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BY THE COMPTROLLER GENERAL

# Report To The Congress

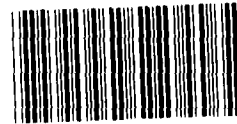
OF THE UNITED STATES

## Sharing The Cost Of Making Federal Water Project Feasibility Studies-- A Financing Alternative

Most feasibility studies performed by three major Federal agencies to resolve water resource problems are discontinued before completion or conclude that no feasible project can be identified primarily because costs exceed benefits or the local community does not support the proposed solution.

Sharing of feasibility study costs with non-Federal sponsors has merit. It would not only screen out some marginal studies but would also clearly demonstrate the local support for the study and encourage prompt identification and termination of those studies having little chance of resulting in an acceptable solution.

The report should help the Congress in considering current cost sharing proposals. If the Congress decides to adopt cost sharing, GAO believes that it should be applied uniformly by all Federal water resources agencies.



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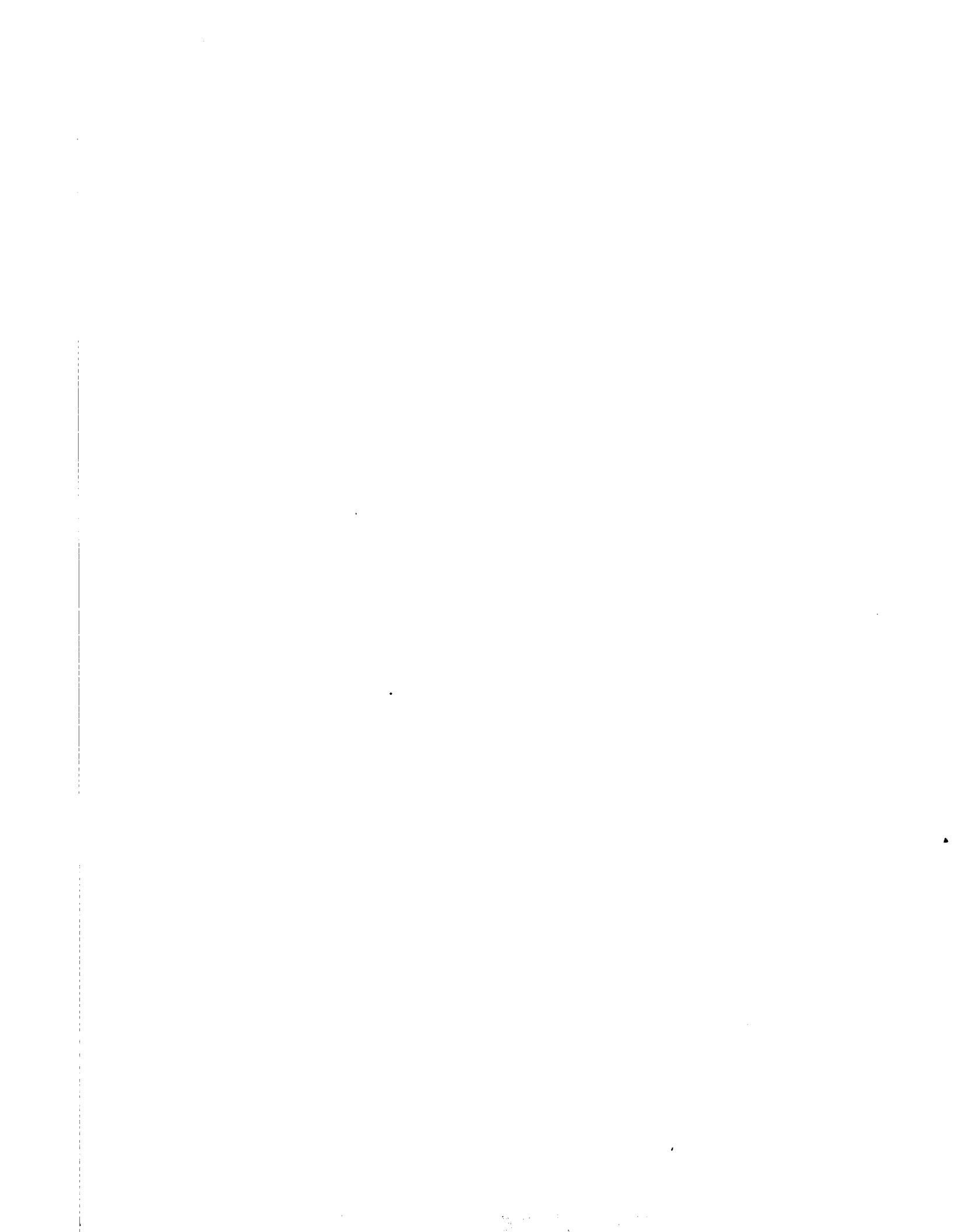
The President of the Senate and the  
Speaker of the House of Representatives

This report discusses feasibility studies undertaken by the Federal Government to resolve water resources problems and the factors affecting the study outcome. We made this review to determine how frequently studies did not identify acceptable solutions and why.

Copies of this report are being sent to appropriate House and Senate committees; the Director, Office of Management and Budget; the Secretaries of the Army, Agriculture, and the Interior; and other interested parties.

A handwritten signature in cursive script, reading "Charles A. Bowsher".

Comptroller General  
of the United States



D I G E S T

GAO estimates that over the last 17 years Federal agencies have spent at least \$100 million on water project feasibility studies that were discontinued or recommended no action because the costs of the potential solution exceeded its benefits or the local entity or community did not support the solution. These studies were performed by the U.S. Army Corps of Engineers, the Bureau of Reclamation, and the Soil Conservation Service.

Studies are usually requested by local citizens through their Senators or Representatives and authorized by the Congress, except those made by the Service which has the authority to initiate studies on its own. Although local authorities generally share the construction costs, the Federal Government pays all study costs.

Feasibility studies are made to determine whether practical solutions to the water resource problem exist by assessing their costs, benefits, and other effects. If a solution's benefits outweigh its costs and a local entity agrees to participate in the project, the agency will seek funding from the Congress for design, engineering, and construction.

Concerned over the number of studies that do not lead to solutions to water problems, GAO reviewed selected studies to determine the reasons why studies do not lead to acceptable solutions.

STUDIES SELDOM RESULT IN PROJECTS

GAO examined 1,259 studies initiated between July 1, 1964, and December 31, 1981, and found that most of the concluded or completed studies were unable to identify acceptable solutions to water resources problems. The studies selected represented a statistical sample of all Corps studies, all Service studies, and all studies performed in five of seven Bureau regions. As of December 31, 1981, the agencies classified 626 studies as active. Of the remaining 633 studies, which had been completed or were classified as inactive, 408 did not recommend

constructing projects. The Corps, Bureau, and Service spent about \$51 million on these 408 studies. (See p. 7.)

Some time and money is needed to reach the conclusion that the costs to correct a water problem would exceed the benefits to be realized. However, according to agency planning officials, studies are sometimes prolonged because of the pressure to find an economically feasible solution to the problem. (See p. 10.)

More often than not, inadequate local support did not surface until the study's final stages. Although all three agencies are required to obtain public input throughout the study process, when and to what extent planners determine the study sponsor's expectations and capabilities varies. As a result, often a proposed solution exceeds the local sponsors' capabilities or expectations, a study is completed only to find that the local entity lacks the authority to contract for or fund the proposed project, or community support is not as strong as originally thought. (See pp. 11 to 14.)

Excluding the time from study authorization to initial funding, Corps and Bureau studies took an average of about 6 years and 9 years, respectively, to complete. (The Service could not provide data to make a similar comparison.) During this period, project benefits and costs may change, local support may weaken, or inflation may make the project prohibitively expensive.

Both the Corps and Bureau have time frames for completing studies (4 years for the Corps and 2 years and 3 years for the two Bureau study phases). However, GAO found that the Corps met its goal only 37 percent of the time and the Bureau only 14 percent and 10 percent of the time for its two study phases. Agency officials gave several reasons for the time overruns, including management's failure to terminate marginal studies and assigning too many high-priority studies. (See pp. 14 and 15.)

In 1981 the Corps revised its planning process to limit delays. The Bureau is currently revising its process. It is too early to determine what impact these actions will have on the study process and, more importantly, whether they will

increase the number of studies that identify acceptable solutions to water problems. (See p. 15.)

#### COST SHARING SHOWS PROMISE

Since local sponsors are not required to share feasibility study costs, they have little incentive to limit a study or request that it be terminated, even if an acceptable solution appears unlikely. GAO believes that cost sharing would provide more tangible evidence of the local commitment to the study and any resulting project and reduce the likelihood of a study proposing a solution that would be unacceptable to the community.

Federal, State, and local officials had mixed reactions to cost sharing water resources studies, but most agreed that it would reduce the number of marginal studies. Some State officials feared that lack of available funds might eliminate some studies of serious water problems. Some local officials favored a flexible rate based on a community's ability to pay. (See pp. 16 and 17.)

#### MOVES TOWARD COST SHARING

The President's Cabinet Council on Natural Resources and Environment formed an ad hoc working group to assess Federal water policy. According to its chairman, the group has not yet discussed in detail a cost sharing policy for studies but probably will once the policy for sharing construction costs is issued. The Corps planned to begin sharing costs of new studies in fiscal year 1983.

In addition to administration initiatives, Senate Bill 1809, 97th Cong., 1st Sess. was referred to the Committee on Environment and Public Works on November 4, 1981. This bill's cost sharing proposal would prohibit the Corps from beginning new studies until local authorities agree in writing to pay half the study cost. As of October 1982, no hearings had been scheduled.

