REPORT TO THE CONGRESS

BY THE COMPTROLLER GENERAL OF THE UNITED STATES

Long-Range Analysis Activities In Seven Federal Agencies

GAO studied the long-range analysis systems in seven agencies. Effective long-range analysis can be an imprortant aid to the executive branch and to the Congress in solving long-term problems facing the Nation.

The most important factor in obtaining good long-range analysis is the commitment of decisionmakers in both the executive branch and the Congress to using that analysis. GAO identified several factors that, if followed, can improve the effectiveness of long-range analysis.

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

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

At the joint request of the Chairman, Subcommittee on Fisheries and Wildlife Conservation and the Environment, House Committee on Merchant Marine and Fisheries, and the Chairman, Subcommittee on Environment and the Atmosphere, House Committee on Science and Technology, we surveyed the long-range planning and analysis activities in selected Federal agencies. This report contains our study of their long-range analysis systems and identifies several factors for generally increasing the effectiveness of long-range analysis.

Copies of this report are being sent to the Director, Office of Management and Budget; the Secretaries of Agriculture, Commerce, Defense, and the Interior; and the Administrators of the Energy Research and Development Administration, the Environmental Protection Agency, and the Federal Energy Administration.

Comptroller General
of the United States

Contents

ABBREVIATIONS

DOD	Department of Defense
EPA	Environmental Protection Agency
ERDA	Energy Research and Development Administration
FEA	Federal Energy Administration
FYDP	Five Year Defense Plan
GAO	General Accounting Office
USDA	U.S. Department of Agriculture
R&D	research and development

D I G E S T

Many of the problems facing the United States can only be solved by actions which are carried out systematically over a long period of time. Resources must often be committed long before the results will be seen. In other cases, a problem might be avoided or made much less severe if it were anticipated and action were taken before the problem became serious.

To improve the capability of both the Congress and the executive branch to recognize, understand, and solve long range problems, agencies should prepare analyses of the problems and of ways to solve them. Not every problem is long-term in nature. For those which are, however, long-range analysis would provide a meaningful context in which to consider or modify existing programs or to initiate new ones.

Analysis should identify the problem or objective, analyze the effects of available policy options, and specify strategies that could be used to appraise the actual results of a program designed to solve the problem.

GAO studied the long-range analysis activities in seven Federal departments and agencies:

--The Departments of Agriculture, Commerce, Defense, and Interior;

--Energy Research and Development Administration;

--Environmental Protection Agency; and

--Federal Energy Administration.

GAO sought answers to these questions:

--What long-range planning and policy analyses are being made by and for the executive branch?

--What offices and individuals perform these activities?

--To whom do they report results of their studies and analyses?

--What impact have these activities had on policy decisions?

Descriptive information also was obtained on other facets of the agencies' planning and analysis systems.

LONG-RANGE ANALYSIS IN THE SEVEN AGENCIES

Long-range or future-oriented analyses have been referred to by many names, including "Long-range planning," "strategic assessment," and "policy planning." For convenience, GAO refers to all these as "long-range analysis."

GAO identified the following six activities as necessary in the performance of effective long-range analysis:

--Specifying broad, long-term policy objectives.

--Considering alternative policies.

--Setting priorities among policies.

--Laying out alternative plans.

--Evaluating the consequences of alternative plans.

--Coordinating the study and disseminating results.

The seven agencies studied did not have a uniform approach to conducting long-range analysis activities. The Departments of Agriculture and Defense, and the Energy Research and Development Administration had centralized departmental-level direction and coordination. The others took a more decentralized approach. GAO noted that no single way of organizing these activities is necessarily best.

The following were observed:

--Not every problem or program has a long-range character and analysis should be made only if there is a need. Such a need should be the result of a careful decision that the problem or program has implications for the future and that long-range analysis would be useful in addressing the problem area.

--Often long-term agency objectives are not clearly defined and the intended impact of agency programs is not clearly specified.

--Decisions on whether or not to conduct or support long-range analyses do not result necessarily from systematic reviews of the issues. In the absence of clearly defined long-term objectives, agencies may not evaluate systematically the need for long-range analysis and thus may not consider the long-range implications of their programs.

--Only a few reports on a wide range of long-term policy alternatives were produced, and these tended to have a limited distribution.

GAO concluded that the most important factor in assuring high-quality, long-range analysis is the presence of decisionmakers in both the executive branch and the Congress who want it and will use it. In addition, decisionmakers can help make long-range analysis more effective by

identifying objectives and recognizing the most important interrelationships among them, by assuring the active involvement of affected parties, and by assuring the wide dissemination of the results. Finally, GAO emphasized that long-range analysis is not a panacea, but that it can be of great assistance in identifying problems and developing effective solutions.

CHAPTER 1

INTRODUCTION

Why probe the future? Because long-term problems face the Nation--the challenges of dealing with a rapidly changing world. The character and potential magnitude of some of these problems are such that resources must be marshaled and commitments made before the effects of these problems are felt.

Government must explore what the future could bring, determine potential options, and evaluate the necessity for missions and the demand for services.

For national defense, the Government should identify the most likely adversaries, gauge the probability of hostile action, and estimate the amount of force necessary to protect the Nation's interests.

In agriculture, the Government should estimate the domestic and international requirements for agricultural products, the Nation's capacity to meet these demands, and the incentives needed--if any--to encourage progress toward national goals.

This future orientation, this need for predictive information, was summed up by one author as follows:

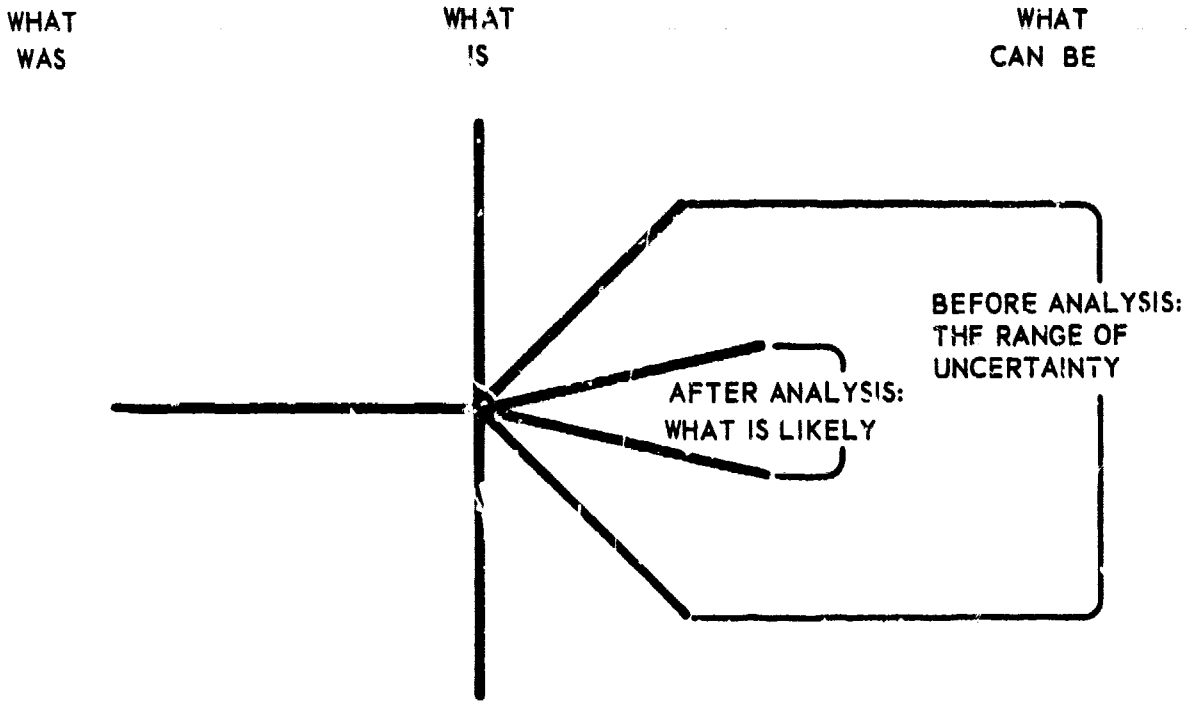
> "Planning is essentially oriented to the future. It recognizes that in the absence of planning the world will continue to develop and change. It is further based on the premise that in the absence of conscious action, some of this development and change may produce results which are not generally desired. The planner therefore attempts to devise policies which can influence the development in desired directions, by means and at costs which are acceptable to the community as a whole." 1/

This orientation is conveyed by figure 1--a visual indication of what we are trying to accomplish by considering the future.

1/Britton Harris, "New Tools for Planning." Journal of the American Institute of Planners, XXXI (May 1965), p. 91.

However, not every potential future problem or area of concern is a proper subject for long-range analysis. "Proper" is used here in the sense of the most efficient allocation of staff resources.

For example, when President Kennedy announced the national objective of landing an American on the Moon before the end of the 1960s, the door to alternate objectives was closed. A study to investigate the desirability of a first landing in 1972 would have been a waste of resources because that option had been foreclosed independent of technical, economic, or other rational merits.



The purpose of analysis is to narrow the range of uncertainty.

FIGURE 1

CONGRESSIONAL CONCERN FOR THE FUTURE

On September 11, 1975, the Committee for Anticipatory Democracy, sponsored by a bipartisan group of Members of the House and Senate, presented a program entitled "Outsmarting Crises: Futures Thinking in Congress." In announcing this presentation to the other Members, the sponsors expressed the hope that techniques and resources would be suggested to enhance the anticipatory capacity of the

legislative branch. Moreover, they felt this program was particularly timely because Members were recognizing that legislation adopted in such areas as energy, defense, and social services had long-range effects.

Congressional concern with such future issues can be traced back at least to the Employment Act of 1946, which declared a national policy on employment, production, and purchasing power. Specifically the act states:

> "The Congress hereby declares that it is the continuing policy and responsibility of the Federal Government to use all practicable means consistent with its needs and obligations and other essential considerations of national policy, with the assistance and cooperation of industry, agriculture, labor, and State and local governments, to coordinate and utilize all its plans, functions, and resources for the purpose of creating and maintaining * * * conditions * * * to promote maximum employment, production, and purchasing power." (60 Stat. 23, 15 U.S.C. 1021.) (Underscoring supplied.)

Congressional concern was also expressed by the passage of the Air Quality Act of 1967 (Public Law 90-148), the National Environmental Policy Act of 1969 (Public Law 91-190), and the Forest and Rangeland Renewable Resources Planning Act of 1974 (Public Law 93-378).

Although it is difficult to say whether the concern over the present state of the environment led to the concern about the future quality of life, or vice versa, the two are clearly interrelated. Specific events, however, have played an important part in advancing these trends toward a reasoned investigation into the future state of the environment.

At present, the Nation seems beset with crisis after crisis and problem after problem--energy, food, materials, environment, social services, and population. The list seems endless, but the energy crisis precipitated by the oil embargo of October 1973 appears to have acted as catalyst for the intensified interest in resource conservation, setting of national goals and priorities, and "rational" planning.

This interest appears to have also been encouraged by National Aeronautics and Space Administration and Department of Defense (DOD) successes with systems analysis--the use of quantatative techniques to solve operational problems.

During the early and mid 1970s, the Congress, besides creating new executive branch agencies, created the Office of Technology Assessment and the Congressional Budget Office, both with duties which call for long-range analysis. Additionally, the Congress has strengthened its other analytical arms, the Congressional Research Service of the Library of Congress and GAO, to be better informed about long-range alternatives.

The House of Representatives has also changed its rules by adding a provision which addresses the foresight aspect of congressional oversight. This section now reads:

> "[each standing committee] * * * shall review and study any conditions or circumstances which may indicate the necessity or desirability of enacting new or additional legislation within the jurisdiction of the committee (whether or not any bill or resolution has been introduced with respect thereto) and shall on a continuing basis undertake futures research and forecasting on matters within the jurisdiction of that committee." (Rule X, section 2(b)(1).

In response to a joint request from the Chairman, Subcommittee on Fisheries and Wildlife Conservation and the Environment, House Committee on Merchant Marine and Fisheries, and the Chairman, Subcommittee on Environment and the Atmosphere, House Committee on Science and Technology, we have surveyed the long-range planning and policy analysis activities of several key executive agencies. The Subcommittees were interested in, and concerned about, the capabilities of these agencies to analyze problems with long-term implications. The Subcommittees were also concerned about the flow, or lack thereof, of such information to the Congress.

RELATED GOVERNMENT ACTIVITIES

The Congressional Research Service has recently examined the topic of long-range planning and policy analysis. The four reports resulting from its examination were grouped together under the title "Long Range Planning" and were issued as a Committee print by the House Committee on Science and Technology in May 1976.

