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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The Congress of the United States
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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.

Alice M. Rivlin
Director

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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.

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

Figure 1.

Water Resources Development Appropriations for the U.S. Army Corps of Engineers (Corps), Bureau of Reclamation (Bureau), Soil Conservation Service (SCS), and Tennessee Valley Authority (TVA)

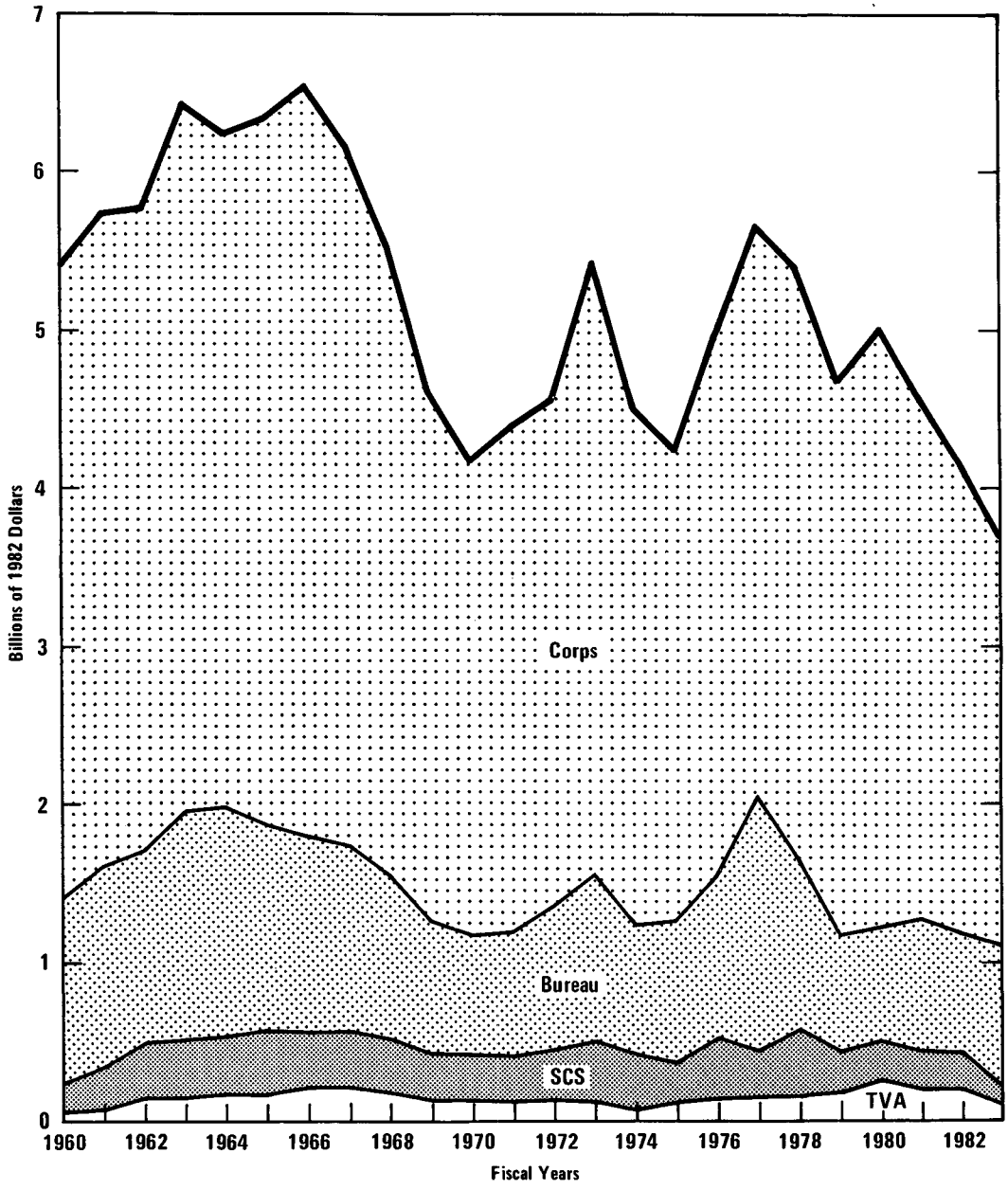


Figure 2.

Corps of Engineers' Construction Appropriations for Flood Control, Multipurpose Reservoirs, and Navigation (Inland Waterways and Ports and Harbors)

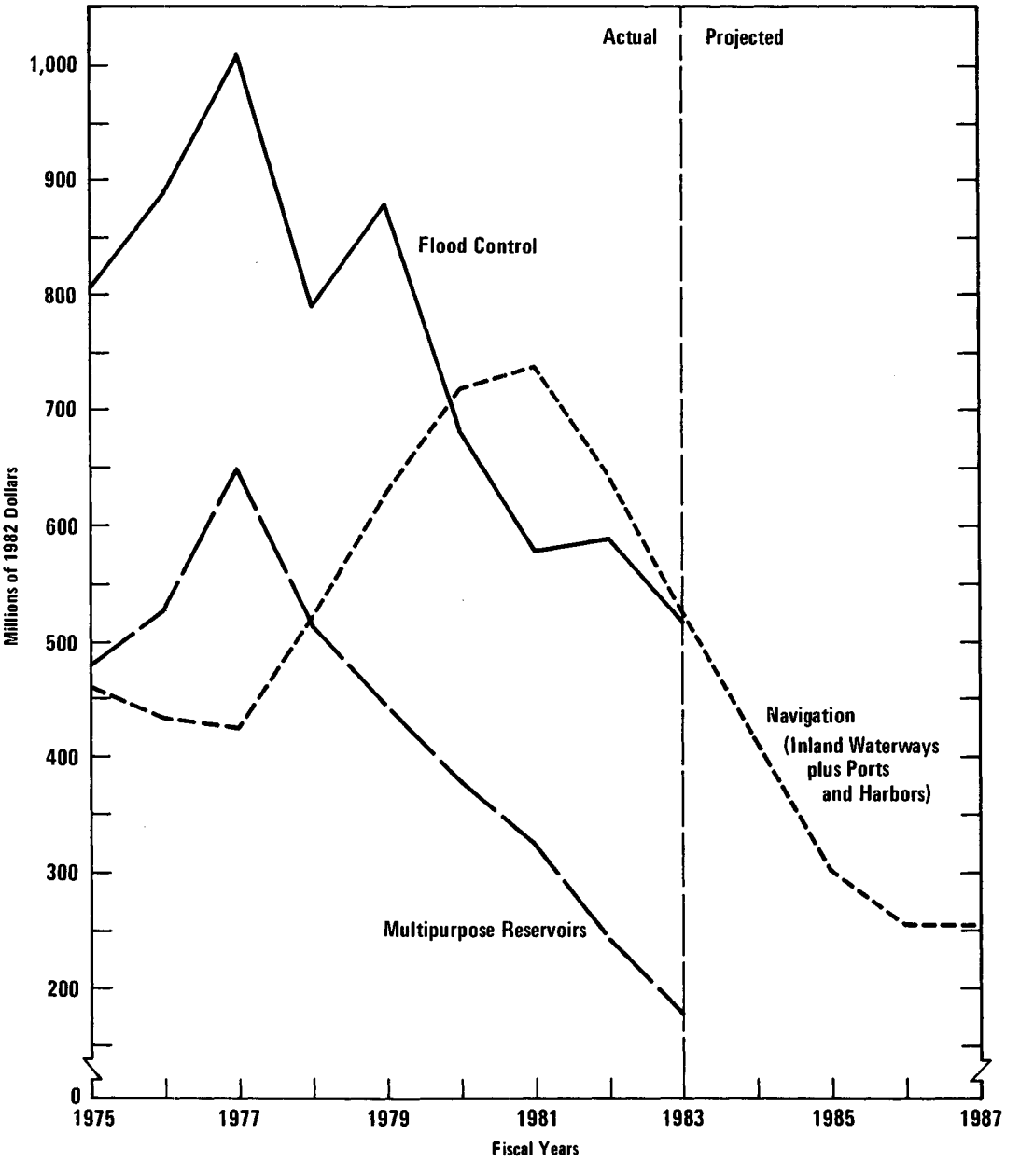
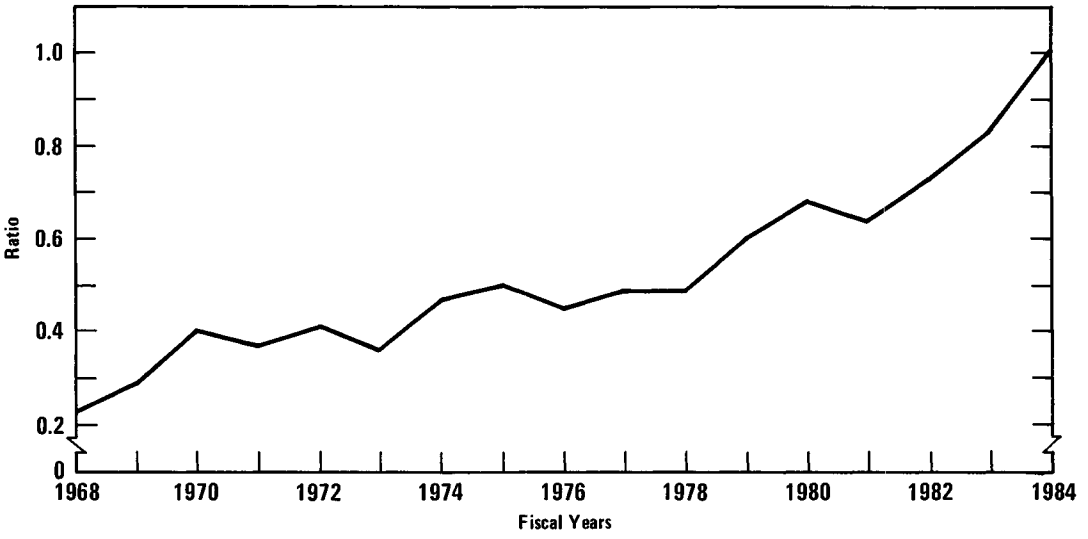


Figure 3.

Ratio of Combined Operation, Maintenance, and Rehabilitation Appropriations to New Construction Appropriations of the Corps of Engineers, Bureau of Reclamation, and Tennessee Valley Authority



HISTORY OF COST-SHARING POLICIES AND RECENT EVENTS

The authorization acts for federal water resource projects dating back to the turn of the century have, over time, established water project cost-sharing conventions for the federal water agencies. The most important pieces of legislation are included in Table 1, arranged by water project purpose. In addition to these, there have been a great number of authorization acts that have affected cost sharing for one purpose or one agency, but these were generally of little significance compared to the overall policies contained in the major acts.

Before 1978, no Administration successfully consolidated federal water projects cost-sharing policies, but in that year, President Carter made another attempt with his series of water policy initiatives to the Congress, one of which pertained to cost sharing. The cost-sharing initiative had two parts:

- States would provide a legally binding commitment to contribute up-front cash for projects within their borders--10 percent of construction costs for projects that had vendible outputs and 5

TABLE 1. MAJOR FEDERAL LEGISLATION AUTHORIZING COST SHARING, BY PROJECT PURPOSE

Water Resources Development Purpose	Affected Agency	Authorizing Legislation
Urban Flood Damage Reduction	Corps	Flood Control Act of 1936 (P.L. 74-738)
		Flood Control Act of 1938 (P.L. 75-761)
Rural Flood Damage Reduction	SCS	Watershed Protection Act (P.L. 83-566)
	Corps	Flood Control Act of 1936 Flood Control Act of 1938 Flood Control Act of 1928 (P.L. 70-391)
	Bureau	Small Projects Act (P.L. 84-984) Reclamation Projects Act of 1939 (P.L. 76-260)
	TVA	TVA Act (P.L. 73-017)
Drainage	SCS	Soil Conservation Act (P.L. 40-460) Watershed Protection Act
	Corps	Flood Control Act of 1944 (P.L. 78-534)
Irrigation	SCS	Soil Conservation Act Watershed Protection Act
	Corps	Flood Control Act of 1944 Reclamation Act of 1902 (P.L. 57-161)
	Bureau	Small Projects Act Reclamation Projects Act
Municipal and Industrial Water Supply	SCS	Watershed Protection Act
	Corps	Water Supply Act of 1958 (P.L. 85-500)

(Continued)

TABLE 1. (Continued)

Water Resources Development Purpose	Affected Agency	Authorizing Legislation
Water Supply (Continued)	Bureau	Small Projects Act Reclamation Projects Act
Stream Flow Regulation	Corps	Federal Water Pollution Control Act of 1961 (P.L. 87-088)
Water Quality (Point Source)	Corps	Federal Water Pollution Control Act of 1972 (P.L. 92-500)
Fish and Wildlife	SCS	Watershed Protection Act
	Corps	Flood Control Act of 1944 Water Resources Protection Act of 1965 (P.L. 89-072) Water Resources Development Act of 1974 (P.L. 93-251)
	Bureau	Water Resources Development Act of 1974
Ports and Harbors	Corps	Rivers and Harbors Act of 1920 (P.L. 66-263)
Inland Waterways	Corps	Rivers and Harbors Act of 1920
	TVA	TVA Act
Hydropower	Corps	Flood Control Act of 1944 1937 Bonneville Power Act (P.L. 75-329)
	Bureau	Reclamation Projects Act
	TVA	TVA Act
Area Redevelopment	Corps	Economic Development Act of 1965 (P.L. 89-136)
	TVA	TVA Act

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percent of construction costs for other projects. Vendible outputs included water supply, irrigation, power, and other benefits for which the federal government received revenues under former policies. A cap equal to one-fourth of one percent of the state's general revenues would be placed on a state's total yearly contribution. Revenues collected from the sale of vendible outputs would be shared between the federal government and the contributory states in proportion to their investments.

