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Mr. Chairman, I am pleased to appear before your Committee to discuss cost-sharing policy for water resource investments. Historically, the federal government has assumed the predominant role in selecting and financing water projects, primarily to stimulate economic development. Indeed, federal water projects have contributed greatly to industrial and agricultural expansion in much of the nation. But today, a combination of factors--achievement of many regional development goals, a recognition that most federally important water projects are now in place, and budgetary constraints at all levels of government--suggest rethinking the way water resource needs are met.

Cost sharing is a part of that reexamination, because a higher nonfederal share is likely to lead to investment in more cost-effective projects. But a higher nonfederal share could also impose significant burdens on groups that benefit from these projects and on some states. The task of policy is to strike the appropriate balance between using the nation's water resources more efficiently and the financial burdens thereby imposed.

In my testimony today, I will discuss:

- Cost sharing under current policy and how it meshes with current needs;
- How a higher nonfederal cost share could contribute to more cost-effective projects;

- The likely effects of such increases on states, localities, and private users; and
- General approaches to mitigating those effects.

CURRENT COST-SHARING POLICIES AND WATER DEVELOPMENT NEEDS

Under current policies, the federal share of water project costs varies by project type and by federal agency. On average, the federal government has paid about 70 percent of combined construction and operating costs (see Table 1). States or local jurisdictions generally contribute land, easements, or rights-of-way; users sometimes repay a portion of capital costs and, more often, pay operating and maintenance costs. Together, these nonfederal contributions account for the remaining 30 percent of the total cost of an average water project. The variation around this average is wide, however. In municipal and industrial water supply, for example, beneficiaries pay about 64 percent of project costs. By contrast, users of inland waterways pay less than 10 percent. Recipients of irrigation water pay about 19 percent.

These relatively high federal shares grew out of a desire to stimulate economic development, to provide basic, nationwide transportation services, and to help states that could not manage or finance sizable capital

TABLE 1. EFFECTIVE NONFEDERAL COST SHARES OF FEDERAL WATER RESOURCES DEVELOPMENT, BY AGENCY (in percents)

Resource Development	Army Corps of Engineers	Bureau of Reclamation	Soil Conservation Service	Weighted Average of all Federal Water 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	6-11c/	7	-- b/	6
Commercial Harbors	16	-- b/	-- b/	16
Agency Mean	20	37	49	30

SOURCE: Adapted by Congressional Budget Office from Water Resources Council data.

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

b. Agency indicates no activity for this purpose.

c. Receipts from the fuel tax implemented pursuant to the Inland Waterway Revenue Act of 1978 could increase the nonfederal share to as much as 11 percent from the Water Resources Council's 1974 calculation of 6 percent.

investments. High federal cost shares are less well-matched to today's needs for several reasons.

First, many of the original goals of regional development have been met. For example, the irrigation program of the Bureau of Reclamation was intended to help settle the West by providing subsidized water to family farmers. Today, agriculture in western states is a mature industry, suggesting that the need for further developmental subsidies may have passed. Freight shipping on inland waterways is also a heavily subsidized, but mature, industry. Current federal subsidies still cover about one-fourth of the costs of barge shipments, however--many times the subsidy to competing shipping modes, such as railroads, trucks, or pipelines.

From an economic point of view, continued subsidization encourages overinvestment and distorts economic choices. A roughly 80 percent subsidy to western irrigators, for example, charges general taxpayers for building projects that small groups of beneficiaries might be unwilling to pay for if they were assessed the full cost. This encourages the cultivation of water-intensive crops that might not be grown if water was priced at the cost of providing it. Similarly, a subsidy of over 90 percent to users of the nation's inland waterway system effectively transfers a portion of waterway freight costs from shippers to the general public. Lower costs to waterway shippers can divert traffic from other, perhaps more economic, transportation modes

to the waterways and promote increased demand for additional federal investments in channel dredging, lock replacement, and the like.

Second, with the majority of the nationally important water projects already in place, needs are shifting toward maintenance, repair, and replacement of these structures rather than building new ones. For example, the average age of the 194 locks in the inland waterway system is 40 years, and some locks are approaching 80 years of service. A 50-year service life is generally considered the limit for safe and efficient operation of navigational locks. The Corps of Engineers estimates that reconstruction or rehabilitation of 37 locks would have to be undertaken between now and 1990 at a total cost of about $5.4 billion in order to maintain navigational safety and efficiency. Similarly, an inspection of dams by the Corps suggests major rehabilitation needs over the next ten years. This shift in priorities has already been reflected in the federal budget. In fiscal year 1968, appropriations for operations, maintenance, and rehabilitation were 19 percent of the water resource total; by fiscal year 1984 this will have increased to over half.

