

GAO

## Testimony

Before the Subcommittee on VA, HUD, and Independent  
Agencies, Committee on Appropriations, U.S. Senate

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# DISASTER ASSISTANCE

## Information on the Cost-Effectiveness of Hazard Mitigation Projects

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

This statement for the record provides our preliminary views on how the Federal Emergency Management Agency (FEMA) ensures the cost-effectiveness of projects funded under the Hazard Mitigation Grant Program. We are conducting this work at the request of this Subcommittee and the Chairman of the Subcommittee on Oversight, Investigations, and Emergency Management, House Committee on Transportation and Infrastructure.

For a number of years, the Congress has been concerned about the increasing costs of federal disaster assistance. One of FEMA's primary approaches for reducing these costs is to promote mitigation measures that will reduce future damage within communities—potentially decreasing future federal disaster expenditures. However, there are concerns that FEMA's mitigation funding is not targeted to cost-effective measures, as mandated by the Robert T. Stafford Disaster Relief and Emergency Assistance Act. Our statement is based on previous and ongoing work and provides (1) an overview of the increases in disaster assistance costs and FEMA's mitigation programs and (2) our preliminary views on the approaches FEMA uses to ensure that funding under the Hazard Mitigation Grant Program is targeted to cost-effective mitigation measures.

In summary:

- Federal disaster assistance costs billions of dollars annually. For disasters that occurred between 1989 and 1993, average annual obligations in FEMA's disaster relief fund totaled \$1.6 billion, in 1998 dollars, while average annual obligations over the past 5 years (1994 through 1998) have increased to \$2.5 billion annually in 1998 dollars (even with the exclusion of one of FEMA's costliest disasters—California's Northridge earthquake). The growth in disaster assistance costs in the 1990s has been attributed to a number of factors, including a sequence of unusually large and costly disasters; an increase in the number of presidential disaster declarations; and a gradual expansion in eligibility for assistance. To reduce these costs, FEMA is using, among other things, hazard mitigation efforts. These efforts promote community involvement in mitigation measures by providing grants and training to state and local governments. FEMA's efforts include providing federal flood insurance, converting flood-prone properties to open space, mitigating damage to public facilities, reducing earthquake risks, and helping mitigate the loss of life and damage from fires.

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- Our ongoing review of FEMA’s efforts to ensure the cost-effective use of federal dollars for hazard mitigation has focused on the Hazard Mitigation Grant Program—one of FEMA’s primary sources of funding for implementing hazard mitigation measures within communities. FEMA uses benefit-cost analysis<sup>1</sup>—an approach recommended by the Office of Management and Budget—as its primary approach for ensuring that mitigation measures within the Hazard Mitigation Grant Program are cost-effective. However, FEMA also excludes certain types of Hazard Mitigation Grant Program projects from benefit-cost analysis—including projects that fund the removal of certain structures from floodways, research for new building codes, and planning efforts. FEMA officials stress a need for flexibility in assessing these projects, citing the difficulties of quantifying the benefits of some projects and the time needed to gather data to conduct a benefit-cost analysis. However, these exemptions limit the agency’s ability to demonstrate that the funded mitigation measures are cost-effective. Additionally, according to our review of selected benefit-cost analyses in two FEMA regions, officials conducting these analyses were generally knowledgeable and had been trained in how to conduct the analyses. However, they did not always use the best available information in analyzing projects designed to mitigate future damage from flooding events. For example, the officials did not always use flood damage information available from past insurance claims.

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## Background

Following a disaster, at the request of a state governor, the President may issue a major disaster declaration for the affected areas, thus triggering a range of assistance from federal agencies. The costs of this disaster assistance have grown notably between the late 1970s and 1990s. Between 1979 and 1988, FEMA’s obligations in its disaster relief fund exceeded \$500 million only in 1 year. In comparison, since 1989, the obligations in the fund have exceeded \$1 billion every year except for 1991. The increase in costs is also seen in the number of large, costly disasters. Prior to 1989, only Hurricane Agnes cost the fund in excess of \$500 million, while 10 disasters have cost over \$500 million since 1989. While FEMA has implemented a number of approaches to reduce the costs of disaster assistance—such as consolidating multiple disaster response and recovery functions at individual disaster sites to reduce administrative costs—the agency has made disaster mitigation a primary goal in its efforts to reduce the long-term costs of disasters.

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<sup>1</sup>Benefit-cost analysis is used to determine how the anticipated dollar savings gained through implementing a project compare with its cost. In order to be considered cost-effective, a project must return more money over its life than it cost.

