

**Current Cost-Sharing and Financing
Policies for Federal and State
Water Resources Development**

Special Study

July 1983

CONGRESS OF THE UNITED STATES



CONGRESSIONAL BUDGET OFFICE

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PREFACE

The federal government spends several billion dollars each year to plan, construct, and maintain water projects for navigation, irrigation, flood control, hydropower, recreation, and other purposes. About 25 federal agencies are associated with as many types of water projects, each conducting business under different conventions for sharing project costs with the states and localities. Some cost-sharing rules were mandated by statutes dating back to the turn of the century, and others were formulated by administrative rule only several years ago. At the state level, a wide assortment of water development programs has evolved, partly in response to federally set priorities, and, more recently, partly in response to critical water resource needs not met by federal programs. The future of joint federal and state water development is clouded by uncertainty over both current policies and issues about who should finance and who should pay for water development projects.

This study, undertaken at the request of the Water Resources Subcommittee of the Senate Committee on Environment and Public Works, presents current federal cost-sharing policies, state financing initiatives, and impediments at the state and local level that could affect any new cost-sharing arrangements based on increased state financing. In keeping with CBO's mandate to provide objective analysis, this paper offers no recommendations. The paper also presents no policy options for Congressional consideration.

Kenneth Rubin of CBO's Natural Resources and Commerce Division prepared the study under the supervision of David L. Bodde and Damian J. Kulash. Dr. Peter Rogers of Harvard University and Dr. Gerald E. Galloway, Jr., of the U.S. Military Academy provided valuable commentary. The author wishes to thank all the water professionals in the 50 states who provided detailed information on state water resource financing and management. Patricia H. Johnston edited the manuscript, Paula Mills typed the many drafts, and Angela Z. McCollough prepared it for publication.

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SUMMARY

Of about 25 federal agencies concerned with water projects, four--the U.S. Army Corps of Engineers, the Bureau of Reclamation, the Soil Conservation Service, and the Tennessee Valley Authority--account for about 70 percent of all federal expenditures on water resources, and about 40 percent of all federal water resources and water quality expenditures combined. Since the mid-1960s, when these four agencies spent more than \$6 billion per year, their joint spending level has dropped steadily to a 1983 combined appropriation of less than \$4 billion, or a 40 percent reduction (all amounts in 1982 dollars).

Although each of these agencies may be considered a specialist in a certain type of water project, there is considerable overlap in their respective mandates to develop water resource projects. These widely varied projects include urban and rural flood damage reduction, irrigation, drainage, erosion control, municipal and industrial water supply, protection of water quality, fish and wildlife enhancement, general recreation, navigation, and hydroelectric power production. When these agencies plan and construct a water project, the state or other local sponsor can pay either all or almost none of the construction or operation and maintenance costs, depending on the type of development and principal federal agency involved. The body of legislative and administrative rules that governs how much each participant pays for a water project is commonly referred to as cost-sharing policy.

NOMINAL AND EFFECTIVE COMPOSITE COST-SHARING RATES

Nominal cost-sharing rates are those named in authorizing legislation; for a variety of reasons, however, the percentage of total project costs actually paid by nonfederal participants (state and local governments and direct users) varies considerably from their nominal share. Effective cost-sharing rates represent actual cash or in-kind contributions paid by each participant after taking into account interest rate subsidies, interest free repayment periods, extended time periods for repayment, and other effects that can transfer nonfederal costs to the federal government. Effective capital cost-sharing rates represent cash outlays by each participant. But, to make meaningful general observations about the overall cost burden on each participant in a project, capital rates must be combined with operation and maintenance rates.

Effective composite cost-sharing rates are calculated by combining effective capital cost shares with the capitalized present value of annual operation, maintenance, and rehabilitation expenses contributed by each participant over the project's life. Effective composite rates are especially important because they equalize all agencies' programs and policies so that they can be compared.

On average, nonfederal participants effectively pay 30 percent and the federal government pays 70 percent of composite project costs. The federal government pays a higher proportion of construction costs--76 percent on average--and a lower average share of operation and maintenance costs--58 percent. The highest rates of nonfederal cost sharing prevail for traditionally nonfederal water development purposes, such as municipal and industrial supply (64 percent nonfederal), hydroelectric generation (64 percent), and water quality management (60 percent). User fees provide the primary payments for the nonfederal share of water supply and hydroelectric projects, whereas state or local governments generally pay the nonfederal share of water quality management costs. Low nonfederal cost-sharing rates characterize those purposes that are either subsidized to achieve a development goal, such as irrigation (19 percent nonfederal) and navigation (7 percent), or purposes for which there is no vendible output, such as flood damage prevention (11-20 percent nonfederal) and fish and wildlife enhancement (14 percent). The nonfederal share of a typical irrigation project is provided by farmer's payments over a 40- or 50-year period while state and local contributions of land, easements, and rights-of-way generally provide the nonfederal share of navigation and flood control projects.