However, the House Committee on Appropriations directed that no cost sharing be implemented until the Congress fully considers and addresses such "innovative financing." Neither the Bureau nor the Service have plans to require local cost sharing. Instead, agencies planning officials commented that they would prefer to see priority

given to studies for which sponsors are willing to voluntarily share study costs. (See p. 19.)

MATTER FOR CONSIDERATION  
BY THE CONGRESS

In light of recent concern expressed by the Congress over administration proposals to share water project feasibility study costs with non-Federal sponsors, GAO believes that the information in this report should help in deciding the merits of the issue. If the Congress decides to adopt cost sharing, GAO believes that it should be applied uniformly by all Federal water resources agencies and include all direct and indirect costs related to performing the study. (See p. 21.)

RECOMMENDATIONS TO AGENCY HEADS

GAO recommends that the Secretary of the Army direct the Chief, Corps of Engineers; the Secretary of Agriculture direct the Chief, Soil Conservation Service; and the Secretary of the Interior direct the Commissioner, Bureau of Reclamation, to require planners early in the study process to

- meet with the study sponsor to gain an understanding of the type, size, and cost of project they envision;
- evaluate the sponsor's legal authority and financial capability to contract for and fund a project; and
- determine whether the sponsor has adequately assessed the scope and likely commitment of community support. (See p. 22.)

AGENCY COMMENTS

The Departments of the Army, Agriculture, and the Interior and the Office of Management and Budget generally agreed with the concept of sharing study costs with beneficiaries. The agencies, however, expressed concern that the report infers that studies not resulting in projects were a waste of time and effort. GAO agrees that information obtained from the study effort can be used for other purposes. However, GAO did not determine the extent to which this takes place because feasibility studies are intended to be project-oriented. (See p. 22.)



## C o n t e n t s

	<u>Page</u>
DIGEST	i
CHAPTER	
1	INTRODUCTION
	1
	Federal water agencies' roles
	and responsibilities
	Study authorization, formulation,
	and review processes
	Objectives, scope, and methodology
	4
2	SHARING STUDY COSTS MERITS CONSIDERATION
	7
	Study efforts are not identifying
	acceptable solutions to
	local water problems
	Factors affecting study results
	Experience with cost sharing
	has been favorable
	Move toward cost sharing
	Need to account for
	all study costs
	Conclusions
	Matter for consideration
	by the Congress
	Recommendations to agency heads
	Agency comments and our evaluation
	21
	22
	22
	16
	17
	9
	7
	20
	20
	20
	22
	22
	22
APPENDIX	
I	Letter dated September 27, 1982, from the
	Assistant Secretary for Land and Water
	Resources, U.S. Department of
	the Interior
	24
II	Letter dated September 29, 1982, from the
	Assistant Secretary of the Army (Civil
	Works)
	30
III	Letter dated October 1, 1982, from the
	Secretary of Agriculture
	33
IV	Letter dated October 4, 1982, from the
	Deputy Director, Office of Management
	and Budget
	34



## CHAPTER 1

### INTRODUCTION

The Federal Government has provided water resource assistance to local entities since 1824 when the first river and harbor bill was passed authorizing the United States Army Corps of Engineers to remove sand bars and snags from the Mississippi and Ohio Rivers. Since then, legislation has expanded the Federal role to assist local entities with their navigation, flood control, shoreline protection, water supply, hydropower, and other water resources problems.

The U.S. Army Corps of Engineers, Department of the Army; the Bureau of Reclamation, Department of the Interior; and the Soil Conservation Service, Department of Agriculture, are the three primary Federal water resources construction agencies that assist local entities by studying the feasibility of structural and nonstructural solutions to specific water resources problems. These studies identify problems and needs, present feasible alternatives, compare their favorable and unfavorable impacts, determine associated costs and benefits, and recommend a specific course of action. The feasibility study is one of the first steps in a water project's evolution, which is followed by advanced engineering, design, and construction.

These three agencies' planning appropriations for fiscal years 1965-82 totaled about \$3 billion, of which approximately \$1.1 billion, or about 37 percent, was designated for feasibility studies. With minor exceptions, the Federal Government funds the full cost of these studies. The remaining \$1.9 billion is used for non-project-oriented studies such as broad river basin reviews and general information studies.

#### FEDERAL WATER AGENCIES' ROLES AND RESPONSIBILITIES

The roles and responsibilities of the three Federal water agencies have evolved over many years in response to the Nation's changing water needs. The Corps is the oldest and the largest of the three agencies. For fiscal year 1983 it requested about \$2.2 billion for its civil works program, of which about \$133 million was for its general investigation program. Of this total, about \$65 million is for feasibility studies and the remainder is for special studies and for data collection services. The Corps has primary Federal responsibility for preventing urban flood damage, maintaining navigable waterways, and protecting the Nation's coastal shoreline. Some Corps projects are multi-purpose and include flood control, water supply, hydropower, and other water purposes. The Corps is decentralized, with 11 divisions and 36 district offices throughout the United States and an Office of the Chief of Engineers in Washington, D.C.

The Bureau of Reclamation was established subsequent to the enactment of the Reclamation Act of 1902 and has the primary responsibility for providing irrigation and municipal and industrial water supplies to the water-short areas in the 17 western States. The Bureau also has responsibility for hydropower development and, like the Corps, is often involved with multipurpose projects. The Bureau requested \$934 million for fiscal year 1983, which included \$36.5 million for general investigations. The Bureau is decentralized, with seven regional offices in the West receiving guidance from its headquarters in Washington, D.C., and technical center in Denver, Colorado.

The Soil Conservation Service was established as a result of the Soil Conservation and Domestic Allotment Act of 1935 (16 U.S.C. 590e) and is the smallest of the three agencies. For fiscal year 1983 the Service requested \$26 million for water-related planning, of which about \$9 million was for watershed protection. The Service has responsibility for preventing rural flood damage and promoting soil and water conservation, especially on agricultural lands. The Service is also decentralized, with an extensive network of State, area, and other offices throughout the United States and headquarters in Washington, D.C. Unlike the Corps and the Bureau, the Service is precluded from participating in studies of watershed areas that exceed 250,000 acres. Partly for this reason, Service studies tend to be smaller in scope and less costly than the other agencies' studies.

#### STUDY AUTHORIZATION, FORMULATION, AND REVIEW PROCESSES

The three agencies have similar study objectives and approaches; however, they differ in the way feasibility studies are authorized and reviewed:

##### Study authorization

Corps and Bureau studies generally require individual congressional authorization, while the Service may initiate studies on its own.

In most instances, the need for a Corps study is first identified by local citizens who ask their Senators or Representatives for assistance. The Senate or the House Committee on Public Works is then requested to adopt a resolution to authorize a review of previous reports for the area or, if the area has not been studied before, may request the committee to include authorization for a study in either an omnibus river and harbor and flood control bill or in a separate bill.

Bureau studies are conducted in two stages. During the first stage, the Bureau, at its own initiative or a local citizen's direct request, performs appraisal studies to determine

the need for detailed studies. The second stage is authorization of a detailed study by the House Committee on Interior and Insular Affairs and the Senate Committee on Energy and Natural Resources. The authorizing bill must be passed by the Congress and signed by the President before the Bureau can begin the study.

The Service does not require specific congressional authorization for feasibility studies but performs them under the small watershed program, often called the 566 program after its authorization in Public Law 83-566. Under this program, preliminary studies follow a local sponsor's application for assistance. This preliminary effort may involve one of the Service's four regional technical service centers which provide technical support to the Service's field offices. The Chief of the Soil Conservation Service may authorize detailed planning based on the recommendations of the Service's State conservationist without congressional authorization. These authorizations, however, are limited in numbers by administration and congressional budget constraints.

After a study is authorized, the three agencies request funds for studies through the budget process. Once funds have been appropriated and allocated, a field office begins the investigation.

#### Study formulation process

Although the resources needed vary with the size, purpose, and complexity of the study, each agency takes a similar approach to conducting studies and is subject to most of the same water resource planning laws and directives.

Basically, each agency seeks to (1) determine the magnitude of the problem and whether further study is warranted, (2) define and analyze potential solutions and their effects and feasibility, and (3) select the most feasible plan or solution. A study team evaluates the various economic, environmental, and social effects and estimates the tangible benefits and costs. A favorable recommendation depends primarily upon benefits exceeding costs and upon a local or State agency's written commitment to participate in the project and share its costs.

Typically, each agency's study process is performed in stages, each culminating in a report or product. During the first stage, the agencies' field offices gather a range of data by various means, including public meetings to define the problem and to determine if time and money should be spent on a detailed study. During the second stage, a more detailed study is made to identify and analyze alternatives for solving the problem. A final stage may be necessary to select the most feasible alternative. Usually, a draft final report or work plan and a draft environmental impact statement, required for all major Federal

actions significantly affecting the quality of the human environment under the National Environmental Policy Act of 1969 (42 U.S.C. 4332), are prepared at this time.

### Report reviews

After the responsible field office has completed the study process, it forwards the draft report or work plan and the draft environmental impact statement for comment through review levels within the organization and to other Federal agencies, the State, and interested organizations.

Once comments are considered, the department sends the report and the statement to the Office of Management and Budget for final review before forwarding them to the Congress for project approval. One exception to this process is that the Secretary of Agriculture can approve final Service work plans that do not (1) involve an estimated Federal construction cost above \$5 million or (2) include any structure which provides more than 2,500 acre-feet 1/ of total capacity.

### OBJECTIVES, SCOPE, AND METHODOLOGY

We made this review during the period July 1981 through May 1982 to determine how frequently Corps of Engineers, Bureau of Reclamation, and Soil Conservation Service feasibility studies did not identify acceptable solutions to specific water resources problems and why. Other issues included the need to share the cost of studies with the beneficiaries and reasons for, and agency actions to improve, the lengthy study process.