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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." Mitigation activities are undertaken to reduce the losses from disasters or prevent such losses from occurring. The agency's hazard mitigation efforts include grants and training for state and local governments; funding for mitigating damage to public facilities; the purchase and conversion of flood-prone properties to open space; federal flood insurance; the development of land-use plans and zoning ordinances to discourage building in hazardous areas; and programs targeted at reducing the loss of life and property from earthquakes and fires.

However, as we noted in previous testimony,<sup>2</sup> quantifying the effects of mitigation efforts can be difficult. Specifically, determining the extent to which cost-effective mitigation projects will result in federal dollar savings is uncertain because the savings depend on the actual incidence of future disasters and the extent to which the federal government would bear the resulting losses.

The Stafford Act requires that hazard mitigation measures under the Hazard Mitigation Grant Program be cost-effective and that they substantially reduce the risk of future damage, hardship, loss, or suffering. According to Office of Management and Budget (OMB) guidelines, contained in OMB Circular A-94, the use of benefit-cost analysis is the recommended approach for determining cost-effectiveness. FEMA's guidance for determining the cost-effectiveness of hazard mitigation projects<sup>3</sup> states that "a key criterion for mitigation projects to be eligible for funding is that they must be cost-effective" and that "benefit-cost analysis is used for all cost-effectiveness determinations."

Benefit-cost analysis is used to assess whether the expected costs of investing in a hazard mitigation project are justified because the project will help avoid damages expected from future disasters (the benefits). FEMA generally conducts the benefit-cost analysis for the projects that

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<sup>2</sup>Disaster Assistance: Information on Federal Disaster Mitigation Efforts (GAO/T-RCED-98-67, Jan. 28, 1998).

<sup>3</sup>How to Determine Cost-Effectiveness of Hazard Mitigation Projects, A New Process for Expediting Application Reviews, Interim Edition, Dec. 1996.

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states submit for approval.<sup>4</sup> By conducting a benefit-cost analysis, the analyst determines a benefit-cost ratio—the ratio of the expected benefits divided by the expected costs. If the expected benefits are greater than the expected costs, the ratio is greater than 1.0 and the project is considered cost-effective. If the expected benefits are less than the expected costs, the ratio is less than 1.0 and the project is considered not cost-effective. FEMA’s guidance describes four main elements of a benefit-cost analysis:

- an estimate of damages and losses before mitigation,
- an estimate of damages and losses after mitigation,
- an estimate of the frequency and severity of the hazard causing the damages (such as the risk of flooding), and
- economic factors used in the analysis (a project’s expected life span, for example).

After all of these elements are considered, along with a project’s expected costs, a project’s cost-effectiveness can be determined. However, other factors outside of the benefit-cost analysis can also influence whether a project is accepted for funding, such as the project’s potential impact on environmental conditions.

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## Growth in Federal Disaster Assistance Costs

Federal disaster assistance costs have increased in the 1990s for several reasons, including several unusually large and costly disasters, increasing population and development in hazard-prone areas, increases in the federal share of disaster assistance costs in larger disasters, an upward trend in the annual number of presidential disaster declarations, and an increase in the types of facilities eligible for disaster assistance. Total obligations from FEMA’s Disaster Relief Fund for the 10-year period prior to 1989 were \$4 billion; since 1989, they have totaled \$25 billion.<sup>5</sup>

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## Factors Underlying Increasing Costs

The large disaster assistance costs in the 1990s have been attributed to a number of factors. Since 1989, the United States has experienced a series of unusually large and costly disasters, including Hurricane Hugo, Hurricane Andrew, the 1993 Midwest floods, and the Northridge earthquake. Hurricane Georges was added to this list in 1998—FEMA is

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<sup>4</sup>Three states (Florida, North Dakota, and Ohio) typically conduct the benefit-cost analysis for projects from their communities and submit a sheet summarizing the analysis for FEMA’s review. These states have been given additional responsibilities as participants in a pilot program called the “managing state concept.”

<sup>5</sup>Since these figures are expressed in nominal dollars, they do not reflect the effects of inflation over the time periods cited.

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projecting that it might be the agency's second costliest disaster ever. The close occurrence of such costly disasters in the United States is unprecedented. Furthermore, increases in population and development, especially in hazard-prone areas, increase the potential losses associated with these disasters. For example, FEMA expects that by 2010 the number of people living in the most hurricane-prone counties (36 million in 1995) will double.

