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[Analysis of the Process of Authorizing Water Resources Projects]. CED-78-41; B-167941. January 30, 1978. 9 pp.

Report to Sen. Edmund S. Muskie, Chairman, Senate Committee on Budget; Sen. Henry Bellmon, Minority Member; by Elmer B. Staats, Comptroller General.

Issue Area: Water and Water Related Programs: Water Resources Programs to meet the competing demands for Water Uses (2503).

Contact: Community and Economic Development Div.

Budget Function: Natural Resources, Environment, and Energy: Water Resources and Power (301).

Organization Concerned: Department of the Interior; Department of the Army: Corps of Engineers; Water Resources Council; Bureau of Reclamation.

Congressional Relevance: Senate Committee on Budget. Sen. Edmund S. Muskie; Sen. Henry Bellmon.

Authority: Water Resources Planning Act of 1965, as amended.

Congress has generally authorized studies of water resources problems identified by the public. As a result of these studies, Congress generally authorizes projects by two means -- individually or as part of a general plan for the comprehensive development of a large geographic area or river basin. Authorizing studies and projects individually provides certain advantages over authorizing general water resources plans. Less time and effort go into the individual preliminary and feasibility studies because a smaller area is involved, and individual projects are generally more responsive to local needs. The major disadvantage of authorizing individual studies and projects is that decisionmakers are limited to considering the project's effects on a small geographic area. The major advantage of general plans is that decisionmakers can consider and respond to overall water resources needs of a larger area. General plans involving multi-projects generally take longer to prepare, and construction is usually stretched over a longer period of time. When fully implemented, the Water Resources Council's Water Assessment and Appraisal Program could aid in improving the present authorization practices by providing a means to identify and set priorities on national needs for water resources. Until such priorities can be set on a national basis, decisionmakers in the authorization process should strive to compare and set priorities for projects on as wide a geographic basis as possible. (RRS)



COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

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JAN 30 1978

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The Honorable Edmund S. Muskie, Chairman
The Honorable Henry Bellmon, Minority Member
Committee on the Budget
United States Senate

In your joint letter of August 5, 1977, you expressed concern over the practice of authorizing individual water resources projects and suggested that benefits to the Nation might be maximized if the Congress authorized general water resources development plans for the comprehensive development of large geographic areas instead of individual projects. You requested that we identify possible alternatives to the present authorization practices and review their merits. You were also interested in other aspects of water resources projects; we will address these in other reports.

As agreed with your office we based our work on the results of past GAO reports and workpapers and on interviews with officials from the Corps of Engineers, Bureau of Reclamation, Water Resources Council, and private consultants. We have included informal comments from these officials where appropriate.

Generally, the Congress has authorized studies of water resources problems identified by the public. As a result of these studies the Congress generally authorizes projects by two means--individually or as part of a general plan for the comprehensive development of a large geographic area or river basin. We noted that there are advantages and disadvantages to authorizing both individual projects and general plans. In addition, specific problems exist under current authorization practices. Although we are not in a position to propose alternatives to these problems at this time, we do believe that the 1965 Water Resources Planning Act and the Water Resources Council's Water Assessment and Appraisal Program offer a framework for improving these practices. This program will aid in setting priorities on the Nation's water resources needs and in selecting projects to address those needs.

AUTORIZATION OF INDIVIDUAL PROJECTS

Generally, the Bureau and the Corps have studied individual water resources problems, and the Congress has

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authorized individual projects for construction to deal with specific problems rather than general water resources plans for the comprehensive development of large geographic areas or river basins.

Advantages and disadvantages of authorizing individual projects

Authorizing studies and projects individually provides certain advantages over authorizing general water resources plans:

- Less time and effort go into the individual preliminary and feasibility studies because a smaller geographic area is involved. The implementing agency must consider factors such as other existing and possible future projects, upstream and downstream effects, effects on wildlife, and environmental impacts; however, this approach affects a smaller geographic area and therefore requires less study.
- Individual projects are generally more responsive to local needs than a general plan which might have to compromise local needs of several areas in order to meet the needs of the larger area.

One major disadvantage of authorizing individual studies and projects is that decisionmakers are limited to considering the project's effects on a small geographic area. Consequently, a less than optimum project may result because the broader needs and interests of the region, basin, or Nation have not been adequately considered. Another disadvantage is that decisionmakers have little means of comparing the feasibility of individual projects to determine which ones would meet the most critical water resources needs and therefore deserve Federal funding. When projects are not compared, there is no assurance that the highest priority projects are funded. Without some method of evaluating and comparing individual projects in terms of national priorities, it is not certain that current water resources planning most effectively responds to priority national needs.