To determine the outcome of feasibility studies, we obtained national data from each of the agencies. We obtained national data for newly funded studies during the period July 1, 1964, to December 31, 1981, primarily to ascertain the extent to which they resulted in constructed projects and, if not, why. For the Corps we reviewed 150 studies obtained through a stratified random sample (95-percent confidence level) of 464 studies, while we reviewed all studies for five of the seven Bureau regional offices and all Service studies. Bureau officials assured us that studies reviewed for the five Bureau regions were representative of the agency's planning activities during the time frame. In fiscal year 1981, the planning activity in the five Bureau regions represented 84 percent of the agency's total planning dollars.

To determine the reasons for delays we visited the three agencies' headquarters in Washington, D.C., and certain of their field offices. For the Corps these included the Board of Engineers for Rivers and Harbors--primarily responsible for reviewing

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1/An acre-foot is 325,851 gallons, or the amount of water needed to cover 1 acre 1 foot deep.

completed water resources studies; the Lower Mississippi Valley division; South Atlantic division; Southwestern division and its Fort Worth district office; and the South Pacific division and its Los Angeles, Sacramento, and San Francisco district offices. We also visited the Bureau's Southwest and Mid-Pacific regional offices and the Service's Texas and California offices. At these locations we interviewed planning officials; reviewed program directives and applicable laws; and obtained information on project backlogs, planning starts, and construction starts.

To obtain comments on the impact that cost sharing would have on studies, we interviewed water resources officials in 12 States (Arizona, Arkansas, California, Maryland, Montana, Nevada, Oklahoma, Pennsylvania, South Carolina, Texas, Virginia, and Washington) selected because of their proximity to where our detailed work was performed and their level of study activity; 10 local study sponsors in States involved with studies selected for detailed review (California, Nevada, New Mexico, and Texas); representatives of the National Water Resources Association, National Association of Conservation Districts, the National Association of Urban Flood Management Agencies, and the Water Resources Congress; and representatives of the Office of Management and Budget.

We identified for each study (1) its purpose, (2) whether or not it was project-oriented, (3) the date it was first funded, (4) the stage it had reached, (5) its cost, and (6) its current status and the date it was placed in this status. (Service data on the study cost and the date it was placed in status was not available because this data is not accumulated by study.) Study status was categorized as either complete, active, or "other." The other category included classifications such as "deferred," "suspended," or "inactive" depending upon the agency--all generally meaning that no further work was currently anticipated. We termed these studies "inactive" throughout this report.

Total studies  
(July 1, 1964, to December 31, 1981)

	<u>Corps</u>	<u>Bureau</u>	<u>Service</u>	<u>Total</u>
Project-oriented:				
Completed	31	59	181	271
Active	74	28	524	626
Inactive	<u>25</u>	<u>55</u>	<u>282</u>	<u>362</u>
	<u>130</u>	<u>142</u>	<u>987</u>	<u>1,259</u>
Not project-oriented	7	52	0	59
Studies outside review scope	<u>13</u>	<u>15</u>	<u>0</u>	<u>28</u>
Total	<u>150</u>	<u>209</u>	<u>987</u>	<u>1,346</u>

We asked why project-oriented studies were classified as inactive or completed without a recommendation for a construction project. Further, for Corps and Service studies classified as active, we asked agency officials to estimate the probability that a viable project would result.

In addition to obtaining national data, we reviewed, in detail, all studies made at selected locations to verify the national data and to obtain examples of why studies did not result in viable solutions. The locations selected were three Corps divisions (South Atlantic, Southwestern, and South Pacific); two Bureau regional offices (Southwest and Mid-Pacific); and two Service State offices (California and Texas). These locations were selected based on their high level of study activity and accounted for about 38 percent of the Corps' and 29 percent of the Bureau's fiscal year 1981 planning appropriations and 14 percent of the Service's fiscal year 1980 planning obligations.

We believe the results of our study sample selection accurately reflect the three agencies' experience in performing studies of specific water resource problems. However, it must be recognized that each study is unique and individual study results will vary as different problems and conditions are involved. Furthermore, during the study sample period, requirements for determining environmental and economic impacts were implemented. Agency officials said the National Environmental Policy Act of 1969 and the requirements of the Principles and Standards for Planning Water and Related Land Resources (1973) lengthened the duration and affected the outcome of some studies. In addition, this report addresses project-oriented Federal water agency studies only; it does not address other studies made by these agencies, such as those discussed on page 1.

It should also be noted that all cost information contained in the report is presented in actual dollars. (See p. 35.)

We made this review in accordance with generally accepted government auditing standards.



## CHAPTER 2

### SHARING STUDY COSTS MERITS CONSIDERATION

The Corps, Bureau, and Service invest considerable time and resources in performing feasibility studies at the responsible local entities' behest to find solutions to water resources problems. Few of these studies, however, result in recommendations to construct projects to correct these problems. More often than not, the study is either dropped before completion or no acceptable solution can be found. Even if a favorable solution is identified, the proposed project may never be authorized or, if authorized, may not be funded.

In an attempt to change this situation, the Corps planned to require local entities to share in study costs beginning in fiscal year 1983. Cost sharing, according to the Corps and most State and local officials, will (1) reduce the number of requests for studies that are unlikely to identify viable solutions, (2) provide some measure of assurance that the problem is significant, and (3) provide a better measure of community support for the study and resulting project.

The House Committee on Appropriations recently directed that cost sharing not be implemented until the Congress has fully considered and addressed the issue. If the Congress decides to adopt cost sharing, we believe it should be applied uniformly by all Federal water resources agencies, not just the Corps.

### STUDY EFFORTS ARE NOT IDENTIFYING ACCEPTABLE SOLUTIONS TO LOCAL WATER PROBLEMS

While it is unreasonable to expect that all studies undertaken will result in implementable solutions, identifying and terminating marginal studies early would maximize the use of Federal planning funds. However, several years elapse before marginal studies are terminated.

Most studies initiated between July 1, 1964, and December 31, 1981, to find acceptable solutions to water resources problems did not do so. Of the 633 studies we examined that were either completed during this time period or classified as inactive, only 225 resulted in recommendations to construct projects. The remaining 408 studies concluded that a project was not feasible primarily because it was considered too costly compared with its benefits or it lacked the necessary local support. Although these studies did not identify acceptable solutions to specific water problems, the study effort may not have been wasted. Information obtained during the study can and, according to Corps, Bureau, and Service planning officials, is used by local non-Federal entities in planning and developing their own water projects and in making decisions on future flood plain use.

The Corps, Bureau, and Service spent about \$51 million on the 408 studies which did not lead to acceptable solutions, as shown below. This represented about 66 percent and 80 percent of all funds spent by the Corps and Bureau, respectively, on completed and inactive studies. (Service data was not available to make a similar comparison.)

<u>Agency</u>	<u>Number of studies</u>	<u>Studies not resulting in project recommendations</u>		
		<u>Number</u>	<u>Percent</u>	<u>Cost</u>
				(millions)
Bureau of Reclamation	114	85	75	\$ 35
Corps of Engineers	56	41	73	9
Soil Conservation Service	<u>463</u>	<u>282</u>	61	a/ <u>7</u>
Total	<u>633</u>	<u>408</u>	64	<u>\$ 51</u>

a/Although the Service did not accumulate individual study costs, this figure represents the Service's estimate of the cost.

Projecting these results, we estimate that the three agencies spent at least \$100 million on studies started after 1964 that did not result in recommendations for construction projects. This estimate is based on (1) statistically projecting our stratified Corps sample results (\$55 million), (2) estimating the study cost for the remaining two Bureau regions using the average study cost for the other regions (\$41 million), and (3) cost data provided by the Service (\$7 million).

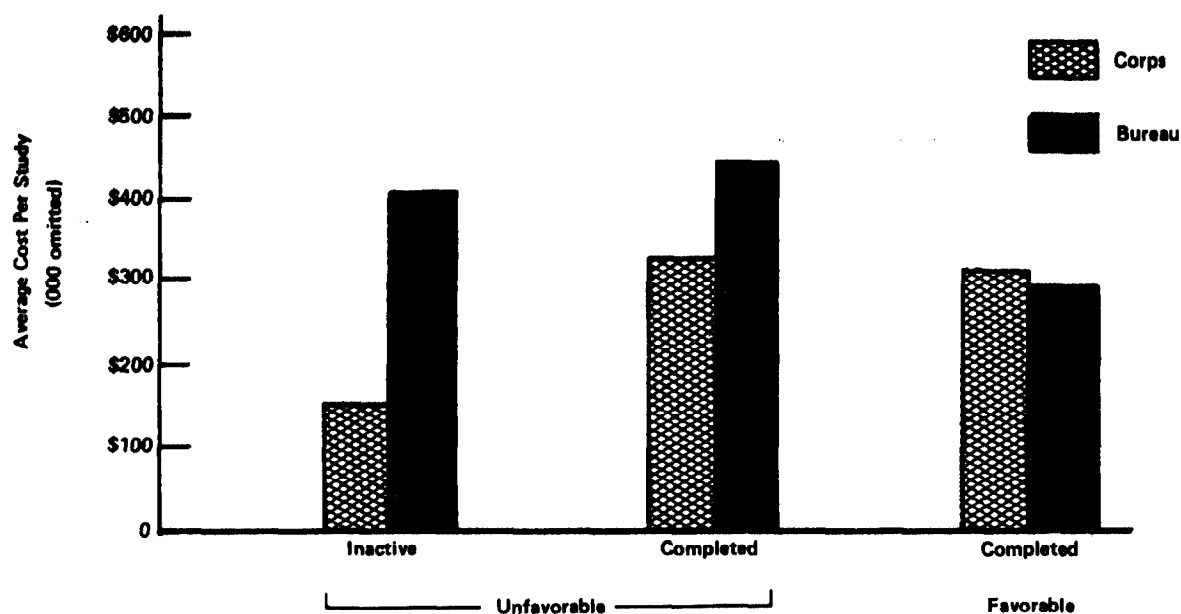
Based on the information provided by the Corps and Bureau, <sup>1/</sup> the average study time to determine that a feasible solution was not available is presented below.

