assistance will address the problem after the event."⁷

There are a number of approaches for addressing state and/or local governments' reluctance to take actions to mitigate natural hazards. Our March 1995 testimony discussed recommendations by FEMA, the National Research Council, and the National Performance Review promoting the use of federal incentives to encourage hazard mitigation.⁸ For example, specific initiatives for improving earthquake mitigation included linking mitigation actions with the receipt of federal disaster and other assistance and prohibiting federally insured lenders from issuing conventional mortgages to households or businesses in an earthquake-prone area unless state or local governments have adopted or enforced appropriate seismic building standards.

FEMA's Hazard Mitigation Efforts

FEMA provides state and local governments with hazard mitigation grants and training in support of the agency's endeavors to instill a community-based approach to implementing disaster mitigation efforts.

⁵Federal Disaster Assistance: What Should The Policy Be? (PAD-80-39, June 16, 1980).

⁶Creating a Government That Works Better and Costs Less: Federal Emergency Management Agency, National Performance Review (Washington, D.C.: GPO, 1993).

⁷Improving Earthquake Mitigation, FEMA, report to the Congress as required under P.L. 101-614 (Jan. 1993), p. 15.

⁸GAO/T-RCED-95-140.

FEMA is allowing more flexibility in targeting the agency's grants to communities' actual disaster risks through its agreements—called Performance Partnership Agreements—with the states. Recently, FEMA has introduced the concept of “disaster-resistant communities” through its Project Impact initiative.

Several Statutory Authorities Provide for Hazard Mitigation Assistance

FEMA funds or otherwise promotes hazard mitigation through a number of programs. Under section 404 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as amended, FEMA administers a hazard mitigation grant program. Subject to certain dollar limits, the act generally allows the President to contribute grants of up to 75 percent of the cost of hazard mitigation measures within communities that have been affected by a disaster (the states or local governments pay the remaining portion of the costs). The communities' measures must be cost-effective and substantially reduce the risks of future damage or loss in a community. Also, under section 406 of the act, communities recovering from disasters can utilize federal funds to mitigate damaged public facilities in accordance with certain standards—such as floodplain management standards. Furthermore, section 409 of the act helps establish the requirements for a comprehensive state hazard mitigation plan.

As authorized by the National Flood Insurance Act of 1968, as amended, FEMA attempts to reduce future flood losses by providing federally backed flood insurance to communities as part of its National Flood Insurance Program (NFIP). The NFIP pays for claims and operating expenses with revenues from policyholder premiums, augmented when necessary by borrowing from the Department of the Treasury. Communities are eligible for the program only if they adopt and enforce floodplain management ordinances to reduce future flood losses. As of August 1997, over 3.7 million home and business flood insurance policies were in force in more than 18,000 participating communities, representing over \$403 billion worth of coverage.

NFIP also funds a flood mitigation assistance program which provides funding to states and communities. In 1997, FEMA reported that it distributed \$16 million in 1997 to states and communities for planning and implementing cost-effective measures to reduce future flood damage to homes and other properties that had experienced repeated losses from flooding. Eligible projects under this program include elevating structures and flood-proofing properties. FEMA also attempts to reduce flood losses through buying-out flood-prone properties throughout the country and

converting the properties to open spaces. Since 1993, FEMA reports that it has committed more than \$204 million to relocate 19,000 properties out of flood hazard areas in 300 communities.

To help mitigate the potential loss of life and property from earthquakes, the Earthquake Hazards Reduction Act of 1977, as amended, authorizes FEMA's provision of earthquake hazards reduction grants to states under NEHRP. (FEMA shares administration of this program with the U.S. Geological Survey, the National Science Foundation, and the National Institute of Standards and Technology.) These project grants are available only to states with moderate or higher seismic hazard and the funds can be used for a number of purposes, including implementing mitigation measures to prevent or reduce the risks of earthquakes.

To conduct training, public education, and research programs in subjects related to fire protection technologies, FEMA operates the U.S. Fire Administration under the Fire Prevention and Control Act of 1974, as amended. The agency's efforts support the nation's fire service and emergency medical service communities through such services as the national fire incident reporting system, which collects and analyzes fire incident data. This information is then utilized to help mitigate the loss of life and damage from fires—the United States has historically had one of the highest fire loss rates (in deaths and dollar loss) of the industrialized world.

FEMA Has Taken a Strategic Approach to Mitigation

In 1995, FEMA published its National Mitigation Strategy, which stresses two 15-year national goals of substantially increasing public awareness of natural hazard risk and significantly reducing the risk of loss of life, injuries, economic costs, and disruption of families and communities caused by natural hazards. The strategy calls for strengthening partnerships among all levels of government and the private sector and sets forth major initiatives, along with timelines, in the areas of (1) hazard identification and risk assessment, (2) applied research and technology transfer, (3) public awareness, training, and education, (4) incentives and resources, and (5) leadership and coordination.

In 1997, FEMA began its Project Impact initiative—an effort to help protect communities, residents, organizations, businesses, infrastructure, and the stability and growth of local economies from the impact of natural disasters before they happen. The program was based on the premise that consistently building safer and stronger buildings, strengthening existing

infrastructures, enforcing building codes, and making proper preparations prior to a disaster would save lives, reduce property damage, and accelerate economic recovery. The initiative intended to build “disaster-resistant communities” through public-private partnerships, and it included a national awareness campaign, the designation of pilot communities showcasing the benefits of disaster mitigation, and an outreach effort to community and business leaders. Project Impact received an appropriation of \$30 million in the fiscal year 1998 budget. FEMA’s Director has stated that his goal for 1998 is to designate at least one Project Impact disaster-resistant community in each of the 50 states—expanding the list of the initial seven communities selected during 1997 to serve as pilots for the initiative.