STATE WATER RESOURCES DEVELOPMENT FINANCING

The recent reductions in federal spending for water development have been highly visible in the states. In fact, over the past five years, the states have systematically taken steps to supplement reductions in federal financing activity. In 1982, every state funded water development projects through various financing techniques, including direct appropriations from general revenue (36 states totaling about \$490 million), issuance of general obligation bonds (27 states at a total face value of about \$2.4 billion), issuance of revenue bonds (11 states at a total face value of \$737 million), and tax dedication or collection of user fees (26 states totaling \$275 million).

States and local jurisdictions have also matured considerably over the past five years in their management of water development financing. In 1982, 29 states operated special or revolving water resources funds. In the same year, 33 states gave loans and/or grants to local entities to help

finance a full array of water projects, ranging from single purpose water supply or wastewater treatment projects to multiple purpose water development projects.

CONSTRAINTS ON STATE AND LOCAL FINANCING

Over the last five years, the states have demonstrated notable resilience and creativity in dealing with legal, financial, and institutional impediments to financing water projects. With the right combination of continued federal support, financial innovation, and limited institutional reform, most of the constraints commonly encountered at the state and local levels could be overcome.

Financial Impediments

There will probably always be localized or temporary constraints on capital formation for nonfederal water development. In many instances, however, states have demonstrated their resourcefulness and willingness to explore innovative financial arrangements to meet new investment challenges. Perhaps the major disincentive for additional state and local financing of water projects has been the historically strong federal financing role. In the face of recent federal devolution, many states have either stepped up state financing and development activity or offered to pay a larger share to help finance federal water projects. Specific financial impediments are closely linked to legal impediments and are discussed in the following section.

Legal Impediments

Legal impediments include limited authority to levy user fees, statutory or constitutional prohibitions against debt financing, ceilings on state bonded indebtedness, or regulated interest rates on state bonds. Some state constitutions expressly prohibit their legislatures from obligating future state appropriations. States have confronted these limitations by changing legislation outright (often only after a public referendum), creating substate entities not bound by state-level prohibitions (legally autonomous authorities such as state port authorities or water management districts), or establishing special water development funds that are independent of yearly appropriations.

Perhaps the most widely used financial instrument to raise development capital under state debt limitations has been the revenue bond. A form of nonguaranteed debt (exempt from state debt limits), revenue bonds

pay interest and principal exclusively from the sale of development products such as municipal, industrial, or agricultural water supply; wastewater collection and treatment services; or hydroelectric power. If a water development project yields a vendible product and that product is priced correctly over the total project life, revenue bonds are probably the most useful financing instrument available to states and to units of local government.

Institutional Impediments

Institutional arrangements at state and local levels may be mismatched to an expanding nonfederal financial and management role. In the past, many state institutions have formed in response to federal initiatives, most of which reached the states as categorical grant programs. Consequently, state water-related institutions are generally characterized by disaggregated administrative units arranged by narrow functional areas. But if states are to be the focal point for financial and administrative management of new water projects, those states with centralized institutional arrangements or some cross-cutting coordinating water board will probably have fewer problems adjusting to their new role. Currently only three states operate all water planning and management under one agency, while 12 states operate various aspects of water planning and management through several agencies with little or no coordination among activities. The remaining 35 states fall somewhere in between.

In addition, as financial and management responsibilities are passed to the states from the federal government, local governments or special water districts will take on new responsibilities, perhaps not unlike some formerly held by the state. States may then be faced with new responsibilities, such as local technical assistance programs, new loan or grant programs to local governments, bond-banking, dedicating state aid for local debt service, or assisting local governments with creative financing techniques. While some states are well equipped to take on these responsibilities or have already done so, many are new to these concepts, and demands by local jurisdictions could escalate rapidly.

