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Report to Secretary, Department of the Interior; by Henry Eschwege, Director, Community and Economic Development Div.

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The Water Resources Council is conducting the 1975 National Water Assessment in cooperation with Federal, State and regional agencies. Scheduled for completion in December 1977, the project should cost \$6.8 million. Problems have appeared raising doubts about the reliability and usefulness of the assessment. The agencies involved have been unable to resolve some discrepancies in the water data and some have questioned the assessment's usefulness. **Findings/Conclusions:** The assessment is designed to identify future national and regional water needs and compare Federal and State-regional viewpoints on such problems. The large discrepancies discovered when federally prepared data were compared with regional data developed because the accumulation of water supply and use data involves many factors, such as data sources, methodology, assumptions, and judgments, which can cause significantly different results. **Recommendations:** The Council should give full publicity and visibility to the objectives and intended uses of the 1975 assessment so that the final document is responsive, to the maximum extent possible, to the needs of the user agencies. The Council should reappraise the objectives of a periodic national assessment and the way it is carried out. It should also reappraise the methodology employed in developing national water data and improve Federal, State, and regional coordination in establishing a reliable data base. (Author/QM)



*UNITED STATES
GENERAL ACCOUNTING OFFICE*

Problems Affecting Usefulness Of The National Water Assessment

Water Resources Council

The law requires a periodic assessment of the Nation's water supplies and requirements. In developing the current assessment, with 1975 as the base year and projections to the year 2000, the Council, its Federal member agencies, and cooperating State and regional agencies have experienced problems which may adversely affect the reliability and usefulness of the assessment.

Steps should be taken to make the final document more responsive to the needs of the intended user agencies; and before undertaking future assessments, the Council should reappraise the objectives of the project and the methodology of developing an adequate national water data base.



UNITED STATES GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

COMMUNITY AND ECONOMIC
DEVELOPMENT DIVISION

B-171596

The Honorable
Secretary of the Interior
Chairman, Water Resources Council

Dear Mr. Secretary:

The General Accounting Office has reviewed the efforts being made by the Water Resources Council to develop a national water assessment in compliance with section 102 of the Water Resources Planning Act of 1965 (Public Law 89-80). This report presents the results of our review.

Our report contains recommendations to the Water Resources Council which were discussed with the Office of the Assistant Secretary of the Interior for Land and Water Resources and the staff of the Water Resources Council. Their comments are recognized in the report.

As you know, section 236 of the Legislative Reorganization Act of 1970 requires the head of a Federal agency to submit a written statement on actions taken on our recommendations to the House Committee on Government Operations and the Senate Committee on Governmental Affairs not later than 60 days after the date of the report and the House and Senate Committees on Appropriations with the agency's first request for appropriations made more than 60 days after the date of the report.

We are sending copies of this report to the four Committees to set in motion the requirements of section 236. Copies are also being sent to the legislative committees of the House and Senate interested in water resources planning; the Director, Office of Management and Budget; the Acting Director, Water Resources Council; and the Assistant Secretary of the Interior for Land and Water Resources.

Sincerely yours,

A handwritten signature in cursive script that reads "Henry Eschwege".

Henry Eschwege
Director

D I G E S T

The Water Resources Planning Act of 1965 requires the Water Resources Council to prepare an assessment biennially, or less frequently as the Council may determine, of the adequacy of water supplies necessary to meet the requirements in each water resource region of the United States.

The Council is now conducting the 1975 National Water Assessment in cooperation with Federal, State, and regional agencies. This assessment is the second effort under the law--the first was the 1968 assessment. The current effort started in 1974 and is scheduled for completion in December 1977, at a cost of \$6.8 million.

Problems have come to GAO's attention which raise doubts about the reliability and usefulness of the 1975 assessment. Federal, State, and regional agencies have been unable to resolve discrepancies in the water data for base year 1975, and some of these agencies have questioned the assessment's usefulness.

DISCREPANCIES BETWEEN FEDERAL
AND REGIONAL WATER DATA

The 1975 Assessment is designed to identify future national and regional water needs and compare Federal and State-regional viewpoints of such problems. This requires that both approaches use the same base year data.

When federally prepared data was compared with regional data, large discrepancies were discovered, and regional agencies expressed concern over the reliability of the Federal data. Attempts to narrow these differences to a 10-percent variance were not successful in many instances.

