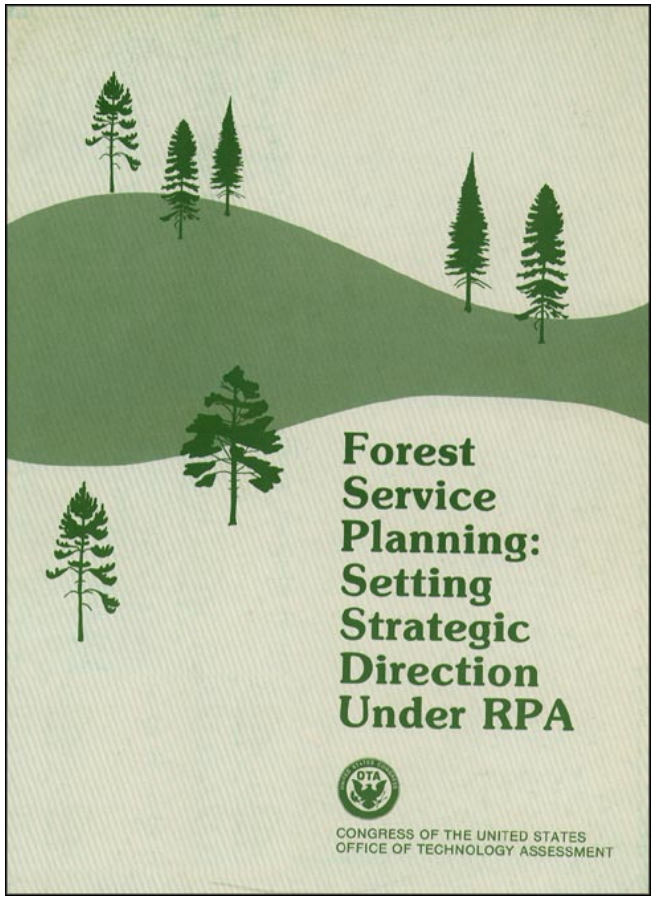
Forest Service Planning: Setting Strategic Direction Under RPA

July 1990

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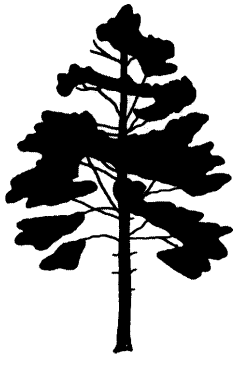




Forest Service Planning: Setting Strategic Direction Under the Forest and Rangeland Renewable Resources Planning Act of 1974







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Foreword

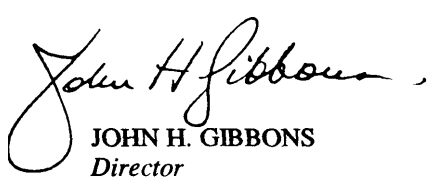
America's forests and rangelands provide valuable commodities and amenities for U.S. citizens. Forests and rangelands account for two-thirds of all U.S. land, and 40 percent of those lands are owned by the Federal Government. Forests and rangelands generate clean water, forage for livestock, timber for homes, habitat for fish and wildlife, area for recreation, and pristine wilderness settings. As our population has grown and leisure time has increased, the demands for these products and services has risen, leading to increased conflicts over the use of forests and rangelands, especially the Federal lands, and concerns about their long-run protection.

In 1974, Congress enacted the Forest and Rangeland Renewable Resources Planning Act (RPA) to assure long-term sustainable management of our Nation's renewable natural resources and to increase public involvement in policy and budget debates. In 1976, Congress amended RPA in the National Forest Management Act (NFMA) to guarantee sustainable management for the national forests managed by the USDA Forest Service and to assure active public involvement in the forest planning process.

Various Members and Committees of Congress have expressed concern that RPA has not set strategic direction for Forest Service planning at the national level. The RPA Assessments have provided useful resource data and analysis, but have been incomplete, while the RPA Programs and Presidential Statements of Policy have not sufficiently addressed timely issues, guided budget deliberations, or assured sustainable resource management. In addition, the Annual Report of the Forest Service has not effectively documented progress in implementing the Program or accomplishing policy objectives.

Congress also has questioned the effectiveness of planning at the forest level under NFMA and has expressed concern over the direction in which the process is headed. Most of the local forest plans have taken much longer to complete than anticipated, and frequently Congress has been asked to address controversial issues which it expected to be resolved in the planning process. Numerous administrative appeals and litigation of forest plans have come from environmentalists, business interests, and local governments.

Because of these growing concerns, the House Committee on Agriculture, together with the House Interior and Insular Affairs Subcommittee on National Parks and Public Lands and the Senate Committee on Agriculture, Nutrition, and Forestry, requested the Office of Technology Assessment to examine the Forest Service's resource planning technologies and approaches. Because of the pending delivery of the 1990 RPA documents, the Committees asked that OTA examine the RPA planning process frost. This report evaluates past RPA efforts, reviews the process used by the Forest Service in preparing the 1989 RPA Assessment and the Draft 1990 RPA Program, and identities options for improving RPA's contribution to long-range planning and to policy and budget deliberations. The second OTA report on Forest Service planning will review national forest planning, and will examine the relationship between national planning under RPA and forest planning under NFMA.



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NOTE: OTA appreciates and A grateful for the valuable assistance and thoughtful critiques provided by the advisory panel members. The panel does not, however, necessarily approve, disapprove, or endorse this report. OTA assumes full responsibility for the report and the accuracy of its contents.