AUTHORIZING DEVELOPMENT OF GENERAL PLANS

From time to time the Congress has authorized general plans for comprehensive development of broad geographic areas, such as a river or river basin. Although such plans provide for a number of projects, the Congress has generally authorized construction of the projects individually or in groups rather than authorizing all projects in the plans at one time. As

illustrated in the following examples, many projects that are currently being constructed are part of a general plan developed many years ago.

--In 1946 the Congress authorized a study to develop a general plan for the comprehensive development of the Flint River Basin in Georgia. In 1962 the Corps completed the plan which included five projects; one was authorized for construction in 1963, two others in 1965, and the remaining two have not yet been authorized.

--The Pick-Sloan Missouri Basin Program, authorized in 1944, originally proposed building over 100 dams and reservoirs in the Missouri River Basin. Authorization for construction of the first projects under the program was received in 1944 and construction started in 1946. Construction of some of these individual projects is still underway, while others have not been built or have been modified and still others have been added. The Congress has required that individual projects included under the original plan for which construction is not yet started be reauthorized under current procedures.

Advantages and disadvantages in authorizing development of general plans

A major advantage of general plans is that decision-makers can consider and respond to overall water resources needs of a larger area. A general plan should attract comments from a wider audience of Federal, State, and local governments; and private individuals and groups, and thus provide for a better analysis of public opinion. Although projects within a general plan are authorized for construction individually or in groups, the overall planning effort can help to identify needs of a large area before they become critical, and individual or multi-projects can be designed to deal with these needs.

General plans also have disadvantages. General plans involving multi-projects generally take longer to prepare and construction is usually stretched over a longer period of time. As time passes conditions change as do the needs for each project. Each project must then be reevaluated for its merits and contribution to the general plan before construction begins.

PROBLEMS EXPERIENCED UNDER THE PRESENT WATER
RESOURCES PROJECTS AUTHORIZATION PROCESS

We identified several problems that we believe have affected many decisions to authorize general water resources plans and individual projects:

- Corps and Water Resources Council officials stated that no formal guidelines exist for determining priority national needs for water resources. In spite of this, these officials believed that many national needs are being met.
- There has been a lack of reliable information on which to base broad planning decisions. In previous reports we pointed out that some information has not been developed 1/ and that in other instances the information available is inaccurate. 2/
- In some cases, studies did not deal with all available resources or viable project alternatives to meet an area's needs. Problems of this nature have led, in part, to some projects' being authorized that were never constructed and others' requiring agencies to undertake comprehensive crash planning to consider other alternatives which would meet the needs.
- Studies have not been updated periodically to reflect changes that have occurred between the completion of the study, authorization of a project, and appropriation of construction funds. As a result, projects have been authorized where the benefit-cost ratio is now less than it was initially. 3/

1/"Ground Water: An Overview," CED-77-69, June 21, 1977.

2/"Problems Affecting Usefulness of the National Water Assessment," CED-77-50, Mar. 23, 1977.

3/GAO reports: "Benefits Claimed for the Corps of Engineers' Catherine Creek Lake Project in Oregon," CED-76-147, Aug. 31, 1976; "Economic and Environmental Aspects of the Proposed William L. Springer Project, Illinois," RED-75-363, Apr. 18, 1975; "Environmental and Economic Issues of the Corps of Engineers' Red River Lake Project in Kentucky," RED-76-9, Aug. 15, 1975; "Improvements Needed in Making Benefit-Cost Analyses for Federal Water Resources Projects," B-167941, Sept. 20, 1974.

Other factors that are affecting or beginning to affect water resources planning and must be considered in future decisions include nonstructural alternatives to water resources problems; water conservation; the effects of local, State, and Federal water rights on water resources supply and use; and coordination with other Federal and non-Federal entities concerned with water resources.

These problems probably have been compounded by the practice of authorizing more projects than can realistically be funded in a timely manner. Some authorized projects will likely never be funded because of the existing backlog of authorized but unfunded projects and, according to the National Water Commission, other projects may become obsolete before the Congress appropriates funds for construction.

We believe that in order to maximize benefits to the Nation by optimum development of water resources these problems must be dealt with, national water resources needs must be identified and priorities set, and plans and projects must be designed to meet these needs on the basis of current, reliable data.

