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Resources, Community, and
Economic Development Division

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The Honorable John H. Chafee
Chairman, Committee on Environment
and Public Works
United States Senate

The Honorable Bud Shuster
Chairman, Committee on Transportation
and Infrastructure
House of Representatives

If not controlled, flooding can cause severe damage to both urban and rural areas. The Corps of Engineers (Corps) provides these areas with funds for studying, evaluating, and constructing projects that prevent or reduce the amount of flood damage (flood damage reduction projects). The Corps spent about \$637 million in fiscal year 1993, \$679 million in fiscal year 1994, and \$717 million in fiscal year 1995 for the construction of new flood damage reduction projects. According to the Corps' fiscal year 1995 report to the Congress, the Corps' flood damage reduction projects and emergency activities prevented an estimated \$26.8 billion in flood damages during fiscal year 1995, the latest year for which data are available.

Proponents of rural flood damage reduction projects generally believe that rural areas do not obtain an equitable share of federal funding for flood damage reduction because rural projects cannot meet the qualification and cost-sharing requirements established in legislation and by the Corps. The Corps does not maintain information on the funding of flood damage reduction projects by rural versus urban areas. In addition, because there is no clear definition of a rural or an urban area, we could not determine the number of rural and urban projects that have received federal funding for flood damage reduction. However, according to Corps officials, rural areas generally have not been able to qualify for federal funding for flood damage reduction projects.

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Concerned about the level of funding that was going to rural areas to prevent or reduce flooding, the Senate Committee on Environment and Public Works and the House Committee on Transportation and Infrastructure¹ asked us to provide them with information on (1) factors that affect rural areas' ability to qualify for and subsequently receive federal flood damage reduction funding and (2) options that the Congress can consider to help rural areas qualify for and obtain federal funding for reducing flood damage.

In summary, Corps, state, and local officials consistently cited three main factors that, in their opinion, limit rural areas' ability to qualify for and receive federal funds for reducing flood damage. First, rural areas generally do not have a sufficient economic base (land values and structural density) to achieve the benefit/cost ratio needed to qualify for funding consideration. For example, urban areas are more densely populated and have more higher-valued structures whereas rural areas have lower-valued structures and crops. Second, rural areas may not have the financial resources to meet the Corps' requirements for the local cost sharing of feasibility studies and/or the construction of projects. Third, rural areas are more likely to experience significant costs to mitigate environmental concerns related to the construction of flood damage reduction projects, which may raise the cost of projects and make them too uneconomic or expensive for the local community to implement.

Corps, state, and local officials suggested several options that would either qualify more rural projects for funding consideration or ensure that funds are dedicated to rural areas. For example, one option would be to lower the benefit/cost ratio to a number that is less than what must now be attained to qualify for federal funding. Another option would be to dedicate a certain amount of funding for rural projects. Implementing any of the proposed options would require congressional action, which would involve policy decisions and value judgments regarding the relative purpose of the program. We did not evaluate the merits of implementing any of the proposed options. However, to fully explore the merits of implementing any of these options, it would seem appropriate to first define what is urban and what is rural and determine how much federal funding is currently being distributed between urban and rural projects.

¹The former House Committee on Public Works and Transportation.

BACKGROUND

The Water Resources Development Act of 1986 (P.L. 99-662) established the way that potential water projects are studied, evaluated, and funded. Under the provisions of this act, as amended, the Corps has designed a process to plan, design, and implement flood damage reduction projects. If the local community/government that would sponsor a project (local sponsor) needs federal assistance and the Corps' study of the problem shows that a likely solution warrants federal participation, the Corps may perform a feasibility study and determine whether the benefits of a project are equal to or greater than its costs. To proceed beyond the feasibility study, the project must be congressionally authorized and its benefits must normally be equal to or greater than its costs—meaning that the project must have a benefit-to-cost ratio of 1.0 or greater. Typically, projects with the highest benefit/cost ratio receive funding priority.

In addition, a key component to Public Law 99-662 is a requirement that a project's costs be shared between the federal government and the state or local entity that is to benefit from the project. In essence, the act established a framework for a cost-sharing partnership between the federal government and local sponsors that affords sponsors a key role in planning projects and allows the federal government to spread its resources over more water projects than would have been possible without cost sharing.

Public Law 99-662 also provided that any cost-sharing be subject to the local sponsor's ability to pay. The act directed the Secretary of the Army to establish rules for considering a community's ability to pay. Under the ability-to-pay rules adopted by the Corps, the benefit/cost ratio and the per capita incomes of the local communities and states where projects will be located—called the benefits and income test—are used to determine whether local sponsors are eligible for a reduction in their share of costs. Under the ability-to-pay rules, the local sponsor's share of the project's construction costs cannot be less than 5 percent.