- Existing cost-sharing conventions for all agencies involved in flood control or flood damage reduction would be amended to require a standard 20 percent nonfederal contribution both for structural and nonstructural measures. Prior to this rule, different agencies used different nonfederal cost shares for structural and nonstructural plans.

President Carter's proposed cost-sharing policy was never enacted into law. The Corps, however, made several temporary administrative changes in provisions for preauthorization survey reports whereby the President's cost-sharing proposal would be incorporated in the agency's recommended levels of cost sharing for new projects.

Recognizing the role of the federal government in developing the nation's water resources, President Reagan directed his Cabinet Council on the Environment to study the issue of cost sharing and to make recommendations that would help promote new projects within the federal program. The Working Group on Water Resources of the Cabinet Council forwarded their recommendations to the President in August 1982. Although the findings have not been officially released yet, the cost-sharing proposal for Corps projects contained in a bill recently submitted by Senator Stafford (S. 1031) apparently reflects the working group's recommendations (see Table 2).

The Corps of Engineers' new projects for 1983 have stirred controversy in the water community because they introduced a cost-sharing precedent independently and in advance of the Administration's official policy on cost sharing. While the Corps' administrative proposals were not as comprehensive as Senator Stafford's bill, three aspects common to both proposals are certain to focus cost-sharing debate during the 98th Congress. First, the states or other nonfederal participants will be asked to bear more of the cost of jointly developed water projects. They will also be asked to contribute a greater portion in up-front financing (cash or contributions in-kind) than they now contribute. Finally, by requiring 100 percent up-front financing for hydropower and municipal and industrial water supply projects, the proposals are, in effect, urging states and local government to handle these projects without federal assistance.

TABLE 2. PROPOSED COST SHARING FOR NEW WATER PROJECTS AFTER 1983

Project Purpose	Up-Front Nonfederal Share of Costs (In percents)
Hydropower	100
Municipal and Industrial Supply	100
Flood Control	35
Recreation	50 a/
Commercial Navigation	75 b/
Irrigation	35
Beach Erosion	50

SOURCE: S. 1031.

a. Could be repayment instead of up-front.

b. Twenty-five percent of federal financing is reimbursable; the rest must be up-front cash contribution.

It appears that these concepts may now be more acceptable to local water project proponents than they were during the Carter Administration. The Colorado River Basin Project Act Amendments of 1982 (P.L. 97-373) required that nonfederal interests contribute 20 percent of selected features of the Central Arizona Project, a major Bureau project bringing Colorado River water to Phoenix and Tucson. Local farmers have already gone to the bond markets to obtain private financing. Each of nine new project starts proposed by the Corps in 1983 had a local financing component endorsed by local sponsors ranging from 35 percent of urban flood control projects to 100 percent of hydroelectric project costs.

SCOPE AND ORGANIZATION OF THE PAPER

The remainder of this paper is devoted to the presentation of sufficient baseline information, so that future cost-sharing proposals can be evaluated against current policy with a realistic assessment of state and local capabilities.

Chapter II presents a detailed discussion of the current nominal and effective cost-sharing policies of each of the four major federal water agencies for all types of water development projects. Nominal rates are those cost percentages contained in authorizing legislation that, theoretically, the nonfederal participants will have to pay. In practice, however, they frequently bear little relationship to the amounts nonfederal participants actually pay, because of interest rate subsidies and extended periods for repayment. Effective composite cost-sharing rates--combined capital and operating payments expressed in present value terms--are also presented. Effective rates were calculated on the basis of how much the federal and nonfederal participants actually paid for almost 4,800 water projects. 2/ Effective rates are then compared to nominal rates.

Chapter III presents existing state mechanisms for raising water development funds. Included are the use of appropriations from general revenues, debt financing (general obligation and revenue bonding), dedication of special taxes, and collection of user fees. The use of special or revolving funds and loan and grant programs for distribution of state funds are also documented. Chapter IV presents legal, institutional, and financial impediments that could prevent states from expanding their role in water project financing or cost sharing.

2/ See U.S. Water Resources Council, Options for Cost Sharing--Parts 1-8 (1975), a report submitted to the President pursuant to Section 80 of the Water Resources Development Act of 1974 (P.L. 93-251).

CHAPTER II. NOMINAL AND EFFECTIVE COST-SHARING POLICIES FOR FEDERAL AND STATE WATER RESOURCES DEVELOPMENT

The first section of this chapter presents the current nominal cost-sharing rates for the Corps of Engineers (Corps), the Bureau of Reclamation (Bureau), the Soil Conservation Service (SCS), and the Tennessee Valley Authority (TVA), and discusses the legislative background for cost sharing within each agency. Nominal rates are those found in authorizing legislation. In practice, actual or effective cost-sharing rates can differ considerably. The reasons for this divergence and effective rates for each agency are presented in the second part of this chapter.

NOMINAL FEDERAL COST-SHARING POLICIES

Nonfederal participants in federal water projects (state or local governments and private users) are generally required to finance or to pay some portion of project costs. This requirement varies according to the type of project, lead federal agency, and special provisions that can be established by the Congress.

Corps of Engineers Cost-Sharing Policy

The Corps' current cost-sharing requirements have been established by law or by administrative rules for each of the 25 project purposes listed in Table 3. The final cost-sharing split between federal and nonfederal participants for a multipurpose project is determined during the pre-authorization project feasibility study, based on the mix of benefits contained in the project. For instance, the total nonfederal share of a multipurpose reservoir providing navigation, irrigation, flood control, and hydropower benefits would be derived by multiplying the nonfederal rate for each type of benefit by the allocated costs to that type of benefit and adding the results.

Navigation. Legal precedent for federal interest in navigation stems from the Commerce Clause of the United States Constitution and subsequent Supreme Court decisions. Section 2 of the Rivers and Harbors Act of 1920 directed the Chief of Engineers to determine the general versus the

TABLE 3. TRADITIONAL CORPS OF ENGINEERS COST-SHARING POLICY

Purpose	Construction Costs Participation a/		Lands, Easements, Rights-of-Way, and Relocations	Operation and Maintenance
	Federal (In percents)	Nonfederal Cash (In percents)		
Navigation				
Commercial--general navigation facilities	100	0	Nonfederal	Federal
Recreation--general navigation facilities	50	50	Nonfederal	Federal
Flood Control				
Major reservoirs	100	0	Federal	Federal
Local protection--structural	100	0	Nonfederal b/	Nonfederal
Local protection--nonstructural	80	20 c/	Federal d/	Nonfederal
Small reservoirs in lieu of local protection	100	0	Nonfederal b/	Nonfederal
Major drainage	50	50 c/	Nonfederal b/ c/	Nonfederal
Beach Erosion Control				
Federally owned shores	100	0	Federal	Federal
Publicly owned shores (nonfederal)	50	50	Nonfederal	Nonfederal f/
Private shores--publicly used	50 d/ e/	50	Nonfederal	Nonfederal f/
Private shores--nonpublicly used	0	100	Nonfederal	Nonfederal
Public shore parks (nonfederal)	70	30	Nonfederal	Nonfederal f/
Hydroelectric Power	100	Repay	g/	Nonfederal

(Continued)

SOURCE: U.S. Army Corps of Engineers, Digest of Water Resources Policies and Authorities (March 27, 1981).

a. Construction costs include post-authorization and engineering and design.

b. Local cooperation requirements based on Section 3 of the 1936 Flood Control Act, as amended, consist of providing lands, easements, rights-of-way; holding and saving the United States free from damages; and maintaining and operating the project after completion. In addition, it is policy to require a local cash contribution in windfall land enhancement cases to equal 50 percent of total project costs allocated to land enhancement benefits.

c. Costs for determination of local share include costs of lands, easements, rights-of-way, and relocations. This results in a required local cash contribution for some projects.

d. Lands, easements, rights-of-way, and relocations are shared on the same basis as the construction costs.

e. The 50 percent federal participation is multiplied by the ratio of public benefits to total benefits along the subject private shores. The local share includes the costs allocable to private benefits.

TABLE 3. (Continued)

Purpose	Construction Costs Participation a/ Federal (In percents)	Nonfederal Cash (In percents)	Lands, Easements, Rights-of-Way, and Relocations	Operation and Maintenance
Water Supply	100	Repay	g/	Nonfederal
Irrigation (storage)	50	50	g/	Nonfederal
Recreation and Fish and Wildlife				
Reservoir projects--separable costs	50	50	g/	Nonfederal
Reservoir projects--joint costs	100	0	Federal	Federal
Nonreservoir projects	50	50 c/	Nonfederal	Nonfederal
Enhancement of Fish and Wildife and Anadromous Fish (resource enhancement)				
Separable costs	75	25	g/	Nonfederal
Joint costs	100	0	Federal	Federal
Anadromous fish--federal program	100	0	Federal	Federal h/
Anadromous fish--other	75	25	g/	Nonfederal
Enhancement of Commercial Fish (excluding anadromous fish)	100	0	Federal	Federal
Mitigation of Project-Caused Damages (including fish and wildlife damages)	i/	i/	i/	i/
Aquatic Plant Control				
Research, planning, evaluation	100	0	Not Applicable	Not Applicable
Control	70	30	Not Applicable	30 percent Nonfederal

f. Periodic beach nourishment (sand replacement) is defined in law as construction and eligible for federal participation for the period specified in project document.

g. Costs are allocated to the project purposes and shared on the same basis as construction costs for each purpose.

h. Maintenance by federal agency other than Corps of Engineers.

i. Cost sharing is the same as for the purposes causing the damages (causative purposes). The entire costs of mitigation--including construction, land required for mitigation, and computed present worth of future operation and maintenance--are cost shared on the same basis as the purpose causing the damage. Responsibility for actual performance of O&M is normally assigned to nonfederal interests.

special interest in navigation improvements and to recommend an appropriate sharing of costs between federal and nonfederal interests. The federal share in such improvements varies from 50 to 100 percent, depending on the nature of the service rendered, the incidence of benefits to the general public, and the project classification of commercial or recreational navigation.

Federal participation is generally limited to financing and paying for general navigation features, such as breakwaters, jetties, entrance and primary access channels, turning basins, and anchorage areas. Nonfederal interests generally pay for terminal facilities; dredging in berthing areas; interior access channels; lands, easements, and rights-of-way; and disposal areas for dredged material. The federal government pays all maintenance dredging costs for these projects.

The federal government also pays for all inland waterway construction, dredging, and lock and dam construction. Operation and maintenance (O&M) costs are also paid by the federal government, although under the Inland Waterways Revenue Act of 1978 (P.L. 95-502) a small user fee is collected in the form of a tax on maritime fuel (equal to roughly 6 percent of 1982 federal expenditures for waterways).

Flood Control. In 1936, the Flood Control Act established a national policy on flood control of navigable waters or their tributaries, which set forth this objective as a proper activity of the federal government in cooperation with state and local entities. Subsequent acts have enlarged the federal role, under the name of flood plain management, to include all alternatives in controlling flood waters, reducing the susceptibility of property to flood damage, and relieving human and financial loss.

