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

GENERAL GOVERNMENT  
DIVISION

JAN 1 1967



The Honorable H. Guyford Stever  
Chairman, Federal Coordinating Council  
for Science, Engineering and Technology

Dear Dr. Stever:

We have reviewed the procedures followed by the General Accounting Office Research (GAO/R) in carrying out the function assigned to the Executive Branch under Section 309 of the Federal Acquisition Regulation Act of 1964 (P.L. 88-311). These used and function were designed to coordinate and improve the effectiveness of the national research and development activities. Also, in our review focused on GAO/R activities, we noted certain information from other Federal agencies which would be of interest to you in your activities, including the following:

1. The GAO/R has received information from the Department of Defense regarding the Department's research and development activities. The Department of Defense is currently conducting research and development activities in the field of space technology, and the GAO/R is currently conducting research and development activities in the field of space technology. The GAO/R is currently conducting research and development activities in the field of space technology. The GAO/R is currently conducting research and development activities in the field of space technology.

We believe that the information provided in the preceding paragraph by GAO/R is of interest to you in your activities. We are currently conducting research and development activities in the field of space technology. We are currently conducting research and development activities in the field of space technology. We are currently conducting research and development activities in the field of space technology.

Very truly yours,

Enclosed is a copy of the report of the Office of Science and Technology and the Federal Council for Science and Technology in fulfilling their responsibility for inter-agency coordination.

of water resources research. COMRR's role was to coordinate the nation's many and diverse water research activities conducted at the various departments and agencies within the Federal Government involved in water resources research. Within these departments and agencies, 23 distinct organizations either conduct or sponsor water resources research.

The Federal water research budget for these organizations has increased from \$4.7 million in fiscal year 1964 to an estimated \$21.4 million for fiscal year 1970 (as reported to COMRR by the individual agencies). Since current Federal spending for water research and development is so large, the interagency coordination of Federal water resources research funds and assignments is essential.

In the Water Resources Research Act of 1964 the Congress stipulated that the President should clarify agency responsibilities for Federal water resources research and take appropriate steps for implementing the interagency coordination of such research. In addition, the law stated that such coordination should include:

- Identification of Federal needs in various water resources research categories;
- Assignment of responsibility of the Federal Government to meet such needs;
- Action to facilitate the development of a coordinated program of research;
- Identification of Federal departments and agencies which have the capability to carry out such research;
- Review of the Federal Government's ability to carry out the research in light of the total Federal Government budget;
- Development of a program of interagency coordination to improve the quality of Government research efforts.

These functions are part of the seven functions assigned to COMRR when it was established.

Each responsibility was carried out by the responsible department or agency of the Federal Government. In the National Science and Technology Act of 1970, the Congress directed the National Science and Technology Board

Organization, and Priorities Act of 1974 (P.L. 94-202). This law established the Federal Coordinating Council for Science, Engineering, and Technology (FCCSET) to replace the Federal Council for Science and Technology. The 1974 act did not repeal section 305 of the 1964 act and that section is still in effect. FCCSET will exercise the functions under the direction of NSRF.

We found that COMER had addressed the first four functions, mentioned above, while directing very little attention to the other three. COMER had not prepared a detailed action plan for carrying out its assigned functions. The Chairman of COMER told us that little attention had been given to the last three functions because of staff and funding limitations. The functions used by COMER to carry out the other four functions are the following:

COMER FUNCTIONS  
1. To coordinate the activities of the various Federal agencies in the field of research and development.  
2. To coordinate the activities of the various Federal agencies in the field of research and development.

The COMER Chairman told us that since 1964 COMER has published information obtained for its annual reports on the adequacy of the Federal Government's research and development efforts. The first six reports covered the period from 1964 to 1969. Information obtained from these reports is used by the various Federal agencies to coordinate their research and development activities. The Chairman told us that COMER has since 1970 published annual reports on the adequacy of the Federal Government's research and development efforts. The Chairman told us that COMER has since 1970 published annual reports on the adequacy of the Federal Government's research and development efforts. The Chairman told us that COMER has since 1970 published annual reports on the adequacy of the Federal Government's research and development efforts.

We found no evidence that the information published in the annual reports included an evaluation of the adequacy of the research conducted to date. Also, the reports have not been published in timely manner. For example, the 1971 report was issued in May 1972, and the 1972 report was issued in May 1973. If the reports are to serve as useful documents for data on research and development activities of the various Federal agencies, they should be timely and should include an analysis of the adequacy of the research being conducted.

IDENTIFICATION AND ELIMINATION OF  
DUPLICATION AND OVERLAP BETWEEN  
FEDERAL RESEARCH PROGRAMS

COMER uses a research classification system as its primary means of identifying duplication and overlaps. Our review indicated that the system is not adequate to serve its intended purpose. For each annual report, COMER members use ten major categories and 60 subcategories to classify the research project expenditures (individual projects are not listed). The categorized lists are then submitted to COMER which reviews them for any indications of duplication or overlap.

COMER's classification categories do not adequately reflect all activities currently being performed by its members. For example, an official from the U.S. Forest Service told us that not all of the Forest Service's natural resource research is reported because the categories are not adequately defined. Other agency officials told us that since their research usually fits into more than one COMER category, they arbitrarily allocate their research to several categories. Since the classification system is not adequate for the purpose of identifying duplication and overlap, the classification system could be modified to provide a more comprehensive and detailed classification system.