Third, the remaining new construction needs appear dominated by projects of largely local concern. For example, of nine new projects proposed by the Corps of Engineers for 1983, four were local flood control projects designed to protect urban areas and three were hydroelectric

projects with 100 percent local financing. Similarly, the Water Resources Council estimated that three-fifths of future flood losses would occur in small, upstream communities. Protecting these communities would require local flood control measures rather than major, interstate structures such as already built by the Corps of Engineers.

Finally, there is considerable evidence that state capabilities have grown significantly. State and local water planning staffs increased by 82 percent from 1960 to 1980, while their federal counterparts remained constant in number. The increased numbers are matched by an apparent growth in financial sophistication. By 1982, for example, 29 states were operating special or revolving water resources funds. In the same year, 33 states gave loans and 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.

COST-SHARING POLICIES AND COST-EFFECTIVE INVESTMENTS

The shift in investment priorities--away from large, new facilities for regional development and toward local projects, maintenance, and rehabilitation--suggests a need for reexamination of federal water policies. Cost-sharing policies are a part of that reexamination because a higher

nonfederal cost share would probably lead to investment in more cost-effective projects.

Many federal water projects convey benefits to well-defined private groups. These benefits, often termed "vendible benefits," include water supply for municipal, industrial, or agricultural use; navigation services provided by the inland waterway system or by individual ports and harbors; hydroelectric power; and water-based recreation. When the recipients of these services know that they will have to repay any expenditures made on their behalf, they have a greater incentive to work with the responsible governmental unit to develop the most cost-effective investments. Charges that recover the full cost of providing vendible benefits would lead to demand for projects whose benefits are most likely to exceed their costs.

In addition, a second general category of benefits--flood control, water quality, fish and wildlife, and the like--is essentially public in nature and appropriately paid for by the taxpayers of the area that reaps the benefits. For the growing number of water projects that are primarily of local or regional interest, full cost recovery from the states or localities that receive the benefits would provide much the same incentives for cost-effective investment as charging private beneficiaries.

If states, localities, and private users continue to put up only a small share of total costs, the demand for water projects could continue at a level that, if met, would significantly increase current federal spending. Although no new water projects have been authorized since 1976, the combined construction outlays of the Corps of Engineers, the Bureau of Reclamation, and the Soil Conservation Service were about $2.3 billion in fiscal year 1982. If reasonable estimates of the demand for rehabilitation and construction were met, annual federal outlays would have to increase to around $3.7 billion, and perhaps even as high as to $5 billion. This estimate excludes the roughly $24 billion in currently authorized, but unfunded or inactive, projects of the Corps and the Bureau, most of which will probably never be built.

This situation leaves the Congress with a basic and difficult choice regarding cost-sharing policies. Current practices could be continued, either tolerating continued growth in the backlog of projects or attempting to fund them despite large federal deficits. Alternatively, the nonfederal share of water project costs could be increased, eventually resulting in more cost-effective investments, but possibly placing significant financial burdens on some groups and on the budgets of less financially sound states. I will address the nature and magnitude of these burdens next, and then suggest some ways that they might be mitigated.

EFFECTS OF GREATER NONFEDERAL COST SHARES

Significant increases in the prices of federally subsidized water and water project benefits would ensue if users were to pay the full costs of vendible benefits. In the Central Valley of California, for example, farmers pay about $20 per acre-foot for water that costs the federal government about $100 per acre-foot to deliver. This is typical in the West where, on average, farmers currently receiving subsidized irrigation water would pay roughly five times the subsidized price with full cost recovery. Under current subsidized prices, water averages about 22 percent of the total production cost of irrigated farming. Thus, a significant increase in its cost could eventually cause farmers to shift to less water-intensive crops and use more efficient irrigation methods. Some might leave the business entirely.