Under the Government Performance and Results Act of 1993, federal agencies must set goals, measure performance, and report on their accomplishments. FEMA’s September 1997 strategic plan, entitled “Partnership for a Safer Future,” states that the agency is concentrating its activities on reducing disaster costs through mitigation because “no other approach is as effective over the long term.” One of the strategic plan’s three goals is to “protect lives and prevent the loss of property from all hazards.” The strategic objectives under this goal are to reduce, by fiscal year 2007, (1) the risk of loss of life and injury from hazards by 10 percent and (2) the risk of property loss and economic disruption from hazards by 15 percent.⁹ To achieve these objectives, FEMA established a number of 5-year operational objectives (covering fiscal years 1998 through 2003).

FEMA expects that these strategic goals and objectives will be reflected in its future performance partnership agreements with the states. To encourage the states to help meet these goals, FEMA has consolidated the mitigation programs’ grant funds into two funding streams—one for programs supported by flood policyholders’ fees (the NFIP) and another for programs supported by FEMA’s Emergency Management Planning and Assistance appropriation. Prior to fiscal year 1997, separate funding was provided for earthquake, hurricane, and state hazard mitigation programs.

Issues Surrounding Cost-Effectiveness

We have not comprehensively reviewed the implementation of FEMA’s hazard mitigation programs or analyzed the agency’s recent initiatives. However, on the basis of our past work, we believe that a number of issues

⁹According to the strategic plan, FEMA will develop baseline estimates of probable future losses from earthquakes in fiscal year 1999 and all other natural hazards by fiscal year 2000.

are pertinent to the Congress' consideration of the cost-effective use of federal dollars for hazard mitigation.

As noted above, our work has identified a variety of approaches with potential for increasing mitigation. These include regulatory and financial incentives proposed by FEMA, the National Research Council, and the National Performance Review. Furthermore, to the extent that the availability of federal relief inhibits mitigation, amending post-disaster federal financial assistance could help prompt cost-effective mitigation. The National Performance Review, for example, recommended providing relatively more disaster assistance to states that had adopted mitigation measures than to states that had not. These or other proposals would require analysis to determine their relative costs and effectiveness.

Among existing programs, it is uncertain that, collectively, federal funds are effectively targeted to projects where the risk of loss is greatest. First, it is often difficult to determine the cost-effectiveness of specific actions because of limited data concerning risks. By definition, natural hazard mitigation reduces the loss of life and property below the levels that could be expected without mitigation; however, it is impossible to know with certainty what losses would occur in the absence of mitigation. Estimating these losses requires assessments of the risks, or probabilities, of the incidence and the severity of various natural occurrences—such as tornadoes, earthquakes, hurricanes—in specific geographic areas. Such risk assessments depend on historical data that may not exist or may be difficult or costly to obtain and analyze. For example, to measure its performance in achieving its strategic objective of reducing risk by 2007, FEMA plans to use a model of the probable future loss of life and injury; risk will be measured in terms of direct and indirect dollar costs and also through assessing state and local capabilities in emergency management. Due to limited data availability, however, the model results initially will be confined to probable loss of life and injury from earthquakes.

Second, federal hazard mitigation funds are provided through a number of different programs and agencies—some limited to particular hazards. Even if risks, and therefore expected benefits, could be determined more precisely, ensuring that federal dollars collectively are directed at the greatest potential benefits would require comparing alternative investments among different agencies and/or programs.

Finally, it is important to note that the extent to which mitigation projects will result in federal dollar savings is uncertain; savings depend upon the

actual incidence of future disaster events and the extent to which the federal government would bear the resulting losses. Without any policy change, the latter could be affected by, for example, whether the losses result from events that trigger a presidential “declaration” under the Stafford Act; if not, then the federal government may not directly bear the losses. Furthermore, policies affecting the federal share of disaster costs could change in the future.

Related GAO Products

Disaster Assistance: Guidance Needed for FEMA's "Fast Track" Housing Assistance Process ([GAO/RCED-98-1](#), Oct. 17, 1997).

Disaster Assistance: Improvements Needed in Determining Eligibility for Public Assistance ([GAO/T-RCED-96-166](#), Apr. 30, 1996).

Disaster Assistance: Improvements Needed in Determining Eligibility for Public Assistance ([GAO/RCED-96-113](#), May 23, 1996).

Natural Disaster Insurance: Federal Government's Interests Insufficiently Protected Given Its Potential Financial Exposure ([GAO/T-GGD-96-41](#), Dec. 5, 1995).

Disaster Assistance: Information on Declarations for Urban and Rural Areas ([GAO/RCED-95-242](#), Sept. 14, 1995).

Disaster Assistance: Information on Expenditures and Proposals to Improve Effectiveness and Reduce Future Costs ([GAO/T-RCED-95-140](#), Mar. 16, 1995).

GAO Work on Disaster Assistance ([GAO/RCED-94-293R](#), Aug. 31, 1994).

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