	<u>Inactive</u>		<u>Complete</u>	
	<u>Average</u>	<u>Range</u>	<u>Average</u>	<u>Range</u>
	----- (months) -----			
<b>Bureau:</b>				
Appraisal phase	37	10 - 88	57	12 - 99
Feasibility phase	59	12 - 168	63	12 - 168
<b>Corps</b>	43	2 - 113	72	11 - 147

The average Federal cost to perform these studies compared with completing a favorable study is shown in the following chart.

<sup>1/</sup>Comparable information was not available from the Service.

### Average Cost of Corps and Bureau Studies



Even if a solution is found, the proposed project may never be authorized for construction or, if authorized, never funded because of budgetary constraints or other factors such as changes in Federal policies or project priorities. As of fiscal year 1982, the Corps, the Bureau, and the Service had a total of 291 high-priority projects with an estimated construction cost of \$13 billion authorized by the Congress or, for small Service projects approved by the Secretary of Agriculture, awaiting funding. A Corps analysis of studies completed during fiscal years 1973-81 shows that of 204 favorable study reports (costing \$94.4 million) only 38 have been authorized for construction. Excluding fiscal years 1977-81, during which no new projects were authorized, the analysis shows that 38 of the 96 favorable study reports resulted in project authorizations (7 of these are under construction and 6 have been built). While projects await authorization and funding, local support may wane, interest rates may change the project's benefit-cost ratio, or the project may no longer be needed due to changed conditions.

#### FACTORS AFFECTING STUDY RESULTS

The principal reasons studies did not result in project recommendations, according to Corps, Bureau, and Service planning officials, are the lack of an economically feasible solution (costs exceed the benefits to be achieved) and the lack of local support for the proposed solution. These reasons were cited for about 69 percent of the studies that did not result in project recommendations (38 percent involved economic feasibility and 31 percent involved lack of local support). Other reasons given included environmental problems and changing program requirements. An underlying factor which affects both the economics and support for a project is the time needed to complete the study.

## Poor economics

The most common reason studies were concluded without recommending projects was that the cost to correct the problem would be greater than the benefits that would be realized. Based on data provided by the agencies, studies were concluded because of a low benefit-cost ratio at the following rates:

- Fifty-seven percent of the 41 Corps studies included in our statistical sample (24 studies costing about \$6 million).
- Thirty-three percent of all 85 Bureau studies performed in five of the agency's seven regions (28 studies costing about \$8.3 million.)
- Forty-three percent of all 240 Service studies for which a reason could be identified (the Service could provide no cost data for these studies.)

Although some time and cost must be spent to determine the feasibility of a solution, studies are sometimes continued even though an economically feasible solution appears unlikely. Corps district and Bureau regional planning officials told us that one reason this happens is the pressure study sponsors place on the agencies to find solutions to water problems. Another fundamental reason for continuing studies, according to some officials, is that some districts or regions have too little planning work to fully use available staff resources.

Following are some typical examples of studies that conclude that an economically feasible solution does not exist.

### Calaveras County, California

The Bureau of Reclamation began a study in fiscal year 1977 to appraise prospects for improving the use of water supplies within Calaveras County, California. The Bureau's concluding report, drafted in December 1981, stated that "the benefits associated with each alternative are less than its costs," and the ratios range from a low of 0.2 to 1.00 (meaning that 20 cents in benefits will be received for every 1 dollar invested) to a high of 0.6 to 1.00. Bureau officials estimate that the study cost \$226,000 through September 30, 1981.

### Cottonwood Creek, Oklahoma

This study was initiated in October 1972 to evaluate and formulate plans for developing a water resource for municipal and industrial use, primarily in Edmond, Oklahoma, and flood control for the city of Guthrie, Oklahoma. The appraisal report, as revised in November 1975, concluded that the idea of building a dam to impound the flows of Cottonwood Creek was based on

sound engineering and was economically justifiable and recommended that a feasibility study be performed.

The feasibility study was initiated in October 1976. However, in May 1978 it became apparent to the regional planning officer that the reservoir was not needed because the Corps had been authorized to construct Arcadia dam and reservoir which would provide water to Edmond. In May 1979, after spending 2-1/2 years and \$330,000, the planning officer recommended that a concluding report be prepared. In his memo, the planning officer stated that supplies of water are adequate through the year 2000, adverse impacts of displacing families could be extensive, mitigation costs may be high, construction costs may reach \$75 million, and flood control benefits are marginal. Notwithstanding these factors, planning was continued (costing about \$140,000) and a concluding report was issued in December 1981. The planning officer said that the study was continued because the State of Oklahoma wanted a good cost estimate in case the State decided to build the reservoir in the future.

#### Inadequate local support

The second most common reason studies did not result in project recommendations was that the proposed solution lacked local support. Although all three agencies are required to obtain public input throughout the study process, when and to what extent planners determine the study sponsor's expectations and capabilities varies. The Service has initiated within the last 4 to 5 years a preapplication assessment which, according to Service officials, has reduced the number of applications for studies which would be unlikely to identify viable solutions.

More often than not, the agencies reach a study's final stages only to find that their proposed solution exceeds the local entities' interests or capabilities. Based on information provided by the agencies, where lack of local support was the reason for concluding a study, it did not surface until the later study phases in 28 percent of the Service's studies, 62 percent of the Corps' studies, and 86 percent of the Bureau's studies.

#### No agreement on project expectations

Federal agencies often find themselves proposing one alternative to solve a problem when local sponsors favor another alternative which may be less costly. For example, in Ventura County, California, the Bureau spent about \$813,000 over a 7-1/2-year period to study a water quality and supply problem, only to have the local sponsor ask it to drop its study because the proposed solution was more extensive than the county had expected. The local sponsor told us that the Bureau's \$100 million proposed project included project purposes such as recreation that were unrelated to the community's primary concern of water quality and that the project was too expensive for the local beneficiaries.

Subsequently, the local sponsor developed plans for a \$26 million project, for which it hoped the State would contribute \$8 million. At the time of our review, the local sponsor was studying ways to finance this much smaller project.

In a similar situation, the Corps spent approximately \$840,000 over an 11-year period to study flooding and water supply problems in the Carmel River Basin in California only to have the local entity hire a private consulting firm to look at alternatives to the Corps' proposal. The local entities told us that they thought the Corps' proposal, estimated at \$282 million, was too expensive because it provided greater flood control and water supply benefits than needed to address strictly local needs. As an alternative to the Corps proposal, the local entity was leaning toward its consultant's \$35 million proposal which was sufficient to meet the flood control and water supply needs of the community.

Some entities lack the authority to contract for or fund proposed projects

In some instances Federal agencies spend resources and time on studies only to have the projects fail because the non-Federal sponsor does not have the legal authority to contract for the proposed project. The 1970 Flood Control Act (42 U.S.C. 1962d-5b) requires that non-Federal sponsors sign a contract to assure their cooperation (provide lands, easements, funding, etc.) before Federal funds are invested in construction of a water project. Non-Federal sponsors are not required to sign formal binding assurances of their participation in construction until after the feasibility study has been completed. Thus, when a local sponsor lacks the authority to contract for or the ability to finance the proposed project, the study effort may have been wasted.

In a 1978 report, <sup>1/</sup> we noted that 18 States could not sign agreements under the 1970 Flood Control Act because State constitutional provisions prohibited legislatures from committing future legislatures to expenditures. Local authorities may also have similar restrictions. For example, an official of the Corps Sacramento district office said that the Isabella Lake study on the Kern River in California did not result in a project because the sponsoring county's supervisors said that they could not legally commit future supervisors for their share of the proposed project's construction cost. As of October 1982 the Corps had spent about \$699,000 studying the Kern River flooding problem.

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<sup>1/</sup>"Corps of Engineers Flood Control Projects Could Be Completed Faster Through Legislative and Managerial Changes," CED-78-179, Sept. 22, 1978.

The Sacramento district's legal counsel said that the Corps could save study time and resources by identifying legal and financial problems earlier in the study process. He said that a preliminary attorney's report should be required at the outset of each study to assure, among other things, that the requesting local sponsor has the legal authority to contract for and raise the necessary funds to construct proposed projects as well as operate and maintain them. Other Corps district planning officials agreed that local sponsors could be screened earlier for legal and fiscal capabilities.

Community support is not  
always well defined

Time and resources have also been wasted on studies because community support for proposed projects was not as strong or as widespread as originally thought. For example, about 10 years after the Service's study of the Chickahominy-Moody Slough in California was suspended because of disagreement over the method of calculating the project's costs and benefits, the study was reactivated in 1979 because of renewed local interest. Although the local sponsors sent out questionnaires to property owners to gauge the depth of support, local opposition surfaced after the Service prepared a draft plan and environmental impact statement for the proposed project in June 1981. On August 11, 1981, the Service received a petition against the proposed project signed by 37 property owners, among them 6 whose land was crucial to its construction. This petition read:

"We, the undersigned, protest the establishment of the proposed Chickahominy-Moody Slough Watershed Project. We feel that the farmers today are encountering enough difficulties without being subjected to more Government regulations and expenses."