While the federal government funds the costs of determining whether federal participation is warranted, cost-sharing by the local sponsor is required for the feasibility study, the project's preconstruction engineering and design, and construction. Generally, for the feasibility study, the local sponsor's share is 50 percent of the costs.² Under the 1986 act, the local sponsor's share for the

²Studies costing less than \$40,000 are 100 percent federally funded.

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project's preconstruction engineering and design and construction ranged from a minimum of 25 percent to a maximum of 50 percent of the costs, subject to an adjustment for the local sponsor's ability to pay. The Water Resources Development Act of 1996 (P.L. 104-303) increased the local sponsor's minimum share from 25 to 35 percent.

FACTORS THAT AFFECT RURAL AREAS' ABILITY TO QUALIFY FOR AND RECEIVE FEDERAL FLOOD DAMAGE REDUCTION FUNDING

Corps, state, and local officials cited the executive branch's criteria for determining a project's benefit/cost ratio, the Corp's cost-sharing requirements, and costs to resolve environmental issues as the primary factors that limit rural areas' ability to qualify for and receive federal funds for flood damage reduction.

Projects in rural areas usually have benefit/cost ratios that are lower than those of urban areas and therefore have difficulty competing for federal funding. In determining the benefits of a flood damage reduction project, the Corps uses, among other things, the value of structures and crops (for agricultural land) that potentially could be damaged or destroyed by flooding. Corps, state, and local officials with whom we spoke generally said that unlike urban areas, rural areas do not have the volume and type of structures or crop values that would allow rural projects to attain a 1.0 or greater benefit/cost ratio. For example, they said that urban areas are more densely populated and have more higher-valued structures, whereas rural areas do not. And rural areas typically have lower-valued structures and crops, as opposed to higher-valued residential structures in urban areas.

Officials also cited the cost-sharing requirements established in the 1986 act as limiting rural areas' ability to qualify for and obtain federal funding for flood damage reduction projects. The 1996 act increased the local sponsor's share of costs for a project's preconstruction engineering and project design and construction. While many agree that a need exists for local participation in flood damage reduction projects, most of the state and local officials with whom we spoke indicated that local sponsors of rural projects generally do not have the financial capabilities to meet the current cost-sharing requirements.

Finally, officials cited environmental mitigation costs as a major factor affecting rural projects' ability to qualify for federal flood damage reduction funding. Most state and local officials with whom we spoke said that rural areas are more likely than urban areas to have environmentally related costs associated with their projects. For example, one official noted that rural projects are more

likely to have costs associated with preserving wetlands than urban areas. Such costs could include building a levee around the wetland or constructing the levee through the wetland and creating a new wetland elsewhere. Another example would be the cost that a rural area incurred to construct an earthen levee to hold back deposits of dredged material from areas that potentially contained artifacts. These mitigation costs are added to the project's benefit/cost calculation. The officials said that because the costs to mitigate environmental issues can be quite substantial, and urban areas do not have similar costs, rural areas are disadvantaged by having to include the environmental costs in the benefit/cost calculation.

OPTIONS TO HELP RURAL AREAS QUALIFY FOR AND OBTAIN FEDERAL FUNDING FOR REDUCING FLOOD DAMAGE

Corps, state, and local officials offered several options to help rural areas qualify for and obtain more federal funding for reducing flood damage. Implementing any of the options would require congressional action. However, to fully explore the merits of implementing any of the options, it would seem appropriate to first define what is urban and what is rural and determine how much federal funding is currently being distributed between urban and rural projects. These options include the following:

Lower the benefit/cost ratio for rural projects to some number less than 1.0. Although this initiative would probably allow more rural projects to qualify for funding consideration, rural projects would still compete for funding with other projects that have a higher benefit/cost ratio. Thus, the overall likelihood of increasing funding for rural projects under this option is limited. The Chief, Planning Division, Corps of Engineers, stated that reducing the benefit/cost ratio would qualify more projects for funding consideration; however, it would be very unlikely that there would be general congressional support for funding projects that do not have benefits greater than costs. The officials with whom we spoke generally agreed that lowering the ratio was a meaningful option only if it was coupled with some form of dedicated funding for rural projects.

Revise the guidelines used to calculate project benefits and costs so that (1) greater economic consideration is given to the value of agricultural structures and crops and their impact on the local, national, and world economy and (2) less consideration is given to environmental mitigation costs. Such revisions to the guidelines would likely increase the number of projects that would qualify for and receive funding from the Corps for reducing flood damage. Under this proposal, environmental mitigation costs would receive less consideration in the criteria for determining benefits and costs. Corps

officials oppose altering the procedures for measuring project benefits and costs because doing so would destroy the objectivity of the analysis and the true economic impact of the project would not be identified.