Many COMER members have been unable to give a complete oral report of their research activities because of the complexity of the system. It is possible that a more complete oral report could be developed by the Office of Management and Enterprise Development and other COMER members. The oral report could be a more complete and detailed report of research activities. It could include a description of the research project, the objectives, the methods, the results, and the conclusions. It could also include a list of the agencies involved in the project and a list of the funding sources.

COMER members also told us that they have not fully reported their research activities because of the complexity of the system. It is possible that a more complete oral report could be developed by the Office of Management and Enterprise Development and other COMER members. The oral report could be a more complete and detailed report of research activities. It could include a description of the research project, the objectives, the methods, the results, and the conclusions. It could also include a list of the agencies involved in the project and a list of the funding sources.

IDENTIFICATION OF TECHNICAL  
NEEDS IN VARIOUS WATER RESOURCES  
RESEARCH CATEGORIES

In 1966, COMWR issued a report entitled "A Ten-year Program of Federal Water Resources Research." This report presented a basis for long-range planning of a research program; a discussion of 14 major water research problem areas and recommendations for research in each area; a classification of then-current programs, divided into nine major research categories and 44 research subcategories; as well as recommendations for the size and scope of research work for each subcategory and for increased expenditure levels for the five-year period 1967 to 1971 inclusive. The ten-year program did not contain specific recommendations as to which agency should be responsible for performing specific research assignments or as to individual agency expenditure levels.

COMWR's 1970 annual report discussed the need for revision of the ten-year program because new problems were emerging, existing research requirements had been identified to some extent, the recommended general five-year budget allotment in the ten-year program did not go beyond 1971, and shorter time horizons had been identified in the ten-year program. The 1970 report identified the problem areas and the specific problems within COMWR identified as requiring immediate research support.

COMWR is presently supporting the development of a five-year water resources research plan. The primary objective is to complete a five-year period of research, identify the research areas, facilities, research methods and recommended expenditure levels for a research effort. The plan will be completed by September 30, 1977.

COMWR has not established a mechanism for ascertaining the extent to which its program was being fulfilled in the last few years. We believe that such a mechanism should be established and should provide a means for obtaining current information to aid in identifying which areas are continuing research in a specific problem area, identifying the research activities, providing a means to assess the impact of research activities, and keeping the program up-to-date.

ACTIONS TO FACILITATE INTERAGENCY  
COORDINATION OF RESEARCH ACTIVITIES

COMWR facilitates its inter-agency coordination primarily through monthly meetings. These meetings provide a forum for discussion among the members. At these meetings agency officials are informed of how

developments in their fields and in other interdisciplinary areas relating to water resources research as well as notification of new publications, upcoming seminars, or agency annual meetings which the members can attend.

Minutes of the meetings are sent to all members. For those who do not attend a meeting, the COWRR Chairman said that the minutes are one way of learning what transpired at the meeting and of keeping abreast of current developments in the water area.

However, our review indicated that the minutes contained comments mainly on reorganizations, reassignments, and recent publications. For example, in the period from September 1974 to January 1976, agencies' research projects or programs were mentioned in only seven instances. Also, the minutes contained very little detailed information of what transpired at the meetings.

Occasionally, the COWRR Chairman also established ad hoc work groups as part of the effort to facilitate interagency communication. The work groups study specific, relevant problem areas and write a report which is distributed to COWRR members for comment and discussion. The COWRR Chairman told us that he felt the completed ad hoc studies have contributed to interagency communication.

We believe that we could better facilitate interagency communication by encouraging a more detailed discussion of research projects at monthly meetings and by providing more detailed minutes of the meetings.

#### RECOMMENDATIONS

Because of the large number of Federal departments and agencies involved, and the time that has elapsed since the recent year-to-year planning of water resources research activities, we believe it is important that improvements be made in the procedures followed by COWRR to enhance the coordination and effectiveness of such activities. Therefore, we recommend that COWRR:

- Prepare for the publication and action plan for carrying out each of the recommendations set forth in Section 305 of the Water Resources Research Act of 1964.
- Issue the annual reports in a more timely manner and include, in such reports, the results of the continuing analysis of the adequacy of research being conducted by the various Federal agencies.

--Improve its research classification system so that it is sufficiently comprehensive, and define the categories clearly enough to provide information needed to assist in identifying and eliminating duplication and overlap. In addition, reinstitute the annual review process during the monthly meetings at which each Federal agency's research activities are reviewed.

--Design and implement a monitoring system for ascertaining the extent to which its research program for water resources research is implemented in the budget process. Such system should provide for obtaining current information needed to identify which agencies are conducting research in specific problem areas, identifying those areas needing more research, providing information to users for a part of research activities, and keeping it up to date.

--Increase the number of citations of research projects at monthly meetings and prepare more detailed minutes of such meetings.

We are enclosing copies of this report to those Federal agencies which have representatives on the Research Council.

A copy of this report is also being furnished to the Council on Environmental Quality and the National Science Foundation. We would be glad to discuss this report with you or your staff. If you have any questions, please contact Mr. Charles E. Johnson, Director.

Sincerely yours,

Charles E. Johnson  
Director