Because of this show of opposition by key landowners, the Service stopped its planning after spending an estimated \$390,000.

According to a Service planning official in California, although the Service tries to identify all local concerns early in the study process, new concerns invariably arise during the study. Both the planners and the local sponsors tend to resist recognizing these concerns because they may interfere with study goals, time frames, cost, and the project's viability. Another problem is that the agencies do not have sufficient public participation expertise. This lack of expertise could be corrected, he suggested, by training staff planners, obtaining assistance from other areas within the agencies, or contracting for services. In summary, he noted that agencies must recognize the need to assess the severity of all potential opposition and its possible effect on the project and methods must be developed to deal with these concerns. This Service planner has developed a method for screening local sponsors before committing the agency to

spending substantial resources on a study. He administers a questionnaire to study applicants to assess their financial capabilities, the extent of local support, and the presence of environmental obstacles. During 1979 and 1980, evaluation of the questionnaire responses resulted in 10 of 11 study applications being withdrawn by the study sponsor.

Lengthy study process

The length of time it takes Federal water agencies to complete project studies has been a major complaint of the program for some time. Corps and Bureau planning guidelines indicate that a Corps study should be completed in 4 years and that Bureau appraisal phase and feasibility phase studies 1/ should be completed in 2 years and 3 years, respectively. However, studies included in our review more often than not exceeded these guidelines, as follows.

	<u>Met guideline</u>	<u>Exceeded twice guideline</u>	<u>Average</u>
	------(percent)-----		(months)
<b>Bureau:</b>			
Appraisal phase	14	46	49
Feasibility phase	10	33	62
<b>Corps</b>	37	27	71

In addition, as of December 31, 1981, 55 percent of the Corps' active studies had already exceeded the agency's guidelines. Likewise, 62 percent of the Bureau's appraisal phase studies and 70 percent of its feasibility phase studies had exceeded the agency's guidelines.

Agency officials identified the following factors--most of which have also been cited in various agency reports--as contributing to the time needed to complete studies:

- Management does not act to identify and terminate marginal studies.
- Planning staffs are often assigned to unprogramed higher priority work, such as dam safety studies, or work unrelated to their planning activities, to the detriment of programed studies.

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1/The period covered by these study phases is from first funding to completion of field work. It does not include the time from study authorization to initial funding, which can be several years.



- Too many studies are given high-priority designations considering the staff available to support this emphasis.
- Agencies try to handle all study requests, resulting in too many studies in process for the available planning staff to handle.
- Management is reluctant to consolidate or transfer planning staff when faced with a declining workload.
- Unnecessary and duplicative study reviews are made.
- Continuity in funding project studies is lacking.

In fiscal year 1981 the Corps introduced changes to reduce the time needed to complete the feasibility study and advanced engineering and design. These included (1) establishing new guidelines and regulations consolidating and streamlining the study formulation and review process and (2) obtaining the authority to continue the funding of planning and engineering for high-priority projects without the need for congressional authorization. In addition, as discussed on page 18, the Corps has introduced a new cost-sharing policy for studies beginning in fiscal year 1983.

The Bureau is implementing scheduling techniques to address more of the factors contributing to the lengthy study process and is revising its planning process to reduce the time needed to complete a study by one-third to one-half. These revisions would allow the agency to obtain construction authorization and funding concurrently while the Bureau is conducting advance planning activities. The Bureau also proposes to combine elements of the current appraisal and feasibility study phases. In addition, legislative changes to be proposed give the Secretary of the Interior the authority to initiate detailed studies, rather than wait for congressional authorization, and to decide the level of detail the study will address.

According to the Bureau's Director, Planning Policy Staff, the Secretary of the Interior has approved the revised planning process and is holding discussions with the Corps of Engineers to more fully define the details of the proposed revisions and implementation strategy. The Director told us that if the Congress approves revisions to the current Bureau authorization process, the Corps and the Bureau would use the same process. The Bureau plans to consult with the responsible congressional oversight committees to test their acceptance of the proposal. The revised process could be in place by 1984 if the Congress adopts the necessary legislation.

It is too early to assess or estimate what impact these actions will have on the agencies' study processes and, more importantly, on increasing the number of studies that result in solving water problems.

EXPERIENCE WITH COST SHARING  
HAS BEEN FAVORABLE

Sharing study costs with local sponsors should help increase the extent to which the studies result in recommendations for project construction. Examples in which the Federal agencies and local sponsors shared study costs tend to support this conclusion. However, Federal, State, and local officials had mixed reactions to sharing the costs of water resources studies.

The argument for sharing study costs is simple: Feasibility studies are requested by and benefit local interests, who normally contribute to the costs of any eventual construction project. Since local sponsors are not required to share the costs of the feasibility study, they have little to lose if the study results in no feasible solution or if they decide not to participate in construction--as now commonly happens.

A requirement to contribute financially to the feasibility study phase would encourage local sponsors to request studies that have a high probability for solving identified problems and have substantial local backing. Contributing funds would also provide a more tangible measure of the local commitment to the study and any resulting project. Further, increased local concern with the study implied by a local contribution, and probably increased involvement in the study process, would reduce the likelihood of continuing clearly marginal studies or having a project proposed which would be unacceptable to the local sponsors, as was the case in the Ventura County and Carmel River Basin examples discussed previously. At our request, Corps and Service officials identified 193 active studies as having a low probability 1--less than 50 percent chance--of culminating in a project. 2

Corps - 20 of 74 active studies included in our statistical sample, or 27 percent. (Corps officials estimated that about \$13 million had been spent on these studies at the time of our review.)

Service - 173 of all the Service's 524 active studies, or 33 percent. (Cost data was not available.)

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1/The break point was derived from Corps budgeting procedures which define low-probability studies as those judged to have less than a 50-percent chance of resulting in a viable plan or that address low-priority needs.

2/This information was not readily available at Bureau headquarters.

The concept of sharing water study costs has been demonstrated by the Service as feasible. The Deputy Chief for Natural Resource Projects told us that States and local sponsors are encouraged to participate in studies. He said that those participating tend to have a greater interest in the study and the study process is accelerated. States and localities have voluntarily shared in Service watershed planning costs. For fiscal year 1979, approximately \$3.3 million was contributed by 22 States and 15 local agencies to finance watershed planning activities. These funds augmented Service fiscal year 1979 watershed planning appropriations of \$11.8 million by nearly 28 percent. The results of these cost sharing arrangements is illustrated in the State of Texas. Since 1965, 16 of the 21 studies for which costs were shared resulted in favorable recommendations whereas only 2 of the 22 studies for which costs were not shared resulted in favorable project recommendations.

Other instances of cost sharing follow:

- A local sponsor's contribution was crucial to the rescoping of a Service flood control project in Santa Clara County, California, when environmental problems had threatened to stymie it.
- The State of California and the Bureau are splitting the \$6 million cost of a study to enlarge Shasta Dam, thereby increasing the State's water supply.
- The Corps requires that local sponsors contribute 25 percent to the wastewater management components of its multipurpose urban studies.

Federal, State, and local officials that we interviewed expressed mixed feelings about sharing costs of water resources studies. Most of these officials believed that a cost sharing requirement would reduce the number of marginal studies. Some State officials, however, were concerned that the lack of available funds, particularly in impoverished areas, might eliminate some studies of serious water problems. Others, particularly at the local level, favored a flexible rate based on a community's ability to pay. Federal officials, on the other hand, feared that increased local control could limit the scope and objectives of studies and create friction between Federal and local officials.

#### MOVE TOWARD COST SHARING

The President's Cabinet Council on Natural Resources and Environment formed an ad hoc Assistant Secretaries' Working Group on Natural Resources, which first met on April 24, 1981, to analyze issues and policies related to Federal water policy. The working group comprises representatives from the Departments of the Army, the Interior, and Agriculture and the Office of Management and Budget.

The working group chairman told us that sharing study costs with the sponsor has not been discussed in any detail to date but this subject would logically follow the current effort to revise the policy for cost sharing project construction. The administration believes that the users must pay a larger share of major water project costs for at least two reasons. First, the Nation's economic condition can no longer allow the Federal Government to finance a major program of water project construction. Second, the administration is strongly committed to the principle that project beneficiaries should pay for "vendible services" (those with a salable outcome, such as water power, water supply, or recreation).

Although the President's Council has not yet established a policy for cost sharing the study phase of project development, the Assistant Secretary of the Army (Civil Works) has directed the Corps to begin sharing study costs in fiscal year 1983. According to a December 29, 1981, headquarters message to the Corps field offices, the first (reconnaissance) phase will normally be completed in one year; however, an exception can be granted to extend this to 18 months. If the Corps believes further study is warranted, the local non-Federal entity would be required to contribute 50 percent to the cost of the feasibility study--the second phase. The local sponsor can contribute up to 25 percent of the cost of the feasibility phase of the study in in-kind contributions--administrative, legal, personnel support, etc.

The Army's cost sharing policy, according to the Assistant Secretary's Special Assistant, was fashioned after that used in the State of California. The specific elements, such as the point at which the local sponsor should be required to contribute to the study cost, are considered practical although largely based on subjective judgment.

The Assistant Secretary believes that the beneficiaries' willingness to share project costs gives the Federal Government an assurance of a project's worth that can never be obtained from a benefit-cost analysis. In a February 17, 1982, statement before the Subcommittee on Energy and Water Development, House Committee on Appropriations, on the fiscal year 1983 civil works budget, the Assistant Secretary proposed that:

"\* \* \* beginning in FY 1983, all new studies pertaining to specific problem areas be undertaken in two phases. The first phase will be a reconnaissance phase financed 100 percent with Federal funds and normally completed within a year. The second phase will be a feasibility study to be cost shared with local project sponsors."