Reduce the cost-sharing requirement. Even though ability-to-pay rules allow qualified local sponsors to reduce their share of a project's construction costs to a minimum of 5 percent, many officials indicated that the percentage of funding required from local sponsors under cost-sharing, currently a minimum of 35 percent before the determination of the sponsor's ability to pay, should be reduced. Some officials said that one means of reducing local cost-sharing requirements would be for the Congress to allow for a reduction in the local sponsor's percentage based on state and local flood mitigation actions. For example, a local sponsor's cost-sharing percentage for preconstruction engineering and design and construction could be reduced in exchange for amending local building codes to require construction to be above normal standards for federal flood plains. Reducing the local sponsor's cost-sharing, however, would increase the federal funds needed to implement these options. According to the Corps' Planning Division Chief, reducing the local sponsors' cost-sharing burden is not a likely option because the Congress recently increased the cost-sharing percentage under the 1996 act. On the other hand, the 1996 act also modified the Corps' ability-to-pay procedures and gives greater potential for reducing local sponsors' cost-sharing requirements.

Dedicate a set amount of funds for rural flood reduction projects. This option would mandate that a certain percentage of federal funds be dedicated to rural flood reduction projects. However, this option involves a change in the fundamental policy in terms of the goal of the federal flood damage reduction program. The policy would change from one of selecting projects on the basis of economic criteria (benefits to costs) to one of selecting projects on the basis of social equity, that is, providing some funding for all communities. The state of Louisiana has designed a program for dedicating funds to both urban and rural areas for flood control projects. The program receives its funds from the state's gasoline tax revenues. (More details on the Louisiana program are provided in enc. I.)

AGENCY COMMENTS

We provided the Corps with copies of a draft of this report for review and comment. In response, the Chief, Planning Division, Directorate of Civil Works, fully concurred with the information presented in the draft report.

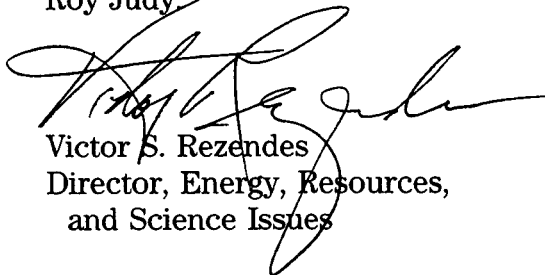
SCOPE AND METHODOLOGY

We conducted our review at the Corps' headquarters in Washington, D.C., and Fort Belvoir, Virginia. To identify what factors limit rural areas from obtaining federal funding for reducing flood damage, we relied on the Corps to identify key officials in flood plain areas with whom we could discuss rural flood damage reduction problems. The flood plain areas typically are those along the Mississippi, Missouri, and Illinois rivers and associated tributaries. Specifically, we discussed this concern with the Corps' headquarters officials; several state or local government officials generally in Iowa, Kentucky, and Louisiana; a member of a civil engineering firm; levee and drainage districts officials; and independent researchers who are familiar with local flood damage reduction issues and problems in obtaining federal funding.

We also relied on the discussions we had with the above Corps, state government, and local officials to inform us of the options that the Congress could consider to help rural areas qualify for and obtain more federal funding for rural flood damage reduction projects. For the most part, the individuals were consistent in identifying the options for congressional consideration.

We are sending copies of this report to the Secretary of the Army; the Chief, U.S. Army Corps of Engineers; appropriate congressional committees; and other interested parties. We will make copies available to others upon request.

This work was performed under the direction of Barry T. Hill, Associate Director, who may be reached at (202) 512-8021 if you or your staff have any questions. Major contributors to this report were Jim Yeager, Alan Bennett, and Roy Judy.



Victor S. Rezendes
Director, Energy, Resources,
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Enclosure

THE LOUISIANA STATEWIDE FLOOD CONTROL PROGRAM

In 1982, Louisiana enacted landmark legislation to address the state's flooding problems by establishing a statewide flood control program. The program's primary goal is to reduce flood damages. In 1989, Louisiana voters approved an amendment to the state's constitution establishing a Transportation Trust Fund, which provides that a certain amount of the state's gasoline tax revenues will fund the flood control program. The program does not have a specific funding level but has recently been funded at \$10 million annually.

FUNDING FOR URBAN AND RURAL PROJECTS

The program is designed to provide annual funding of flood control projects for both urban and rural areas. The program achieves this goal by distributing funds on the basis of a two-tier system: 45 percent of the annual funds are for projects in the state's nine urban areas, and 55 percent of the funds are for projects in five funding (rural) districts in the remainder of the state.