GAO's inquiries as to the reasons for the discrepancies showed that the development of water supply and use data involves many factors, such as data sources, methodology, assumptions, and judgments that must be made, which can cause significantly different results.

To help resolve or moderate differences in data and to document the reasons for those which cannot be moderated, the Council entered into agreements with Federal member agencies. Council staff believes that, notwithstanding the differences, the assessment will serve a useful purpose if it exposes these differences and the reasons for them.

QUESTIONABLE USEFULNESS OF ASSESSMENT

Some of the agencies expected to use the completed assessment have expressed serious doubts regarding the ultimate usefulness of the document as it is being developed. In particular, some State and regional agencies questioned the Council's use of subareas--which are to approximate natural drainage areas--because they did not coincide with State boundaries and were not meaningful from a regional viewpoint. To help rectify this situation, the Council budgeted \$200,000 to also prepare the Federal data in a format recognizing State boundaries.

Representatives of some of the Federal agencies acknowledged the general benefits of a continuing assessment process but had no definite plans of how to use the assessment report. A user needs study made in mid-1976 by the Department of the Interior revealed many doubts among Department officials as to the usefulness of the end product and considerable confusion as to its intended accomplishments. The study recommended several specific steps to achieve the potential benefits of the 1975 assessment.

GAO believes that Interior's recommendations merit careful consideration by the Council staff and its member agencies to make the assessment "user-oriented" and improve the receptivity of agency officials who are intended to use it. Also, all possible efforts should be made to recognize the concerns of State and regional agencies, even if it is not practicable to satisfactorily reconcile the Federal and regional data.

Before undertaking future assessments of the scope and magnitude of the 1975 assessment, GAO believes there is a need for better planning so that the data developed will be useful to Federal, State, and regional agencies. Because of a variety of available methodologies and varying assumptions that can be used in arriving at a data base, prior

agreement among all participating agencies appears to be desirable on a common course of action instead of developing independently separate data bases and then seeking a reconciliation.

RECOMMENDATIONS

The Council should give full publicity and visibility to the objectives and intended uses of the 1975 assessment so that the final document is responsive, to the maximum extent possible, to the needs of the user agencies.

Beyond the 1975 assessment, the Council should reappraise the objectives of a periodic national assessment and the way it is carried out. The Council also should reappraise the methodology employed in developing national water data and improve Federal, State, and regional coordination in establishing a reliable data base.

The Office of the Assistant Secretary of the Interior for Land and Water Resources and the staff of the Water Resources Council generally agreed with GAO's recommendations.

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CHAPTER 1

INTRODUCTION

Section 102(a) of the Water Resources Planning act of 1965 (42 U.S.C. 1962a-1) provides that the Water Resources Council shall

"* * * maintain a continuing study and prepare an assessment biennially, or at such less frequent intervals as the Council may determine, of the adequacy of supplies of water necessary to meet the water requirements in each water resource region in the United States and the national interest therein * * *."

The Water Resources Council, in compliance with the 1965 act, is now conducting the 1975 National Water Assessment in cooperation with Federal, State, and regional agencies. The ongoing assessment, started in calendar year 1974 and scheduled for completion by December 1977 at a cost of \$6.8 million, will determine water requirements, supply availability, and specific problems needing resolution at the national, regional, and subregional levels.

The 1975 assessment, the second effort by the Council under section 102, seeks to "identify, describe, and place in priority for resolution the Nation's severe existing and emerging water and related land resources problems from both the State-regional and national viewpoints." To meet this objective, a vast body of data on water requirements, supply, and deficiency for 1975 (the base year), 1985, and the year 2000 must be assembled. This data shall apply to each of 106 "aggregated subareas" which in turn constitute the Nation's 21 water resources regions.

The 1975 assessment is planned in three major steps:

- A nationwide analysis (February 1974 - June 1976) prepared by the Council and its National Programs and Assessment Committee and designed to provide an overview, as seen by the Federal agencies, of the relative severity of water problems among the Nation's larger geographical areas.

--A specific problem analysis (February 1974 - September 1977) prepared by 21 regional sponsors^{1/} with the help of regional and State agencies and designed to develop the State-regional viewpoint of current and future water needs and related problems.

--A national priority analysis (November 1976 - September 1977), for which the Council and the participating Federal agencies are responsible, intended to articulate from the national viewpoint priorities for resolving identified water-related problems and to prepare a national assessment report.