Between 1936 and 1941, several water project authorization acts established the Corps' flood control cost-sharing policy. Traditionally, the federal government has paid construction and maintenance costs for flood control lakes. The federal government also pays the construction costs of other structural controls (flood walls, levees, and so forth), but maintenance financing is totally local. Construction costs for nonstructural alternatives (relocation, floodproofing, early warning systems) are shared, with 80 percent paid by the federal government and 20 percent by nonfederal units.

Hydroelectric Power. Through authorizing legislation, the Congress has directed the Corps to secure full repayment of costs of hydroelectric power generation through the sale of electricity by marketing agencies. Under Section 5 of the Flood Control Act of 1944, Corps-produced hydropower is marketed by the Department of Energy and revenues are returned to the Treasury.

Recreation. Both the Flood Control Act of 1944 and the Federal Water Project Recreation Act of 1965 authorized the Corps to participate in and share the financial responsibilities of water-based recreation development. Construction costs are shared on a 50/50 basis and maintenance is 100 percent nonfederal.

Water Supply. Municipal and industrial water supply storage space may be recommended for inclusion in any Corps reservoir pursuant to the Water Supply Act of 1958. Costs are federally financed but are repaid by water sales within 50 years, including interest set by law. The act permits an interest-free development period for up to ten years.

Fish and Wildlife. The Fish and Wildlife Coordination Act of 1958 provided that fish and wildlife conservation should receive equal consideration with other project purposes. Those costs identified as separately allocable for this purpose are shared on a 75 percent federal and 25 percent nonfederal basis. Nonfederal entities are responsible for all operation, maintenance, and replacement costs.

Bureau of Reclamation Cost-Sharing Policy

Cost sharing of Bureau projects is also determined according to project purposes. Both reclamation law and administrative policy comprise the basis for cost-sharing conventions within each purpose. Each project purpose is discussed below (also see Table 4).

Irrigation. The Reclamation Act of 1902 established a revolving fund from the sale of public lands to provide financing for western irrigation projects. The intent of the act was to avoid using appropriations from general revenue for reclamation; rather, the fund, replenished with farmers' repayment in full of interest-free loans, was to be self-sustaining. Charges on reclamation projects often exceeded original estimates, however, and farmers were often unable to meet their repayment obligations.

The Reclamation Project Act of 1939 provided that project costs allocated to irrigation be repaid by users only to the extent that they were able to repay. These provisions still prevail and, consequently, there is no set nonfederal cost sharing for Bureau irrigation projects. Studies must be undertaken to determine the incremental value of irrigation water and the farmers' ability to pay based on farm budgets. Projects are financed entirely by the federal government and costs are repaid without interest. Farmers or irrigation districts are responsible for all operation and maintenance costs.

TABLE 4. NONFEDERAL COST-SHARING REQUIREMENTS FOR BUREAU OF RECLAMATION PROJECTS, BY PURPOSE (In percents)

Purpose	Capital	Operation and Maintenance
Irrigation	Varies according to "ability to pay," but generally less than 20 percent.	100
Municipal and Industrial Supply	100	100
Hydroelectric Power	100	100
Fish and Wildlife	25	100
Recreation	50	100
Water Quality	25	100

SOURCE: Bureau of Reclamation, Reclamation Instructions, Part 116, "Economic Investigations."

Municipal and Industrial (M&I) Supply. Two pieces of legislation form the authority for cost recovery for Bureau M&I projects--the Reclamation Project Act of 1939 and the Water Supply Act of 1958. Costs allocated to M&I supply, including interest during construction, are to be repaid in full with interest on the unpaid balance within 50 years of the initial service. The cost of operation and maintenance usually is combined with capital costs in calculating an appropriate repayment water rate based on current and future demand.

Hydroelectric Power. General administrative policy of the Bureau directs that electric power in excess of project needs is to be sold commercially to pay operation and maintenance expenses, to amortize capital costs allocated to commercial power, and to assist in the repayment of costs allocated to irrigation and other project purposes. Both capital and maintenance costs of hydroelectric development are supposed to be repaid in full by users of federal hydropower.

Fish and Wildlife. The Federal Water Project Recreation Act of 1965 established cost-sharing policy for fish and wildlife enhancement or protection. For this purpose, the nonfederal share is 25 percent of capital costs (including interest) and 100 percent of operation and maintenance costs. Payment of the nonfederal share may be in-kind (land or facilities), cash repayments, or a combination of the two. Local sponsors do not have to repay those capital or operating costs that are not directly allocated to fish and wildlife (nonseparable costs).

Recreation. Cost sharing for recreation is also authorized under the Federal Water Project Recreation Act of 1965. The nonfederal share is 50 percent of separable recreation-related capital costs, including interest, and 100 percent of separable operation and maintenance costs. Land, facilities, and cash repayment may all be used for the nonfederal share. Recreation costs for facilities located within national forests, national recreation areas, or national parks administered by a federal agency are paid in full by the federal government.

Water Quality. Cost-sharing policy to ensure water quality was established by the Bureau to be consistent with Section 202 of the Federal Water Pollution Control Act Amendments of 1977. The nonfederal share is 25 percent of capital costs, including interest, plus 100 percent of operation costs. Repayment of capital costs may be made through (1) lump sum cash payment upon completion of water quality features, (2) repayment in-kind, or (3) cash repayment over a 50-year period with interest.

Soil Conservation Service Cost-Sharing Policy

The Soil Conservation Service's water program is composed of two subprograms with separate authorizations. Under the Watershed Protection and Flood Prevention Act of 1954 (P.L. 83-566), the SCS conducts the Small Watershed Program, which provides financial and technical assistance for land treatment, flood prevention, irrigation and drainage, recreation, fish and wildlife enhancement, and municipal and industrial water supply. Under the Flood Control Act of 1944 (P.L. 78-534), the SCS carries out separate flood prevention activities. Table 5 summarizes SCS cost-sharing conventions by project purpose.

Cost-sharing conventions are identical for projects under P.L. 78-534 and P.L. 83-566. For all project purposes, operation and maintenance costs are 100 percent nonfederal. Prior to construction, a Project Agreement document must be signed by the responsible nonfederal entity endorsing that the following three conditions are or will be satisfied:

- o All land affected by the project will be purchased by or is already owned by the responsible nonfederal entity.
- o The appropriate nonfederal share is secured in an escrow account and is available for payment of construction costs as performed and billed.
- o Operation and maintenance will be performed and paid for by the nonfederal entity.

TABLE 5. NONFEDERAL COST-SHARING REQUIREMENTS UNDER SOIL CONSERVATION SERVICE SMALL WATERSHED AND FLOOD PREVENTION PROGRAMS (In percents)

Purpose	Construction	Operation and Maintenance
Land Management	Not to exceed the level of existing national programs (usually 50 percent)	100
Flood Prevention		
Structural	0	100
Nonstructural	20	100
Irrigation and Drainage	50	100
Recreation	50	100
Fish and Wildlife	50	100
Municipal and Industrial Supply	50	100
Water Quality	(not established)	
Energy	100	100

Tennessee Valley Authority Cost-Sharing Policy

The Tennessee Valley Authority Act of 1933, as amended, established the TVA, a regional development agency that was to be responsible for improvement of navigability and flood control of the Tennessee River, agricultural and industrial development of the Tennessee River Basin, and production and distribution of electric power to the region at the lowest practical prices. Prior to an amendment to the act in 1959, all TVA activities were funded solely through Congressional appropriations with no cost sharing by states or localities.

The amendments of 1959 required payments from the TVA to the U.S. Treasury from net power proceeds beginning in fiscal year 1961. Repayment is divided into a return on the net appropriation investment in power facilities and repayment of the dollar amount of invested capital. The amount of return payable each year is based on the appropriation investment at the beginning of that year and the average interest rate payable by the U.S. Treasury on its total marketable public obligations as of the same date. The capital repayment schedule was fixed at $10 million per year between fiscal years 1961 and 1965; $15 million per year between fiscal years 1966 and 1970; and $20 million each year thereafter, until a total of $1 billion had been repayed to the U.S. Treasury. As of the end of fiscal year 1982, a total of $370 million of the capital debt had been repayed. Return on appropriation investment totaled about $1.2 billion as of that time.

There are no nominal cost-sharing requirements associated with TVA projects comparable to those of the other three federal water agencies, because the TVA act, as amended, established repayment terms for federal outlays based on selling electric power rather than on the traditional procedure of allocating project costs and recovering portions of those costs according to specific nonfederal cost-sharing rates. It is possible, however, to calculate an effective cost-sharing rate by comparing repayment and return contributions to Congressional appropriations. In these terms, for all project purposes, the Water Resources Council calculated that the nonfederal cost share for all TVA capital costs was 79 percent; for operation and maintenance costs, the nonfederal share was 46 percent. 1/

These percentage cost shares are not equivalent to the nominal shares discussed for the other agencies. Rather, they were calculated as effective cost shares that array costs and repayments over the life of individual pro-

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1. U.S. Water Resources Council, Options for Cost Sharing--Part 5A (1975), a report submitted to the President pursuant to Section 80 of the Water Resources Development Act of 1974 (P.L. 93-251).

jects expressed in terms of present value. This methodology is discussed in the next section.

EFFECTIVE COMPOSITE COST-SHARING RATES

For most joint federal/state water projects, nominal cost-sharing rates (those specified in authorizing legislation) will differ from the proportion of total project costs actually paid by each participant over the project life when summed in constant dollars. The latter circumstance is referred to as an effective cost share. Effective composite cost sharing rates are formed 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 life. 2/Effective cost-sharing rates differ from nominal rates because of four factors:

- Timing of the nonfederal contribution either as up-front cash or as periodic repayments with fixed interest rates over long periods of time.
- Provisions for interest-free repayment or relaxation of repayment requirements entirely during construction or during a development period just after project completion.
- Magnitude and terms of transfer accounts whereby surplus revenues from one purpose, such as hydropower or M&I supply, are used to offset reimbursable costs of another purpose, such as irrigation.
- The value of in-kind payments such as land, easements, and rights-of-way for flood control projects.

This method of calculating ultimate cost burden provides an equitable way to compare disparate cost-sharing and repayment terms for 25 agencies

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2. This calculation was performed by the Water Resources Council (WRC) for almost 4,800 joint federal and state projects based on a 6 percent discount rate and a project life of 50 years. Rates calculated by the WRC were used for purposes of this study. For more detail, see U.S. Water Resources Council, Options for Cost Sharing--Part 5A, Planning and Cost Sharing Policy Options for Water and Related Land Programs (November 1975).

and 30 types of water projects. For example, by computing the effective composite cost shares, the ultimate nonfederal cost burden associated with a Corps flood control reservoir can be compared with that for a Bureau flood control reservoir, even though the terms for capital and operating repayment, project life, or interest rates may differ.

This concept is also quite helpful in designing flexible repayment terms to satisfy an ultimate cost burden policy. That is, a 50 percent nonfederal share could be met with any combination of payments for construction or for operation and maintenance: cash up-front, periodic repayments with interest, contributions in-kind, or payments for operation and maintenance. A nonfederal participant in a federal water project could choose that combination best suited to its particular financial condition.

Overview of Effective Composite Cost Sharing

In 1975, the U.S. Water Resources Council (WRC) compiled cost-sharing information for 25 federal agencies involved in water resources planning, development, or management. From those data, the WRC calculated the mean effective composite cost share by project purpose for each agency from a total pool of nearly 4,800 projects (see Table 6). If recalculated today, the nonfederal cost-sharing rates reported in Table 6 would be lower, especially for projects that required capital repayment with interest. A 6 percent interest rate was used in the original WRC calculations, whereas an interest rate in the 8-10 percent range might be used today.

On average, nonfederal participants pay 30 percent and the federal government pays 70 percent of composite project costs. The national average nonfederal effective cost share is 24 percent for construction and 58 percent for operation and maintenance. Traditionally nonfederal water development purposes, such as municipal and industrial supply, water quality management, and hydroelectric generation, show the highest rates of nonfederal cost sharing. Also, these purposes are associated with vendible products. Low nonfederal cost sharing characterizes those purposes that are subsidized to achieve a development goal (irrigation, navigation) or those for which there is no vendible output (fish and wildlife, flood damage prevention). None of these justifications explains the low nonfederal share of recreation project costs.