The nine urban areas are Alexandria, Baton Rouge urban area, Bossier City, Jefferson Parish urban area, Lafayette, Lake Charles, Monroe, New Orleans, and Shreveport. Projects within urban areas compete for funding with projects from all urban areas. However, not more than 20 percent of the total amount of funds available to finance urban projects may be allocated to any single urban area.

There are two categories of rural areas for funding distribution: rural-undeveloped and rural-developed areas. Rural-undeveloped areas are those areas with 128 or fewer structures per square mile, while rural-developed areas are those having a density of more than 128 structures per square mile. Funding is allocated among the districts on the basis of each district's floodplain area compared with the district's total land area. Funding is further suballocated by district between rural-undeveloped and rural-developed areas on the basis of agricultural land and developed land (excluding the nine urban areas) within each district in relation to the amount within the entire state. In contrast to urban projects, rural projects compete for funds only with other projects that are within their respective rural category (undeveloped or developed) and their respective district. Thus, a rural-undeveloped project in the Northwest District competes for funding only with other rural-undeveloped projects in the Northwest District. Rural project funding is not capped at 20 percent of the total allocated funds per district but, rather, is generally limited to the district's allocation for that category of rural project.

REQUIREMENTS FOR ELIGIBILITY IN THE PROGRAM AND LOCAL COST SHARING

For a project to be eligible for consideration, its primary goal must be the reduction of existing flood damages. The local sponsor must document prior flood damage and the beneficial impact of the proposed project. Eligible projects include such measures as channel modifications, the construction of levees, the flood proofing of structures, relocation assistance, and other nonstructural measures. Local sponsors are required to provide a local match equivalent of not less than 30 percent of the project's construction cost. The local sponsor is required to furnish all lands, easements, rights-of-way, relocations, operation and maintenance costs, and other costs as specified. The program's *Guidelines and Procedures* (the *Guidelines*) define how these items can be credited as payments in kind against the 30-percent requirement. Furthermore, according to state officials, these state funds can be used to pay the local sponsor's cost-sharing contribution on Corps-approved projects.

SCORING AND APPROVAL OF THE PROJECT

Under the Louisiana program, the funding of a flood control project involves a multistep review and scoring process by the executive and legislative branches of the state government. The process begins when the local sponsor submits a preapplication for review by the Statewide Flood Control Project Evaluation Committee. The preapplication is reviewed to determine whether (1) there is documented evidence of prior flood damages, (2) the local sponsor is requesting assistance in preparing the full application, (3) the proposed solution is eligible for funding under the program, and (4) the local sponsor is willing to assume responsibility for its share of the costs. For those projects not eliminated during preapplication review, the local sponsors submit formal applications for the committee's review.

The committee evaluates the applications and scores each project on the basis of the criteria in the *Guidelines*. Under a 100-point basis, six categories are scored: documentation of the flood problem (20-point maximum), local support (5-point maximum), technical feasibility of the project (45-point maximum), prevention of loss of life and improved public safety (5-point maximum), environmental effects and impact on development (15-point maximum), and project recommended but not previously funded (10-point maximum). The project with the highest raw score is awarded 100 points. The other projects are awarded points on the basis of the ratio of their raw score compared with the raw score of the highest project multiplied by 100.

The application is also reviewed to provide a Damage Reduction and Construction Costs (cost benefit) score. Damage values for structures, roads, and crops are published in the *Guidelines* and are used to determine the amount of damage reduction associated

with the project. Structural damage is broken out by overall categories (residential, commercial, and public), types of structures, and construction material. The structural damage value is based on the damage value per square foot associated with each structure as published in the *Guidelines* multiplied by the square footage of only the first floor of each structure. The unit damage value for roads is based on the type of road (e.g., gravel, two-lane, or four-lane) and its unit damage value per mile as published in the *Guidelines* multiplied by the number of miles of potential flood damage. Similarly, the unit damage value for agricultural lands is based on the type of crop grown and its damage value per acre as published in the *Guidelines* multiplied by the number of acres of potential flood damage. The raw score associated with damage reduction may be adjusted upward to reflect local sponsors who contribute more than the required 30-percent cost sharing. The highest raw or adjusted score is awarded 100 points, and the remaining scores are awarded their points in relation to the high score.

The two scores are then added together and ranked according to the type of project—urban, rural-undeveloped, and rural-developed. The project's score is valid for a funding consideration period of 4 years. The committee forwards its recommendations for funding to the legislature; the recommendations are subdivided by the type of project and the funding district. Public hearings and the legislative process result in the selection of actual projects for funding in the annual program. Following this, project-related cost-sharing agreements are signed between the state and the local sponsors, and project construction contracts are negotiated between the local sponsor and the project contractor.

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