For several of these large disasters, the federal government has increased its share of the disaster relief costs to provide additional assistance to the states. For example, while the federal share of funding is at least 75 percent for assistance to repair or replace disaster-damaged public and nonprofit facilities, the President used his authority to raise the federal share to 90 percent for the Northridge earthquake and to 100 percent for Hurricane Andrew.

There has also been an upward trend in the annual number of presidential disaster declarations. From fiscal years 1989 through 1993, the average number of major disaster declarations was 38 per year, while from fiscal years 1994 through 1998, the average number increased to 49.

Additionally, over the years, the Congress has generally increased eligibility by expanding the categories of assistance and/or specified persons or organizations eligible to receive assistance. For example, a 1988 law expanded the categories of private nonprofit organizations that are eligible for FEMA's public assistance program.

According to a report by the Senate Bipartisan Task Force on Funding Disaster Relief,<sup>6</sup> federal budgeting procedures for disaster assistance may also have influenced the amounts appropriated for disaster assistance. This is because disaster relief appropriations have often been designated as "emergency" spending, thus excluding them from the strict budget disciplines that apply to other spending. Some views in the report suggested that the assistance provided is more generous than would be the case if it had to compete with other spending priorities.

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## FEMA's Hazard Mitigation Efforts

To reduce disaster assistance costs, one of FEMA's primary approaches has been to emphasize hazard mitigation through various incentives. Mitigation consists of taking measures to prevent future losses or to

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<sup>6</sup>Federal Disaster Assistance, Document No. 104-4, U.S. Senate (Washington, D.C.: U.S. Government Printing Office, 1995).

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reduce the losses that might otherwise occur from disasters. For example, floodplain management and building standards required by the National Flood Insurance Program might reduce future costs from flooding. FEMA estimates that the building standards that apply to floodplain structures annually prevent more than \$500 million in flood losses.

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### A Number of Programs Provide for Hazard Mitigation Assistance

FEMA funds or otherwise promotes hazard mitigation through a number of programs. As part of its National Flood Insurance Program, FEMA attempts to reduce future flood losses by providing federally backed flood insurance to communities that adopt and enforce floodplain management ordinances that help mitigate the effects of flooding upon new or existing construction. This program also funds a flood mitigation assistance program through the National Flood Mitigation Fund. In 1998, FEMA distributed over \$14 million to states and communities to plan and implement measures to reduce future flood damage in homes and other properties that had experienced repeated losses from flooding. Eligible projects under this program include elevating structures, flood-proofing properties, and buying out and converting flood-prone properties to open spaces.

FEMA also provides grants to states to prevent or reduce the risks of earthquakes by using mitigation measures such as the seismic retrofitting of buildings. The agency also conducts training, public education, and research programs in subjects related to fire protection technologies. 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 data in order to help mitigate the loss of life and damage from fires.

In 1997, FEMA began Project Impact—an initiative 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 \$25 million in the fiscal year 1999 budget.

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Under section 406 of the Stafford Act, communities recovering from disasters can use federal funds to mitigate future damage to public facilities that have been damaged. For example, as a damaged building is rebuilt, seismic retrofitting is added to help reduce damages from future earthquakes. Mitigation measures funded under the section 404 program—the Hazard Mitigation Grant Program—differ from the 406 program in that they can be targeted to either damaged or undamaged facilities. For example, putting storm shutters on the windows of structures is expected to help mitigate wind and rain damage from future hurricanes. Our statement focuses on the measures funded under the Hazard Mitigation Grant Program.

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## Hazard Mitigation Grant Program

Under the Hazard Mitigation Grant Program, up to 15 percent of the total funds spent on a disaster may be spent specifically on hazard mitigation measures. Subject to certain dollar limits, the act generally allows the funding of up to 75 percent of the cost of hazard mitigation measures within communities that have been affected by a disaster<sup>7</sup> (the states or local governments pay the remaining portion of the costs). In fiscal year 1998, FEMA approved and obligated over \$415 million in Hazard Mitigation Grant Program grants. These grants can be used to protect either public or private property, including the acquisition and relocation of structures from hazard-prone areas. The Stafford Act establishes that the federal contribution is based on measures that “the President has determined are cost-effective and which substantially reduce the risk of future damage, hardship, loss, or suffering in any area affected by a major disaster.” The program funds a range of projects, including purchasing properties in flood-prone areas, adding shutters to windows to prevent future damage from hurricane winds and rains, or rebuilding culverts in drainage ditches to prevent future flooding damage.