A related effort addressing the same concerns is being pursued by the Advisory Committee on National Growth Policy Processes to the National Commission on Supplies and Short-

ages. In a joint press conference held by the Senate leadership to announce the membership of the Advisory Committee, Senator Mike Mansfield said, concerning the tasks of the committee:

> " * * * this Committee will hopefully provide Congress with specific suggestions as to ways we as a Nation might improve our capacity to assess and anticipate problems associated with resources, materials, and commodity issues. These recommendations are to be delivered to the Congress by the end of this year [1976]--appropriately enough, our Nation's bicentennial year." 1/

Another related activity, not yet initiated, has been mandated by the National Science and Technology Policy, Organization, and Priorities Act of 1976 (Public Law 94-282). Title III of this act directs the President to establish a President's Committee on Science and Technology to "survey, examine, and analyze" science, engineering, and technology while taking into account the need for long-range study, analysis, and planning regarding the application of science and technology to major national problems or concerns.

SCOPE OF REVIEW

Our review of Federal long-range analysis activities included identifying responsible offices and individuals and appraising the activities in seven agencies. Accordingly, our survey addressed the following topics:

- --What long-range planning and policy analysis activities are being performed by and for the executive branch?
- --What offices and individuals perform these activities?
- --To whom do they report the results of their studies and analyses?
- --What impact have these activities had on policy decisions?

Also obtained was descriptive information on other aspects of the agencies' planning and analysis systems. (See app. II for the questions asked.) Our conclusions about these questions ar set forth in chapter 4.

1/ Congressional Record--Senate, Jan. 29, 1976, p. S782.

The initial information was gathered from seven Federal agencies between October 1975 and May 1976; however, the bulk of the information was obtained in November and December 1975. The study is based on the agencies' responses to a survey questionnaire. Responses were received from individual offices within those agencies and from various agency locations within the United States. By the nature of the activity, most of the responses were from the agencies' headquarters in Washington, D.C. The agencies in our study were the Departments of Agriculture, Commerce, Defense, and Interior; the Energy Research and Development Administration; the Environmental Protection Agency; and the Federal Energy Administration.

The known interests of the two Subcommittees were important factors considered in selecting agencies for the study.

Although we reviewed many documents furnished by the agencies as example products of their long-range analysis activities, we did not, as a part of this study assess the technical merit of the reports produced by the agencies' long-range analysis systems. Also, we did not address the long-range analysis activities of the program units that make up the agencies.

CHAPTER 2

LONG-RANGE ANALYSIS: WHAT IS IT AND HOW CAN IT BE EVALUATED?

Future-oriented analyses have been referred to by many names, including "long-range planning," "strategic assessment," and "policy planning." For convenience, we have referred to all these activities as "long-range analysis."

Otis Graham, planning historian and author, has said, "Whatever planning is, it has something to do with taking the future into account." Our study used operational definitions for "forecasting," "long range," "planning and policy analysis," and "problem identification." 1/ The agencies participating in the study made essentially no changes to our definitions; in fact, most responses indicated that the definitions were adequate.

LONG-RANGE ANALYSIS: WHAT IS IT?

In our judgment, long-range analysis is a supportive part of the management process. It is analysis which deals with the future, at least 5 to 6 years ahead. It provides management with viewpoints and structured, qualitative and/or quantitative descriptions of (1) the impact of present decisions, (2) long-range trends in agency activities, (3) trends in the surrounding environment, or (4) a combination of the above.

Long-range analysis should provide the inputs to allow the agency to balance present concerns with possible future needs or consequences. It should help management to lay out long-term plans and to make decisions about agency policies which will guide the structuring of programs to be authorized in the future.

However, not every program or problem has a long-term character and not every policy has alternatives. Long-range analysis should result from a screening process which evaluates not only the long-term character of an activity, but also the factors which may restrict available options. In particular, could any alternative be adopted or have other factors foreclosed all options?

1/See p. 59 for definitions.

We believe long-range analysis and program evaluation serve similar functions in that they both provide information to improve management decisions.

Can this long-range information (or viewpoint) be provided by a group separate from management, or can it only be useful if it is an integral part of top management's viewpoint? If management is unwilling to consider anything other than present concerns, no amount of information or analysis is going to affect its decisions. However, the importance and complexity of thinking about and planning for the future seem to call for top management's attention and commitment.

Many different organizational structures could be used to accomplish long-range analyses. It is not clear, however, that any specific organizational structure is always best. One of top management's key decisions is the organizational framework for performing long-range analysis.

No matter what organizational structure is chosen--formal, informal, centralized, decentralized--attention should be directed toward long-range problems in a systematic fashion. From our perspective, topics of long-range analysis activities should be systematically selected and not based solely on a problem under current discussion.

We also believe that the results of long-range analysis activities should be disseminated by means of communication systems that are observable, identifiable, and capable of being evaluated. A major part of long-range analysis activities is communication. What has the analysis determined, how will these findings affect others, and--in general--how are these others to know that an analysis which might be of interest to them has been performed and reported on?

TABLE 1

CHARACTERISTICS OF FORMAL AND INFORMAL SYSTEMS

Characteristics	Advantages	Disadvantages
Formal:		
Permanent staff or managerial cadre.	More permanent and provides a recorded history of the effort.	Can serve to conceal a total lack of commitment on the part of management.
Organizational budget commitment.	Easier evaluation of assumptions, alternatives, and the planning process itself.	Can serve to misdirect observers by focusing attention away from an operational informal system.
Documented mission statements.	More consistent and more complete.	Likely to tie up added resources.
Formal authority and areas of responsibility.	Has a potential for broader inputs.	Added cost.
Formal products are prepared.	Able to better judge extent of resource commitments.	Added bureaucracy.
Part of the organizational chain of command.		
Usually are able to self-initiate projects.		
Informal:		
Temporary staff.	Flexible, can be established as needed.	Loss of key personnel can destroy the system.
Set up on an as-needed basis and resources drawn from other groups.	Less likely to result in a cursory examination.	Documentation may not exist so that the process cannot be evaluated and no lessons drawn.
Not part of routine management.	Can be more creative and less rigid.	Less likely to be as effective as a management tool for planning.
No authority vested in office, only in participants.	Less likely to tie up resources.	
	(These advantages can also be available to formal systems through the use of task forces and special assignments.)	

CRITERIA FOR PERFORMING LONG-RANGE ANALYSIS

We asked long-range planners and policy analysts in the seven agencies, "What do you do, how do you do it, and what has it accomplished?" We then reviewed the information obtained in light of a set of structural criteria against which long-range (planning and policy) analysis activities can be measured. These criteria are frequently mentioned in the literature of long-range planning and policy analysis 1/ and represent a logical sequence of steps which we believe should be traversed in any rational approach to long-range analysis and which were considered to compose long-range analysis as the term is used in this report. These criteria are:

--Specifying broad, long-term policy objectives.

--Considering alternative policies.

--Setting priorities among policies.

--Laying out alternative plans.

--Evaluating the consequences of the alternative plans.

--Coordinating the study and disseminating the results.

The above criteria are structural in that they focus attention on the process of making long-range analyses. The criteria were not applied to the content, or technical merit, of the analyses. A planning activity which satisfies all the criteria may be neither well received nor "successful," however defined, nor technically sound. On the other hand, we believe the criteria are necessary in that their absence may indicate serious conceptual flaws--flaws which, in turn, make decisionmakers even more reluctant to accept the results of the analysis.

The following sections briefly discuss the meaning and intent of each appraisal criterion.

1/See, for example Britton Harris, op. cit., and Edward Banfield, "Planning" in Meyerson and Banfield, Politics, Planning and the Public Interest. Glencoe, Free Press, 1955.

The agency should foster long-range analysis and specify broad, long-term policy objectives

We believe that explicitly stated, broad, long-term policy objectives are necessary to provide guidance from top management to the working level personnel. Management's specification of objectives also can serve as a framework for implementing programs that may derive from these policy objectives. In addition, policy and program objectives can serve as a means of classifying reports that document long-range analyses addressing these objectives.

Consequently, one measure of an agency's system would be the extent to which it fosters the development of broad, long-term policy objectives. There is, however, a fine line in the specification of objectives between being too vague and too specific. Objectives stated too specifically may preclude a meaningful consideration of alternatives.

Alternative policies should be an integral part of the agency's consideration of long-range analysis

After studying the agencies' systems, we believe alternative policies should be considered within the context of the broad guidance discussed in the previous criterion. A wide range of alternatives must be sought. The range of options available to an agency is limited, but the initial search for alternatives should not be constrained. For if broad classes are not examined, alternative approaches are usually unnecessarily limited to relatively small changes from existing policies.

As the process continues and more information is gathered, decisionmaking turns to determining what courses of action are possible within the constraints that are known to exist and in light of the ends to be attained.

Finally, it should be kept in mind that alternatives that are not feasible at one decisionmaking level may be feasible at a higher level.

The agency should explore the factors involved in setting priorities among long-range policies

To choose among the alternative policies or objectives, the decisionmaker must assign priorities according to some set of values. The analyst can help by indicating ways in which to accomplish this ordering. This can sometimes be done by using such techniques as "cost-effectiveness," "cost-benefit," or "cost-value" analysis.

The analysis should outline all effects that can be valued. This is particularly important when the possible objectives may not be compatible--for example, constructing and operating a new power generating facility versus preserving environmental quality standards.

Thus, a measure of agencies' long-range analysis is the extent to which organizations responsible for the analysis provide supporting analysis for the policy development process (that is, setting broad policy, considering policy alternatives, and assigning priorities to policy alternatives).

The agency's long-range analyses should lay out alternative plans

In some cases, the alternative policies (objectives) will be specific enough that they inherently contain the design of an implementing program. More often, each of the objectives will be achievable by many different approaches. The decisions which collectively structure a program are commitments--actions which oblige the organization to take certain other actions or which limit its choice of action in the future by foreclosing program possibilities.

The object of this part of the process should be to set down and document whatever information is known regarding the probable structure of the alternative programs and approaches that could be expected to achieve the desired objectives. After these programmatic frameworks have been decided on, the process is ready for the next step.

The agency's long-range analyses should develop and review the consequences of alternative plans

This measure deals with the completeness of and analytical support provided by the agency's system of long-range analysis in assessing the consequences of alternatives.

The evaluation of the consequences of alternative approaches should include considering qualitative and quantitative estimates of intended and unintended consequences. Of prime consideration should be determining (to the appropriate degree of confidence) the primary benefits and liabilities and the groups to which they accrue. Also to be considered are the relative efficiencies of the various programs in reaching the target population (for example, individual gains for those who participate).

The analysis should also try to identify both second-order (that is, derivative) and unexpected consequences of the program. This criterion is intended to encourage analysis staffs to minimize the after-the-fact discovery of unanticipated program benefits and liabilities.

Coordination and dissemination should be a key step and planned for in the analytical process

Coordinating the study during the analysis phase and later disseminating the reported results will not cure all the ills of planning. However, the obvious time to resolve departmental differences is before programmatic decisions have been made and programs have been implemented. One group included in our survey indicated that many of their problems have been created by other Federal agencies that acted without first determining the possible effect. In such cases, if analyses are made and are circulated widely before the programs are implemented, it is more likely that such problems can be avoided.

Consequently, a criterion of a successful long-range analysis would be (1) the degree of emphasis placed initially on identifying potential organizational inputs and potentially interested parties and (2) the extent to which the results are later made known.

SUMMARY

We believe that when an agency's responsibilities include areas which possess (or are thought to possess) long-range problems, the agency should have a process for accomplishing analyses of these problem areas. As a part of this process, coordination and guidance are necessarily the province of agency management. Their attention can assist agency's components in examining the problems of the future.

We also believe that coordination, communication, and high visibility are fundamental to the successful completion of long-range analysis. We recognize that the structure, or organization, of the groups preparing long-range analyses is not as important as the results of their activities--a systematic attempt to determine the possible range of alternative choices available to the decisionmakers and an investigation of the consequences of these alternatives.

CHAPTER 3

AGENCY ANALYSIS SYSTEMS

This chapter presents both an overview of the structure and process of the analysis systems implemented to support agency top management 1/ and our assessment of the degree to which each of the formal analysis systems satisfy the appraisal criteria described in chapter 2.

Table 2 summarizes our conclusions regarding the degree to which the agencies studied possess formal, departmental-level, long-range analysis systems that meet our assessment criteria. These conclusions are discussed in the sections dealing with each agency.

We have not attempted to report on the program units that compose the agencies surveyed. Therefore this chapter is not intended to describe or assess the program units' analysis systems.

We emphasize that we are assessing the various analysis systems in terms of structural criteria--criteria against which planning and analysis activities can be systematically measured. More to the point, we are examining the steps, or way-stations, in a comprehensive long-range analysis process. 2/ For particular long-range analyses, questions of content, such as appropriateness of study assumptions, validity of logic, and relevance of alternatives considered have been addressed by other GAO reports. (See app. III.)