CONCLUDING REMARKS

Drought-induced water shortages, instances of chemical contamination, rapidly falling-ground water levels, and conflicts over interstate water allocations have prompted some analysts to claim that the United States is facing an imminent "water crisis." But this is not entirely accurate--the country is facing a water management crisis that is being perpetuated by outdated financial and management practices. This paper helps put these

issues in perspective by clearly describing current federal cost-sharing policies and recent trends in state financing activities. In addition, the states' ability to assume a more active financial posture is assessed. This analysis of current policy serves as a foundation for a more in-depth assessment of the drawbacks of the current water development program and the options that could help sort out federal, state, local, and private roles in future water projects.

CHAPTER I. INTRODUCTION AND OVERVIEW

A unified national policy does not exist for constructing and sharing the costs of joint federal/state water projects. Instead, a series of major federal water resources acts have incrementally shaped the current water resources development program, adding, over the years, inland and coastal navigation, flood control, irrigation, water supply, hydroelectric power, and other development purposes to the list of projects that can be undertaken by about 25 federal water agencies. The body of legislative and administrative rules that governs how much each participant pays for a water project is commonly referred to as cost-sharing policy.

Current cost-sharing conventions under the four most active agencies--the U.S. Army Corps of Engineers (Corps), the Bureau of Reclamation (Bureau), the Soil Conservation Service (SCS), and the Tennessee Valley Authority (TVA)--embody many of the pitfalls associated with incremental policymaking. Cost-sharing rates for the same type of water project differ under different agency's programs; and within an agency, rates may differ among technical solutions to the same problem. While this causes confusion among nonfederal participants, there are several more important ramifications. Inconsistent cost-sharing policies provide incentives for local sponsors to "shop around" for the best cost-sharing deal, rather than the most efficient solution to a water resources problem.

At the state level, a wide assortment of water development programs evolved partly in response to federally set priorities, but more recently state programs have developed to meet critical water resources needs left unfunded by federal programs. It appears that water development responsibility and the institutional hierarchy to support such development are shifting from the historical federal and state role to a state and local role. In addition to the maturation of states and localities in financing water projects, in levels of technical sophistication, and in their ability to manage water resources development, states are beginning to fill the water development leadership void left by federal inactivity.

HISTORICAL FEDERAL WATER DEVELOPMENT SPENDING

Combined federal appropriations for the Corps, Bureau, SCS, and TVA have dropped by 34 percent in real terms over the last 6 years. In 1977,

combined appropriations were about \$5.6 billion versus a 1983 combined budget request of \$3.7 billion (see Figure 1).^{1/} Since the 1960s, the combined federal investment in water resources projects administered by the four major federal water agencies has declined by about 40 percent in real terms. The SCS has experienced the most dramatic real decrease in appropriations--from \$249 million in 1977 to \$119 million in 1983, or a 52 percent decline over five years. Similarly, the 1983 budget requests for the Bureau and the Corps have dropped by 45 percent and 28 percent, respectively, compared to their 1977 appropriations. Appropriations for the TVA increased through 1980, but its budget request for 1983 was 57 percent lower than the 1980 appropriation and 39 percent lower than the 1977 appropriation, in real terms.

The most obvious reason for declining real dollar appropriations for water resources is that no new projects have been authorized since 1976. Agency-wide spending is falling as old projects are completed and no new ones are authorized. For example, Figure 2 shows Corps of Engineers' outlays from 1976 through 1983 for three types of construction projects--flood control, navigation (inland waterways plus ports and harbors), and multipurpose reservoirs. Flood control projects and multipurpose reservoir construction began to drop off sharply after 1977, the first year of spending under the last authorization bill for these projects. Navigation spending increased through 1981 because of extraordinarily high (\$200-\$300 million per year) outlays for the Tennessee Tombigbee Waterway, which was authorized in 1946. The dramatic drop-off in expenditures for these types of projects is representative of recent trends in spending for construction by the other three federal water agencies.

Another trend in spending for federal water resources includes the effects of the 1976 moratorium on new project authorizations, but it also reflects a longer-term transition in water resources needs away from building new projects and toward maintaining the existing stock of water facilities. Since the mid-1960s, federal spending for operation, maintenance, and rehabilitation (OM&R) has been increasing while both new construction and overall water program spending has declined (see Figure 3). The ratio of OM&R to new construction for the combined appropriations of the Corps, the Bureau, and TVA has increased from about 0.2 in 1968 to 1.1 in 1984. For the first time, the Corps' 1984 budget request for OM&R was greater than its request for construction appropriations.

1. All dollar figures provided in 1982 constant dollars unless otherwise noted.