The Assistant Secretary told the subcommittee that meaningful sharing of feasibility studies' costs between the Federal Government and local project sponsors will

- allow the Corps to concentrate its planning resources on the more important studies which have the best chance of implementation,
- assure local participation in all stages of planning,
- save the Federal Government money by reducing requests for studies, and
- cause unproductive studies to be identified early and dropped.

In its September 21, 1982, report accompanying the fiscal year 1983 energy and water development appropriation bill, the House Committee on Appropriations stated:

"The Committee is aware that the Corps has contacted project sponsors all across the country to inform them of the so-called 'innovative financing' proposals that they must agree to if they want their projects to be planned or constructed. Since the appropriate committees of Congress have not as yet addressed the innovative financing issue, it may well be that the Assistant Secretary of the Army has the project sponsors reviewing a program that Congress may not implement. \* \* \* Until Congress fully considers and addresses such 'innovative financing', the Committee directs that no up-front financing and cost sharing be implemented."

The Bureau is presently precluded from requiring sharing of the study costs with local sponsors. In 1971 the Congress enacted Public Law 92-149 which stated that all costs incurred for investigations and surveys of potential projects shall be nonreimbursable. The Bureau believes, however, that this law does not prevent non-Federal interests from voluntarily contributing to the cost of the study.

Neither the Bureau nor the Service have plans to require local entities to share study costs. Agency headquarters planning officials, moreover, do not favor a mandatory cost sharing policy. They would prefer instead a voluntary, more flexible approach whereby the priority assigned to the study would depend upon the sponsor's willingness to contribute to the study costs.

In addition to administration initiatives, one bill--Senate Bill 1809, 97th Cong., 1st Sess.--was referred to the Senate Committee on Environment and Public Works on November 4, 1981, but no hearings had been scheduled as of October 1982. This bill is broader than the Corps' proposal in that it would prohibit the Corps from beginning new studies, including surveys, reports, and restudies of authorized projects, until the local authorities agree in writing to pay half the cost. According to the bill's sponsor:

"\* \* \* two important goals would be achieved. First, since State and local governments would fund 50 percent of the cost of the studies, there would be more Federal money available to fund necessary studies. Second, and perhaps most important, the Corps would undertake those studies which have substantial local support."

The sponsor suggested that by requiring cost sharing, the Corps would carry out fewer studies--only those of high priority--and would complete them faster than under the current system.

#### NEED TO ACCOUNT FOR ALL STUDY COSTS

The extent to which agencies account for the costs associated with a study varies. The Corps omits "indirect" study costs--those for reviews by the division, headquarters, and Board of Engineers for Rivers and Harbors. These costs can be substantial; for example, the Board of Engineers--whose primary purpose is to review Corps water resource studies--is to receive about \$2 million in fiscal year 1982.

We also found that it was difficult to account or isolate costs for certain Corps studies, because the Corps often lumps the costs of parent and interim studies. For example, the Sacramento Corps District combined the costs of eight studies under the San Joaquin River parent study. Corps officials said they generally could identify specific costs per study, but they acknowledged that combining costs had made it difficult to account for the interim study costs with much certainty.

The Service has not accumulated costs by study in all States. The Service has recognized this deficiency and since March 16, 1982, is requiring information on all labor charges through the final approval of the study plan. Although this is a step in the right direction, labor costs represent only about 78 percent of the planning funds obligated each year. Other planning costs such as travel, equipment, rent, and overhead are not allocated to specific studies.

Most of the Bureau's regions, in contrast, allocate all costs, including those for the Engineering and Research Center in Denver and the national office, to studies in the form of a base cost. However, at least two regions--Southwest and North Pacific--estimate study personnel costs in lieu of direct charges.

#### CONCLUSIONS

The three Federal water resources agencies spend considerable time and money on feasibility studies of specific water resource problems, but relatively few studies actually result in the construction of projects to resolve the problems. Usually the

proposed solutions are found to either cost more than their benefits are worth or they lack the local support needed to proceed.

We believe there is merit to sharing feasibility study costs with non-Federal sponsors. Cost sharing would not only screen out some marginal studies but would also clearly demonstrate the local support for studies and any resulting projects. Cost sharing will not influence the determination of a project's economic and environmental feasibility, but greater local participation in the study would encourage prompt identification and termination of studies having little chance of resulting in an acceptable project.

The Corps planned to implement cost sharing for feasibility studies in fiscal year 1983. However, the House Committee on Appropriations recently directed that this initiative not be implemented until the Congress has had an opportunity to fully consider and address the issue.

If the Congress decides cost sharing is appropriate, we believe that a uniform Federal policy should be developed, which includes all associated study costs, as a matter of equity and fairness to all recipients receiving similar Federal services. All three water resources construction agencies frequently have common development objectives, such as flood control, recreation, and water supply benefits. Also, since many water projects have multiple purposes, more than one agency has potential jurisdiction.

Whether or not costs are shared, the agencies could do more early in the study process to assure that the resulting solution does not exceed the sponsor's expectations and capabilities by (1) discussing with the sponsor the general type, size, and cost of the project envisioned, (2) determining whether or not the sponsor can legally enter into a contract to construct any resulting project, and (3) assessing the sponsor's financial capability. Finally, careful assessment of whether the sponsor has adequately determined the scope and likely commitment of local support for a study and any resulting construction project would reduce the number of studies that are concluded because of inadequate community support.

MATTER FOR CONSIDERATION  
BY THE CONGRESS

In light of the recent concern expressed by the Congress over administration proposals to share water project feasibility study costs with non-Federal sponsors, we believe the information in this report should help in deciding the merits of the issue. If the Congress decides to adopt cost sharing, we believe that it should be applied uniformly by all Federal water resources agencies and include all direct and indirect costs related to performing the study.

## RECOMMENDATIONS TO AGENCY HEADS

We recommend that the Secretary of the Army direct the Chief, Corps of Engineers; the Secretary of Agriculture direct the Chief, Soil Conservation Service; and the Secretary of the Interior direct the Commissioner, Bureau of Reclamation, to require planners, early in the study process, to (1) meet with the local sponsor to gain an understanding of the type, size, and cost of the project they envision, (2) evaluate the sponsor's legal authority and financial capability to contract for and fund a project, and (3) determine whether study sponsors have adequately assessed the depth and likely commitment of commitment support.

## AGENCY COMMENTS AND OUR EVALUATION

The Departments of the Army, Agriculture, and the Interior and the Office of Management and Budget generally agreed with the report findings and conclusions. Some concern, however, was expressed that the report inferred that efforts on studies which failed to reach project implementation were a total waste. Our aim was to determine how frequently feasibility studies did not result in identifying acceptable solutions to specific water resources problems--the primary purpose of project-oriented studies. We recognize that even if such a solution is not found the information can be used for other purposes. However, we did not determine the extent to which this actually takes place.

OMB commented that the report was fair and objective but did not go far enough in determining the underlying causes for the management weaknesses identified. Our review of agency records identified low benefit-cost ratio and local support as the primary reasons for studies' not resulting in projects. To determine the management deficiencies which allowed this to occur would have required an extensive review of many studies which may have been completed years ago and whose records are not readily available. Agency studies have also identified many problems in the program, and corrective action is being taken to address them.

We had suggested in the draft report that the Federal water resources agencies develop a consistent policy on sharing feasibility study costs. Subsequent to making this suggestion, the House Committee on Appropriations directed the Corps not to implement its cost sharing proposal as planned for fiscal year 1983 studies. In light of the pending congressional deliberations on this matter we have deleted this suggestion in the final report. In commenting on our suggestion, however, the Army stated that it supported a consistent policy except where there are valid reasons for variations among programs because of the nature of the services provided. The other agencies did not specifically comment on the need for a consistent cost sharing policy. However, OMB stated that the administration is currently evaluating options for a general cost sharing policy for most aspects of Federal water resource development. Agriculture apparently endorses the concept



of cost sharing by commenting that this would increase the percentage of projects reaching construction. Interior stated that it was strongly supportive of the principle that project beneficiaries should pay for services and benefits received but stated that present reclamation law makes project feasibility studies nonreimbursable.

Agriculture and Interior stated that our second recommendation concerning agency planners was already covered in agency instructions. We agree that the Service's National Watersheds Planning Manual requires planners to present to the study sponsor potential alternative solutions and their costs at the conclusion of the preauthorization study phase and that the Bureau involves the sponsor throughout the study as part of the study team. However, the guidance does not specifically address our concern that the agencies assess the sponsor's expectations and capabilities before investing considerable time and effort in the study. After receiving Interior's comments we discussed this point with the Bureau. When we explained that the intent of this recommendation was to gain an understanding of the sponsor's constraints, the Bureau agreed that this was not being done and would be beneficial. To better convey our intent we made minor editorial changes to this recommendation.



# United States Department of the Interior

OFFICE OF THE SECRETARY  
WASHINGTON, D.C. 20240

SEP 27 1982

Mr. Henry Eschwege  
Director, Community and Economic  
Development Division  
General Accounting Office  
Washington, D.C. 20548

Dear Mr. Eschwege:

We have reviewed the draft report transmitted by your letter of August 19, 1982, entitled "Local Authorities Should Help Pay For Federal Water Project Feasibility Studies."

The report states that most water resources planning studies do not result in feasible solutions and that many studies are not completed either because local support wanes or it becomes apparent that potential project costs will exceed benefits. The report attributes that situation to an excessive length of time for the studies, during which conditions change and costs escalate. The recommended corrective action is to require local interests to share in the costs of project feasibility studies.