DEPARTMENT OF AGRICULTURE

The Department of Agriculture (USDA) acquires and disseminates useful information on agricultural subjects in the most comprehensive sense. To accomplish this purpose, USDA functions in the areas of research, education, conservation, marketing, regulation, agricultural adjustment, surplus disposal, and rural development.

1/"Agency" refers to the highest organizational level and not to the individual program units that may make up the agency.

2/We did not address the substance of the products produced by these processes.

AN OVERVIEW OF AGENCY ANALYSIS SYSTEMS

	Specification of broad long-term policy objectives	Consideration of alternative policies	Setting priorities among policies	Laying out alternative plans	Evaluation of consequences of alternatives	Coordination and dissemination
Agriculture	YES	YES	YES	YES	YES	SOME FORMAL DISSEMINATION INTERNAL COORDINATION
	FY 1975 RESOURCES: 88 STAFF-YEARS; $322,000 CONTRACT AUTHORITY					
Commerce	← NO FORMAL MECHANISM AT DEPARTMENT LEVEL PRODUCTS EXHIBIT SOME OF ELEMENTS →					
	FY 1975 RESOURCES: 60 STAFF-YEARS; $963,000 CONTRACT AUTHORITY					
Defense	YES	YES	YES	YES	YES	SOME FORMAL DISSEMINATION INTERNAL COORDINATION
	FY 1975 RESOURCES: 21 STAFF-YEARS; $1,100,000 CONTRACT AUTHORITY					
Interior	← NO FORMAL MECHANISM AT DEPARTMENT LEVEL PRODUCTS EXHIBIT SOME OF ELEMENTS →					
	FY 1975 RESOURCES: 119 STAFF-YEARS; $710,000 CONTRACT AUTHORITY					
ERDA	YES	YES	YES	YES	YES	SOME FORMAL DISSEMINATION INTERNAL COORDINATION EXTERNAL-FEA
	FY 1975 RESOURCES: 74 STAFF-YEARS; $8,965,000 CONTRACT AUTHORITY					
EPA	NO FORMAL MECHANISM	YES	YES	YES	YES	SOME FORMAL DISSEMINATION INTERNAL COORDINATION
	FY 1975 RESOURCES: 4 STAFF-YEARS: $100,000 CONTRACT AUTHORITY					
FEA	← NO FORMAL MECHANISM AT DEPARTMENT LEVEL PRODUCTS EXHIBIT SOME OF ELEMENTS →					SOME FORMAL DISSEMINATION YES-EXTERNAL COORDINATION
	FY 1975 RESOURCES: 80 - 100 STAFF-YEARS					

Such recent legislation as the Forest and Rangeland Renewable Resources Planning Act of 1974 specifically requires USDA to perform both short- and long-term planning and to update the plan every 5 years; thus planning is to be a recurring process.

Section 603(b) of the Rural Development Act of 1972 (Public Law 92-419) requires that the Secretary of Agriculture establish employment, income, population, and housing and quality of community facilities goals for rural development. This act thus implicitly requires such forecasting and long-range analyses as are necessary to establish the requisite goals.

In addition to these and other legislative requirements to perform long-range analyses, USDA says that policy officials and program managers should perform these functions, as needed, as a part of their normal policymaking and management responsibilities.

General methods used

Specific techniques used in long-range analysis activities vary according to the requirements of the particular activities. For most analyses, USDA staff would call on the resources of the individual program agencies. These resources include:

--"Hard" data techniques such as

  --mathematical models (including simulation and economic models),

  --regression analysis, and

  --linear programing and

--"Soft" data techniques such as

  --alternative assumptions and

  --modified Delphi panels.

Responsible offices

Long-range analysis activities in USDA are, for the most part, decentralized to the individual USDA program units. These units, however, are given overall guidance and direction, and their activities are integrated into a

departmental system by the Secretary and his staff. Departmental leadership and interagency coordination, when needed, is available from USDA policy officials and the staff of the Office of Management and Finance (which also conducts occasional long-range studies and analyses).

Although each USDA program agency is responsible for long-range analysis in its program area, the primary responsibility for long-range projections and forecasts for agriculture and food, natural resources other than forests, and rural development lies with the Economic Research Service. The Forest Service has the corresponding responsibility for forestry and timber.

The Economic Research Service's mission is to develop and disseminate economic information for use by public and private decisionmakers concerned with the allocation and use of resources in agriculture and rural America. In addition, the agency is to identify, in response to requests of policy officials, departmental staff, and program agencies, the probable and possible short- and long-term impact on agriculture and rural people of existing and alternative policies and programs.

In making its long-range analyses of the forest and timber areas, the Forest Service recognizes several types of studies. In fact, it was one of the few groups to explicitly distinguish between long-range planning and long-range analysis. It defined (1) long-range planning as the study and analysis of physical and social effect of alternatives, assuming present general policies will continue, and (2) long-range policy analysis as the analysis of physical and social effect of alternative future policies. However, these distinctions should be read in the context of the production nature of the national forests. Because the national forests are an important source of renewable resources, the Forest Service prepares long-range management plans and these plans are based on present, known policies. In their more general analyses of the future, the Forest Service considers these long-range plans as one of many alternatives to be explored.

Process followed

The long-range analysis process in USDA is largely driven by the budget process and the need to respond both to legislative requirements and to executive guidance. USDA described its planning process as follows:

"The U.S. Department of Agriculture plans and manages its many diverse programs in the context of a comprehensive multi-year mission-oriented planning system fully integrated with annual budgeting and management operations. Program plans are developed in the context of mission-oriented policy guidance developed by the Secretary of Agriculture and his team of top policy officials. Individual agency programs are identified with the appropriate USDA mission they support, and agency planning activities are coordinated through a series of interrelated processes and committees culminating at the Department level in two basic policy committees [chaired by the Secretary and the Under Secretary]."

The departmental staff is currently using the data compiled for the GAO survey to serve as an inventory of the long-range analysis activities conducted by the USDA program agencies.

Does USDA satisfy the evaluative criteria?

On the whole, yes. USDA has a managed system which gives every indication of being a normal part of routine agency operations. USDA's overall approach to implementing a long-range analysis system is commendable. 1/

Does USDA specify broad, long-term policy objectives?

Yes. As part of its annual program planning process, USDA identifies for each of its missions the key problems expected over the next 5 years and specifies its goals and objectives related to those problems.

The USDA studies we reviewed could be divided into two types. One lays out several possible program paths and projects them into the future. It then explicitly asks, "Which do you want--what are your objectives?" The other type says, "This is the broad objective we are interestd in, and these are the ways in which it can be

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1/See note 2 on p. 15.

addressed." In both types the subject of broad policy objectives is explicitly treated.

Does USDA consider alternative policies?

Yes. Considering alternatives is part of USDA analysis processes. A program unit that supports the departmental staff gave us a document which discusses the selection of alternative scenarios and how they are to be incorporated into the analyses.

Does USDA set priorities among the alternative policies?

Yes. The long-range analysis activities of the departmental staff help to set priorities and to provide analyses to support decisions on priorities. The two types of activities parallel the two types of studies mentioned in the discussion of the first criterion. In addition, general priorities that appear to be the most appropriate to the USDA missions are defined as part of the annual departmental planning process.

Does USDA lay out alternative plans?

Yes. The materials we have examined have explicitly included descriptions of alternative plans. In some cases there have been possible plans for pursuing major policy shifts, and in others there have been alternative means for accomplishing specific desired objectives. However, both of these are alternatives that have been identified for further discussion.

Does USDA evaluate the consequences of the alternative plans?

Yes. According to the responsible departmental office, "Analysis conducted or coordinated by OMF [Office of Management and Finance] staff will always include evaluation of alternatives." After reviewing the office's reports we agreed with this statement. In addition, one program unit that supports the analysis activities of this office said it feels the identification of alternatives and their effects is the greatest benefit of the analysis.

Does USDA coordinate its studies and disseminate the products?

Departmental-level coordination for long-range analysis is provided by the Office of Management and Finance through interagency work groups, task forces, or similar arrangements. Studies appear to have been widely coordinated among the USDA program agencies and, in some cases, among the larger non-Federal agricultural community.

Some USDA long-range analyses are widely distributed through a formal dissemination process. Two recent widely (and actively) distributed documents are the Renewable Resources Assessment and the Renewable Resource Program. These documents are required by the Forest and Rangeland Renewable Resources Planning Act of 1974, Public Law 93-378. The Secretary delegated responsibility for this project to the Forest Service, and the final documents were made available to the public on March 2, 1976.

Summary

The long-range analysis activities in USDA are decentralized to the program units but are given overall direction and are integrated into a departmental system at the Department level. At that level, these activities are reported to the Secretary and the Under Secretary through the Assistant Secretary for Administration. In each of the program units, these activities are usually reported to the administrator.

Resources

Adding up the individual responses from the surveyed program units, we identified 98 professional and 50 clerical staff-years as being specifically directed toward long-range analysis activities in fiscal year 1976. For the professional staff, this is an increase of 9 over fiscal year 1975 and 16 over fiscal year 1974. For perspective the fiscal year 1977 Budget of the U.S. Government--Appendix lists the surveyed units as having 80,263 permanent positions in fiscal year 1976. The estimate of fiscal 1976 budget outlays was given in the same document as $14.2 billion for USDA.

Contract services are projected to cost $426,000 in fiscal year 1976, and were reported as $322,000 and $377,000 for the previous 2 fiscal years. Consultant's fees were projected to be $47,000 in fiscal year 1976, essentially the same as in the previous 2 fiscal years.

Although properly categorizing products is difficult, in fiscal year 1976 USDA will apparently produce about 550 publicly available formal reports detailing some aspect of its long-range analysis activities and about 40 formal reports for internal distribution only. These quantities are essentially unchanged from the previous 2 fiscal years.

Agency comments

An earlier version of this report was reviewed by USDA, and its comments were incorporated where appropriate.

DEPARTMENT OF COMMERCE

The mission of the Department of Commerce is to foster, serve, and promote the Nation's economic development and technological advancement. This is carried out primarily through the activities of the program agencies to encourage and assist States, regions, communities, industries, and firms. Within the Department, the function of the Special Assistant to the Secretary for Policy Development is to advise the Secretary on establishing Department goals and program policies. 1/

According to this office, our definitions of long-range analysis are adequate and the office does perform long-range analyses. It added that it exercises a coordinating function with respect to other units performing long-range analyses by coordinating the work of assistant secretaries and through the Commerce Policy Council and its Executive Committee. 2/

1/On February 2, 1976, the Secretary eliminated this position and replaced it with the position of Deputy Assistant Secretary for Policy Development and Coordination. At the same time, the Secretary established the position of Assistant Secretary for Policy.

2/The Commerce Policy Council consists of the Secretary and the Assistant Secretaries. It normally meets once a week to review developments and to coordinate policies.

The Department's long-range analysis activities are generally not scheduled on a fiscal year basis, but are initiated as required. The majority of these analyses are performed by the departmental program units in support of internal needs. If the need is felt, analyses can be brought to the attention of the Commerce Planning Council. The Office of Policy Development and Coordination told us that the majority of these long-range analysis activities take place under a "management by exception" principle. They are forwarded to the Department level only when an explicit decision is needed.

The Department agreed that it did not have a formal, structured long-range analysis system that functioned at the departmental level. This absence of a formal system at this level does not mean, however, that no long-range analysis activities are taking place within the Department. For example, long-range analyses are performed by the Bureau of the Census and by the National Oceanographic and Atmospheric Administration. The long-range analysis activities of the Maritime Administration and the Office of Telecommunications even appear to be done by means of formalized systems.

We have not considered these systems in our appraisal however, because the focus of this report is on formal long-range analysis systems at the departmental level, and these systems are in the program units.

Resources

Adding up the individual replies from the responding program units, we identified 64 professional and 20 clerical staff-years as being specifically directed toward long-range analysis in fiscal year 1976. For the professional staff, this is an increase of 4 over fiscal year 1975 and 15 over fiscal year 1974. For perspective, the fiscal year 1977 Budget of the U.S. Government--Appendix lists the responding program units as having 21,702 permanent positions in fiscal year 1976. The estimate of fiscal 1976 budget outlays was given as $2 billion for the Department.

Contract services were projected to cost $645,000 in fiscal year 1976 and were reported as $963,000 in fiscal year 1975 and $666,000 in fiscal year 1974. Consultant's fees were projected to be $25,000 in fiscal year 1976 and were reported as $2,000 in the previous fiscal year.

Although properly categorizing products is difficult, in fiscal year 1976, the Department's program units will

apparently produce about 80 publicly available formal reports detailing some aspect of their long-range analysis activities. This is about twice their output of previous years.

We have estimated that approximately 80 internal reports will also be issued in fiscal year 1976. However, these reports will not be available to the public and, in some instances, will not be available outside the issuing program unit.

Agency comments

An earlier version of this report was reviewed by the Department, and its comments were incorporated where appropriate.