In terms of federal spending to support the project purposes listed in Table 6, the three purposes with high nonfederal shares account for only 4 percent of the total present value of all costs of water development before fiscal year 1975. Federal water quality funding has increased

TABLE 6. EFFECTIVE NONFEDERAL COST SHARES OF FEDERAL WATER RESOURCES DEVELOPMENT, BY AGENCY
(In percents)

Purpose	Army Corps of Engineers	Bureau of Reclamation	Soil Conservation Service	25 Federal Agencies
		Multipurpose Dams		
Urban Flood Damage Reduction	17	a/	a/	20
Rural Flood Damage Reduction	7	10	27	11
Irrigation	19	18	54	19
Municipal and Industrial Supply	54	71	100	64
Hydroelectric Power	61	65	b/	64
Water Quality	3	82	b/	60
Fish and Wildlife	11	13	57	14
General Recreation	17	18	63	19
		Navigation Works		
Inland Waterways c/	6	7	b/	6
Commercial Harbors	16	b/	b/	16
All Navigation	7	7	b/	7
Agency Mean	20	37	49	30

SOURCE: Congressional Budget Office from Water Resources Council data. (TVA data not included.)

a. Agency reported a cost category for this purpose but not cost sharing.

b. Agency indicated no activity for this purpose.

c. Receipts from the fuel tax implemented pursuant to the Inland Waterway Revenue Act of 1978 are not included; estimates may therefore be slightly low.

dramatically since 1975, however, because of the Environmental Protection Agency's (EPA) sewage treatment facilities grant program. Those purposes with low nonfederal shares have accounted for 58 percent of the total federal investment in water development through fiscal year 1974. Recreation has accounted for about 6 percent of total federal water development appropriations through that year.

CHAPTER III. FINANCING STATE WATER RESOURCES DEVELOPMENT

Water resources development programs at the state level vary tremendously, motivated by local needs and shortfalls in federal programs and tempered by budget restrictions and, recently, by generally soft financial markets. Water development may be a totally local responsibility, as in Delaware and Iowa, where the states have almost no role in financing projects; or the state may take a very active role in funding water development, as do New Jersey and Texas. In this chapter, individual states' programs will be presented in a series of tables depicting their use of different funding sources for water development and the establishment of special funds or loan and grant programs to manage and disburse state funding.

This chapter highlights the states' roles in financing solely state or local water development projects, rather than their part in financing the nonfederal share of federally funded projects. When a state's water development program relies heavily on federally cost-shared projects, however, the mechanisms for raising the nonfederal share are discussed. Whenever possible, actual dollar outlays are presented, although deriving any meaningful aggregate statistics from these data would be quite difficult because of the disparity in reporting and accounting systems used by the different states. When expenditures or authorized spending levels are cited, they are for illustrative purposes only and should not be used to compare state programs.

The information presented in this chapter was collected directly from state water resources and treasury officials. Athough CBO made every effort to collect complete, concise accounts of the financing of state water development activities, it was not always possible to do so. An omission, therefore, should not necessarily be interpreted as no activity by the state. When a state expressly indicated a lack of activity, this is so noted.

SUMMARY OF STATE WATER DEVELOPMENT FUNDING AND FINANCING EFFORTS

In 1981 and 1982, 36 states funded water development, at least in part, through direct appropriations from general revenues. Bonding of one sort or another was used by 32 states (debt financing is prohibited by four states). Twenty-three states issued general obligation bonds, backed by the full faith and credit of the state, while revenue bonds were issued by 11 states. In 11 states, bonding occured only at the local level. Some form of taxes dedi-

cated solely to water resources development was found in 28 states. Tables 7 through 10 present a state-by-state description of the extent to which each state funded water development through various mechanisms: appropriations from general revenues (Table 7); issuance of general obligation bonds (Table 8); issuance of revenue bonds (Table 9); and dedicated taxes (Table 10). Limitations on spending and targeting of programs are also noted.

Revolving or special funds earmarked for state water development projects currently exist in 27 states. Most are single purpose funds coupled to grant and loan programs for small flood control, recreation, or soil and water conservation projects. Five states maintain revolving funds, however, that may be used to finance a full array of water resource development projects. Matching requirements, interest rates, and payback periods vary considerably from state to state. Tables 11 and 12 present details of each state's use of special funds and loan and grant programs, respectively.

Different regions of the country do not appear to favor a particular source of revenue, nor are different management tools favored regionally. In 1981 and 1982 two groups of states spent the most for water resources--high population states such as California, Pennsylvania, and New Jersey, and energy-exporting states like Wyoming or Texas.

The trend in state water development financing is toward decreased reliance on a single financing method. For example, in an effort to diversify their base of financing tools, several states are currently reassessing their constitutional prohibitions against debt financing through public referendums, which could amend the state constitutions to reverse this tradition. Other states have created new substate management entities with separate ad valorem taxing authority or the authority to bond or to collect water user fees.

Notable examples of innovative local financing and water management are found in Florida, Arizona, Nebraska, and Montana. In Florida, for example, water management districts collect about $75 million a year from an ad valorem tax on real property and about $30 million a year from a real estate transfer tax. These revenues are dedicated to water supply projects in the districts. Arizona water management districts are now in the process of implementing a new state water management law, one provision of which mandates metering all groundwater withdrawals and levying a fee of $2 per acre-foot of groundwater withdrawn. Revenue will be used to finance water augmentation projects. Local natural resources districts in Nebraska levy property taxes and dedicate revenue to local water resources projects.

Dedication of tax revenues for water purposes from energy development or mineral mining is also emerging as an important new source of

TABLE 7. USE OF APPROPRIATIONS FROM GENERAL REVENUES FOR STATE WATER RESOURCES DEVELOPMENT

State	1981-1982 Amount	Comments
Alabama	Not on annual basis	Very small amounts occasionally from revenue sharing used as seed money for local water supply
Alaska	$1.5 million	For agency administration and water management
	$535 per capita	For public works projects--could go to water or sewer projects
Arizona	$5.0 million	Flood control only, excluding appropriations for flood control loans
Arkansas	$7.6 million a/ ($3.8 million in fiscal year 1981)	All uses
California	N/A	Used exclusively before 1960; now only for recreation and fish and wildlife costs
Colorado	$10 million (1981)	From excess revenue in general fund (tax surplus created by yearly expenditure limitations)
Connecticut	$0	Not used for water development

NOTE: N/A = Not available. (Continued)

a/ Biennial.

TABLE 7. (Continued)

State	1981-1982 Amount	Comments
Delaware	$0	All development handled locally
Florida	$2.1 million	Supplements ad valorem tax revenue of water management districts; other project-specific funding
Georgia	$179,000	Annual operating budget of water resource agency
Hawaii	N/A	Only for agency administration
Idaho	$1.5 million b/	$500,000 in 1969; $1 million in 1978 for loans and grants for small water resource development projects
Illinois	$5-6 million	Mostly for salaries and administration of Water Resources Division
Indiana	$1.6 million in 1980-1981	Only done occasionally
Iowa	$0	Virtually no state-level water development
Kansas	$750,000	For grants to local jurisdictions for construction of flood control works
Kentucky	N/A	Used for small community flood control, but recently discontinued because of loss of revenue-sharing funds

(Continued)

b/ Expended through 1982.

TABLE 7. (Continued)

State	1981-1982 Amount	Comments
Kentucky (cont.)	$500,000	Dam safety program
Louisiana	N/A	Most projects funded through separate appropriations on project-by-project basis, usually for water supply
Maine	$0	Not used
Maryland	$0	Not used
Massachusetts	$0	Only used rarely for small projects
Michigan	$954,000	Planning and technical assistance to locals; special project appropriation occasionally
Minnesota	$1.6 million a/ $4.2 million $816,000	Flood damage reduction Water based recreation Wetland preservation
Mississippi	$0	Not used
Missouri	$700,000 c/	Missouri Water Development Fund--currently zero balance
Montana	$0	Not used
Nebraska	$3 million	Resources Development Fund
Nevada	$188,000	For planning and technical assistance, not for construction

(Continued)

c/ One-time program--not done annually.

TABLE 7. (Continued)

State	1981-1982 Amount	Comments
New Hampshire	N/A	On project-specific basis but only done occasionally
New Jersey	$0	Not used
New Mexico	N/A	Appropriations from general fund for wastewater treatment only
New York	N/A	Appropriations for state share of federal/state projects, mostly for flood control and recreation
North Carolina	$2 million	For state portion of federal projects
North Dakota	$1.4 million a/	Appropriated to Contract Fund
Ohio	$0	Not done in the past 6-7 years
Oklahoma	$25 million c/	Seed money to start water development fund for project construction or guarantee revenue bond issue
Oregon	$0	Not used
Pennsylvania	$5.2 million	For operation and maintenance of state projects and state share of federal projects
Rhode Island	$0	Not used
South Carolina	N/A	Very limited appropriations on project-specific basis

(Continued)

TABLE 7. (Continued)

State	1981-1982 Amount	Comments
South Dakota	$200,000 ($4 million) b/	Grants to rural water systems
Tennessee	$0	Use of general revenues now under consideration.
Texas	$40 million	To Water Development Assistance Fund for loans to local districts
Utah	$20 million b/	To Revolving Construction Fund between 1947 and 1980
	$6 million	Grants to municipalities to match federal wastewater treatment grants and rural water and sewer grants
Vermont	$80,000	Occasionally on project-specific basis
Virginia	$0	Only once in 1960s, but project never built
Washington	N/A	Set up Reclamation Revolving Account in 1919
West Virginia	$4.5 million	To Water Development Authority--loans and grants for water supply and wastewater treatment
Wisconsin	$2.3 million a/	Grants program for lake dredging and cleaning
Wyoming	$114 million	Transfer to Water Development Account

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TABLE 8. USE OF GENERAL OBLIGATION BONDS FOR STATE WATER RESOURCES DEVELOPMENT

State	1981-1982 Amount	Comments
Alabama	$0	Against state policy
Alaska	$23 million	Up to 50 percent grants to cities and towns for nonfederal share of water supply and wastewater facilities; bonding also common for local governments; state may issue bonds for major hydro projects
	$33 million (1978)	Port and harbor development bonds through state DOT
	$10 million	Village Safe Water Program--nontraditional rural water supply
Arizona	$0	No deficit financing by current law, but may be recommended to help finance Central Arizona Project
Arkansas	$100 million	10 percent interest, mostly for surface impoundments for M&I supply
California	$1.75 billion a/	All water uses
Colorado	$0	Bonded indebtedness constitutionally prohibited at state level

NOTE: N/A = Not available. (Continued)

a/ Total authorized to date.

TABLE 8. (Continued)

State	1981-1982 Amount	Comments
Connecticut	$0	Not used
Delaware	$0	Not used
Florida	$0	Not used
Georgia	$0	Not used
Hawaii	$6-10 million per year	All water resource functions--constitutional limit on bonded indebtedness at 15 percent total appraised value of real estate
Idaho	$0	Not used
Illinois	$5-6 million	Construction costs mainly for urban flood control; locals provide land, easements, and rights of way; no funds in 1982 because of budgetary constraints
Indiana	$0	Constitutionally prohibited
Iowa	$0	Only at local level
Kansas	$0	Legislature may not encumber future years' revenues
Kentucky	$0	Not used
Louisiana	N/A	Capital Improvement Bonds for all purposes including water resources
Maine	$10 million b/	Construction of fishing piers

(Continued)

b/ One-time program--not done annually.

TABLE 8. (Continued)

State	1981-1982 Amount	Comments
Maine (cont.)	$25 million b/	Construction of cargo ports
Maryland	$85 million	50/50 state/local flood control
	$32 million b/	Containment facility for dredged material
	N/A	Issue periodic bonds to renew shore erosion fund
Massachusetts	$25 million in 1982 a/	Potable water treatment plant construction--50/50 matching grants
	$60 million in 1982 a/	Leak detection in water supply delivery systems and system rehabilitation
	$260 million in 1981 a/	Contributes to Capital Development Fund
Michigan	N/A	Only for state share of sewage treatment plant construction through EPA
Minnesota	$155 million a/	Water Pollution Control Bonds
	$2.4 million	Construction of Flood Control Works
Mississippi	$0	Not used
Missouri	$75 million	To be issued in 1982/1983; only partially for water resources; 600 million for all purposes over five years

(Continued)

TABLE 8. (Continued)

State	1981-1982 Amount	Comments
Montana	$5 million in 1975 b/	Seed money for Renewable Resources Development Fund
Nebraska	$0	Constitutionally prohibited
Nevada	$100.4 million c/	M&I supply and flood control
New Hampshire	$0	Only at local level
New Jersey	$271 million (1969) $120 million (1976) $10 million (1977) $25 million (1978) $145 million (1980) $100 million (1981) $350 million (1981)	Water Conservation Clean Water Harbor Cleanup Flood Control Natural Resources Hazardous Cleanup Water Supply
New Mexico	$0	Not at state level
New York	N/A	Primarily for water quality improvement
North Carolina	$380 million d/	Clean Water Bond Program--grants for 12.5 percent of EPA sewer projects and 25 percent of water supply project cost to local jurisdictions
North Dakota	$0	Not done, but under study to supplement new water supply projects out of Resources Trust Fund

c/ Total issued through 1982.

d/ Expended through 1982.