OPPORTUNITY FOR IMPROVING AUTHORIZATION PRACTICES

The Congress recognized that there were problems in developing our Nation's water resources when it passed the Water Resources Planning Act of 1965. The act provided for optimum development of the Nation's water resources through (1) coordinated planning of water and related land resources, (2) establishment of the Water Resources Council and river basin commissions, and (3) provision of financial assistance to the States in order to increase State participation in such planning. We believe the act provides the type of framework needed to determine which water resources projects best respond to national needs for water resources.

The Water Resources Planning Act of 1965

Among other things, this act requires river basin commissions to:

- Serve as the principal agencies for coordination of Federal, State, interstate, local, and nongovernmental plans for developing water and related land resources in its area, river basin, or group of river basins.
- Undertake studies of water and related land resources.

- Prepare and keep up to date a comprehensive, coordinated joint plan for Federal, State, interstate, local, and non-governmental development of water and related resources.
- Recommend long-range schedules of priorities (priority reports) for the collection and analysis of basic water resources data and for investigation, planning, and construction of projects.

The act also requires the Water Resources Council to review plans submitted by river basin commissions to determine their adequacy and their contribution to fulfilling national water needs. On the basis of such determination, and other information, the Council is required to make recommendations to the President for transmittal to the Congress regarding authorization of Federal projects included in such plans and the adequacy of related Federal policies and programs. The act provides for cooperation and financial assistance in such planning.

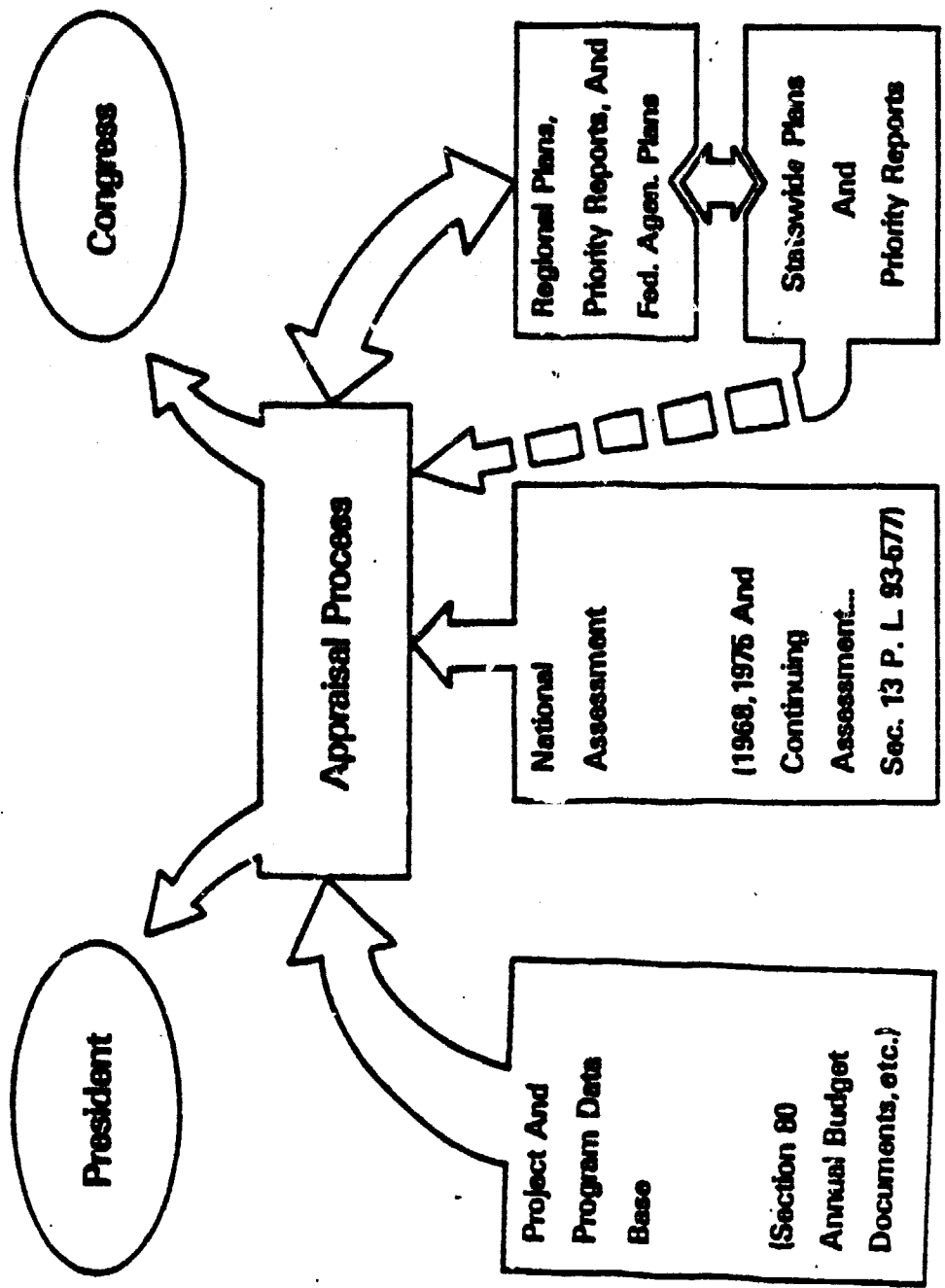
Problems with implementation of
the 1965 act