Historically, hazard mitigation has been considered primarily a responsibility of local and state governments as well as private citizens, since these entities often control the decisions affecting hazard mitigation. For example, building code enforcement and land-use planning are generally under local jurisdictions. As a result, FEMA works with state and local governments to instill a community-based approach to implementing disaster mitigation efforts. Section 409 of the Stafford Act plays a role in developing this approach because it helps to establish the requirement for

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<sup>7</sup>In an October 10, 1997 regulation, FEMA announced that for disasters declared after April 6, 1997, eligibility for program funding would be statewide rather than limited to the communities affected by the disaster. FEMA was attempting to give the states enhanced flexibility in using the funding for priority projects across the states and to expedite closing out the funding from older disasters.

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a comprehensive state hazard mitigation plan that includes an evaluation of a state's vulnerability to natural hazards. Additionally, as a condition of receiving a Hazard Mitigation Grant Program grant, the state must prepare an administrative plan that establishes its procedures and priorities for identifying and selecting mitigation projects. FEMA, however, has final approval authority for funding these projects. FEMA guidance states that an "ideal" plan would include a statewide mitigation strategy and identify potential hazard mitigation projects that are consistent with the plan.

We talked with FEMA staff responsible for approving these plans and reviewed plans from several states. In general, we found that state administrative plans exhibited a broad range of approaches for identifying and selecting mitigation projects. Additionally, a 1996 study<sup>8</sup> found that many of the 39 state plans reviewed were "merely intended to qualify the state for post-disaster mitigation grants under section 404 of the Act." FEMA officials generally agreed with this conclusion. However, several officials noted that the agency has recently initiated changes to improve the states' planning efforts.

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## FEMA Does Not Always Use Benefit-Cost Analysis to Determine Cost-Effectiveness and at Times Does Not Use Best Available Data

Our preliminary review found that FEMA's guidance recommends the use of benefit-cost analysis as the primary approach for determining a project's cost-effectiveness. However, the agency excludes certain categories of Hazard Mitigation Grant Program projects from this analysis. These categories include projects that fund the removal of certain structures from floodways, tornado-related measures, research for new building codes, and planning efforts. While FEMA has explained the rationales for these exemptions, certain factors, such as the lack of an analytical basis for an exemption on the acquisition of certain floodplain properties, are limiting the agency's ability to demonstrate that these mitigation measures are in fact cost-effective.

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## Certain Types of Projects Exempted From Benefit-Cost Analysis

The Stafford Act requires that Hazard Mitigation Grant Program projects be cost-effective. FEMA's guidance establishes that benefit-cost analysis is the preferred method for making this determination. However, since September 1996, FEMA has exempted the following four categories of Hazard Mitigation Grant Program projects from the use of benefit-cost analysis:

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<sup>8</sup>Edward J. Kaiser and R. Matthew Goebel, *Analysis of Content and Quality of State Hazard Mitigation Plans Under Section 409 of the Stafford Act*, June 1996.

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- projects involving the purchase of substantially damaged structures in 100-year floodplains;
  - up to 5 percent of the Hazard Mitigation Grant Program funding for a variety of hazard mitigation measures, such as disaster warning systems or the application of new, unproven mitigation techniques;
  - hazard mitigation planning projects for older disasters; and
  - an additional 5 percent of the Hazard Mitigation Grant Program funding for tornado-related projects.

FEMA's general rationale for the exemptions varies, although the agency's policy guidance establishes that two of the exemptions were made because some mitigation projects were often difficult to evaluate against "traditional quantitative program cost-effectiveness and eligibility criteria." FEMA officials have explained that the benefits of some projects are difficult to quantify against known project costs and that the time involved in gathering the data on some mitigation projects can be excessive. For example, it is difficult to determine the benefits of establishing an educational program that uses fliers to inform the public about the risks of living in a floodplain because it is hard to predict the resulting changes in public behavior that might result from the fliers. However, without any measurement and subsequent comparison of a project's expected benefits with its expected costs, it is unclear what criteria the agency is using to determine cost-effectiveness.