DEPARTMENT OF DEFENSE

DOD's mission is to provide for the Nation's security by establishing integrated policies and procedures for the departments, agencies, and functions of the Government concerned with national security. Within DOD are the Office of the Secretary of Defense, the Organization of the Joint Chiefs of Staff, the military departments, the unified and specified commands, and such other agencies as the Secretary of Defense establishes to meet specific requirements.

DOD's long-range analysis activities are a formal part of its planning, programing, and budgeting system. Given the nature of this process, the staffs of the various Assistant Secretaries contribute analyses of topics within their program/functional areas. These analyses are then coordinated by the staff of the Assistant Secretary of Defense (Program Analysis and Evaluation). 1/ Long-range analyses relating to specific topics of research and development (R&D) are also coordinated by the Office of the Director of Defense Research and Engineering.

Regarding the specific forms taken by these analyses, DOD said that, although many problems considered in the 5-year planning cycle have long-range effects, relatively

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1/The position of Assistant Secretary of Defense (Program Analysis and Evaluation) was eliminated and replaced by the position of Director, Planning and Evaluation.

few relate specifically to the post 1982 period alone. It should be noted, however, that since it takes 5 to 10 years to develop and deploy new weapon systems, studies of these systems and their interrelationships are effectively long-range analyses.

The following four examples of long-range analysis specific to the post 1982 period were cited.

--The Extended Planning Annex to the Five Year Defense Program (FYDP)--a 15-year projection of force levels under budget constraints. Data in this document is used to support many long-term analyses.

--Technology coordinating papers--studies which document technology developments over the next few years. These developments would not usually have an operational impact before the middle eighties.

--The long-range estimates of the Joint Chiefs of Staff--which provide a military assessment of the world in the middle eighties.

--Life cycle cost analyses of new weapons--which provide an indication of the cost impact of new systems when they become operational. Most of these involve the post 1982 period.

The primary requirement to perform these types of analyses is the need to justify the inclusion of a new program in FYDP--a formal document which spells out the budget plans (and thus the priorities) and guidance approved by the Secretary.

General methods used

We did not obtain specific information on the particular techniques used, but the offices questioned gave similar answers in referring to the methodologies they used. The techniques most often cited as being used in long-range analyses were mathematical analysis, modeling, and judgmental conjecture. Over the years, DOD has experimented with many approaches to analysis and its basic work has had wide impact on analysis of high-technology organizations.

Responsible offices

The Office of the Assistant Secretary of Defense (Program Analysis and Evaluation) coordinates the DOD programing

process. The types of activities which developed and support the FYDP are referred to in the following description of the functions of this office:

> "This functional area formulates for the Secretary of Defense force planning, fiscal, and material support policy guidance upon which DOD force planning and program projections are to be based; defines the Defense objectives, policies, and fiscal constraints to be used as the basis for force planning and for developing changes to the Defense program; analyzes and evaluates military forces, weapon systems, and equipment in relation to projected threats, U.S. objectives, resource constraints, and priorities established by the Secretary of Defense; identifies issues, and analyzes and evaluates alternative programs in terms of their ability to meet objectives; proposes, guides, monitors, and evaluates studies and analyses by other DOD components; and conducts or participates in special studies as directed by the Secretary of Defense."

Process followed

We asked the offices what they saw as the major issues facing them, what they were studying, and how the long-range analysis activities were formulated and approved. The responses varied, but the offices agreed on some particulars.

Long-range analyses are formulated and approved on the basis of managerial judgment, and most analysis activities are ad hoc in nature (that is, not scheduled on a fiscal year basis). Moreover, because the current budget year is the most important, the further off the time of budget concern, the fewer the resources available for long-range analysis.

Again the guiding document is FYDP. Since the budget year is hard to change, most long-range analyses are aimed at influencing "out-year" decisions. Occasional changes in basic assumptions--such as the change to an all-volunteer Army and the change from a two-war to a one-and-one-half-war policy--will cause a major adjustment in all programs; but such major disturbances are rare.

In addition to their use in preparing FYDP, long-range analyses, according to one office, "are a necessary part of

the Secretary of Defense's responsibilities as outlined in the National Security Act." DOD employs multiple long-range analysis mechanisms. Lists of documents are given and the basic procedure is described in our report, "The Process For Identifying Needs and Establishing Requirements For Major Weapon Systems In the Department of Defense" (B-163058, Oct. 23, 1974).

Does DOD satisfy the evaluative criteria?

On the whole, yes. Like the USDA, DOD has a managed system which gives every indication of being a normal part of routine agency operations. DOD's overall approach to implementing a long-range analysis system is commendable. 1/

Does DOD specify broad long-term policy objectives?

Yes. The area of national defense has relatively clear-cut and unambiguous goals. The Secretary of Defense, in conjuction with the Joint Chiefs of Staff and the National Security Council, annually describes the defense policy objective and posture. These objectives and their further interpretation by the services are spelled out in various documents available to authorized individuals.

Does DOD consider alternative policies?

Yes. The offices' analyses consider alternatives to present programs and policies. In fact, considering alternatives is central to DOD's concept of systems analysis. However, it is equally true that some analyses are based on achieving a specific end objective without questioning it. In other words some analyses tend to examine the "how" and not the "why".

DOD has a hierarchy of analyses so that the "why" may be considered at upper levels.

Does DOD set priorities among the alternative policies?

Yes. The offices provide analyses which facilitate determining the relative priorities of different policies

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1/See note 2 on p. 15.

and programs. These priorities are then made explicit by the resources allocated through the budget process, FYDP, and milestone review system--the Defense Systems Acquisition Review Council.

Does DOD lay out alternative plans?

Yes. Long-range analyses generally lay out alternative plans with an appropriate level of detail for the analyses. Like the second criterion, this is a formal part of the systems analysis/cost-effectiveness process. However, some alternative plans tend to focus on specific end objectives without questioning them. This depends on the particular mission area being analyzed.

Does DOD evaluate the consequences of the alternative plans?

Yes. As before, the classic systems analysis approach insures that the consequences of the alternative plans will be examined and evaluated.

Does DOD coordinate their studies and disseminate the products?

Coordination appears adequate, but formal agency dissemination is restricted. 1/ Studies appear to be well coordinated within the defense community. The exceptions tend to be those studies which are viewed as affecting a "roles and missions" area. Most units, independent of agency, will tend not to advocate policies which are perceived as questioning their reasons for existing. Regarding dissemination, there was a certain sameness to the responses we received. Basically, we were told that, because of the unique nature of each document (sensitive, classified, etc.), distribution is determined by the cognizant issuing office. For these reasons, it is unusual for many documents to be widely distributed outside the defense community.

Summary

DOD--through the staff in the Office of the Secretary--has a formal long-range analysis system. Moreover, the system is so designed and structured that most analysis activities satisfy all the assessment criteria.

1/See note 1 on p. 15.

Resources

The information on resources presented in this section represents data obtained only from a portion of the staff in the Office of the Secretary. In particular, it does not contain any information regarding the military departments where most of the effort is actually conducted.

The responding offices identified 21 professional and 4 clerical staff-years as being specifically devoted to long-range analysis activities in fiscal year 1976. These numbers are approximately the same as those identified in the prior 2 fiscal years. 1/

Contract services are projected to cost $1,396,000 in fiscal year 1976 and were reported as $1,100,000 in fiscal year 1975 and $700,000 in fiscal year 1974.

We did not obtain sufficient information to be able to estimate the number of formal long-range analysis documents that will be produced in fiscal year 1976 or have been produced during the last 2 fiscal years. However, with very few exceptions, there are no publicly available documents that detail DOD's long-range analysis activities.

Agency comments

An earlier version of this report was reviewed by DOD, and its comments were incorporated where appropriate.

DEPARTMENT OF THE INTERIOR

As the Department has had functions added and removed over the years, its role has changed from that of general housekeeper for the Federal Government to that of custodian of the Nation's natural resources. Some specific items within the Department's jurisdiction include the administration of land; conservation and development of mineral, water, fish, and wildlife resources; coordination of Federal and State recreation programs; reclamation of arid lands; management of hydroelectric power systems; and programs that provide services to Indians and Alaska natives.

1/See our report "Suggested Improvements in Staffing and Organization of Top Management Headquarters in the Department of Defense" (FPCD-76-35, Apr. 20, 1976).

We reviewed the material supplied to us by the Department and concluded that the Department does not have a structured, formal long-range analysis system that functions at the departmental level.

The lack of such a system at that level does not mean, however, that no long-range analysis activities are taking place within the Department. For example, formal long-range analysis systems can be found in the Bureau of Land Management and the National Park Service, to cite two of the Department's program units. According to the Office of Policy Analysis:

--Our definitions of long-range planning and analysis were adequate and the office had no changes to suggest at this time.

--The office does not perform any long-range planning, although its analyses of current policy options have long-range implications.

The office did not know of other departmental-level offices that primarily perform long-range analyses. 1/

In a previous report (RED-76-79, see app. III) that addressed the lack of planning within the Department--although the planning was within the context of the leasing of Federal coal resources--we concluded:

> "The Department of the Interior has not established goals of how much land with coal resources to lease and when to lease to meet national coal production goals.
>
> "Some fundamental attempts should be made to (1) better identify the amount of coal under lease and prospecting permit and (2) relate the amount of Federal coal required to meet national goals to any program of renewed leasing. Interior does not presently contemplate providing the Nation with this data."

Addressing the Department's new coal-leasing policy, we further stated:

1/See note 1 on p. 15.

"Interior indicates that specifying exact demands on Federal coal is impossible beyond saying that greater amounts of coal are anticipated to come from Federal lands. While exact long-term demands might not be measurable, we believe that Interior should have reasonable goals of how much to lease and when to lease, based on the best possible estimates of how much coal to expect from developing the leases.

"Interior intends to rely on the leasing process itself to indicate the need for new leasing. * * * Reliance on such a process places Interior in the position of reacting rather than providing the leadership needed to develop a sound national energy strategy."

In a report (RED-75-343, see app. III) addressing the leasing of oil and gas resources on the Outer Continental Shelf, we reported that the goal of accelerating the leasing program was unrealistic. In particular, we said the accelerated leasing goal of 10 million acres was

--"* * * hastily conceived by Interior under pressures exerted by the energy crisis and the newly formed Federal Energy Administration (FEA); * * *

--"developed and adopted without adequate consideration of environmental impacts, national-regional supply-and-demand needs, or alternatives to large scale expansion of Shelf leasing."

We also recommended that the Secretary of the Interior clearly define Shelf leasing goals and specify how these goals will be met and how they relate to overall national energy goals and plans.

Resources

Adding up the individual replies from the surveyed program units, we identified 138 professional and 36 clerical staff-years as being specifically directed toward long-range analysis activities in fiscal year 1976. For the professional staff, this was an increase of 19 over fiscal year 1975 and 58 over fiscal year 1974.

Contract services, projected to cost $705,000 in fiscal year 1976, were reported as costing $710,000 in fiscal year 1975 and $46,000 in fiscal year 1974. Consultant's fees were projected to be $83,000 in fiscal year 1976, compared to $94,000 in fiscal year 1975 and $6,000 in fiscal year 1974.

Although properly categorizing products is difficult, we estimate that in fiscal year 1975 the Department's program units will produce about 75 publicly available formal reports detailing long-range analysis activities. We also estimate that at least this many internal reports will be issued but will not be circulated outside the issuing program unit or the Department.

Agency comments

An earlier version of this report was reviewed by the Department, which said there were no particular points it wished to add to, or subtract from, the report.

ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION

The Energy Research and Development Administration (ERDA) is responsible under law for developing comprehensive long-term plans for the Nation's energy research and development. These plans are to include short- as well as long-term (beyond 2000) options and solutions to the energy system problems. The law (Public Law 93-577) envisions that planning and reporting will be a recurring process in ERDA.

ERDA, then, must conduct long-range analysis both to serve externally generated requirements and to manage what is inherently a long-range process--conducting energy systems research and development.

The options ERDA is striving to create over the next 20 or so years range from new methods of supplying energy to changes in the ways we use energy. This broad mission should translate into an equally comprehensive long-range analysis of alternatives.

General methods used

One measure of the extent and comprehensiveness of long-range analysis in an agency is the variety of

forecasting techniques used. Mention was made of the use within ERDA of the following analytical techniques and approaches:

> "* * * energy system models, deterministic simulation techniques, optimization models, input-output analysis, econometric techniques, cost-benefit analysis, regional environmental studies, judgemental estimates, and operational gaming."

Table 3, Models Used in Long-Range Analysis, shows in greater detail some of the computer models used by ERDA for fossil energy analysis.

Responsible offices

The responsibility for long-range analysis in ERDA lies with the Office of the Assistant Administrator for Planning and Analysis. 1/ This office exercises, to use the agency's words, "a corporate level planning responsibility." Coordination of ERDA's long-range analysis comes through formal communication committees and through informal liaison by the operating divisions with the Office of Planning and Analysis.