In carrying out its overall planning responsibilities under the Water Resources Planning Act, the Council has assigned an important role to the assessment. The Council is developing a system called the Water Assessment and Appraisal Program which is intended to coordinate and integrate the many facets of federally financed water activities. The four major components of the program are the assessment, comprehensive regional plans, State plans, and the study prepared by the Council under section 80(c) of the 1974 Water Resources Development Act (Public Law 93-251).

The objective of this program is to give the executive branch of the Federal Government, through the Council, an analytical mechanism for appraising existing and proposed water and related land programs. With this program, the Council expects to be in a better position to make sound recommendations to the President and the Congress on allocating Federal resources to meet the Nation's critical water requirements.

We reviewed the development of the assessment because of its significant role within the Council's broader Water Assessment and Appraisal Program, because of its stated objective to serve as a basis for important decisions in water resources planning, and because of concerns reported by regional and State agencies participating in the undertaking.

^{1/} Regional activities for the 1975 assessment are being supervised by sponsors for each of the 21 water resources regions. Most sponsors are continuing regional agencies, such as river basin commissions. Where such an agency was not available, an ad hoc group was organized or a State's water resources agency was designated.

SCOPE OF REVIEW

Our review of the 1975 assessment was principally concerned with the reliability of its data base and potential usefulness to Federal, State, and regional agencies. We did not evaluate the validity of the data and the underlying assumptions and methodologies or the objectives of the assessment as established by the Council. We primarily identified data problems perceived by agencies preparing or reviewing the data, which could lessen the assessment's credibility, and obtained the reaction of the intended users regarding the assessment's usefulness.

We reviewed pertinent documents at the Council and several member agencies and regional sponsors. We also held discussions with Council staff, officials of several member agencies, 5 of the 21 regional sponsors, and 8 selected States.

CHAPTER 2

PROBLEMS IN ESTABLISHING A RELIABLE DATA BASE

The first attempt to comply with section 102 of the Water Resources Planning Act was the 1968 assessment. This project used available water supply and use information with 1965 as a base year and sought to project such data to the year 2020 for the 20 water resources regions then subject to comprehensive river basin planning.

In its report on the 1968 assessment, the Council pointed out that the inadequacy of data on water resources placed a severe limitation on water resource planning and the assessment. In congressional hearings in April 1969 the Council's Director testified that the Council did not consider the 1968 project a fully satisfactory national assessment within the meaning of section 102.

Recognizing the importance of improving water supply and use data prior to conducting future assessments, the Council called for an interagency effort to recommend improvements. A task force established for this purpose functioned between March 1968 and January 1969 and presented its report, entitled "The Water-Use Data Base," in May 1969. This report contained several recommendations on ways to improve water use data and priorities for such improvements.

The Council staff informed us that some of these recommendations were implemented when undertaking the 1975 assessment but that lack of an appropriate institutional mechanism for coordinating Federal, State, and regional data collection activities made it difficult to adopt all the recommendations.

Our review showed that the 1975 assessment is again suffering from serious problems in accumulating adequate national water data. We believe that these problems call for a reappraisal of how best to establish a reliable data base.

DISCREPANCIES BETWEEN FEDERAL AND REGIONAL DATA

In February 1975, when the federally prepared nationwide analysis was exposed to the regional sponsors for review and comments, large discrepancies were discovered between water data used for base year 1975 by the Federal agencies and those used by the regional sponsors. These discrepancies exceeded by a wide margin those expected by the Council staff.

Assessment participants generally recognized the need for a common data base for 1975 when preparing the national priority analysis, which is intended to synthesize the Federal and State-regional viewpoints. Consequently, in May 1975, the Council's Director established, with the approval of the Council of Representatives^{1/}, a goal of reconciling all base-year data within a 10-percent variance. The Director emphasized that the identification of future regional needs, and a comparison of the Federal and State-regional viewpoints of identified water problems, was possible only if both approaches use the same starting point, namely, the same base data for 1975.

Accordingly, during the major part of 1975 and 1976, the Council's member agencies and the regional sponsors attempted to resolve the many differences in base-year data. By the end of calendar year 1976, however, large differences still existed.

For example, in November 1976 we compared Federal and regional water use data for the Texas-Gulf Region and noted that in one aggregated subarea the regional sponsor estimated water withdrawals for manufacturing use at 26 percent less than the Federal agency but estimated consumption for manufacturing purposes at 65 percent more. For the Missouri River Basin, data published in August 1976 by the regional sponsor on consumptive water use for irrigation differed from 22 to 177 percent from the Federal data for the 11 aggregated subareas into which the region is divided. Irrigation accounts for about 85 percent of consumptive water use in the Missouri River Basin.