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## Exemption of Projects Involving the Purchase of Substantially Damaged Structures

Through policy guidance established in September 1996, FEMA exempted projects that involved purchasing structures located in floodways and floodplains—if the cost of restoring the damaged structures equaled or exceeded 50 percent of the structures' market value and the structures were located in a 100-year floodplain. This particular exemption has come under criticism by FEMA's Inspector General. In a March 1998 report,<sup>9</sup> the Inspector General questioned the exemption's lack of analytical data supporting the contention that acquisition projects involving substantially damaged properties in the 100-year floodplain were cost-effective. While FEMA officials have begun to retroactively analyze some of the acquisition projects exempted under this policy, the agency is currently unable to provide the analytical data that would support exempting all substantially damaged structures in a 100-year floodplain. FEMA officials explained that they need to conduct a detailed and rigorous analysis of acquisition projects to support the policy. Without this analytical basis, it is difficult

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<sup>9</sup>Improvements Are Needed in the Hazard Mitigation Buyout Program, FEMA OIG, Inspection Report I-01-98, March 1998.

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for FEMA to demonstrate that the exempted acquisition projects it is funding are cost-effective.

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### Exemption of Up to 5 Percent of the Hazard Mitigation Grant Program Funding for Various Projects

In September 1996, FEMA established another policy that exempted projects from benefit-cost analysis. Known as the “5 percent Hazard Mitigation Grant Program initiatives,” this policy allowed the states to use up to 5 percent of their Hazard Mitigation Grant Program project funding for a variety of hazard mitigation measures. According to FEMA’s policy memo for this exemption, the evaluation of funding for certain mitigation measures, such as hazard warning systems or research for new building codes, required a large amount of time at the state and federal levels, although it was generally recognized that such measures reduced the potential losses from a future disaster. The policy was intended to provide the states with discretion in deciding which mitigation measures they wanted funded, as well as the responsibility for providing the rationale for the cost-effectiveness of the projects selected. FEMA officials explained that the intent of the policy was to spur creativity and avoid the time and expense involved with conducting a benefit-cost analysis.

To be eligible, a project type had to be identified in the state’s hazard mitigation plan and reduce or prevent future property damage, injury, or the loss of life. Instead of conducting a benefit-cost analysis, the states were instructed to include a narrative that identified the mitigation benefits and the reasonable expectation that future property damage, injury, or the loss of life would be reduced or prevented. In fact, FEMA’s guidance instructs project applicants to use 5-percent funding if the project was “previously denied because of difficulty in measuring cost-effectiveness.” While FEMA’s guidance instructs the states to identify a project’s benefits, it does not specifically suggest any comparison of the benefits with the project’s costs or competing alternative projects. Without any measurement and subsequent comparison of a project’s expected benefits with its expected costs, the criteria the agency is using to determine cost-effectiveness are unclear. Additionally, by using such a broad determination of a project’s cost-effectiveness, it appears that almost any project could be determined as cost-effective.

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### Exemption of Hazard Mitigation Planning Projects for Older Disasters

About 1 year later, in October 1997, FEMA announced its third policy decision, when it exempted hazard mitigation planning projects associated with older disasters from benefit-cost analysis. FEMA decided that in the interest of expediting the closeout of disasters that occurred on or after

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June 10, 1993, the agency would make remaining program funds from these disasters available for hazard mitigation planning purposes.<sup>10</sup> States were invited to submit Hazard Mitigation Grant Program applications for funding that would help them develop multi-hazard mitigation plans. The policy memo stated that “funds provided for planning purposes shall be considered a cost-effective measure.”

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### Exemption of Up to 5 Percent of the Hazard Mitigation Grant Program Funding for Tornado-Related Projects

In August 1998, FEMA announced the fourth policy exempting certain projects from benefit-cost analysis. FEMA extended its 5-percent set-aside funding by another 5 percent to fund tornado-related projects. The agency noted an increase in tornado activity that it associated with the 1997-98 El Nino weather pattern and suggested that the need for additional funding for warning systems could not be accommodated through existing programs. In essence, the agency increased the 5-percent set-aside policy to a 10-percent set-aside policy, although the additional 5 percent of Hazard Mitigation Grant Program funding was limited to states that had received a presidential disaster declaration for tornadoes. In addition to including a narrative that identified the project’s mitigation benefits and the expectation that future damage or loss of life or injury would be reduced or prevented, the states were required to develop a comprehensive plan for warning their citizens, including a public education component. The policy applied to all disasters with unobligated funds that were declared before fiscal year 1998, as well as all fiscal year 1998 and future declarations in which tornadoes or high winds played a role. The policy remains in effect until FEMA adopts proposed regulatory changes stating that warning systems will only be funded from the original 5-percent set-aside. FEMA officials expect that the regulatory changes will be made final in mid-March 1999.