The Office of Planning and Analysis is in charge of preparing the National Plan for Energy Research, Development and Demonstration. This plan, as mentioned previously, is required by law (Public Law 93-577).

Process followed

The process of long-range planning, and to some extent policy analysis, in ERDA revolves around legislative requirements and the budget process. The routine management process consists of planning, budgeting, and then negotiation. The process was described as follows:

1/The name of this office has been changed to Planning, Analysis, and Evaluation.

TABLE 3

Models Used In Long-range Analysis

Originator	Type of model
Federal Energy Administration	Comprehensive national energy systems macromodel
National Science Foundation Bechtel	Resource requirements model
University of Illinois	Input-output net energy model
Environmental Protection Agency	Environmental assessment model
Stanford Research Institute Gulf Oil	National energy model
Dartmouth Coal 1	Systems dynamics coal model
Massachusetts Institute of Technology Baughman	Interfuel substitutability model
Hudson-Jorgensen	Energy supply/demand input-output model
Massachusetts Institute of Technology	Electricity supply/demand integrated model
Data Resources, Inc. DRI	Energy supply, demand, and economics models

Other important models which now exist and may be of potential use in ERDA planning include:

Bechtel Corp.	Coal source to use economics model
Bonner & Moore	Refinery economics
Virginia Polytech	Underground coal mining models
Fluor-Utah	Surface mining and economics

"APA (Office of Planning and Analysis) in conjunction with the Controller issues the formal planning call to each of the agency offices for their budget requests, and is responsible for assembling information on their programs, assessing their completeness and logic, and making recommendations to the Controller and Administrator on these budget requests. The Controller is responsible for the overall agency budget preparation. The process of adjustment between APA and the Controller is iterative until the goals of planning and the

budget are optimized as far as possible with continuing inputs and reclamas from the operating offices."

Furthermore, the staff of the operating divisions normally prepare the actual long-range analyses while the Office of Planning and Analysis provides coordination and advice.

ERDA has prepared a detailed formal planning system. Parts of the system are operational and they expect complete implementation in fiscal year 1977. Under the new system, planning will be keyed to a point of commercialization of new technologies. The analysis, or planning, process will then work back from that key date, rather than forward from the present. In effect, this will be goal-oriented planning.

Does ERDA satisfy the evaluative criteria

On the whole, yes. ERDA is one of the agencies 1/ that has a managed system which gives every indication of being a normal part of routine agency operations. ERDA's overall approach to implementing a long-range analysis system is commendable. 2/

Does ERDA specify broad, long-term policy objectives?

Yes. ERDA, through Public Law 93-577, has been given a rather extensive set of planning tasks. The purpose of this planning is to develop the specification of a national program of both basic and applied research and development. If ERDA satisfies the legislative requirements, it will have had to specify broad policy objectives. This is because the resultant plan must undertake to lay out a broad national strategy of energy research and development and then relate activities to long-range goals.

1/See note 1 on p. 15

2/See note 2 on p. 15.

ERDA has produced a "National Plan for Energy Research, Development and Demonstration" (ERDA-48, June 28, 1975). An update (ERDA 76-1) was released April 15, 1976.

One indication of the attention being focused on the area of energy research is that the Office of Technology Assessment, an agency of the Congress, extensively reviewed the ERDA plan in 1976.

Does ERDA consider alternative policies?

Yes. As part of the analysis process, alternatives are considered in ERDA. An example of this process was described by the fossil energy staff:

> "Generally, both the Long Range Strategy Branch of OPPA [Office of Program Planning and Analysis] and the appropriate Line Division(s) in collaboration identify short, mid and long-term objectives which serve as basic inputs to the planning process. Issues, constraints, and problems pertinent to these objectives, are identified (including those that stem from policies--i.e., requiring "policy analysis") and used as parametric inputs (either quantitative or qualitative) to the planning process."

The input to this analysis process is shown in table 4.

Does ERDA set priorities among alternative policies?

Yes. Offices provide analyses which facilitate determining the relative priorities of different policies and programs. These priorities are then made explicit by the resources allocated through the budget process and the National Plan for Energy Research, Development, and Demonstration.

Does ERDA lay out alternative plans

Yes. ERDA's analysis includes alternatives. We do not have data which demonstrates that these alternatives are refined and structured to the program planning level. However, the material we have examined indicates it is reasonable to make the assumption that ERDA does, in fact, make the transition to detail appropriate for alternative plans.

TABLE 4

Factors Considered in Fossil Energy Research, Development and Demonstration Strategy Analysis

Logic and sequence of overall program objectives

- Critical objectives
- Noncritical objectives
- Time phasing and logical sequence of objectives
- Level of objective (within organization hierarchy)
- Organization responsible for achieving objective

Inherent cost of developing critical processes

- Required development steps
- Complexity of process
- Degree of advanced technology involved
- Total capital investments required
- Environmental impact, costs

Critical technological processes to be developed

- Type of products produced, timeframe, costs
- Product demand-criticality to Nation
- Other processes generating same product (long term)
- Substitute products (long term)
- Technological risk
- Significance of impact on energy supply
- Reliability of impact prediction
- Availability of resource (long term)

Technology development

- State of development
- Scheduled activities/slack
- Funds previously allocated
- Cumulative project costs
- Success of project to date
- Projection of project's successful completion
- Project interdependency (with other projects)
- Capability for expansion
- Capability for schedule Acceleration
- Availability of R&D resources

Current investor interest to be implemented

- Current commercial interest
- Industry funding projected
- Industry past funding
- Industry facilities
  - --Planned and existing
- Involvement in cost-shared R&D
- University interest:
  - --Grants, past
  - --Grants, projected
  - --Facilities: planned, projected

Market application analysis

- User markets
- Competitive product selling prices

Payoff from processes near term (in Btu's), where development of process technology is not critical

- Cumulative 'net' Btu's produced by 2000
- Timeframe of impact
- Reliability of impact prediction

Does ERDA evaluate the consequences of the alternative plans?

Yes. The consequences of alternative technologies and programs appear to be considered. For example, the Division of Solar Energy said:

> "* * * studies will be continued to improve cost-benefit analysis of the various subprograms and categories in the solar energy program. An important aspect of this work is to examine the various program alternatives and strategies for the immediate few years. These alternatives must be examined to estimate their long-term effects and potential impact on costs, schedules, and benefits * * *."

Does ERDA coordinate its studies and disseminate the products?

The Office of Planning and Analysis is responsible for coordination, and procedures are established for accomplishing internal coordination.

No formal system exists for disseminating the products of many long-range analysis activities although individual groups have disseminated specific products. For example, we were told:

> "There is a relatively formal dissemination plan for the distribution of the Division of Solar Energy's long-range planning products. It consists generally of making early limited prints of the reports available to OMB [the Office of Management and Budget] and congressional committee staff having overview of the programs and having responsibilities for energy legislation."

Summary

Based on the information provided us, the process by which ERDA's long-range analyses are conducted is professional and quite complete. The system to accomplish these analyses appears similar to that of Agriculture. Many analyses are performed by the operating divisions and are guided or coordinated by the Office of Planning and Analysis. It appears that the system is so designed and structured that most analysis activities will satisfy all the assessment criteria.

Resources

ERDA identified 93 professional and 31 clerical staff-years as being specifically directed toward long-range analysis activities in fiscal year 1976. For the professional staff, this was an increase of 19 over the previous year. Contract services are projected to cost $23,000,000 in fiscal year 1976, compared to $8,965,000 in fiscal year 1975. Consultant's fees were projected to be $189,000 in fiscal year 1976, up from $72,000 in the previous year.

Regarding formal documents, ERDA has estimated that in fiscal year 1976 it will produce about 40 publicly available reports and about 60 reports for internal distribution only. The corresponding totals for fiscal year 1975 were 40 and 20.

Agency comments

An earlier version of this report was reviewed by ERDA, and its comments were incorporated where appropriate.

ENVIRONMENTAL PROTECTION AGENCY

The Environmental Protection Agency's (EPA's) long-range analysis activities are centered in two offices: the Office of Planning and Evaluation, under the Assistant Administrator for Planning and Management, and the Office of Planning and Review, under the Assistant Administrator for Research and Development. Although most activities are focused in these two offices, EPA said all the program offices are responsible for looking at the long-range implications of their programs. Other offices cited as being specifically concerned with long-range analysis included the Office of Land Use Coordination and the Office of Air and Waste Management.

EPA's efforts in long-range analysis appear to be based on four needs: (1) the law requires that either EPA plan and analyze the impact of future activities or State and local communities provide EPA with completed long-term plans, (2) as a part of the necessary engineering and financial planning for large capital intensive projects (also required by law in come cases), (3) a recent need for long-range analysis to provide a framework for research and development decisions, (4) the need to support standards and requirements with an analytic base.

According to EPA, its long-range analyses take several forms including: (1) the integration of long-range concerns into program activities, (2) the analysis of the long-range implications of alternative policy options, and (3) the identification of future problems. The form taken by a particular analysis will depend on the need to be met.

General methods used

EPA described two main methods for making its long-range analyses. The first is computer modeling, which uses a series of interdependent, but independently operated, input-output models and accounting programs called the Strategic Environmental Assessment System. The second method uses temporary tasks forces to consider current program areas and propose alternative policy and program options. These task forces are referred to as long-range planning groups and were in the process of undertaking their first project at the time our survey was made.

The Strategic Environmental Assessment System has been under development since 1972 and has been used to generate analysis data in the cost of clean air and clean water reports. It has also been used in the National Commission on Water Quality report, the development of water quality estimates for the Water Resources Council, and tasks for Interior's Bureau of Land Management.

The model operates by projecting over a 10- to 15-year period economic consumption and environmental data at the national, State, and local levels; calculating costs of pollution abatement; and calculating materials flows in which raw materials are tracked. The model also includes energy budgets.

Responsible offices

Both of the offices mentioned as focal points for long-range analysis are staff organizations as opposed to line offices with project responsibility. Among their other duties were:

--Office of Planning and Evaluation--agencywide responsibility for program/policy planning. This office has four divisions: Economic Analysis, Policy Planning, Program Evaluation, and Standards and Regulations. The divisions are responsible for identifying long-range policy issues and evaluating agency programs and actions.

--Office of Planning and Review--primary responsibility for coordination of long-range planning within the R&D area. This office, in conjunction with the line program offices, identifies and/or carries out special program studies and coordinates individual program office R&D plans.

Process followed

In responding to our questionnaire, the Office of Planning and Evaluation described the process by which long-range analysis activities were formulated and approved:

> "The Long-Range Planning activities which will be undertaken in the Office of Planning and Evaluation will be determined by a review board consisting of the Deputy Assistant Administrator for Planning and Evaluation and by the Division Directors. Inasmuch as these individuals have responsibility for program evaluation, policy analysis, standards and regulations and economic analysis they will draw upon this experience to identify the problems of concern to the agency. At the present time there is no formalized procedure, although one may develop as the projects get underway."

In short, no formal mechanism apparently exists in this part of EPA for forecasting or identifying future problem areas or opportunities.

Perspective on the functions of the Office of Planning and Review can be gained by examining the R&D planning efforts

in EPA. As envisioned by the Office of Research and Development, the R&D planning process--initiated in its present form in 1975--will be based upon an agency research statement. The research statement outlines goals, priorities, approaches, and resources needed for the next 5 years. The document, based on various agency inputs, will serve as a basis for developing a 5-year research plan as required by the Congress. Both the agency research statement and subsequent congressional reports will be updated yearly.

Within the context of R&D planning, the Office of Planning and Review coordinates the preparation of the research statement and takes the various agency inputs and combines them into a 5-year research plan. EPA described this process as:

> "* * * Several optional [research] plans are developed. Based on guidance from OPR [Office of Planning and Review], program options are developed * * * with input from agency components and submitted to OPR. The optional plans are submitted to the Agency for comment * * * upon approval of one of the options a formal ARS [agency research statement] is revised and updated."

The Office of Planning and Review's main purpose appears to be to "ride herd" on the R&D planning process and to make needed studies.

Neither of the offices has an active formal dissemination plan. Distribution of the products of their long-range analyses is individually determined based on a number of factors including known congressional and outside interest and the focus of the report.

Evaluation is conducted on forecasting models. For example, evaluation of the forecasts of the Strategic Environmental Assessment System forecasts is based upon comparison of projections versus actual experience or, if possible, a comparison of the forecasts with forecasts obtained from other models.

Does EPA satisfy the evaluative criteria?

On the whole, yes. However, not all of the criteria are satisfied.

Does EPA specify broad, long-term policy objectives?

No formal mechanism appears to exist to satisfy this criterion. The environmental area has had relatively clear cut goals set for it by legislation, and EPA's long-range analysis process allows for specifying objectives based upon the legislated goals. However, we have been unable to determine from the information received the extent to which EPA specifies broad policy objectives or merely reacts to external forces. The offices' responses suggest that the specification of objectives comes at a higher level in EPA and that their function is to provide analytical and technical support for the process.