The Council has entered into agreements with Federal member agencies under which they will be responsible for moderating, if not resolving, differences; for those which cannot be moderated, the reason for the differences and their possible impact on problem areas will be documented. We were told that the 10-percent goal is no longer a fixed objective but merely a guideline.

SOME REASONS FOR DISCREPANCIES BETWEEN DATA

Our discussions with agency officials participating in the assessment indicated that the development of data on water supply and use involves many factors, such as data

^{1/} The Council of Representatives is a working group of agency staff supporting the Council's members. It usually meets monthly and has the responsibility of making decisions for or recommendations to the members.

sources, methodology, assumptions, and judgments that must be made, which can cause significantly different results. It should also be noted that data for the base year 1975 had to be obtained as early as 1974, and that, therefore, projections had to be made in the absence of actual data.

For example, Federal and regional water supply data for the Pacific Northwest varied considerably because of different ways of measuring streamflow. The basic data elements used in the calculation of surface water supply are the daily measurements of streamflow taken by stream gaging instruments over a period of years. Because reservoir regulation and increased water use have considerably altered the natural flow in the Columbia River Basin and some other of the Nation's principal streams, the flow computed for these streams is highly dependent on the number of years chosen from the historical record and on the adjustments made to the streamflow data.

Another example involves the New England Region. For the category of commercial water use from a public water system, Federal data was incomplete, whereas in the region the only available information was based on a 1965 study, considered too old for yielding reliable 1975 base-year data. In this situation in which the regional sponsor was unable to refute or confirm the accuracy of either the Federal or regional data, the Council agreed to provide \$10,000 to a consultant to develop new base and future year data for this water use category.

CONCERNS BY REGIONAL SPONSORS

Correspondence between regional sponsors and the Council shows a number of concerns expressed by the regions over the reliability of the data produced by Federal agencies, questioning the soundness of any conclusions that may be drawn therefrom. For example, the Chairman of the Upper Mississippi River Basin Commission stated that the procedures used in developing water use projections for 1975, 1985, and 2000 and water supply information for 1975 were "fraught with deficiencies and inconsistencies." He saw this evidenced by the "many inaccuracies, inconsistencies, and/or omissions" in the data. He felt strongly that the Council and Federal agencies must give serious consideration to making substantial revisions to all aspects of the materials including procedures, methodology statements, and numerical and tabular data. In forwarding regional views to the Council, the Chairman of the Pacific Northwest River Basin Commission concluded that some of the basic information appeared to be inadequate to develop a reliable and useful assessment on a national basis.

The Regional Study Director for the Pacific Northwest Region told us he had very little confidence in the accuracy with which the Federal data describes base conditions. He also told us about efforts to resolve with the Council differences over water supply data and that such efforts were generally unsuccessful until the U.S. Geological Survey provided a field specialist to work with the regional staff.

COUNCIL POSITION ON DATA PROBLEMS

Almost all of the data problems noted in our review were also recognized by the Council and the agencies that prepared the data. The Council and certain member agencies, however, took the position that either the problems were not significant or, if they were significant, the data was still adequate for its intended purposes in the absence of more reliable data, considering the state of the art and the funding and time constraints imposed by the Council.

In regard to obtaining agreement between Federal and regional data for base year 1975, as originally contemplated, the Council's assessment leader told us that resolving the data differences was desirable and important but was no longer considered an absolute necessity. He explained that the difficulties in resolving identified differences are greater than originally envisioned, in part because the disagreeing agencies feel strongly about the correctness of their data. It is difficult to determine the technical correctness of the data, and discrepancies may be due to basic differences in data definitions. Therefore, identifying the reasons for the differences is more important than forcing their resolution; both Federal and regional data, whether resolved or not, will be included in the published assessment document; and unresolved data differences may prove helpful in pointing out areas where improvement is needed in data collection activities.

CHAPTER 3

QUESTIONABLE USEFULNESS OF ASSESSMENT

In stating the objectives of the 1975 assessment, the Water Resources Council specified in its 1974 Plan of Study that the task should be "done in a manner to be of direct use to the executive branch, the Congress, and Federal-State agencies in helping them to make better water-related implementation, planning, research, and data collection decisions." The Council emphasized that the completed assessment should facilitate the utilization of its conclusions and recommendations by Federal, State, and regional agencies in the formulation of their budgets and program activities and by the Office of Management and Budget and the Congress during their review of the program budgets submitted by the agencies and the President. The assessment is also intended to be of value to other individuals and organizations in carrying out their water-related programs and projects and in meeting their objectives.