(Continued)

TABLE 8. (Continued)

State	1981-1982 Amount	Comments
Ohio	$0	Done in past, but not recently
Oklahoma	$0	Not at state level; local communities may issue bonds
Oregon	$23 million $3.8 million (1981)	Five bond series issued 1979-1981, primarily for irrigation and drainage projects
	N/A	Pollution Control Bonds
	N/A	Small-scale energy loan program bonds
Pennsylvania	$500 million (1971)	To Capital Budget Fund for flood control and acid mine drainage
	$300 million (1982)	Public water supply--by referendum to loan fund
Rhode Island	N/A	Used widely by local jurisdictions; state issues primarily for wastewater treatment and water supply facilities
	$5.2 million b/	State bond issue for planning of Big River Reservoir
South Carolina	$25 million e/	Not issued in 1981 because of poor economic conditions
South Dakota	$0	Only at local level
Tennessee	$0	Only at local level to make Corps and SCS match

e/ Total authorized.

(Continued)

TABLE 8. (Continued)

State	1981-1982 Amount	Comments
Texas	$600 million a/	Water Development Fund--used to buy local bonds for water treatment and wastewater treatment projects; $218 million left unsold because of 6 percent interest rate ceiling on state bonds
Utah	$50 million ($25 million in 1978; 25 million in 1980)	Construction of several projects authorized by state legislature
Vermont	$0	Usually at local level; $120,000 allocated from 1968 bond sale used in 1981 to rebuild Lowell Lake Dam
Virginia	$0	Only at local level for water supply or nonfederal share of federal projects
Washington	$25 million	Agricultural water supply bonds put into local Improvement Revolving Account
	$18 million	Emergency water supply bonds put into emergency water project revolving account
West Virginia	$0	No general obligation bonding at state level; only at local level
Wisconsin	$76 million (1981) $85 million (1982)	Wisconsin Construction Fund for 60 percent grants to locals for wastewater treatment plants
Wyoming	$0	Not used

TABLE 9. USE OF REVENUE BONDS FOR STATE WATER RESOURCES DEVELOPMENT

State	1981-1982 Amount	Comments
Alabama	N/A	Project-by-project; approval by legislature needed, but presently at state ceiling
	$580 million	Backed by interest on $450 million invested from oil and gas revenues--IRS ruled it could not be done again
Alaska	$0	Not used
Arizona	$0	No debt financing by current law, but may be recommended to help finance the Central Arizona Project
Arkansas	$0	Not used
California	$730 million a/	Mostly for power-related facilities
Colorado	$0	State constitutional prohibition against bonded indebtedness; separate bonding authority set up in 1982, but not active yet
Connecticut	$0	Only issued at local level by municipal water supply companies; investor-owned companies sell stock to raise development capital

NOTE: N/A = Not available. (Continued)

a/ Total authorized to date.

TABLE 9. (Continued)

State	1981-1982 Amount	Comments
Delaware	$0	Not used
Florida	$0	Not used
Georgia	$0	Only through substate entities such as Georgia Port Authority; not done at state level
Hawaii	N/A	Only at local level--Honolulu most successful
Idaho	$4 million	Bond banking for all water development--temporarily held off market because of high interest rates
Illinois	$0	Not used
Indiana	$0	Constitutionally prohibited
Iowa	$0	Only at local level
Kansas	$0	Legislature may not encumber future years' revenues
Kentucky	N/A	Used infrequently to meet state obligation toward federal projects
Louisiana	N/A	Occasionally sold by local government
Maine	$0	Not used
Maryland	N/A	Maryland Port Authority bonds for port improvements

(Continued)

TABLE 9. (Continued)

State	1981-1982 Amount	Comments
Massachusetts	$0	Not used
Michigan	$0	Not used
Minnesota	$0	Only at local level
Mississippi	$0	Only at local level on project-specific basis
Missouri	$0	Not used
Montana	$250 million a/	Large projects only--not implemented yet; repaid with coal severance tax receipts
	N/A	Water Conservation Revenue Bonds
Nebraska	$0	Constitutionally prohibited; but amendments to change under consideration
Nevada	N/A	Some general obligation bonds backed by pledged revenues
New Hampshire	$0	Only at local level
New Jersey	$0	May do it in future
New Mexico	$0	Interstate Stream Commission has authority to bond, but has not done it yet
New York	$0	Not used

(Continued)

TABLE 9. (Continued)

State	1981-1982 Amount	Comments
North Carolina	$0	Port Authority authorized but not done yet
North Dakota	N/A	Only limited use for small irrigation projects--$3 million ceiling set by legislature
Ohio	N/A	Ohio Water Development Authority markets local bonds as guarantor--mostly for wastewater or water treatment plant construction
Oklahoma	$11 million	To fund Community Loan Program for water and sewer projects; also done routinely at local level
Oregon	$0	Not used
Pennsylvania	N/A	Done by local governments and Delaware and Susquehanna River Basin Commissions
Rhode Island	$120 million b/	For construction of Big River Reservoir--first state revenue bond; Port Authority issues revenue bonds routinely
South Carolina	$30-40 million	Port Authority issues bonds for dredging and land improvement

(Continued)

b/ Planned, but not executed.

TABLE 9. (Continued)

State	1981-1982 Amount	Comments
South Dakota	$5 million a/	Board of Water and Natural Resources authority for bonding up to $1 million per project
	Varies	Substate districts (irrigation, water user, sanitary, watershed) may bond by project
Tennessee	$0	Not done
Texas	$0	Not done
Utah	$0	Not done
Vermont	$0	Not done
Virginia	$0	Not done
Washington	$0	Not done
West Virginia	$17 million	Issued by Water Development Authority for loans to local jurisdictions to match federal wastewater treatment grants
Wisconsin	$0	Not done
Wyoming	$0	Water Development Commission has authority for revenue bonding, but has not used it yet

TABLE 10. USE OF SPECIAL TAXES AND USER FEES FOR STATE WATER RESOURCES DEVELOPMENT

State	1981-1982 Amount	Comments
Alabama	$0	Not done
Alaska	$0	Not done
Arizona	$0	$2 per acre-foot on ground-water withdrawals authorized, not to be implemented until 1990 for augmentation projects
Arkansas	N/A	10 mill per $100 real estate value for water and sewer improvements, but not often done
California	N/A	Excess state water project revenues after payment of operating and debt costs available for new water projects
Colorado	$10 million (1981) $5 million (1982)	From sales and use taxes
	$40 million (1980)	Tax surplus--$30 million allocated to bonding authority in 1982 to begin revenue bonding program
	$2.5 million (1981)	From Mineral Leasing Fund
Connecticut	$0	Not used
Delaware	$0	Not used

(Continued)

NOTE: N/A = Not available.

TABLE 10. (Continued)

State	1981-1982 Amount	Comments
Florida	$75 million plus annually	Ad valorem tax levied by Water Management Districts
	$300 million over the next ten years	Five cents/$100 value real estate transfer tax levied by Florida Department of Revenue and disbursed by request from Water Management Districts
Georgia	$0	Not used
Hawaii	$0	Not used
Idaho	$0	Not used
Illinois	$0	Not used
Indiana	N/A	Occasionally funds drawn from cigarette tax revenues
Iowa	$0	Not used
Kansas	N/A	Groundwater management districts collect tax on acreage to pay for administration of regulatory programs
Kentucky	$0	Not used
Louisiana	N/A	One-time legislative action to dedicate off-shore oil lease revenues to coastal development
Maine	$500,000 from state gas tax	Water-related community recreation facilities; grants

(Continued)

TABLE 10. (Continued)

State	1981-1982 Amount	Comments
Maine (cont.)	on boat licensing fees	with 50/50 state/local match
Maryland	$5.2 million annually from boat registration tax and 3/8 of 1 percent of state gas tax revenue	Waterway Improvement Fund for waterway dredging and debris removal
Masschusetts	$0	Not used
Michigan	N/A	Boat registration fees and gasoline taxes for water-based recreation
Minnesota	$1 million a/	Cigarette tax revenue dedicated to acceleration of natural resources projects--this year, to flood damage reduction in Red River Valley
	N/A	Taconite ore mining taxes help finance water quality or supply development
Mississippi	$0	Not used
Missouri	$0	Not used
Montana	$600,000 a/	0.625 percent of state coal severance tax for water development projects
	$1.3 million a/	Water Development Program--from severance tax on extractable minerals

a/ Biennial.

(Continued)

TABLE 10. (Continued)

State	1981-1982 Amount	Comments
Nebraska	$8 million	Local Natural Resources Districts levy property tax which may be used for all natural resource purposes, including water resources development
Nevada	$0	Not used
New Hampshire	$0	Not used
New Jersey	$2 million	National Pollution Discharge Elimination System (NPDES) fees--run NPDES program
New Mexico	$1 million in 1981	Rio Grande Basin oil and gas royalties and lease revenue used for water projects in Basin
New York	$0	Not used
North Carolina	N/A	Boat license fees dedicated to construction of access ramps
North Dakota	$20 million a/	0.5 percent of oil extraction value into Resources Trust Fund for water supply development
	N/A	Local water resource districts levy up to 4 mill per $1 property value for water resources development

(Continued)

TABLE 10. (Continued)

State	1981-1982 Amount	Comments
Ohio	$0	Taxes on coal, oil, gas, and other mineral extraction dedicated to land reclamation
	N/A	Sale of M&I Water from 8 state reservoirs used to fund reservoir operation and maintenance
Oklahoma	$0	Currently examining dedication of part of oil and gas severance tax
Oregon	$0	Not used
Pennsylvania	$1-2 million per year	Revenue from oil and gas leases used for flood control reservoirs, land acquisition
	$4 million	Revenue from horse race betting to community development loans and grants including water supply
Rhode Island	$150,000-200,000	From housing rental and timber and gravel sales from state-owned lands, dedicated to Big River Reservoir project
	N/A	User fees for all water supply systems devoted to O&M

(Continued)

TABLE 10. (Continued)

State	1981-1982 Amount	Comments
South Carolina	$5-6 million	Contributions from personal income tax refunds for fish and wildlife enhancement
	$15 million	Part of gasoline tax dedicated to water-based recreation and boating.
South Dakota	$2 million in 1982; 9 million expected in future years	Payments from private pipeline company for coal slurry pipeline water
	$1-3 million	Six conservancy subdistricts have taxing authority to promote and finance water development
Tennessee	$0	Not done
Texas	$0	Not done currently, but under consideration; referendum last legislative session failed
Utah	$12 million b/	User fees on state-owned irrigation and water supply projects
Vermont	$120,000	For lake restoration--from special fund set up with pollution penalty payments
Virginia	$0	Not used

(Continued)

b/ Expended through 1982.

TABLE 10. (Continued)

State	1981-1982 Amount	Comments
Washington	$0	Not used
West Virginia	$0	Not done at state level, but some counties dedicate coal severance taxes to water development
Wisconsin	N/A	Flood control districts authorized to levy flood damage prevention user fee, but rarely used; inland Lake Renewal districts can but rarely do tax
Wyoming	$34 million c/ (1982) $150 million d/ (1986)	Water Development Account--1.5 percent of coal severance tax plus small percent of oil and gas tax
	N/A	Permanent Mineral Trust Fund--from severance taxes on mineral, oil, gas, and coal extraction--only legislature may authorize loans; no grants allowed
	N/A	Permanent Land Fund--established from mineral royalties used by Farm Loan Board for small water projects' loans up to $60 million

c/ Total funds available.

d/ Projected.

TABLE 11. USE OF SPECIAL OR REVOLVING FUNDS FOR STATE WATER RESOURCES DEVELOPMENT

State	1981-1982 Amount	Comments
Alabama	$0	May be used in future because of demand--would be set up with oil and gas revenues
Alaska	$0	Not used
Arizona	$0	Not used
Arkansas	$1.3 million	Water and sewer
California	$22.8 million	Withdrawals must be appropriated by legislature
Colorado	N/A	Colorado Water Conservation Board Construction Fund--revolving loan fund for up to 50 percent of any water project--loans at 5 percent interest for 40 years
Connecticut	$0	Not used
Delaware	$0	Not used
Florida	$0	Not used
Georgia	$0	Not used
Hawaii	$0	Not used
Idaho	$700,000 a/	Ten-year maximum repayment--for small projects only; fund is now depleted

NOTE: N/A = Not available. (Continued)

a/ Expended through 1982.