We are strongly supportive of the principle that project beneficiaries should pay for the services and benefits received. We also believe there is merit in applying that principle to feasibility studies. However, present Reclamation law (P.L. 92-149) makes project feasibility studies nonreimbursable.

[GAO COMMENT: Added a statement on page 19 to recognize this restriction.]

While there has not been time to check all the data presented in the report, we feel the cause and effect statements are overdrawn. The changes taking place during the more than 15 years of the survey period appear to be only casually examined. The new Two-Stage Planning process of the Bureau of Reclamation, in conjunction with the pending Principles and Guidelines soon to be promulgated by the Administration, will do much to reduce study time and produce more cost-effective, environmentally sound feasibility project recommendations.

[GAO COMMENT: Discussed on page 28.]

Detailed comments related to specific pages and paragraphs of the report are enclosed. Requests for further consultation on this subject should be directed to the Commissioner of Reclamation.

Sincerely,

A handwritten signature in black ink, appearing to be "J. G. ...", written over a horizontal line.

Assistant Secretary for  
Land and Water Resources

Enclosure

## Specific Comments On

## GAO Draft Proposed Report

## "LOCAL AUTHORITIES SHOULD HELP PAY FOR FEDERAL WATER PROJECT FEASIBILITY STUDIES"

Page 1: The estimate of funds spent on studies resulting in no action, \$100 million over 17 years should be compared to the total funds spent on project related feasibility studies to give a measure of significance. It is implied that the water resource agencies spent millions on studies but failed to find acceptable solutions to water problems.

[GAO COMMENT: The \$100 million figure is an estimate of funds spent on studies which were started after 1964 and subsequently completed. Comparing this figure to the total funds spent would not give a better measure of significance because the total dollar figure includes active studies as well as studies begun before 1965. In our opinion, comparing the \$100 million figure to the total cost of all completed or inactive studies is more appropriate. See discussion related to using the cost measure concept on page 27.]

The phrase "do not find solutions" is inaccurate. We find solutions but they may not be viable or acceptable for any number of reasons; e.g., economic, financial, environmental, loss of interest, etc.

[GAO COMMENT: The digest and the report clearly state that we are referring to acceptable solutions. However, we revised the phrase in question.]

BR's policy on repayment of study costs is determined by P.L. 92-149 which states that all investigations are nonreimbursable. The purpose of this Act was to assure that the BR, Soil Conservation Service (SCS), and Corps of Engineers (COE) investigations costs were treated consistently. This legal restriction on BR should be noted in the report. Prior to the Act, investigation costs of feasible BR projects were allocated to the various project purposes. This meant that for any projects that were eventually constructed, the beneficiaries of reimbursable project purposes paid a share of investigation cost and beneficiaries of nonreimbursable services did not. Since BR projects emphasized reimbursable services (irrigation, power, etc.) and COE projects emphasized nonreimbursable service (flood control, navigation, etc.), the portion of BR general investigation expenses that were repaid tended to be higher than the portion of the repaid COE investigation expenses.

P.L. 92-149 does not prevent non-Federal interests from contributing funds or conducting work on the BR studies. There is now serious consideration being given on the part of both Congress and the Administration towards revoking or amending this law to make the cost reimbursable.

[GAO COMMENT: We have included a statement regarding this legislative restriction on page 19.]

Page ii: On every investigation there is concerted early public involvement to get input and to assure support. This will be further emphasized in the new Two-Stage Planning process. The new process will also assess, early in the study, the ability of water interests to contract for water, fund the project, and determine widespread support or opposition. Congress and local interests are mainly responsible for the extension of time to find an acceptable solution. The new Two-Stage Planning process will significantly reduce the time between study initiation and completion.

Page iii: Much more information on the new planning process is available and should be described because it is anticipated to improve upon many of the problems cited in the report.

Cost sharing does not affect the feasibility of the solution. Projects will still have to be feasible under Federal standards to be recommended for construction.

[GAO COMMENT: This point is emphasized on page 21.]

Page iv: The BR is using cost-sharing potential or occurrences in its priority criteria for the general investigation program. Approximately 64 percent of the BR's project-oriented investigations include some form of cost sharing.

[GAO COMMENT: This information was not available at the time of our review. The Bureau commented that this was a recent analysis of about 70 active project-oriented studies funded for fiscal years 1982 and 1983. Basically, this involved in-kind contributions such as providing facilities for meetings, administrative services, or performing some analyses. The Bureau did not quantify the extent of such contributions.]

The second recommendation is performed now by BR and will be more fully emphasized under the new planning process.

[GAO COMMENT: See discussion on page 22.]

Page 2: We suggest revising the last sentence in the paragraph at the top of the page to read "from its headquarters office in Washington, D.C., and technical center in Denver, Colorado."

[GAO COMMENT: Revised to reflect the suggested wording,]

Pages 2 and 3: We suggest revisions to indicate that funds must be appropriated before the study can be started.

[GAO COMMENT: No change necessary. Last paragraph of section states this for all three agencies.]

It is stated that the agencies usually contact the local entity during the initial stage of a study. GAO implies by its recommendations that only scoping is discussed and that the local entity's authority and capability to contract as well as the assessment of public support are not discussed. Data to support this implication are not presented.

During the early stage of a new investigation, the BR assesses the potential of assistance in any form by non-Federal interests.

[GAO COMMENT: See discussion on page 22.]

Page 7: There is a need to recognize that Principles and Standards were implemented and strengthened during the study period which drastically changed the outcome of the studies.

[GAO COMMENT: On page 6 of the draft report we cautioned the reader that during the study sample period requirements changed for determining environmental and economic impacts and stated that this could affect both the time to perform a study and its outcome. We revised this section to specifically cite the Principles and Standards.]

The problem as presented in the report is that "most studies performed by the three major Federal agencies to resolve water resource problems do not result in feasible solutions." The report uses "number of studies" as a measure of problem description and, indirectly, program accomplishment. However, the number of studies performed is not nearly as important as the amount of funds spent. A hypothetical example illustrates the point. If \$20,000 were spent on each of 10 studies (\$200,000 total) which resulted in infeasible solutions and \$1.5 million were spent on 4 studies which resulted in feasible solutions, the "number of studies" measure (as used in the report) would yield 10/14 or 71 percent, whereas the "cost" measure would yield 200,000/1,500,000 or 13 percent. A proper objective to examine and improve upon the problem would be to reduce the amount of money spent on studies which do not result in feasible solutions. Furthermore, the cost measure better indicates the significance of the problem relative to the overall program. (e.g., 13 percent may be acceptable but 71 percent may not be acceptable).

Using the cost measure concept, the GAO's estimate of funds spent on studies resulting in inaction of \$100 million may lose significance when viewed as the cost over 17 years and a small percent of the total program of \$1.1 billion.

[GAO COMMENT: Additional information was added to reflect the relative cost associated with studies not resulting in acceptable solutions as compared with all studies completed during the study period or classified as inactive. (See pages 7 and 8.)]

In addition, the fact that a study is concluded does not mean that the entire undertaking was a waste of time, money, and human resources. Prudent management of government funds required the examination of various alternatives before large sums are spent on construction projects.

[GAO COMMENT: Statement added on page 7.]

Page 8: The report fails to account for the fact the concept of minimizing cost of studies resulting in no action is built into BR's new Two-Stage Planning process. The Preliminary Findings Report is a critical checkpoint early in the planning process (within the first 12 months) to determine if the study should be continued. With this new process, the BR will minimize both the amount of funds spent and the time required on studies which lead to no action.

[GAO COMMENT: As stated in the draft report, we believe that it is too early to determine whether or not the Bureau's revised planning process will minimize the cost of studies resulting in no action. We believe that if management takes an aggressive approach in identifying marginal studies that the cost would be reduced under any process. It should be noted that about 62 percent of the Bureau's studies which did not result in acceptable solutions did so in the feasibility study phase (i.e. after a determination had been made in the appraisal phase that further study was warranted).]

Page 9: The gap between feasibility study completion, construction authorization, and funding could be due to the erosion of local support during the time it takes to determine feasibility, but GAO should discuss the reasons for the fact that only 38 out of 204 feasible projects were authorized for construction. It is probably due to many factors in addition to report completion time. In addition, many feasible studies are later judged infeasible long after they are completed by applying a higher interest rate to them. This is unreasonable because the project would have been formulated differently had the higher rate been applicable in the beginning.

[GAO COMMENT: No change necessary. This section was intended to merely state that favorable studies may not result in projects. Report completion time is not given as a factor for this outcome.]

Page 11: The discussion about inadequate local support is incorrect. The BR's planning process also includes early public involvement. Furthermore, local sponsors are on the study team from the beginning to the end of an investigation.

Pages 11-13 - Project Expectations: It is stated that in some cases the local entity went forward with smaller projects than were envisioned by the Federal study. Part of this is due to differences in scoping of problems. The Federal agency is constrained by legal definitions of the national interest in its formulation of solutions and Federal projects have broader goals and serve more purposes.

[GAO COMMENT: This is the issue we are attempting to address in recommending that planners gain an understanding of the project envisioned by the study sponsor. Constraints on either party should be fully addressed early in the study process to preclude proposing projects that are clearly beyond the means of the local entity.]

Page 14: The GAO discussion of the "lengthy study process" should give considerable support for our implementing the Two-Stage process. The new process will aid in solving this problem.