Does EPA consider alternative policies?

Yes. EPA's analyses include alternatives to present policies and programs. As mentioned earlier, the technical merit of the alternatives is outside the scope of this report.

Does EPA set priorities among alternative policies?

Yes. The offices help to set priorities and also provide analyses which facilitate decisions on priorities. An example of this process is EPA's report to the Congress on the cost of clean air and water.

Does EPA lay out alternative plans?

Yes. The presentation of alternative plans is evident through the R&D planning process and also in the work of long-range planning group. 1/

Does EPA evaluate the consequences of the alternative plans?

Yes. The information provided by EPA indicates that, in addition to laying out alternatives, the EPA analyses generally evaluate the impact of the proposed alternatives. EPA presented an example of this type of analysis entitled, "An Analysis of the Impact on the Electric Utility Industry of Alternative Approaches to Significant Deterioration"

1/See note 2 on p. 15.

(FEA/D-75/585, Oct. 1975). This analysis, jointly prepared by EPA and the Federal Energy Administration, investigates the possible impact of different legislation on the electric utility industry with respect to varying clean air standards.

Does EPA coordinate its studies and disseminate the products?

Internal coordination is the responsibility of the two offices previously mentioned and appears to function adequately. Because of such examples as the report cited in the discussion of the preceeding criterion, we assume that external coordination is being performed. Although the extent to which other Federal departments contribute to work in progress is not readily apparent, overall coordination appears adequate.

Regarding dissemination, although some reports have been widely distributed outside EPA, no formal dissemination plan exists. As in other agencies, dissemination depends on the focus of the report.

Summary

EPA has demonstrated partial fulfillment of the criteria, but the scope of their long-range analysis activities seems to be too narrow. This may be partly due to the fact that many elements of the process, both procedures and organizational units, are relatively new.

Resources

The responding EPA offices identified 13 professional and 4 clerical staff-years as being specifically directed toward long-range analysis activities in fiscal year 1976. For the professional staff, this was an increase of 9 over the prior 2 fiscal years. Contract services are projected to cost $150,000 in fiscal year 1976, up from about $100,000 in both preceeding years.

Agency comments

An earlier version of this report was reviewed by EPA, and its comments were incorporated as appropriate.

FEDERAL ENERGY ADMINISTRATION

The principal purpose of FEA is to insure that the Nation's supply of energy will continue to meet its demand.

FEA is also to insure that, in energy shortages, priority needs are met and the burden of the shortages is borne equitably.

According to FEA, there are two primary offices involved in policy and analysis activities. These two offices (Policy Division and Data Analysis Division) are under the Assistant Administrator for Policy and Analysis. 1/ Although FEA said that long-range analysis is a significant part of the offices' workload, it noted that the offices are not concerned primarily with long-range analysis, but simply policy and analysis in general. This distinction is due, in part, to a difference in focus. FEA also informed us that policy analysis and planning functions are performed by the same functional offices without regard to a time frame and, therefore, the term "long range" has not been a consequential issue.

In its response to our survey, FEA distinguished between (1) analysis of present day decisions and programs which might have future implications and (2) exploratory long-range analysis which would focus on considering possible future states of affairs and policy options. FEA felt that much of the work reported to us included an evaluation of the long-term consequences of near-term actions. The agency added that nearly all FEA offices analyze the future consequences of near-term actions.

General methods used

Emphasis on modeling and mathematical projections characterized FEA's forecasting techniques. FEA said it also uses judgmental techniques because of its "concern with the effects of our [FEA's] policies on wide segments of the population and upon the basic structure of the economy."

1/FEA informed us that the Office of Policy and Analysis has been split into an Office of Policy and Program Evaluation and an Office of Energy Information and Analysis. Future references will refer to the Office of Policy and Program Evaluation. This office, FEA's centralized policy coordinating unit, has been functioning since the agency was established. It has, in turn, been designated the Office of Economic and Data Analysis, the Office of Policy, the Office of Policy and Analysis, and now, the Office of Policy and Program Evaluation.

Although FEA mentioned no specific models in discussing forecasting techniques, in our review of the Project Independence Evaluation System 1/, 2/, we described this system which was developed to assess alternative energy policies and to use in preparing the 1974 Project Independence report. FEA continued to use and refine the system as a policy analysis tool, and the refined system was used to support the 1976 National Energy Outlook (FEA-N-75/713) published by FEA in February 1976.

Component models used in the Project Independence Evaluation System included:

--Energy supply component:
  National Petroleum Council oil and natural gas supply model (with FEA modifications)
  TRW coal data integrating model
  Battelle oil shale model
  Battelle synthetic fuel model
  North American pipeline system simulation model

--Energy demand component:
  Data Resources, Inc. macroeconomic and industry model
  FEA energy demand simulation model

--Energy supply and demand integrating component:
  FEA simplified demand model
  FEA linear programing model

--Socioeconomic, environmental, and international impact assessment component:
  Kennedy-Houthakker world oil model
  INFORUM input/output analysis model
  Energy Resources Co., Inc. pollution allocation model

Responsible offices

As stated above, two sections are primarily responsible for FEA's policy and analysis activities. These sections

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1/ "Review Of The 1974 Project Independence Evaluation System" (OPA-76-20, Apr. 26, 1976).

2/Project Independence was an interagency planning effort set up by President Nixon to arrive at ways of becoming energy self-sufficient.

provide analytical staff support and their overall office is responsible for integrating all FEA energy policy by coordinating internal policy development. Furthermore, the Office of Policy and Analysis acts as a central clearinghouse for energy data collection and dissemination. 1/

Process followed

Because FEA views long-range analyses as an inherent part of program management and feels the term "long-range" has not been a consequential issue when describing its policy analysis and planning activities, it has not felt it necessary to develop special management processes to select, perform, or monitor long-range analyses separate from its other analysis activities.

Long-range analysis activities appear to be undertaken in response to program needs rather than as the result of a formal mechanism which operates to forecast future problems or identify opportunities. However, FEA said many long-range issues are facing the agency and, although the level of activity differs, it is concerned with all of them. Major issues cited by FEA included:

--The source and amount of capital required for energy resource development.

--The need to accelerate the introduction of new energy-saving and producing technologies, including the question of how to institutionally speed the commercialization process.

--Issues involving the siting of future power stations.

--The need for regulatory reform to insure that energy resources from new technologies receive a fair return on investment.

--Planning growth to maximize efficiencies in power generation, transportation, and land use.

--Studying methods to speed the commercialization of solar technology.

1/This function is now part of the Office of Energy Information and Analysis.

--Closing the nuclear fuel processing loop.

--Transferring the benefits of our experiences with petroleum to other imported raw materials which will become scarce in the future.

--Inventorying the world's energy resources and reserves.

--Devising a system for allocating all the external costs of energy use, such as pollution.

--Designing energy production industries to be more productive, efficient, and competitive.

--Contingency planning to protect against possible future embargoes.

--Improving the mechanisms by which the costs and benefits of energy production and conservation are spread between the various States and regions of the country.

--Influencing the development of an optimal structure for the energy industry, with regard to both pricing and production.

--Assisting other countries in developing programs to meet their long-term energy needs.

Does FEA satisfy the evaluative criteria?

Based on the information provided by FEA, we have concluded that it does not have a separate, formal long-range analysis system which meets our evaluative criteria. As described previously, FEA regards long-range analysis as a component of general analysis and does not have a separate "tracking system" for long-range analysis activities. Although individual FEA analytical activities can and do fulfill the criteria, FEA does not have a structured, formal system for selecting and scheduling topics for long-range analysis.

A perspective on this viewpoint may be gained by reviewing FEA's response to the question of how they evaluate the agency's long-range analysis:

"For each of its major program undertakings, FEA considers several probable consequences.

> In addition to considering social, economic, environmental, and inflation impacts as well as performing cost-benefit analyses, FEA projects the energy impact of its programs. It is this "measure of effectiveness" which the Agency finds the most meaningful in the evaluation of its mission performance. However, these evaluations are preliminary to program activity. FEA has not formalized a system for measuring the effectiveness of planning and analysis activities."

External coordination of energy-related policies and activities appears to be handled through two primary mechanisms. On April 30, 1976, a Memorandum of Understanding between FEA and ERDA was signed by the two Administrators. This agreement formalizes FEA/ERDA coordination in commercial and civilian energy activities. FEA is designated the primary agency in developing a coordinated National energy policy while ERDA is recognized as having primary responsibility in matters involving energy R&D. The main mechanism for accomplishing this coordination is an FEA/ERDA steering group, co-chaired by the Deputy Administrators of the two agencies.

One section of the agreement says:

> "The Agencies recognize that they will share an interest in many resource development and conservation programs, both long- and short-term, that require energy policy analysis, technical development, * * *. In these programs of mutual interest, the Agencies agree to joint planning, leading to the definition and establishment of appropriate projects and assignment of responsibility."

In addition, the Administrator of FEA serves as Executive Director of the Energy Resources Council. This group determines those energy policy issues which necessitate interagency review and decision by the President. FEA informed us that this role was an important part of their coordination activities and that its participation in providing staff support to the Council is substantial.

The Memorandum of Understanding also acknowledges the Council by stating:

"Both Agencies will continue to use the Energy Resources Council for coordination of broad goals, objectives, and major legislative actions."

In discussing its dissemination efforts, FEA informed us that, since November 1975, all study reports which have been done for the agency have been indexed and placed in its library. FEA has also attempted to index and file all reports which were done in the past but not indexed at that time. According to FEA, this effort has met with only partial success.

Documents in the FEA library and information collected by the FEA National Energy Information Center obviously represent formal systems for placing publicly available information into the public domain.

Resources

Although many of its analyses are done with the intention of gaining insight into immediate and short-term problems, the subject matter of the analyses tend to have consequential impacts well into the future. In this context FEA said that, if long-range analysis was construed to include analysis of the future consequences of present programs and policies, it would "estimate that approximately 80-100 professional staff-years were spent on long-range analysis during the course of the past year [fiscal year 1975]."

Again, FEA does not "break out" long-range analysis as a separately reported activity.

Agency comments

An earlier version of this report was reviewed by FEA, and its comments were incorporated where appropriate.

SUMMARY

In the preceding sections of this chapter we described the structure and process of the long-range analysis conducted to support agency top management in each agency studied. 1/ We also assessed the degree to which each long-range analysis system satisfied the appraisal criteria

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1/See note 1 on p. 15.

of chapter 2 and summarized the assessments in table 2 on page 16.

USDA, DOD, and ERDA had centralized departmental-level direction and coordination of their long-range analysis activities. The other departments and agencies did not have a strong departmental-level planning and analysis staff to coordinate and guide the long-range analyses activities of the agencies' program units.

The rest of this chapter summarizes information we obtained regarding some specific portions of the long-range analysis process in the surveyed agencies.

What long-range analysis activities are being performed?

We received written responses to our inquiry from many of the program units within the seven agencies studied. About 90 percent of the responding program units said they perform some long-range analysis activities. The units also provided information concerning the specific problems that were the subjects of their current long-range analyses.

At an abstract level, we can say that most current long-range analysis activities in the seven agencies are concerned with resource availability, productivity, and allocation--including determining how to deal with growing resource scarcity in the face of increasing environmental and social constraints on production. These analyses, however, tended to reflect the missions and functional areas of the various program units and did not appear to examine the issues in the wider setting of a national problem that had many more components.

What offices perform these activities and to whom do they report?

Most of the agencies and program units had specifically designated groups that performed some long-range analyses. About 85 percent of the analysis groups can be regarded as staff units, while the other 15 percent also had operating responsibilities.

About half the analysis groups report to the head of the program unit in which they are located, and half report to an assistant administrator. In addition, those in the latter group can also be divided into two classes with half

reporting to an assistant for administration, and the others reporting to an assistant for planning and management (or evaluation).

What impact have these activities had on policy decisions?

We approached this topic in two ways. We first asked the agencies if they had formulated any measures of effectiveness for the studies they undertook. About 75 percent of the program units said they had none. The remaining 25 percent could be grouped into three nearly equal classes. One group claimed to have such measures but said that the measures were subjective, a second said the measures were "to compare with events," and the third said they had quantifiable goals to measure against.

We followed up by asking what specific accomplishments could be attributed to long-range analysis activities. The responses we received to this question ranged in length from a single word to more than two pages. About 30 percent of the program units said specific accomplishments were attributable to these activities and cited examples to support their contentions. Another 30 percent claimed no accomplishments. The remaining 40 percent of the units said that there may be accomplishments attributable to long-range analysis, but that sorting out and identifying the precise role played by the analyses would be very difficult. Some of the units in this category felt the long-range analysis activities were useful but could not identify specific accomplishments.