TABLE 11. (Continued)

State	1981-1982 Amount	Comments
Illinois	$0	Not used
Indiana	$2 million	Flood control loans only; $100,000 limit; 10 years at 1.5 percent interest
Iowa	$0	Not used
Kansas	$0	Not used
Kentucky	$0	Not used
Louisiana	$0	Not used
Maine	$0	Not used
Maryland	$0	Not used
Massachusetts	$260 million in 1981 b/	Capital Development Fund--all public works construction; 50/50 match for some projects
Michigan	N/A	Waterway Fund; for recreation fund financing, see Table 12
Minnesota	$155 million b/	State Water Pollution Control Fund--to make loans and grants to communities
	$22 million	Game and Fish Fund--various uses

(Continued)

b/ Total authorized.

c/ Biennial.

TABLE 11. (Continued)

State	1981-1982 Amount	Comments
Mississippi	$0	Not used
Missouri	$0	Not used
Montana	$1.3 million c/	Water Development Program Fund--all types of water projects
Nebraska	$3 million	Resources Development Fund for matching grants to political subdivisions for all types of water projects (See also Table 12)
	$1.1 million	Water Conservation Fund for matching grants to individual landowners--soil and water conservation projects (See also Table 12)
Nevada	$250,000	Revolving fund for flood control measures
New Hampshire	$0	Not used
New Jersey	Varies	Some bond issues used to set up revolving funds; replenished from loan payments, user fees
New Mexico	$1 million	Improvement of Rio Grande Income Fund ($4.9 million in fund as of June 1982)
	$285,000	Water, Research, Conservation, and Development Fund--from annual appropriations

c/ Biennial.

(Continued)

TABLE 11. (Continued)

State	1981-1982 Amount	Comments
New Mexico (cont.)	$30,000	Ute Reservoir Operating Fund--from annual appropriations ($98,000 in fund as of June 1982)
	$21 million d/	Ute Dam Construction Fund--modify Ute Dam to increase reservoir capacity--from severance taxes
New York	$0	Not used
North Carolina	$250,000 a/ (currently empty)	Hurricane Flood Protection and Beach Erosion Control Fund--interest-free loans to locals with ten years to repay
North Dakota	$20 million c/ potential	Resources Trust Fund--for water supply development
Ohio	$200,000 d/	Water Maintenance Fund--used for O&M on 8 state reservoirs; replenished by sale of M&I water
Oklahoma	$25 million	Water Development Revolving Fund--funds all aspects of water development
Oregon	N/A	Pollution Control Fund--grants and loans to local government for wastewater treatment

(Continued)

d/ Total funds available.

TABLE 11. (Continued)

State	1981-1982 Amount	Comments
Pennsylvania	$300 million	Public Water Supply Loan Fund--not revolving
Rhode Island	$1 million b/	Water Development Fund--loans to local water supply companies (See also Table 12)
South Carolina	$0	Not used
South Dakota	N/A	Payments from private pipeline company placed in revolving fund for loans and grants for water projects
Tennessee	$0	Not used
Texas	$600 million b/	Water Development Fund--loans to local units for water supply and wastewater treatment (See also Table 12)
	$40 million	Water Development Assistance Fund (See also Table 12)
Utah	(currently empty)	Construction Fund--any water development purpose
	N/A	Cities Water Loan Fund--for water supply
	N/A	Water Resources Construction and Development Fund--construct, operate, maintain water projects

(Continued)

TABLE 11. (Continued)

State	1981-1982 Amount	Comments
Vermont	$0	Not used
Virginia	$36,000	Conservation Small Watershed and Flood Control Area Development Revolving Loan Fund--current balance of $694,000
Washington	$20 million a/	Reclamation Revolving Account--to purchase local bonds or make loans to locals for irrigation
	$75 million	State and Local Improvement Revolving Account
	$18 million	Emergency Water Project Revolving Account
West Virginia	$6 million	Water Development Authority Revolving Loan Fund for local share of wastewater treatment grants
Wisconsin	$0	Not used
Wyoming	$212 million	Permanent Mineral Trust Fund--from mineral and local severance taxes--for all water development (See also Table 12)
	N/A	Small Water Development Loan Fund--loans up to $60 million (See also Table 12)

TABLE 12. USE OF LOANS AND GRANTS FOR STATE WATER RESOURCES DEVELOPMENT

State	1981-1982 Amount	Comments
Alabama	$0	Viewed by state officials as limiting new water supply development
Alaska	$33 million (1978)	90 percent grants to local governments for port and harbor development
	$23 million (1980)	Up to 50 percent grants for nonfederal share--any water or sewer project
Arizona	$354,000	Loans to local units for 25 percent of nonfederal flood control projects
Arkansas	$2.5 million	Loan and grants for all water development
California	$115 million a/ $130 million b/	Loans and grants for recreation, fish and wildlife, water distribution systems
	$175 million b/ $82 million a/	Grants and loans for improvement of domestic supply systems

NOTE: N/A = Not available. (Continued)

a/ Expended through 1982.

b/ Total authorized.

TABLE 12. (Continued)

State	1981-1982 Amount	Comments
Colorado	N/A	Loans for projects that will increase beneficial use of water and for M&I supply--up to 50 percent of project cost at 5 percent interest over 40 years
Connecticut	N/A	Through Economic Development Authority--low interest loans to municipal water supplies to comply with safe drinking water act; now expanded to upgrade systems in general
Delaware	$0	Not used
Florida	$300 million over next ten years	Only for land acquisition; first $2 million per year match-free; rest 80 percent state, 20 percent water management districts
Georgia	$0	Not used
Hawaii	$0	Not used
Idaho	$1 million	$50,000 grant limit with 50/50 local match
	N/A	Long-term, low interest loans through state revenue bonds--multiple use projects encouraged; no dollar limits
Illinois	$0	Not used

(Continued)

TABLE 12. (Continued)

State	1981-1982 Amount	Comments
Indiana	$2 million	Short-term, low interest loans for flood control projects (See also Table 11)
Iowa	$0	Not used
Kansas	$0	Not used
Kentucky	$0	Equipment only loaned for land management improvement
Louisiana	N/A	Test Well Program--50/50 state/local matching grant for water supply exploration
Maine	$500,000	Water-based recreation facilities grants--50/50 match
Maryland	$2 million c/	100 percent interest-free loans to local government for shore erosion projects
Massachusetts	$25 million	Water treatment plant construction grants to local units--50/50 match
Michigan	N/A	50/50 matching grants for water-based recreation and waterways

(Continued)

c/ One-time program--not done annually.

d/ Biennial.

TABLE 12. (Continued)

State	1981-1982 Amount	Comments
Minnesota	$2.2 million d/	Soil and water conservation grants with variable match
	$155 million b/	Grants and loans for construction of sewage treatment plants (See also Table 11)
	$450,000 c/	75 percent matching grants for flood damage reduction
Mississippi	$0	Not used
Missouri	$11.8 million	Grants to local jurisdictions to match federal wastewater treatment plant grants
Montana	$5 million b/	Loans and grants for conservation, management, and development of water resources
Nebraska	$3 million	Up to 75 percent state grants; any purpose
	$1.1 million	Up to 75 percent state grants--for soil and water conservation
Nevada	$0	Not used
New Hampshire	$0	Not used
New Jersey	Varies	Most bond issues set up revolving funds for grant or loan programs with various interest rates, repayment

(Continued)

TABLE 12. (Continued)

State	1981-1982 Amount	Comments
New Jersey (cont.)		periods, matching requirements
New Mexico	$1.6 million	Loans from Water Reservoirs Purposes Income Fund (for irrigation projects) at 2.5 percent interest ($15.6 million in fund as of June 1982)
New York	$0	Not used
North Carolina	$250,000 a/ (currently empty)	Interest free loans to local units for hurricane flood protection and beach erosion control
	$380 million d/	Grants to local units for water supply (25 percent) and wastewater (12.5 percent) facilities
North Dakota	$1.4 million	From Contract Fund--15-50 percent cost sharing with local units for all water development--all grants
Ohio	$50,000 e/ $250,000 b/	Conservancy District Loan Fund--interest free loans to conservancy districts for all purposes
Oklahoma	$25 million	From Water Development Revolving Fund--emergency grants or loans for all purposes

(Continued)

e/ Total funds available.

TABLE 12. (Continued)

State	1981-1982 Amount	Comments
Oregon	N/A	Water Development Loan Program--drainage or irrigation project loans; interest rate tied to bond sale interest
	N/A	Pollution Control Fund--grants and loans to local governments for wastewater treatment
	N/A	Small Scale Energy Loan Program--loans for hydroelectric development
Pennsylvania	$4 million	Community facilities grants from horse racing revenue
Rhode Island	$1 million b/	Loans to local water supply companies; $150,000 maximum at 8 percent interest
South Carolina	$0	Not used
South Dakota	$200,000	Grants to rural water systems
	$300,000 c/	Loan to Webb rural water system
	$600,000 c/	Grants for regional hydrology studies
	$700,000	Loans for construction of any water resources project at 0-10 percent interest

(Continued)

TABLE 12. (Continued)

State	1981-1982 Amount	Comments
South Dakota (cont.)	$500,000	Loans for water resources studies; interest free until borrower obtains a water right
Tennessee	$0	Not used
Texas	$40 million	Loans to local units for water development and wastewater treatment
Utah	N/A	Cities Water Loan Fund for water supply
Vermont	$0	Not used
Virginia	$0	Not used
Washington	$25 million	Grants and loans for agriculture water supply
West Virginia	$6 million	Grants and loans for water supply and wastewater treatment (See also Table 11)
Wisconsin	$78 million	Sewage treatment plant grants
	N/A	Nonpoint source control grants
	$2.3 million	50 percent grants to local units for lake dredging and clearing

(Continued)

TABLE 12. (Continued)

State	1981-1982 Amount	Comments
Wisconsin (cont.)	$180,000 a/ $0 (1983)	50 percent grants to local units for flood plain mapping
Wyoming	$212 million $1 billion (1986) f/	Permanent Mineral Trust Fund makes loans for various water purposes
	$60 million b/	Farm Loan Board loans at 4 to 6 percent interest rates; 40-year repayment for variety of purposes
	N/A	Small Water Development Loans; 4 percent over 40 years

f/ Projected.

water development funds. Energy or mineral exporting states are pioneering this mechanism, including Alabama, Colorado, Minnesota, New Mexico, Montana, and Wyoming. Dedication of other natural resource user fees and revenues from timber sales, grazing rights, irrigation water delivery, or municipal water sales aid new water development projects in Utah, South Dakota, Rhode Island, and California.

Local jurisdictions in most states have primary responsibility for municipal water supplies and finance this activity through revenue bonds or taxation, many with little assistance from the state. In addition, substate entities--counties, municipalities, water supply districts, irrigation districts, and others--are partly responsible for financing the entire range of water resources development purposes, but their roles vary considerably from state to state. States in which local jurisdictions play a major role in financing water development include the northeastern and mid-Atlantic states in general, as well as Iowa, Mississippi, and Oklahoma. At least seven states (Alaska, Maine, New Hampshire, Nevada, Idaho, North Dakota, and Vermont) have initiated bond banking programs for water projects to boost the marketability of locally issued debt instruments. In these programs, the states buy local bonds, repackage them, and sell new state bond issues at the lower interest rates that states can command compared to local governments.

CHAPTER IV. CONSTRAINTS ON STATE AND LOCAL FINANCING

When faced with the possibility of having to spend a larger share to finance water projects, either through increased up-front contributions or higher repayment requirements for federal projects, state spokesmen often cite a wide range of constraints that would prohibit their assuming any new financing responsibilities. An examination of state financing to date indicates, however, that most constraints usually are not binding; states have readily changed laws, institutions, or terms of financial instruments to meet new financial or management responsibilities. To be sure, not all states are equally able to finance relatively capital-intensive water projects; indeed, if faced with such responsibilities, not all states would retain water development projects on their list of priority capital investments. This chapter examines potential legal, financial, and institutional impediments at the state level, together with examples of how states have chosen to mitigate them.