There seems to be an excessive concern in the report about the relationship between the elapsed time over which a study is conducted and the probability that a feasible project plan will be found. The feasibility analysis is intended to be long term (100 years). One would not normally expect the findings of a feasibility analysis to change significantly as a result of short term phenomena. Feasibility findings (as determined at the time of study or with insignificant changes in the discount rate) should not be affected by increases in the elapsed time taken to do the analysis. During the inflationary period of the 1970's, significant changes in construction cost and the discount rate did affect the feasibility findings of certain studies, especially irrigation related potential projects. However, this was an unusual situation and it is not expected to continue.

Page 15: Many of the factors listed as contributing to a lengthy study process are being examined by BR. Improved scheduling techniques such as PROPLAN and EZ-PERT are being implemented. Revised methods of, and criteria for, investigation prioritization are being considered.

[GAO COMMENT: We have recognized this point on page 15 of the report.]

The basic elements of the Two-Stage Planning process do not require legislative changes and are being implemented.

Page 16: Cost sharing of investigation cost does not have an influence on the feasibility of the project. In the final analysis, a project is recommended for construction if it is a good investment of Federal funds and has congressional support.

[GAO COMMENT: Discussed on page 22.]

Regarding local involvement, local representation on the study team occurs throughout the course of the study.

[GAO COMMENT: Discussed on page 22.]

The report advocates cost sharing of feasibility studies with local entities at an early point to increase the probability of finding feasible solutions consistent with sponsor needs and abilities. A State may be a logical entity to support the early stages of feasibility study, because it represents a broad range of interest.

Page 19: The BR is using cost sharing in its criteria for prioritizing investigations Bureauwide which reduces Federal outlays of funds and achieves a greater involvement by non-Federal interests.

Page 20 and 21: Conclusions and Recommendations - In addition to cost sharing the new planning process will resolve many problems and further aid the planning process.



**DEPARTMENT OF THE ARMY**  
**OFFICE OF THE ASSISTANT SECRETARY**  
WASHINGTON, DC 20310

Mr. Henry Eschwege  
Director  
Community and Economic  
Development Division  
U.S. General Accounting Office  
Washington, D. C.

SEP 29 1982

Dear Mr. Eschwege:

This is in reply to your letter of August 19, 1982, to the Secretary of Defense transmitting your draft report, "Local Authorities Should Help Pay for Federal Water Project Feasibility Studies", GAO Code 085627 (OSD Case No. 6049).

I agree that non-Federal sponsors should participate in the funding of water project feasibility studies and that there should be a consistent Federal policy to share study costs. As your report indicates, the Department of the Army has adopted a two-phase planning process for water projects of the Corps of Engineers. The first phase would involve a reconnaissance study, and the second phase would involve a feasibility study. The reconnaissance study would be 100 percent Federally financed. On those studies progressing into the second phase, non-Federal sponsors would contribute 50 percent to the cost of the feasibility study.

Your recommendation that the three Secretaries, together with the Director of OMB, formulate a consistent Federal policy for sharing all study costs has been anticipated by the Cabinet Council on Natural Resources and Environment, which addressed increased non-Federal financing of studies as part of its discussion of increased non-Federal participation in the financing of water project implementation. We would expect eventual development of detailed guidelines consistent with the general policies of the Cabinet Council. The Department of the Army supports consistent policy among the Federal water resources agencies, except where there are valid reasons for variations among programs because of the nature of the services they provide.



The Corps of Engineers will incorporate your second recommendation concerning early discussions with project sponsors as they periodically review and revise their planning guidance. Information gained from such discussions and evaluations may prove helpful in guiding study efforts.

Further comments are enclosed.

Sincerely,



William R. Gianelli  
Assistant Secretary of the Army  
(Civil Works)

Enclosure

Additional Comments on  
GAO Draft Report (Code 085627)  
"Local Authorities Should Help Pay For  
Federal Water Project Feasibility Studies"

Page 1, paragraph 4 - insert this sentence after third sentence,  
"Of this total, about \$65 million is for feasibility studies and the  
remainder is for special studies and for data collection services."

[GAO COMMENT: Suggested clarification added to report.]

Page 19, 1st full paragraph - modify last sentence to read  
"...contribute up to 25 percent of the cost of the feasibility phase  
of the study ..."

[GAO COMMENT: Suggested clarification added to report.]



DEPARTMENT OF AGRICULTURE  
OFFICE OF THE SECRETARY  
WASHINGTON, D. C. 20250

October 7, 1972

Mr. Henry Eschwege  
Director, Community and  
Economic Development Division  
United States General Accounting Office  
Washington, D.C. 20548

Dear Mr. Eschwege:

This is in response to your request of August 19 for comments on your proposed draft report to the Congress entitled "Local Authorities Should Help Pay for Federal Water Project Feasibility Studies."

Generally, the Soil Conservation Service (SCS) feels the report is factual and objective. However, we feel there is an inference throughout the report that efforts on projects which fail to reach implementation are a total waste. This inference would be eliminated by adding a statement that recognizes local entities can and do use the data developed for their projects during the planning process to make sound decisions on future flood plain use and to take corrective actions at their own expense. We agree that requiring sponsoring groups to share the cost of planning would increase the percentage of projects reaching construction.

[GAO COMMENT: A statement was added on page 7 to reflect this concern.]

The following specific comments are offered for clarification of the text.


1. Page iv - Recommendations to Agency Heads. The second recommendation concerning requirements on planners is presently in the National Watersheds Manual which provides planning guidance for the watershed program of the SCS.

[GAO COMMENT: Discussed on page 22.]

2. Page 3 - Study Authorization. The last sentence of the first paragraph states that the Chief of the SCS may authorize detailed planning without congressional authorization. A statement should be added that these authorizations are limited by the amount of funds available through annual appropriations and the new starts are limited in numbers by administration and congressional constraints in the budget. In summary, we support the concept of sponsors bearing a portion of planning costs and responsibilities to insure up-front involvement in the projects.

[GAO COMMENT: Revised as suggested.]

Sincerely,

  
John R. Block  
Secretary



EXECUTIVE OFFICE OF THE PRESIDENT  
OFFICE OF MANAGEMENT AND BUDGET  
WASHINGTON, D.C. 20503

DCT 4 1982

Mr. William J. Anderson  
Director, General Government Division  
General Accounting Office  
Washington, D.C. 20548

Dear Mr. Anderson:

This is in response to your request for comments on a draft report to the Congress entitled "Local Authorities Should Help Pay for Federal Water Project Feasibility Studies."

The Office of Management and Budget has reviewed the study and finds that, in general, the analysis presented is objective, and the conclusions of the report are correct. Cost sharing for water resource development feasibility studies would reduce the large number of "dead end" project investigations. The Administration is currently evaluating options for a general cost-sharing policy for most aspects of Federal water resource development.

We also believe that the data presented in the study raises a fundamental management issue for the affected agencies which is not addressed in adequate detail. Data and interview statements included in the report imply that the planning programs for water resource development have not been managed efficiently in the past. The study states on Page 10 that:

"Another fundamental reason for continuing studies, according to some officials, is that the planning workload in some districts or regions is insufficient to fully utilize the available staff resources."

This is an issue which may deserve critical attention, yet the report fails to develop a line of inquiry and analysis which addresses it fully. The report does not identify the underlying causal factors which allowed and potentially encouraged the continuation of planning on projects which had little, if any, chance of resulting in a constructed project.

Cost sharing for feasibility studies could reduce the time and money devoted to planning projects which are not likely to be constructed, but we would hope that the final report contains an analysis of why the situation described by the draft exists and persists, as well as appropriate recommendations for the improved management and execution of the planning programs affected. Cost sharing is an appropriate planning program reform, but it does not fully address the more basic questions concerning program management which the study uncovered.

[GAO COMMENT: Discussed on page 22.]

In a more technical vein, we would also note that the cost estimates contained in the report are confusing because they are undefined. The report appears to lump together monies expended over a lengthy period of time without any consideration for the value of the "dollar" expended. For example, a \$30,000 study undertaken in 1965 would cost approximately \$80,000 in 1982 dollars. We would recommend that all cost estimates be presented in constant dollars.

[GAO COMMENT: A statement was added on page 6 cautioning the reader that all costs are stated in actual dollars. In our opinion, converting to constant dollars would be appropriate if we were making a cost comparison between two or more alternatives. However, in this report, we are only trying to account for past expenditures. We believe that using constant dollars in this case would tend to confuse the reader and would add little to the point being made.]

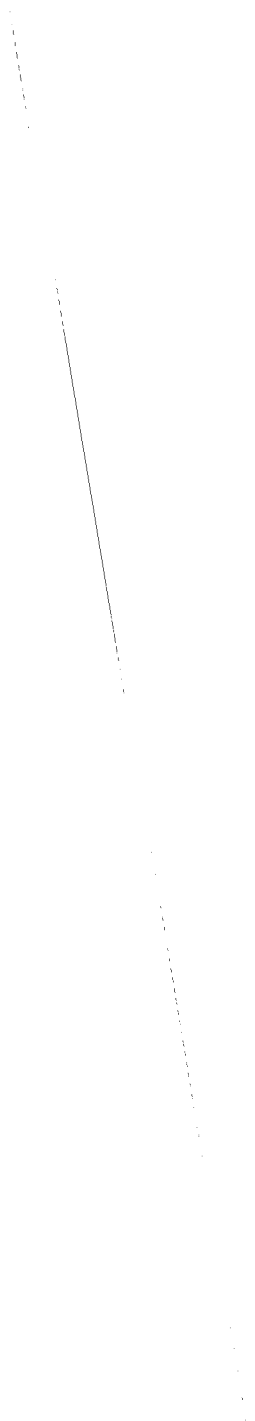
Thank you for this opportunity to comment on this draft study.

Sincerely,



Joseph R. Wright, Jr.  
Deputy Director

(085627)



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