CHAPTER 4

CONCLUSIONS

Comprehensive long-range analysis can be an important aid to management and to the Congress in dealing with long-range problems. Not every problem or program has a long-range character. To be most useful, therefore, analysis should be undertaken on the basis of a careful determination of (1) which problems truly require attention over a long period or (2) which current decisions will have long-term impacts. It is equally evident that these long-range analyses are of only academic interest if decisionmakers are not prepared to use the results in an effort to deal with the problems that have been analyzed.

It is important to link long-range analysis to solutions and future problems. It is also important that all participants in the process think in terms of new opportunities and future redirections.

The agencies and those close to the analysis process have an important leadership responsibility in providing early warning, or awareness, of emerging problems and opportunities to the executive branch leadership, the Congress, and the country as a whole.

It is always tempting to look for organizational and structural devices to overcome difficulties encountered in activities such as long-range analysis. We have avoided making recommendations of this nature. Good long-range analysis can take place in a variety of organizational settings and it does not appear that choosing a particular structure either assures good analysis or precludes it. Much more important is the existence of good communications and active involvement among those who are doing the analysis and those who are affected by it, along with the careful integration of the results of long-range analysis into the regular decision process of the agency.

Obviously, agencies should perform long-range analysis as they attempt to identify and solve long-range problems. Such efforts are meaningless, however, unless there is recognition of the problems and serious concern about solving them on the part of agency management, executive branch leadership, and the Congress. As in most analytical efforts,

the most important factor in assuring the existence of high-quality long-range analysis is the presence of a customer who wants it and will use it.

Given the existence of a basic climate which is favorably disposed toward long-range analysis, a number of factors can make such efforts more effective:

--Decisionmakers can identify long-term objectives clearly, so that analysis can be concentrated on achieving these objectives.

--Decisionmakers can identify the interrelationships among objectives which are of greatest concern, so that analysis can be concentrated on reconciling the most important conflicts.

--Decisionmakers can assure the active involvement of affected parties, so that the analysis takes adequate account of divergent views.

--Decisionmakers can assure wide dissemination of the results of the analysis so that all those involved share a common base of knowledge.

Following these basic principles does not insure solutions will be found for future areas of concern, nor does long-range analysis cure the ills of the world. However, we believe that the application of these basic principles by decisionmakers in both the executive branch and the Congress will increase the chances that long-term problems would be correctly identified and properly analyzed, leading to the development of effective solutions.

Congress of the United States

House of Representatives

Washington, D.C. 20515

July 31, 1975

B-184659

The Honorable Elmer B. Staats
Comptroller General of the United State
General Accounting Office Building
Washington, D.C. 20548

Dear Mr. Staats:

Both the Committee on Merchant Marine and Fisheries and the Committee on Science and Technology have a strong interest in long-range planning and analysis, or lack thereof, concerning our respective legislative responsibilities. There have been a variety of approaches to fulfill the national need for such planning and analysis; some of which are now history, some of which are currently being tried, and some of which are untried proposals.

In recognition of the problem, the Congress has already acted, albeit in a fragmented fashion, by creating the Office of Technology Assessment and the Congressional Budget Office, both of which were designed to contribute information on the future impacts of Congressional decisions. Others like Dr. Chester Cooper have urged Congress to take a broader approach as described in his "Office of Strategic Policy Assessment."

Legislation introduced by Chairman Olin Teague is now being considered before the Science and Technology Committee that would, among other things, charge a new "Council of Advisers on Science and Technology" to conduct "long-range study, analysis, and planning." The Committee on Merchant Marine and Fisheries has before it a bill to create a National Environmental Policy Institute, which would do long-range planning and analysis in the environmental field.

APPENDIX I

In the last Congress, the "Balanced National Growth and Development Act" was introduced which would, among other things, require national planning and analysis in critical areas of national concern. In this Congress, another bill, the "Balanced Growth and Economic Planning Act" has a similar requirement.

With all of this legislative action and effort, one would expect that there would exist some analysis of the proposals to create a structure to conduct such analyses. However, such is not the case. Therefore, we would like to request that the General Accounting Office prepare a report on the state of the art of long-range planning and analysis. We would like this report to include an analysis of methodology, consideration of past efforts, and analysis of existing and proposed organizations to fill this national need.

We appreciate the magnitude of this request and the fact that the subject matter goes beyond the jurisdiction of any one Committee. Accordingly, we have also requested the Congressional Research Service to participate in this endeavor. Thus, in order to coordinate the efforts of all parties, we would suggest that the appropriate persons from GAO meet with our staff, Tim Lynch, Congressman Brown's office, and James W. Spensley, Counsel to the Merchant Marine and Fisheries Committee, to develop this proposal further.

Sincerely,

George E. Brown, Jr.
Member of Congress

Robert L. Leggett
Member of Congress

APPENDIX II

SURVEY OF EXECUTIVE AGENCY LONG-RANGE PLANNING AND POLICY ANALYSIS ACTIVITIES

Introduction

The General Accounting Office (GAO) has received a joint request from two Congressional Committees to survey the long-range planning and policy analysis activities of several key Federal Executive Agencies. The Committees are interested in, and concerned about, the capabilities of these agencies to perform analyses of futures-type problems. The Committees are also concerned with the flow, or lack thereof, of this information to the Congress.

Some of the factors influencing this interest of the Committees are:

--- the "Foresight Provision" of the Rules of the House of Respesentatives. This requires that each standing committee

> ... shall review and study any conditions or circumstances which may indicate the necessity or desirability of enacting new or additional legislation within the jurisdiction of that committee (whether or not any bill or resolution has been introduced with respect thereto) and shall on a continuing basis undertake futures research and forecasting on matters within the jurisdiction of that committee.
> (Rule X, section 2(b)(1).)

--- the Congressional Budget Act of 1974. This requires that

> Whenever a committee of either House reports a bill or resolution to its House providing new budget authority (other than continuing appropriations) or new or increased tax expenditures for a fiscal year, the report accompanying that bill or resolution shall contain a statement, prepared after consultation with the Director of the Congressional Budget Office, detailing—in the case of a bill or resolution providing new budget authority—
> ... a projection for the period of 5 fiscal years beginning with such fiscal year of budget outlays, associated with the budget authority provided in that bill or resolution, in each fiscal year in such period; ... in the case of a bill or resolution providing new or increased tax expenditures—. . a projection for the period of 5 fiscal years beginning with such fiscal year of the tax expenditures which will result from that bill or resolution in each fiscal year in such period.
> (P.L. 93-344, sections 308(a)(1)(B), 308(a)(2)(B).)

--- the Budget and Accounting Act of 1921, as amended. This requires that the Budget prepared by the President must contain

> estimated expenditures and proposed appropriations necessary in his judgement for the support of the Government for the ensuing fiscal year and projections for the four fiscal years immediately following the ensuing fiscal year ... ; estimated receipts of the Government during the ensuing fiscal year and projections for the four fiscal years immediately following the ensuing fiscal year, under (1) laws existing at the time the Budget is transmitted and also (2) under the revenue proposals, if any, contained in the Budget;
> (31 U.S.C. 11)

This questionnaire has been developed to meet the information needs of both Committees.

The information gathered as a result of this inquiry (the questionnaire and follow-up interviews) will form the core of a GAO Report to the Congress on the extent and impact of long-range planning and policy analysis activities in the Federal Executive Agencies.

This questionnaire is not aimed solely at officially designated long-range planning and policy analysis offices. Rather, it is intended to "pick up" all those offices and individuals that engage in long-range planning and policy analysis activities—even if it is not their primary function. In other words, the survey is intended to gather information concerning the structure, process, and mechanisms of these activities and GAO does not wish to exclude any source of such information.

For the purpose of this inquiry, operational definitions have been proposed for the various terms used in long-range planning and policy analysis activities. While it is important to the GAO analysis of the responses to have the greatest possible degree of commonality in the vocabulary, the intent of the inquiry is to elicit information. If an individual, or office, feels that their activities fall within the sense of this inquiry, they are requested and encouraged to substitute their own operational definitions and to respond to the questionnaire. The next section presents the GAO operational definitions and discusses some of the points GAO feels are central to the definitions.

Definitions

Forecasting - the activity of forming serious and considered opinions about the future.

Discussion: These opinions are obviously of uncertain verification. They may be quantitative or qualitative, economic, technological, demographic, political, or social. They may be obtained by mathematical analysis, modeling efforts, Delphi, or simply judgemental conjecture.

Planning and policy analysis - those activities which seek to determine the implications of continuing, proposed, or contemplated actions.

Discussion: While it is possible to forge semantic distinctions between "planning" and "policy analysis", this inquiry will not draw a distinction. If the respondents feel that the words refer to different concepts and these differences reflect themselves in their work, they are requested to present their definitions and to then use them for the remainder of the questionnaire.

For example, if one (or more) actions were being considered for possible adoption, a "policy analysis" would refer to an investigation into the implications (both short- and long-range) of each course of action. Policy analysis uses forecasting as a tool for making projections, but is primarily concerned with determining the (interrelated) effects caused by a proposed action. (Note that an "action", in the sense used here, can be the drafting of suggested legislation, the decision to formalize an assumption, or even the decision to not do anything.)

Long-range - that time period beginning not less than six years from the present.

Discussion: It is felt that the requirement for five year budget projections plus the lead time for submission of the projections, both within the agency and then to OMB, mandates forecasting operations into the "long-range" horizon. At the same time, however, if an office has a horizon of less than six years and feels that their activities are within the intent of the survey, they are requested to present their arguments as to why "not less than six years" is inappropriate to their activities, and to then complete the questionnaire.

Problem identification - those activities which seek to determine and delineate areas of national concern.

Discussion: Since the focus of this inquiry is long-range, this definition is further restricted to those concerns which may (will probably) arise in the future given a continuation of present and projected policies. Problem identification is related to policy analysis, but their focus is slightly different. The policy analysis would assume as givens the actions, A, B, C, ... , and would seek to determine the probable results, X, Y, Z, ... , and their implications.

On the other hand, problem identification seeks to determine those areas of concern resulting from the continuation of present policies. Moreover, value implications are (usually) not considered except to the degree they are inherent in defining the area to be one of concern. In a narrow sense, problem identification can be regarded as policy analysis restricted to a policy of inaction.

As before, however, if a proposed respondent feels that a different definition is critical to their activities, they are encouraged to give their own definition.

Remarks

The purpose of this inquiry is to elicit information regarding "futures-type" activities. The slight degree of vagueness in the above definitions has been left in so as to facilitate a response from an individual or an office that might fall within the sense of this inquiry, but not the letter. In this case, the respondent is requested to explain why the proposed definitions are inappropriate to their activities, and also why they feel their activities fall within the scope of this inquiry.

Moreover, in the event that an agency feels that none of their activities fall within the scope of this inquiry, the agency should communicate this fact to GAO, together with a delineation of the rationale for their negative response.

GAO prefers that replies correspond to the order used in the questionnaire. If a respondent prefers to structure their reply in some other order, it is important that the individual protions of the reply be keyed to the numbers in the questionnaire.

APPENDIX II

I. General Questions on Definitions

1. Does your agency perform any long-range planning or policy analysis?

2. Do you use any forecasting techniques in your long-range planning or policy analysis activities? If so, which ones?

3. Do the definitions set forth in the introduction adequately describe what you feel is meant by "long-range planning and policy analysis"?

4. What additional categories or changes to the definitions do you suggest?

5. What are the primary units in your agency that perform long-range planning and policy analysis? Please identify them by name and provide a name of a person to contact.

6. Are there other organizational units within the agency which perform long-range planning and policy analysis? (n.b., these activities do not have to be their officially designated, or even primary, function.) If so, please identify them by name and provide a name of a person to contact.

7. Considering the years 1984 and beyond, what do you see as the major issues facing your agency?

8. Which of the issues you cited in answering question I.7. are presently the subject of long-range planning and policy analysis? Do you feel that these are the issues for which long-range planning and policy analysis offers the greatest benefits?

9. Cite any legislation (i.e., short title, Public Law, U.S. Code, U.S. Statute) you know of that specifically authorizes your agency to perform long-range planning and policy analysis.

10. Do you think it would be beneficial to your agency's operations to have specific legislation authorizing, or even mandating, long-range planning and policy analysis activities?

II. Organizational Structure

1. Designation of unit containing personnel who perform long-range planning or policy analysis activities.

   a. Name of unit.

   b. Address of unit.

   c. Name and title of head.

   d. Telephone.

   e. Office to whom this unit reports their long-range planning or policy analysis activities.

2. Provide an organization chart locating the respondents to the questionnaire with respect to:

   a. Agency structure.

   b. Other units containing personnel performing similar activities. (Circle or otherwise designate these units.)

3. Are consultants or contractors used in support of your activities in long-range planning or policy analysis?

4. Does your unit exercise any coordinating function with respect to the activities of the other units containing personnel performing long-range planning or policy analysis? If so, how is this done?

5. Is there any formal connection between this unit and the budget preparation process or the Management by Objective process? If so, describe the relationship.