LEGAL IMPEDIMENTS

Two types of legal impediments could affect states' abilities to take a more active financing role in water development projects. First, although it is unlikely that state financing activities would often conflict with state or interstate water laws, any new financing, repayment, or management responsibilities would have to respect existing laws. State water laws prescribe rigid guidelines for allocating state water resources among its various uses or users within a state; and interstate compacts allocate water withdrawals from an interstate stream flowing through a group of river basin states. Second, legal mandates that limit the use of certain financing instruments could prohibit their use for water resources development. Several states that have already encountered such limitations, however, have found ways to amend legal limits or create new entities outside the jurisdiction of constraining statutes.

State Water Laws

There are many variations of state water laws, but basically they all are derived from the doctrines of riparian or appropriative rights. Riparian water law, applicable mostly in the East, maintains that landowners are

entitled to reasonable beneficial use of surface and/or groundwater adjacent to or underlying their land. Reasonableness is determined by nonimpairment of other landowners' rights to the same body of water. Beneficial use is generally based on a set of water use conventions or priorities set out in state water statutes or established in case law. The riparian right to use water is inseparable from the land.

Water law based on prior appropriation, used generally in states west of the Mississippi, provides the right to use water to anyone who diverts and makes beneficial use of it, regardless of the place of use or ownership of adjacent lands. Permits for water use are issued at the state level on a first-come-first-served basis. In some states, however, some water uses are more beneficial than others and thus receive a full appropriation of the use of the water while other, less beneficial uses may receive none. When water is put to beneficial use, the rule of "first in time, first in right" prevails. That is, all those water rights that were acquired earlier are senior to those acquired at a later time.

New state financing or cost-sharing provisions could interact with water law in two ways. First, new development could not impair existing water rights. Second, if new water rights from state-financed storage projects were allocated according to users' willingness to pay for water--a market-based allocation (to comply with a user-fee approach to cost sharing, for example)--legal conflicts could arise with both the prior appropriation and riparian doctrines. Nonimpairment problems would be more closely tied to the issue of who finances water development, while problems of a market-based approach to allocation would be tied to the issue of who actually pays for a project.

Impairment of Existing Water Rights. Potential problems of impairment of existing water rights could arise regardless of the source of financing. In fact, if the state, rather than the federal government, supplied the project financing and water right conflicts did ensue, equitable resolution would probably be easier to secure because the state would be in the best position to compensate those affected.

Federal agencies can retain considerable control over water developed from federal projects. Prompted by a federal/state dispute over control of project water at the Bureau's New Melones project in California, the U.S. Supreme Court in 1978 held that the Congress has constitutional power to retain complete control over water from federal projects even if such control preempts the states' use of water. Under the statutes authorizing Bureau of Reclamation projects, however, the federal government must comply with all conditions imposed by state water permits. Therefore, failing Congressional action, the question of controlling allocation falls on

the courts. State financing and development of strictly state water projects would avoid reliance on the courts and the federal political process to determine who may allocate project water and under what conditions. If states financed water projects, they would also control project water allocation.

Conflicts With State Water Allocation Doctrines. The implications of substituting market allocation for existing state water allocation mechanisms are unclear. There are both precedents for and restrictions on this type of approach in the West and in the East. In an eastern riparian state, for example, water rights can be sold or transferred so long as the test of reasonable use is met and the water right to be sold is for use on riparian land. One could envision that a purely market-based allocation might result in riparian water being used on nonriparian lands, thus creating a conflict with the doctrine. Appropriation water rights may also be sold either with the sale of land upon which the water is used or separately. 1/ In some western states, however, when a water right is sold, it loses senior priority. Thus, it could become virtually worthless during periods of low stream flow when more senior water rights holders would deplete available supplies. In some appropriation states, there are constitutional, statutory, or administrative prohibitions preventing the sale of certain water rights.

To be sure, neither western nor eastern states currently have institutions or water laws that are well-suited to purely market-oriented allocations. But states would play a major role in fostering such policies; and if new water development was conditioned by users' willingness to pay for investments made on their behalf, a market-based allocation might be the only way to meet future water needs.

Interstate Allocation

Increased state financing or repayment responsibilities would not be constrained by a prior agreement among states sharing interstate waters. A state would be expected to finance only that proportion of an interstate project's cost that corresponded to the state allocation of water. Similarly, users could be expected to repay only that portion of a project corresponding to their use relative to all available water.

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1. Originally, most appropriation states viewed the water right as an appurtenance to the land on which it was used, and would not permit the sale of water rights separate from the land. Today, most states have relaxed this rule.

When water rights conflicts arise among states sharing common river systems, three methods for apportioning the resource are common: interstate compacts, Supreme Court apportionment, or Congressional apportionment. By far the most common method is the interstate compact. The states within a river basin negotiate an apportionment system among themselves, and the negotiated agreement, or compact, is binding upon the states when approved by all concerned state legislatures and the Congress. Second, the U.S. Supreme Court has occassionally made an "equitable apportionment" of interstate waters among the states when they have been unable or unwilling to negotiate among themselves. The third mechanism, an act of Congress, has only been used in one instance. 2/

Regardless of who financed a water project, the terms of a prior interstate apportionment would have to be respected. In the absence of an interstate agreement, if a water project financed in one state adversely affected water use in a downstream state, conflicts could arise that would have to be settled in court. Again, such conflicts could arise regardless of who financed the development.

Limitations on Financing Instruments

Other legal impediments include limited legal authority to levy user fees, statutory or constitutional prohibition against debt financing, and statutory ceilings on state bonded indebtedness or interest rates allowable on state bonds. In addition, some state constitutions expressly prohibit their legislators from encumbering future state appropriations. Consequently, some states that fund water projects out of yearly appropriations cannot enter into financial agreements with a federal or interstate agency that bind the state to appropriate future years' revenues.

Many of these concerns could be addressed by appropriately wording legislation either at the federal or state level, creating substate entities not bound by state-level prohibitions, or establishing special water development funds that are independent of yearly appropriations. For example, although the Kansas Constitution prohibits debt financing at the state level, the state could set up a quasipublic entity that could issue bonds outside the constitutional limitations.

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2. For additional information, see: The National Water Commission, A Summary Digest of State Water Laws (U.S. Government Printing Office, 1973); and Wells A. Hutchins, Water Rights Laws in the Nineteen Western States, Volume III, U.S. Department of Agriculture Miscellaneous Publication No. 1206 (1977).

Faced with constraints on bonded indebtedness, many states have created new institutions with special authority to issue debt instruments not bound by state-level restrictions. In some states, general obligation bonds are restricted, but revenue bonds are not. Nebraska, prohibited from issuing general obligation bonds by its constitution, plans to circumvent this restriction by issuing revenue bonds.

Interest rate and indebtedness ceilings are routinely adjusted by state legislatures to improve marketability of state bonds. For example, in 1981, 25 states made various changes in the statutory interest rate ceilings on their state and local bonds to accommodate sharply rising interest rates. This was the second consecutive year in which at least half the states altered interest rate ceilings on bonds. Twenty-nine states have no interest rate ceilings on general obligation bonds, and 24 states have no ceilings on revenue bonds.

For some types of water resource projects, it is questionable whether states have clear authority to levy user fees to repay the states' investments. For example, when a state develops state water for irrigation, hydropower, or municipal and industrial supply, the historic vendibility of the product warrants charging a fee for its use. But user fees to pay a state's share of a harbor or inland waterway dredging project could be interpreted as a tax on articles exported from the state, which is prohibited by the U.S. Constitution (Article I, Section 9, Clause 5). User fees, however, can also be interpreted as payment for the costs incurred in servicing trade at individual ports or waterways, much like existing port fees. Regardless of the legal interpretation, authorization to levy fees to recover states' financial contributions to water projects may be easily incorporated into the legislation that authorizes changes in cost sharing for federal/state water projects.

FINANCIAL IMPEDIMENTS

Financial impediments to increased state contributions to cost sharing generally stem from a state's perceived inability to raise sufficient development capital to meet its water needs. While all infrastructural needs of states require substantial capital for development and maintenance, perhaps no other need is more critical to all economic sectors than water development. Over the past five years, as federal financial support for water projects has diminished, most states that have confronted this dilemma have devised or are planning now for new ways to finance needed water projects. States rich in mineral or energy resources, with their lucrative tax sources, will probably have a competitive advantage in financing new water develop-

ment--but these states have a competitive advantage in financing anything. More important, a number of new financing mechanisms and changes in old systems are readily available to all states.

Many states impose limitations on the authority of the state legislatures to borrow (39 states) and to spend (14 states). Spending limitations are a relatively recent development, the first of which was imposed by New Jersey in 1976. Debt limitations may be any or all of the following three types: limits on total state indebtedness, interest rate ceilings on state general obligation bonds, or constitutional or statutory prohibitions against debt financing. Although some states have no expenditure limitations, they do impose such limitations on local governments. Table 13 summarizes debt limitations, and Table 14 summarizes expenditure limitations. While these limits serve as fiscal goals for states and local governments, changes in cost sharing for water projects, coupled with demand for new water supplies, would probably motivate most state legislatures to amend their debt or expenditure limitations by small increments, if necessary.

While Table 14 only notes expenditure limitations, revenue limits are also in effect in 12 states and in almost all local governments. Generally, there are more exceptions to the limits on total revenue that may be collected than there are on expenditures. These exceptions tend to render revenue limitations nonbinding and, therefore, not constraining in most instances. Many local governments have full disclosure or public hearing requirements, at a minimum, before they may change tax rates, but this is considered only a mild impediment to raising additional revenue at the local level.

Statutory interest rate ceilings are a second type of limitation on state debt financing, although in practice states will increase or decrease rates to accommodate changing market conditions. As of January 1982, only three states (Alabama, Oklahoma, and South Carolina) had statutory general obligation bond interest rate ceilings below 10 percent (see Table 15). Four states had no authorization for general obligation bonds (Idaho, Indiana, Kansas, and Missouri), while 29 states had no ceilings on state general obligation bonds.

Limits on bonded indebtedness are handled differently by states that have confronted this problem. Indiana conforms to its prohibition against long-term debt financing. Other states such as Nebraska, which is limited to $100,000 of state debt, established water or natural resource districts with taxing authority for development and maintenance of water resources, and thus relieved the state of some financial responsibility. In other states, separate quasipublic water resources boards have been created that have bonding authority outside any constitutional or statutory debt limitations.

TABLE 13. STATE DEBT LIMITS

State	Total State Debt Limitation	Source	Override by Popular Vote
Alabama	$300,000	Constitutional	No
Alaska	Popular vote required for any debt	Constitutional	No
Arizona	$350,000	Constitutional	No
Arkansas	Popular vote required for any debt	Statutory	No
California	$300,000	Constitutional	Yes
Colorado	$100,000	Constitutional	No
Connecticut	None	---	No
Delaware	150 percent of state general fund revenue	Constitutional	No
Florida	None	---	No
Georgia	Maximum of 15 percent total revenue in preceding fiscal year	Constitutional	No
Hawaii	Maximum of 18.5 percent general fund revenue of average of 3 preceding years	Statutory	No
Idaho	$2,000,000	Constitutional	Yes

(Continued)

SOURCE: Council of State Governments, The Book of the States--1982/1983.