Correspondence in the files of the Council and our discussions with representatives of some of the agencies expected to make use of the completed assessment have shown that serious doubts exist regarding the ultimate usefulness of the assessment as it is being developed. Some of these doubts directly relate to the criticism of the data base and the geographical breakdown used by the Council.

OBJECTIONS TO USE OF "AGGREGATED SUBAREAS"

Some regional sponsors and State agencies questioned the usefulness of the 106 aggregated subareas into which the Council had divided the country for the purpose of the 1975 assessment. The Council's grouping of subareas, which were to approximate natural drainage areas, often did not coincide with State boundaries and sometimes included parts of two or more States.

Correspondence between the Council and regional and State representatives shows that prior to the start of the 1975 assessment the States had expressed a strong desire for the accumulation of water data by State boundaries in order to be of maximum use for them, and that the Council had been aware of this expressed desire. We noted continuing criticism by regional sponsors during subsequent phases of the 1975 assessment, pointing to shortcomings resulting from the use of data by aggregated subareas rather than by geographical areas which are more meaningful from a regional viewpoint.

In discussing this matter with us in June 1976, a Council official conceded that it probably was a mistake not to provide initially for water data on a State-by-State basis; however, sufficient funds were not available to obtain such data at the start of the assessment. To help rectify the situation, the Council included in its 1977 fiscal year budget the sum of \$200,000 to also prepare Federal data in a format recognizing State boundaries.

COMMENTS BY STATE OFFICIALS

The sponsor for the New England Region reported to the Council that the lack of enthusiasm shown by the States in that region was directly attributable to their perception that the Federal data and the overall assessment will be of little utility in addressing their resource needs.

Of eight State officials contacted during our review, seven were unconvinced of the assessment's potential value as a decisionmaking document and cited the following reasons:

- The data was not prepared on a State basis but for geographical areas which did not align with State boundaries.
- The data merely recapitulates information that is already known.
- Data presented on a broad geographic basis will lack the detail needed to describe an individual State's water problems.
- Some States are mandated by State law, or have adopted the general practice, to use only population projections developed by their own State agencies; projections developed by others are not admissable.

A State member of the Missouri River Basin Commission informed the Council in September 1975 that the general consensus of participant States seems to be that the assessment is being prepared to satisfy a requirement of the Congress in the form of a report to be filed and forgotten. He noted that it was extremely difficult to envision a document that will be of any true value, at least at the field level.

COMMENTS BY REGIONAL SPONSORS

Generally, the most serious questions regarding the assessment's usefulness were raised by the sponsors of the western water regions.

A staff member of the Texas Water Development Board, the sponsor for the Texas-Gulf Region, conceded that the assessment may provide a useful line of communication between the States and the Federal Government but believed that it will be of little use to the region or the Texas Water Development Board because it is too general and lacking in detail and analysis.

The consensus of the western regions' study directors has been that simple comparisons of total water supplies and requirements at the aggregated subarea level do not reveal water shortages within such an area due to geographical distribution and institutional restrictions, such as State water rights.

These officials believe that the subareas used in the assessment are so extremely large that critical water shortages in particular portions of a subarea are lost in the total figures. In the more humid regions, where water requirements are primarily for municipal and industrial purposes and the use takes place close to bodies of water, this type of analysis may be sufficient. In western regions, however, where the major consumptive use of water is for irrigation and considerable distance and physical barriers exist between points of supply and points of use, a more detailed analysis is required. The western study directors also believe that, since water rights and institutional factors are ignored, the analysis is moot.

The Council staff explained that the subarea analysis is not intended to show the adequacy of water resources within a subarea. Rather, the analysis is designed to show the potential impact that increased consumptive use between now and the year 2000 will have on the streamflow at the outlet point of each aggregated subarea. The Council staff suggested, however, that confusion over the purpose of the subarea analysis may have resulted from inadequate communications between the Council and the regional sponsors.

COMMENTS BY FEDERAL OFFICIALS

Two members of the Council of Representatives--representing the Department of the Interior and the Environmental Protection Agency--with whom we discussed the potential usefulness of the 1975 assessment could cite no definite plans or specific examples of how their agencies would use the assessment report. The officials, however, expected the undertaking would be most useful as the first step in a continuing assessment process, that it would serve as a reference document, and should benefit Federal agencies in their planning, programing, and budgeting for water resource activities.