Shippers on the inland waterways now pay a fuel tax of 6 cents per gallon, scheduled to increase to 10 cents by fiscal year 1986. Under full cost recovery, however, waterway users would have to pay about 50 cents per gallon (in 1982 dollars) by 1990. This would increase total shipping costs by an average of 16 percent, and traffic on some waterways might be curtailed. For example, shipments of soybeans and grain, which account for about 10 percent of all barge tonnage, would increase in cost by an average of 6 cents per bushel. This increase in cost would be shared by three parties: barge operators; farmers; and consumers, both here and abroad.

When grain markets are slack, as is now the case, farmers and barge operators would bear most of the cost. When they are tight, domestic and foreign consumers would pay a greater share. Similarly, the cost of shipping coal (accounting for roughly 25 percent of all tonnage on the waterways) would also increase, ultimately raising consumer's electricity bills by about 1 percent.

Shippers using the nation's ports and harbors would also pay more under user fees set to recover 100 percent of operation and maintenance costs. International shippers would pay about 40 cents per ton more than they now pay, or a 1 percent increase in total shipping costs. Great Lakes shipping costs would increase by about 19 percent and coastal shipping costs would rise by about 7 percent. If users were also charged for new capital projects, fees could increase somewhat more. For example, deepening the port of Norfolk to accommodate larger, deep-draft coal ships would increase user fees by about $1.00 per ton of coal. However, the increased fee would be much less than the anticipated savings from using the larger ships.

It is more difficult to estimate the effect that a higher share of water costs would have on the states. In the aggregate, state capabilities to finance water resources have grown significantly in recent years, although many states are under budgetary pressures to meet growing demands with

lower revenues caused by the recession. Indeed, state and local general expenditures for all water resources purposes increased from $89 per capita in 1960 to $111 per capita in 1980 (in 1982 dollars). But shifts in state revenues from relatively static sources, such as property and excise taxes, to greater reliance on income and sales taxes, have linked receipts more closely to the performance of the economy. Partly as a result of the recent recession, six states had budget deficits in 1981. To avoid deficits, more than half the states cut government services and employees. Over the past two years, 40 states have raised taxes--the greatest number of tax increases in more than a decade and a reversal of the 1978-1980 period when 31 states actually cut taxes. In general, energy-producing states appear to be in the best position to take on increased financial responsibilities, while some industrial states are in the most difficult position.

States need not always rely on general revenues, however. Many water projects could draw upon financial sources closely linked to the beneficiaries. In Florida, for example, capital funds for local water supply were created from a recently enacted real estate transfer tax. In effect, the demand for additional water service is financed by purchasers of real estate.

FINANCING HIGHER NONFEDERAL COST SHARES

There are a variety of ways in which the transition to higher nonfederal cost shares could be eased. The first and most obvious is through phasing in the new cost-sharing arrangements. In the 1978 Inland Waterways Revenue Act, for example, a 4 cents per gallon fuel tax on waterway shippers was authorized to begin in fiscal year 1981. The level of this tax will increase slowly until fiscal year 1986, when a 10 cents per gallon tax will be in effect. Phasing-in user fees for new water projects and for operation and maintenance of existing projects, when appropriate, would minimize disruptions to current funding procedures and to groups that may have based decisions upon the assumption of continued federal subsidies.

In addition, a variety of financing mechanisms that could ease the transition to higher nonfederal cost sharing might be considered. For example, a federal "infrastructure bank" could lend development capital to the states for investment in projects of state or local interest. These loans plus accrued interest would be paid back in full from state user fee collections, tax receipts, or both. Under such an arrangement, the costs would ultimately be borne by the recipients of the benefits--as is appropriate from an economic point of view. But the aggregation of construction funds at the federal level would relieve the states of financing burdens that might accompany their higher share of the costs. Alternatively, the federal

government could provide the initial capital for state infrastructure banks that would function in much the same way. Of course, the federal government would continue to select, finance, and manage projects of nationwide interest, collecting user fees that would cover the full cost of providing vendible benefits.

Finally, the federal government could provide block grants to the states to hasten needed local water projects and distribute federal funding in an equitable manner. Grant money could be used to fund individual projects directly or to capitalize state water banks. The states could then administer loan programs locally, perhaps in the same manner as a federal infrastructure bank or fund.

CONCLUSION

In summary, Mr. Chairman, a higher nonfederal cost share would ultimately have desirable economic and budgetary consequences. These must be balanced, however, against the effects on beneficiaries and states. A phasing-in of the higher nonfederal share together with alternative financing mechanisms are worthy of consideration as approaches to reduce these effects.