TABLE 13. (Continued)

State	Total State Debt Limitation	Source	Override by Popular Vote
Illinois	3/5 vote total membership of each house or majority popular vote to issue new debt	Constitutional	3/5 vote of legislature or majority popular vote
Indiana	None except casual debt in revenue payment of interest and defense	Constitutional	No
Iowa	$250,000	Constitutional	No
Kansas	$1,000,000	Statutory	Yes
Kentucky	$500,000	Constitutional	Yes
Louisiana	None	---	No
Maine	$2,000,000	Constitutional	Yes
Maryland	None	---	No
Massachusetts	None	---	No
Michigan	None	---	No
Minnesota	For specified purposes only	Constitutional	No
Mississippi	150 percent of revenue of any 4 preceding years	Constitutional	No
Missouri	$1,000,000	Constitutional	Yes
Montana	None	---	No
Nebraska	$100,000	Constitutional	No

(Continued)

TABLE 13. (Continued)

State	Total State Debt Limitation	Source	Override by Popular Vote
Nevada	1 percent of assessed valuation of the state	Constitutional	No
New Hampshire	None	---	No
New Jersey	1 percent of appropriations	Constitutional	Yes
New Mexico	$200,000	Constitutional	Yes
New York	Popular vote required for any debt	---	No
North Carolina	None	---	No
North Dakota	Limit on basis of value of state property	---	No
Ohio	$750,000	Constitutional	(By constitutional amendment)
Oklahoma	None	---	No
Oregon	$50,000 plus percentage of property value for some purposes	Constitutional	No
Pennsylvania	175 percent of average annual tax revenues in previous five fiscal years	Constitutional	Yes
Rhode Island	$50,000	Constitutional	Yes

(Continued)

TABLE 13. (Continued)

State	Total State Debt Limitation	Source	Override by Popular Vote
South Carolina	Maximum annual debt on general obligation bonds may not exceed 7 percent of general revenues for preceding fiscal year	Constitutional	No
South Dakota	$100,000	Constitutional	No
Tennessee	None	---	No
Texas	$200,000	Constitutional	No
Utah	Percentage of property value	Constitutional	No
Vermont	None	---	No
Virginia	Popular vote required for any debt	Constitutional	No
Washington	Percentage of revenues	Statutory	Yes
West Virginia	No debt allowed at all	---	No
Wisconsin	Percentage of property value for specific purposes only	---	No
Wyoming	Percentage of property value and taxes	---	No

TABLE 14. STATE AND LOCAL EXPENDITURE LIMITS

	STATE				LOCAL			
	Source	Date	Description	Override	Source	Date	Description	Override
Alabama			None				None	
Alaska			None				None	
Arizona	Constitutional	1978	Expenditures from all tax revenue limited to 7 percent of state personal income	2/3 vote of state legislature	Constitutional	1980	Tied to price deflator and population change (some exclusions)	Not reported
Arkansas			None				None	
California	Constitutional	1979	Increases in some state appropriations limited to increase in cost of living and population	Either by legislature or voters	Constitutional	1979	If property tax over 1.2 mills, increases limited to rise in population and cost of living	Not reported
Colorado	Statutory	1977	Increase in expenditure from general revenue fund limited to 7 percent over previous year	May be amended or repealed by state legislature			None	
Connecticut			None				None	
Delaware	Constitutional	1980	General fund appropriation limited to 98 percent estimated revenue for same year	60 percent vote of each house			None	

(Continued)

SOURCE: Advisory Commission on Intergovernmental Relations, Significant Features of Fiscal Federalism, 1980-1981.

TABLE 14. (Continued)

	STATE				LOCAL			
	Source	Date	Description	Override	Source	Date	Description	Override
Florida			None				None	
Georgia			None				None	
Hawaii	Constitutional	1978	Increases in general fund expenditures limited to increase in state personal income	2/3 vote of legislature with approval of governor			None	
Idaho	Statutory	1980	General fund expenditure limited to 5.33 percent of total personal income	Can be amended or repealed			None	
Illinois			None				None	
Indiana			None				None	
Iowa			None				None	
Kansas			None				None	
Kentucky			None				None	
Louisiana			None				None	
Maine			None				None	
Maryland			None				None	
Massachusetts			None				None	

TABLE 14. (Continued)

	STATE				LOCAL			
	Source	Date	Description	Override	Source	Date	Description	Override
Michigan			None				None	
Minnesota			None				None	
Mississippi			None				None	
Montana			None				None	
Nebraska			None				None	
Nevada	Statutory	1979	Pecentage rise in executive request limited to inflation and population growth; legislative appropriations not limited	Not reported	Statutory	1981	Increases in local government budgets limited to state estimates of property and sales tax	May be exceeded for emergencies and other reasons
New Hampshire			None				None	
New Jersey	Statutory	1976	Expenditure from capital and operating fund limited to rise in state personal income over prior 2 years; debt service excluded	By referendum	Statutory	1976	Limited to 5 percent per year; debt service excluded	By referendum
New Mexico			None				None	
New York			None				None	
North Carolina			None				None	
North Dakota			None				None	

(Continued)

TABLE 14. (Continued)

	STATE				LOCAL			
	Source	Date	Description	Override	Source	Date	Description	Override
Ohio			None				None	
Oklahoma			None				None	
Oregon	Statutory	1979	Growth in state expenditures per biennium limited to rise in state personal income in past 2 years; debt service and tax relief excluded	May be amended or repealed by legislature			None	
Pennsylvania			None				None	
Rhode Island	Statutory	1979	All budget requests limited to 8 percent annual increase	Considered nonbinding			None	
South Carolina	Statutory	1980	Increases in state expenditures limited to growth in state personal income over past 3 years	May be amended or repealed by legislature			None	
South Dakota			None				None	
Tennessee	Constitutional	1978	Increases in expenditures from tax sources limited to growth of state personal income	Not reported			None	
Texas	Constitutional	1978	Increase in appropriations from non-	Emergency override by			None	

(Continued)

TABLE 14. (Continued)

	STATE				LOCAL			
	Source	Date	Description	Override	Source	Date	Description	Override
Texas (cont.)			dedicated sources limited to growth in state personal income	State legislature				
Utah	Statutory	1979	Increase in appropriations limited to 85 percent rise in state personal income; debt service or user charges exlcuded	2/3 vote of each house in emergency			None	
Vermont			None				None	
Virginia			None				None	
Washington			None				None	
West Virginia			None				None	
Wisconsin			None				None	
Wyoming			None				None	

TABLE 15. STATUTORY INTEREST RATE CEILINGS ON STATE AND LOCAL BONDS (In percents)

State	State General Obligation	State Revenue Bonds	Local General Obligation	Local Revenue Bonds
Alabama	8	a/	Various	Various
Alaska	10	10	Various	Various
Arizona	None	None	None	None
Arkansas	a/	a/	6	Various
California	11	b/	12	Various
Colorado	None	None	None	None
Connecticut	None	None	None	None
Delaware	None	None	Various	Various
Florida	Various	Various	Various	Various
Georgia	None	None	None	9
Hawaii	12	None	None	None
Idaho	b/	a/	Various	Various
Illinois	Various	b/	Various	Various
Indiana	b/	b/	None	None
Iowa	Various	Various	Various	Various
Kansas	b/	None	12	12
Kentucky	None	None	None	None
Louisana	None	None	None	None
Maine	None	a/	None	None
Maryland	None	Various	Various	Various
Massachusetts	None	None	None	None
Michigan	None	13	13	13
Minnesota	None	None	12	12

(Continued)

SOURCE: Weekly Bond Buyer (January 19, 1982).

a. None issued.

b. None authorized.

TABLE 15. (Continued)

State	State General Obligation	State Revenue Bonds	Local General Obligation	Local Revenue Bonds
Mississippi	Various	Various	9	Various
Missouri	b/	b/	14	14
Montana	None	None	None	None
Nebraska	None	None	None	None
Nevada	Various	Various	Various	Various
New Hampshire	None	None	None	None
New Jersey	None	None	None	None
New Mexico	10	12	10	12
New York	None	b/	None	b/
North Carolina	None	None	8	None
North Dakota	None	None	None	None
Ohio	None	None	Various	None
Oklahoma	6	14	10	14
Oregon	13	None	None	None
Pennsylvania	None	None	None	None
Rhode Island	None	a/	None	a/
South Carolina	7	7	7	7
South Dakota	None	a/	12	12
Tennessee	18	18	18	18
Texas	10	b/	15	15
Utah	None	None	None	None
Vermont	None	a/	None	None
Virginia	None	None	None	None
Washington	None	None	None	Various
West Virginia	None	8	10	10
Wisconsin	None	None	None	None
Wyoming	12	12	12	12

Usually they issue revenue bonds, rather than general obligation bonds. When responsibly planned, issuing revenue bonds, coupled with recovering costs by selling project vendibles or collecting user fees, can meet capital improvement needs for many types of water projects without jeopardizing the financial integrity of the issuing jurisdiction. Finally, 12 states may override their constitutional or statutory debt limit with a majority popular vote. Any constitutionally set debt limit can always be changed by a constitutional amendment; that mechanism, however, involves much more time and effort than some of the others discussed.

Perhaps the most widely used instrument to raise development capital under state debt limitations has been the revenue bond. A form of non-guaranteed debt, revenue bonds pay interest and principal exclusively from the sale of products associated with development--in this case, municipal and industrial water use payments, sewer revenues, irrigation water use fees, and so on. 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.

Finally, severance taxes on extraction of nonrenewable resources, such as coal, oil, natural gas, and minerals, can add a valuable source of water development capital. In 1979, about $3.2 billion in severance taxes was collected by the 27 states that had a severance tax. The Advisory Commission on Intergovernmental Relations estimated that, for the 23 states that do not collect severance taxes, about $218 million could be collected annually if severance taxes were initiated at a level equal to the national average of severance tax rates currently used in the other 27 states. 3/

INSTITUTIONAL IMPEDIMENTS

Administrative problems that may restrict states or local governments from meeting increased financing or cost-sharing responsibilities can be loosely termed "institutional impediments." These include institutional arrangements, information transfer between levels of government, and other intergovernmental arrangements.

In large part, the composition of state water agencies has been influenced by federal categorical funding for water quality and water

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3. Advisory Commission on Intergovernmental Relations, Tax Capacity of the Fifty States: Methodology and Estimates (March 1982).

resources development and management during a period that was oriented primarily toward meeting broad national goals through capital spending. To meet the goals of the federal clean water program, for example, the states were provided an incentive to form "state EPAs" through which the program could be implemented and federal funds could be disbursed. Similarly in water resources, state agencies have developed partly around federal funding programs--the SCS's Small Watershed Program, the Corps' flood control program, and so on. With the achievement of many broad national goals, however, national water resources priorities appear to be moving away from new project construction and toward rehabilitation and efficient maintenance and management of existing projects. With most of the best sites in major river basins already developed, new water project construction appears to be headed toward smaller projects of more local concern.

Accompanying these shifts, the Congress has demonstrated an interest in a greater state financing and cost-sharing role. Categorical funding, which was useful to stimulate construction of selected projects, could lose favor to formula-based funding or block grants, both of which tend to support state priorities rather than individual federal projects. The Domenici-Moynihan proposal (S. 621) in the 97th Congress was one attempt to do just this. More recently, the Stafford proposal (S. 1031) for an increased state financing and cost-sharing role in Corps projects also emphasizes a broader state role in water resources development. Regardless of the specific legislative proposal, however, a shift toward greater state and local responsibilities in water programs could result in institutional changes. Existing state institutions are not now matched to these new responsibilities, although in some cases, small changes would suffice.

Institutional arrangements for planning and management at the state level vary from complete consolidation of quantity and quality functions to complete disaggregation of administrative units according to narrow functional areas. 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 have fewer problems adjusting to the new system. Three states--Delaware, Florida, and Washington--operate all water quantity and quality planning and management under one agency. This type of comprehensive, integrated approach to water resources development within a state probably will be well adapted to increased state cost-sharing and management responsibilities.

On the other hand, 12 states operate various aspects of water planning and management through several agencies, with little or no coordination between quality and quantity activities or among quantity activities alone. They are Alabama, Illinois, Kentucky, Louisiana, Maine, Michigan, New

Hampshire, New Jersey, New Mexico, North Carolina, Ohio, and Rhode Island. In general, these states will probably undergo relatively more administrative or institutional change as a result of changes in financing or cost sharing that place additional responsibility on the states.

The other 35 states fall somewhere between complete centralization and decentralization of institutional responsibilities, and it is difficult to predict the degree to which their institutional composition will impede a transition toward new responsibilities.

Institutional consolidation alone, however, does not guarantee a comprehensive, coordinated approach to water resources management. Other coordinating management or planning bodies may serve the same function. For example, in Minnesota quantity and quality functions are institutionally separate as are several subfunctions within the quality area. The Minnesota Water Planning Board, however, has cross-cutting coordination responsibilities and has been relatively successful in carrying out its mandate.

Another potential institutional impediment could be the financial and technical assistance link between state and substate governments. In some states, this link is quite strong--for instance, in California a wide variety of technical and financial assistance programs are available to counties and cities. But in other states, particularly in the Northeast, local jurisdictions are much more autonomous, and less assistance is available. As financial and management responsibilities are passed to the states from federal agencies, states might begin to assume the position former held by the federal government, and local governments or special water districts would take on new responsibilities, perhaps not unlike those formerly held by the states. With a new emphasis on the relationship between state and local governments, especially in financing and repaying water investments, states might 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, and assisting local governments with creative financing techniques. Although some states are well-equipped to take on these responsibilities or have already developed several of the above programs, these concepts are new to many other states and demands by local jurisdictions for increased state assistance would undoubtedly escalate. 4/

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4. See National Conference of State Legislatures, How States Can Assist Local Governments with Debt Financing For Infrastructure (June 1982); and Congressional Budget Office, Public Works Infrastructure: Policy Considerations for the 1980s (April 1983).