Staff of the Office of Management and Budget similarly acknowledged the general usefulness of the assessment and the process of developing the necessary data and analyses, but attributed no specific role to it within the Office's budget functions.

RECENT USER NEEDS STUDY BY
DEPARTMENT OF THE INTERIOR

The Council did not make a comprehensive study of the needs of the assessment's intended users. However, in mid-1976 the Council provided funds to the Department of the Interior for a study which sought the views of Interior officials on the potential uses of the material being assembled in the 1975 assessment and how to improve its usefulness. Similar studies were not made by other Federal agencies.

In October 1976 the Water Resources Policy Coordination staff under the Assistant Secretary of the Interior for Land and Water Resources issued its report on the study which noted some positive reaction to the assessment but also revealed many doubts as to its usefulness and considerable confusion as to what it is intended to accomplish. Concern was expressed about the timeliness and detail of information being developed, and whether the undertaking was receiving sufficient support by the Congress, the Office of Management and Budget, and even the member agencies of the Council.

The study report recommends several specific steps to be taken by the Department of the Interior and the Council to insure that the potentials of the 1975 assessment, as well as of other important water resources studies sponsored by the Council, are realized. The study found that in the past there has been no consistent and universal application of the Council's products in the overall institutional water resources system of the Nation.

Recommendations for Department of the Interior action are aimed at providing better information to Department officials on the value of the 1975 assessment and procedures and guidelines for its use.

Recommendations to the Council call for making the information in the 1975 assessment user oriented and the final document packaged with the user in mind. The study report also recommends various actions to achieve full potential use by each member agency and give adequate publicity and visibility to the assessment throughout the executive and legislative branches.

For longer range consideration by the Council the study report recommends several improvements in data collection and presentation.

CHAPTER 4

CONCLUSION, RECOMMENDATIONS, AND AGENCY COMMENTS

CONCLUSION

Substantial manpower and monetary resources are being expended in preparing the 1975 assessment. This is being done not only to satisfy the statutory requirement of Public Law 89-80, but also to produce a document which will serve the important role intended for it by the Council as part of its continuing Water Assessment and Appraisal Program.

The problems which have come to our attention with respect to the reliability and usefulness of the assessment raise doubts as to whether it will effectively serve its intended purposes. We recognize that as the undertaking is now in an advanced stage of development it may no longer be practicable to remedy the large discrepancies between federally and regionally assembled base data. This situation seems to point to the need for better planning in the initial stages of the assessment.

We believe, however, that the Council's staff and its member agencies, thus far, may not have taken all reasonable steps to assure that the 1975 assessment will be of maximum usefulness to its intended users. The recent user needs study by the Department of the Interior staff has shown that there is a need to better explain and publicize the purpose and value of the assessment. The study properly points out that the value of the end product will depend on its use which, in turn, will depend upon its being made available to decision-makers in a form they can readily apply to their programs.

We believe that the recommendations of the Interior staff study merit careful consideration by the Council and its member agencies to make the final product "user-oriented" and improve the receptivity of Interior and other agency officials who are intended to benefit from it. In addition we believe that, before finalizing the national priority analysis, the third and final phase of the assessment, all possible efforts should be made to recognize the concerns expressed by State and regional agencies, even if it is not possible to satisfactorily reconcile the data developed by them with those presented at the Federal level.

Beyond the task of making the 1975 assessment meaningful and useful, the question may well be asked as to how future assessments should be carried out and how often to be of maximum value. The 1965 act gives no specific direction as to how the

assessment should be made or what it should include and leaves the frequency to the Council's discretion. After the 1968 assessment the Council considered the desirability of publishing an assessment every 5 years, but budgetary constraints have delayed the preparation of the present project. A reappraisal of the functions a national assessment should serve and how best to carry it out appears to be desirable considering the many other water resources studies undertaken in recent years and further studies required by various acts of the Congress.

Before undertaking an assessment of the scope and magnitude of the 1975 assessment, we believe there is need for better planning so that the data developed will be useful to Federal, State, and regional agencies. Because of a variety of available methodologies and varying assumptions that can be used in arriving at a data base, prior agreement among all participating agencies on a common course of action appears to be desirable.