APPENDIX II

III. Products

1. What are the typical products resulting from your long-range planning or policy analysis activities? (e.g., publicly available formal reports, internally distributed formal reports, memos to upper management, oral briefings only.)

2. For each of the product categories you cited in answering question III.1., estimate the number of products produced in FY 73, FY 74, and FY 75.

3. Using the same product categories you used in question III.2., estimate the number of products planned for FY 76.

4. What were some of the products produced in FY 73, FY 74, and FY 75? Please cite specific examples and attach copies if available. (n.b., do not repeat those products you cite in your answers to questions III.6., III.7., and III.8.)

5. Is there a formal dissemination plan for the distribution of the unit's long-range planning or policy analysis products? If not, please describe how recipients (both within and without the agency) are determined.

6. In the period from July 1, 1972 to the present, have any of the unit's products been distributed to the Congress either as stand-alone studies or in support of proposed legislation? If so, please cite all products, Congressional recipients, and approximate dates of distribution. If any documentation exists, please provide copies.

7. Have any of the unit's products prepared since July 1, 1972 been distributed to other agencies within the Executive Branch? Please identify all products, recipients, and approximate dates of distribution. If available, please provide copies of the products.

8. Have any of the unit's products prepared since July 1, 1972 been distributed to OMB, the Domestic Council, or the White House staff? Please identify all products, recipients, and approximate dates of distribution. If available, please provide copies of the products.

IV. Process

1. Describe the process by which long-range planning or policy analysis activities are formulated and approved.

2. Attach a copy of any formal documentation describing the long-range planning or policy analysis activities to be started in FY 76. If not available, describe the activities scheduled for initiation in FY 76.

3. Are there any internal or external constraints/limitations placed on either the type or scope of activities undertaken? (i.e., contract money, manpower to perform work, subject matter.) If so, what are they, and by whom are they set?

4. Has the agency formulated any "measures of effectiveness" for the long-range planning or policy analysis activities it does undertake?

5. Are there any specific accomplishments or effects that can reasonably be attributed to the long-range planning or policy analysis activities completed in the past three years by your agency? If so, please give examples.

6. Do the analyses performed by the unit explicitly treat alternatives and their value implications? That is, a specific goal could be reached by means of many different programs. These programs, in turn, could have very different fiscal and social implications that extend many years into the future. The original question could be rephrased as, "Is an attempt made to investigate such alternatives rather than just prescribing a single 'best' course of action?"

7. What is the relationship, if any, between long-range planning and policy analysis activities and the development of legislative proposals?

8. To what extent are legislative proposals developed as a consequence of long-range planning and policy analysis activities? Please cite specific examples illustrating your answer.

9. When legislative proposals are developed, to what extent does the initiative come from agency management, and to what extent does it come from the Executive Office of the President? Please provide examples.

10. Do you think long-range planning and policy analysis serves a useful purpose in formulating or supporting legislative proposals?

APPENDIX II

11. Considering the trade-offs between the cost and utility of studies, do you think a specific percentage budget set-aside for long-range planning and policy analysis would be a good investment?

12. Proposals have been made for a national institute for long-range planning and policy analysis. Do you think such an institute would be useful to the Government? Where do you think such an institute should be located? (i.e., in the Executive Branch, in the Legislative Branch, outside the Government, ...) What do you think such an institute should do? What should it not do? Could it help you in your work?

APPENDIX II

V. Agency Long-Range Planning and Policy Analysis Resource Information

The following questions are directed toward determining, for each unit, the amount of contract funds expended on long-range planning and policy analysis activities in FY 74, 75, and 76, and in having an estimate of the manpower directed specifically towards long-range planning and policy analysis. In the event that the data requested is not readily available, a best estimate is acceptable.

1. Agency or department.

2. Bureau, office, administration.

3. Unit performing long-range planning or policy analysis.

4. Respondent(s). Phone.

Budgetary Data	FY 74	FY 75	FY 76
5. Contract services ($1,000)			
6. Consultant's fees ($1,000)			

Personnel Resources	FY 74	FY 75	FY 76
8. Total professional staff for this unit			
9. Professional person-years directed specifically toward long-range planning or policy analysis			
10. Total clerical staff for this unit			
11. Clerical person-years directed specifically toward long-range planning or policy analysis			

SELECTED LIST OF RELATED GAO REPORTS

"Need To Develop A National Non-Fuel-Mineral Policy" (RED-76-86, July 2, 1976).

"Review Of The 1974 Project Independence Evaluation System" (OPA-76-20, Apr. 21, 1976).

"General Accounting Office Reviews Of Federal Environmental Research And Development" (RED-76-95, Apr. 7, 1976).

"Role Of Federal Coal Resources In Meeting National Energy Goals Needs To Be Determined And The Leasing Process Improved" (RED-76-79, Apr. 1, 1976).

"Observations On Collection And Dissemination Of Scientific, Technical. And Engineering Information" (GGD-76-66, Mar. 19, .976).

"Action Is Needed Now To Protect Our Fishery Resources" (GGD-76-34, Feb. 18, 1976).

"Land Satellite Project" (PSAD-76-74, Jan. 30, 1976).

"Federal Programs For Research On The Effects Of Air Pollutants" (RED-76-46, Dec. 11, 1975).

"Federal Materials Research And Development: Modernizing Institutions And Management" (OSP-76-9, Dec. 2, 1975).

"The Need For A National Ocean Program And Plan" (GGD-75-97, Oct. 10, 1975).

"Federal-State Solar Energy Research. Development, And Demonstration Activities" (RED-75-376, June 10, 1975).

"Efforts To Develop Two Nuclear Concepts That Could Greatly Improve This Country's Future Energy Situation" (RED-75-356, May 22, 1975).

"What The Department Of Agriculture Has Done And Needs To Do To Improve Agricultural Commodity Forecasting And Reports" (RED-76-6, Aug. 27, 1975).

"Outlook For Federal Goals To Accelerate Leasing Of Oil And Gas Resources On The Outer Continental Shelf" (RED-75-343, Mar. 19, 1975).

"Need For A Naticnal Weather Modification Research Program" (RED-74-176, Aug. 23, 1974).

"The Process For Identifying Needs And Establishing Requirements For Major Weapon Systems In The Department Of Defense" (B-163058, Oct. 23, 1974).

"Review of the Effectiveness of Testing of Selected Major Weapon Systems" (PSAD-75-74, June 4, 1975). Unclassified digest of a Confidential report.

"Review of the Adequacy of DOD Test Resources" (PSAD-75-64, Apr. 30, 1975). Confidential report.

"Improvements Needed In Cost-Effectiveness Studies for Major Weapon Systems" (PSAD-75-54, Feb. 12, 1975).

"Ways to Make Greater Use of the Life Cycle Costing Acquisition Technique in DOD" (B-178214, May 21, 1973).

"Advantages and Limitations of Computer Simulation in Decisionmaking" (B-163074, May 3, 1973).

"Impartial Cost-Effectiveness Studies for Major Weapon Systems" (B-163058, Aug. 21, 1972).

"Theory and Practice of Cost Estimating for Major Acquisitions" (B-163058, July 24, 1972).

APPENDIX IV

PARTICIPATING AGENCIES AND PROGRAM UNITS

The following is a list of the agencies and, when applicable, their program units that participated in our study.

Department of Agriculture:
- Office of Management and Finance
- Agricultural Marketing Service
- Agricultural Research Service
- Agricultural Stabilization and Conservation Service
- Animal and Plant Health Inspection Service
- Cooperative State Research Service
- Economic Research Service
- Extension Service
- Farmer Cooperative Service
- Farmers Home Administration
- Federal Crop Insurance Corporation
- Food and Nutrition Service
- Foreign Agricultural Service
- Forest Service
- Packers and Stockyards Administration
- Rural Development Service
- Rural Electrification Administration
- Soil Conservation Service
- Statistical Reporting Service

Department of Commerce:
- Office of Policy Development
- Bureau of the Census
- Economic Development Administration
- Office of Regional Economic Coordination
- Domestic and International Business Administration
- United States Travel Service
- National Fire Prevention and Control Administration
- Office of Telecommunications
- Maritime Administration
- National Oceanic and Atmospheric Administration

Department of Defense:
- Office of the Assistant Secretary of Defense (Program Analysis and Evaluation)
- Office of the Assistant Secretary of Defense (Installations and Logistics)
- Office of the Director of Defense Research and Engineering
- Office of the Joint Chiefs of Staff

Department of the Interior:
- Office of Policy Analysis, Office of the Assistant Secretary--Program Development and Budget
- Alaska Power Administration
- Bonneville Power Administration
- Bureau of Indian Affairs
- Bureau of Land Management
- Bureau of Mines
- Bureau of Outdoor Recreation
- Bureau of Reclamation
- Fish and Wildlife Service
- Geological Survey
- Mining Enforcement and Safety Administration
- National Park Service
- Office of Land Use and Water Planning
- Office of Minerals Policy Development
- Office of Territorial Affairs
- Office of Water Research and Technology
- Southeastern Power Administration

Environmental Protection Agency:
- Office of Planning and Management
- Office of Research and Development

Energy Research and Development Administration:
- Office of the Assistant Administrator for:
  - Planning and Analysis
  - Fossil Energy
  - Nuclear Energy
  - Solar, Geothermal, and Advanced Energy Systems
    - (Division of Solar Research)
    - (Division of Geothermal Research)
    - (Division of Controlled Thermonuclear Research)
    - (Division of Physical Research)
  - Conservation
  - Environment and Safety
  - National Security
  - Laboratory and Field Coordination
- Office of the Controller

Federal Energy Administration:
- Office of Policy and Analysis:
  - Policy Division
  - Data Analysis Division
  - Office of Economic Impact
- Office of the General Counsel:
  - Office of Assistant General Counsel for General Law, Legislation, and Coal Conversion
- Office of Management and Administration:
  - Program Planning and Evaluation Division
- Office of Conservation and Environment:
  - Office of Planning Analysis and Evaluation

APPENDIX IV

Federal Energy Administration: (continued)
Office of Energy Resource Development:
Office of Program Planning, Information and Evaluation
Office of Regulatory Programs:
Office of Contingency Planning

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____. Long Range Planning. Washington: U.S. Govt. Printing Office, May 1976. p. 487 (94th Cong., 2d Sess. House Committee on Science and Technology, Subcommittee on the Environment and the Atmosphere. Committee print).

U.S. Congress, Senate. Committee on Government Operations. Our Third Century: Directions--Appendix. Washington, U.S. Govt. Printing Office, 1976. p. 572, (94th Cong., 2d Sess. Committee print).

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Hitch, Charles, and McKean, Roland. The Economics of Defense in the Nuclear Age. Rand Corp., Mar. 1960, R-346.

APPENDIX VI

PRINCIPAL OFFICIALS RESPONSIBLE FOR THE ADMINISTRATION OF ACTIVITIES DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
DEPARTMENT OF AGRICULTURE		
SECRETARY OF AGRICULTURE:		
John A. Knebel	Nov. 1976	Present
John A. Knebel (acting)	Oct. 1976	Nov. 1976
Earl L. Butz	Dec. 1971	Oct. 1976
DEPARTMENT OF COMMERCE		
SECRETARY OF COMMERCE:		
Elliot L. Richardson	Feb. 1976	Present
Rogers C.B. Morton	May 1975	Feb. 1976
John K. Tabor (acting)	Mar. 1975	May 1975
Frederick B. Dent	Feb. 1973	Mar. 1975
DEPARTMENT OF DEFENSE		
SECRETARY OF DEFENSE:		
Donald H. Rumsfeld	Nov. 1975	Present
James R. Schlesinger	July 1973	Nov. 1975
DEPARTMENT OF THE INTERIOR		
SECRETARY OF THE INTERIOR:		
Thomas S. Kleppe	Oct. 1975	Present
Kent Frizzell (acting)	July 1975	Oct. 1975
Stanley K. Hathaway	June 1975	July 1975
Kent Frizzell (acting)	May 1975	June 1975
Rogers C.B. Morton	Jan. 1971	May 1975
ENERGY RESEARCH AND DEVELOPMENT ADMINISTRATION		
ADMINISTRATOR:		
Robert C. Seamans, Jr.	Jan. 1975	Present

APPENDIX VI

	Tenure of office	
	From	To
ENVIRONMENTAL PROTECTION AGENCY		
ADMINISTRATOR:		
Russell E. Train	Sept. 1973	Present
John R. Quarles, Jr. (acting)	Aug. 1973	Sept. 1973
Robert W. Fri (acting)	Apr. 1973	Aug. 1973
FEDERAL ENERGY ADMINISTRATION (note a)		
ADMINISTRATOR:		
Frank G. Zarb	Dec. 1974	Present
John C. Sawhill	May 1974	Nov. 1974
William E. Simon	Dec. 1973	May 1974

a/Federal Energy Office prior to June 1974.