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### Estimating the Number and Dollar Figure of Hazard Mitigation Grant Program Grants Exempted From Benefit-Cost Analysis

We are working with FEMA to quantify the number and dollar amount of all of the Hazard Mitigation Grant Program measures exempted from benefit-cost analysis. However, for a number of reasons, FEMA is unable to readily provide us with this information for all of the exempted projects. For example, it is hindered in providing this information because there is no data field in the Hazard Mitigation Grant Program database that would allow the agency to specifically identify the projects that fall under the exemption for acquiring property that has been substantially damaged.

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<sup>10</sup>When the Hazard Mitigation Grant Program was established, it provided federal matching grants on a cost-share basis of up to 50 percent of a project. Thus, FEMA refers to these mitigation projects as “50/50 planning” projects. With the 1993 amendments to the Stafford Act, the federal cost share was changed from up to 50 percent to up to 75 percent.

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Additionally, agency officials have expressed reservations about the accuracy of the data. For these reasons, our preliminary numbers are limited to the 55 hazard mitigation project files we examined for four states (Arkansas, Florida, Louisiana, and Texas) in FEMA regions 4 and 6.

These 55 projects represented approximately \$20 million in hazard mitigation grant funding, with Florida accounting for 36 projects, or \$17.2 million of the amounts reviewed, while the other states accounted for the remaining 19 projects, or approximately \$2.8 million in funding. Of the 55, 14 (25 percent), or over \$8 million (42 percent) of the funding, were exempted from benefit-cost analysis. One-half of the exempted projects were property acquisitions, while the remaining exempted projects included funding for emergency satellite communications, all-weather radios, emergency alert systems, and a public awareness campaign. The 41 remaining projects subjected to benefit-cost analysis included wind retrofits (shutter projects), drainage improvements, seismic retrofits of buildings, and the installation of gas shut-off valves in structures.

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### Some Benefit-Cost Analyses Conducted on Acquisition Projects Do Not Use the Best Available Data

In the four states we reviewed, the officials conducting the benefit-cost analysis were generally knowledgeable about the process and had received training on how to use FEMA's computerized modules. However, we also found that the officials did not always use the best available data for estimating the benefits of projects involving the acquisition of property located in floodplains. These data help determine the extent of the expected benefits attributed to a project and significantly influence the accuracy and final outcome of the benefit-cost analysis.

For example, in determining flood hazard data—which establishes the probability and severity of a flood event—FEMA's guidance suggests using the flood insurance rate maps available through the National Flood Insurance Program.<sup>11</sup> These maps establish the number of times a flood is expected to occur in a given area (the frequency of future flooding) and the level of the flooding (its severity). The quality of this information can significantly influence the benefit-cost analysis' outcome because overestimating the frequency or severity of a flood can inflate the estimated benefits attributed to an acquisition project. We found little evidence that information from flood rate maps was used in the benefit-cost analyses we reviewed. Therefore, we are in the process of

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<sup>11</sup>The flood hazard data needed is actually found in flood insurance reports which accompany the flood insurance rate maps.

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reviewing several of the analyses to determine how the use of information from the flood rate maps would have affected the analyses' outcomes.

We also found that the officials conducting the benefit-cost analysis may not always use the best available data on damage claims from past flooding. The quality of this information has a significant influence on the outcome of the benefit-cost analysis because overestimating the extent of the damage from a previous flood event can inflate the estimated benefits attributed to an acquisition project. FEMA officials told us that information on flood claims available from the National Flood Insurance Program was not always used, suggesting that they simply used information supplied by project applicants. We also found that the officials conducting the analysis do not always validate the damage claims information submitted by the applicants. As a result, the benefit-cost analysis may rely on testimonial evidence from the applicant—the individual most likely to benefit from the acquisition project. We are now working with FEMA to determine if the agency can easily provide damage claims information from the National Flood Insurance Program to the officials conducting the benefit-cost analysis.

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We provided a draft of this statement to FEMA to verify its factual content and modified the statement where appropriate. Our review was initiated in December 1998, and it is continuing in accordance with generally accepted government audit standards.

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# Related GAO Products

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Disaster Assistance: Information on Federal Costs and Approaches for Reducing Them (GAO/T-RCED-98-139, Mar. 26, 1998).

Disaster Assistance: Information on Federal Disaster Mitigation Efforts (GAO/T-RCED-98-67, Jan. 28, 1998).

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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