To this end, the Council should consider developing a methodology which will serve the interests of all affected parties, with standardized guidelines governing such important factors as geographical areas, time periods, climatic and economic conditions, and methods of measuring physical quantities of water use and supply. Instead of the Council's present plan to have Federal agencies and State and regional agencies develop independently a separate data base and then to seek a reconciliation, a unified approach to construct a common base for use by all agencies might be more practicable and economical.

Special attention should be devoted to arriving at data that will maximize the usefulness of the final assessment so that questions will not be raised regarding the usefulness of the federally developed data as under the Council's present approach.

The need for improved methods of gathering water data at the Federal, State, and regional levels was also brought out in a recent study by the Congressional Research Service of the Library of Congress, "Water Resources of the Missouri River Basin," and the recommendations based thereon by two members of the Subcommittee on Energy Research and Water Resources of the Senate Committee on Interior and Insular Affairs^{1/}. The Senators recommended, among other things, a higher degree of planning coordination and communication at State and regional levels to narrow differences in projections of future water use. They also recommended that essential

^{1/} Committee Print, November 1976, 94th Congress, 2d Session

factors considered in the evaluation of the current state of water resources be clearly stated in all planning documents and that drainage basin boundary configurations used in federally supported studies be agreed upon and standardized.

RECOMMENDATIONS

The Council should give full publicity and visibility to the objectives and intended uses of the 1975 assessment so that the final document is responsive, to the maximum extent possible, to the needs of the user agencies and the concerns expressed by State and regional agencies.

In regard to future assessments, the Council should re-appraise the objectives which a periodic national assessment should serve and the way it should be carried out. Also, the Council should reappraise the methodology to be employed in developing adequate national water data and improve coordination between Federal, State, and regional agencies in establishing a reliable data base.

COMMENTS BY AGENCY OFFICIALS

An official of the Office of the Assistant Secretary of the Interior for Land and Water Resources informed us that his office had no objection to the general content of our report and supported its conclusions and recommendations. He emphasized the need for a reappraisal of the objectives of future assessments and of the methodology for developing an adequate data base, as we recommended, in light of the assessment's role within the Council's broader Water Assessment and Appraisal Program.

The Interior official pointed out the desirability of reconciling differences between Federal and regional data. Without their resolution, it will be difficult to outline the water problems to be addressed and any potential solutions. He further stressed the beneficial results from the Interior staff's user study which brought out the concerns of Interior agencies over the use of the 1975 assessment. An analysis of the comments, thoughts, and concerns of all potential users should help to enhance the objectives and methodologies of future assessments.

The Acting Director of the Water Resources Council and his staff agreed that our report offered some valuable constructive criticisms of the assessment and that the Council should take every effort to pursue the recommendations and follow up on the concerns identified in the report. With respect to carrying out the 1975 assessment, the Council staff furnished the following specific reactions.

The Council staff along with member agencies and regional sponsors has been concerned for some time about the cited data problems. A total of about \$250,000 is being spent to resolve differences between Federal and regional data. The Council will describe the reasons for differences which cannot be resolved so that users of the final report are fully aware of the extent of agreement and disagreement. There will be full documentation so that the data and procedures developed for the 1975 assessment can be useful for continuing assessment activities and can be improved upon in the future.

The Council staff agreed that the assessment must be responsive to user agencies, and efforts are being made to resolve the problem of States not finding the assessment useful to them. These efforts include an agreement with the Department of Commerce to recognize State boundaries in the data base and similar agreements with other Federal member agencies are to be concluded shortly.

MEMBER AGENCIES OF THE WATER RESOURCES COUNCIL

I. The following are full members (note a):

Department of Agriculture
Department of the Army
Department of Commerce
Department of Housing and Urban Development
Department of the Interior
Department of Transportation
Environmental Protection Agency
Federal Power Commission

II. The following are observers:

Department of Justice
Office of Management and Budget
Council on Environmental Quality
Tennessee Valley Authority
Delaware River Basin Commission
Great Lakes River Basin Commission
Missouri River Basin Commission
New England River Basin Commission
Ohio River Basin Commission
Pacific Northwest River Basin Commission
Susquehanna River Basin Commission
Upper Mississippi River Basin Commission
Arkansas-White-Red Interagency Committee
Pacific Southwest Interagency Committee
Southeast Basin Interagency Committee

a/ The above membership is specified in Public Law 89-80,
as amended by Public Law 94-112 (October 16, 1975)