To attempt to fulfill its responsibilities for national water resources development, the Water Resources Council has developed its Water Assessment and Appraisal Program, scheduled to be operational in 1978. This program is to serve the Council as a management tool for appraising national water policy and programs through the integration of water resources planning at the Federal, regional, and State levels. The appraisal process will use data from State and regional plans and priorities reports; the 1975 National Water Assessment and continuing assessment activities; the data base reflecting the historic funding of water resources programs; and other information, such as existing or emerging national policy. One function of the appraisal program is to evaluate individual Federal water resources policies and programs to recommend actions to the President and the Congress. The appraisal process is illustrated on page 7.

In a March 23, 1977, report to the Chairman of the Water Resources Council, 1/ we identified problems concerning reliability of some data used in this appraisal program. In addition, as stated in our October 31, 1977, report to the

1/"Problems Affecting Usefulness of the National Water Assessment," CED-77-50, Mar. 23, 1977.

Water Assessment And Appraisal Program



SOURCE: "Justifications for Appropriations, Fiscal Year Ending September 30, 1978," U.S. Water Resources Council.

Chairman of the Water Resources Council, 1/ we believe that the Council and the river basin commissions have made only limited progress since 1965 in achieving the act's objectives. Before the Water Assessment and Appraisal Program or other Council techniques can be successful, the following problems must be resolved:

- The lack of uniform definitions and guidelines for preparation and review of comprehensive, coordinated joint plans and priority reports will prevent nationwide evaluation and comparison of projects. The Council and river basin commissions recognize the importance of criteria to summarize and compare regional plans at the national level but have not been able to agree on what basis to compare these plans.
- The lack of a clear working relationship between the Council and river basin commissions will continue to contribute to inconsistency and uncertainty within the Council. Since 1967 the Council and river basin commissions have attempted to clarify working relationships without success.
- Council representatives have failed to bring unresolved matters to Council members for decisionmaking. This failure will further delay development of definitions and guidelines and clarification of Council and river basin commission working relationships.

Water Resources Council officials recognize these problems and state that they are taking steps to resolve some of them. However, because of the problems, the Water Assessment and Appraisal Program may not be usable in 1978 as planned.

Corps of Engineers, Bureau of Reclamation, and Water Resources Council officials agree that if criteria can be developed to compare projects and needs on a nationwide basis, benefits to the Nation could be maximized. However, in the meantime they recommend that comparing and setting priorities be done on a regional basis. The National Water Commission report of 1973 suggests that water resources budgeting priorities be based on regional allocation criteria similar

1/"Improvements Needed by the Water Resources Council and River Basin Commission to Achieve the Objectives of the Water Resources Act of 1965," CED-78-1, Oct. 31, 1977.


to those the Corps uses in formulating its 5-year civil works water resources program, such as, regional water needs, Federal income taxes paid, population, population and per capita income, and efficiency. A Water Resources Council official agreed that this type of criteria could be used to compare and set priorities on needs. However, no action has been taken on this National Water Commission recommendation.

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In summary, we noted that there are advantages and disadvantages to the present authorization practices involving both individual projects and general water resources development plans and that problems exist under these practices. We believe that, when fully implemented, the Water Resources Council's Water Assessment and Appraisal Program could aid in improving the present authorization practices by providing a means to identify and set priorities on national needs for water resources.

Until such priorities can be set on a national basis, we believe that decisionmakers in the authorization process should strive to compare and set priorities for water resources projects and plans on as broad a geographic basis as possible.

As arranged with your office, unless you publicly announce its contents earlier, we plan no further distribution of this report until 7 days from the date of the report. At that time we will send copies of this report to appropriate Senate and House Committees; the Acting Director, Office of Management and Budget; and heads of departments and agencies directly involved. We will make copies available to others upon request.


Comptroller General
of the United States