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Chapter 1
Summary

The Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) requires the Secretary of Agriculture to evaluate the Nation's renewable forest and rangeland resources and to consider their future use and sustainability. The Secretary has directed the USDA Forest Service to prepare three RPA documents: the Assessment, the Program, and the Annual Report. The Presidential Statement of Policy, also required by RPA, and the documents prepared by the Forest Service, are submitted to Congress to guide policy and budget decisions.

Congress is concerned that this costly process has not provided a comprehensive evaluation of renewable resources or an effective guide for policy and budget deliberations. Individual Members of Congress, congressional committees, and public and private interest groups have expressed disappointment with the results of RPA, criticizing both the process and the documents. Because of the disappointing results, some have proposed repealing RPA, but others, believing in the merits of the process, argue that this would be "tantamount to throwing out the baby with the bathwater."

RPA arose from concerns about the future of our renewable resources and about the tendency to focus on short-term problems rather than on long-term conditions. Senator Hubert Humphrey, chief sponsor of the legislation, was particularly disturbed by the Nixon Administration's failure to reduce work backlogs, which Humphrey believed was short-changing future forest and rangeland resources. Congress intended RPA to establish long-range planning for renewable resources and to provide greater congressional control over Forest Service programs and budgets.

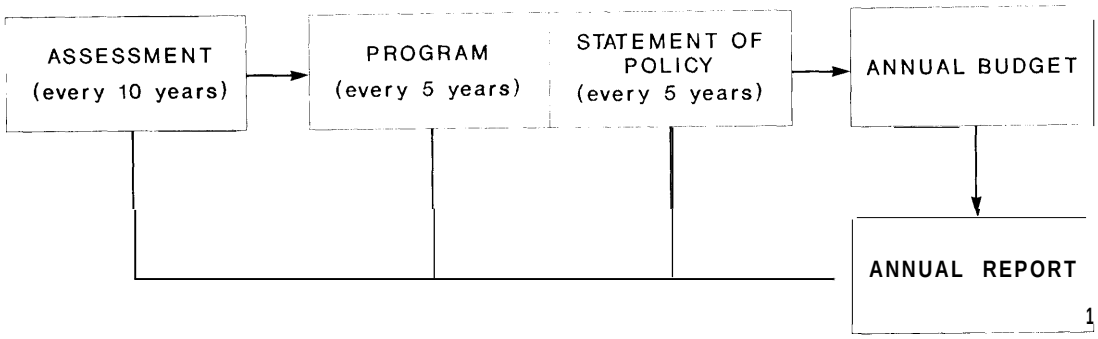
By requiring that the RPA Program be developed in accordance with the National Environmental Policy Act of 1969, RPA opened the door to public participation in the planning process—both in the scoping of issues to be addressed and in the reviewing of the draft documents. The extent to which the public influences forest and rangeland policy depends largely on Forest Service efforts to solicit and analyze public input and to address public concerns in the RPA Program. Some critics assert that the agency has not involved the public in the process in a manner that allows for meaningful participation. Declining numbers of public comments suggest either that the public does not expect to influence the RPA documents or process, or that the documents do not have a significant impact on policy and budget decisions.

RPA established a long-range planning process for the Forest Service that is built on principles of strategic planning (figure l-l). Strategic planning establishes a framework through which an organization defines its mission, goals, and objectives and sets its future direction. The process typically includes evaluating an organization's present situation, assessing internal strengths and weaknesses, and examining threats and opportunities. Because a strategic plan guides operations, it must also be integrated with internal control systems, such as budgets. Strategic planning is a flexible process that includes systematic monitoring and feedback to measure performance; plans can then be modified in response to new information, emerging issues, and changing priorities. Above all, strategic planning demands that top officers and line managers remain committed to the process.

To date, RPA has not functioned well as a strategic planning system. RPA Assessments have suffered from poor data on resource conditions and the analyses of opportunities and threats have been incomplete. RPA Programs have provided neither sufficient guidance for annual budgets nor clear direction for agency activities. Annual Reports have provided inadequate feedback on implementation. And neither the Administration nor Congress has demonstrated sufficient commitment to make the process work.

Some observers assert that RPA cannot serve as an effective strategic planning process because of inherent political, institutional, and contextual limitations. However, a comprehensive assessment of resource conditions can establish a common basis for looking to the future, while an evaluation of threats and opportunities can explore possible options. Public input can then be used to develop an acceptable direction for Forest Service activities, and annual monitoring and feedback can show progress in achieving the agreed-upon direction.

Figure 1-1—The RPA Planning Process



SOURCE: Office of Technology Assessment, 1990.

Strategic planning for renewable resources is thus a feasible process to address the still prevalent concerns about deteriorating resource conditions and budget constraints. OTA therefore concludes that the strategic nature of RPA should be retained and enhanced. With commitment to the process from the Administration and Congress, Forest Service strategic planning can chart a course for improving the long-term management of the Nation's renewable resources.

THE RPA ASSESSMENT

RPA requires the Assessment to include an inventory of renewable resources; a supply and demand analysis of renewable resources; a review of the international resource situation; a description of Forest Service programs in research, cooperative assistance, and the National Forest System; and a discussion of policy considerations and regulations expected to influence all forest and rangeland owners. These requirements provide for the evaluation of the current situation and for the analysis of opportunities and constraints that are necessary for effective strategic planning.

The first Assessment under RPA was due on December 31, 1975, with an update required in 1979 and subsequent Assessments due every 10 years after that. The three Assessments and one supplement completed to date have met with varied response from Congress and the public. Most reviewers commend the efforts of the Forest Service, but many note shortcomings in specific Assessments or in the process. In general, the Assessment is a comprehensive document reflecting substantial Forest Service effort but lacking some of the resource quality and quantity data needed to make well-informed resource management plans and decisions.

Resource Data

The 1989 RPA Assessment is a short, general document supported by several more detailed reports on each of the major resources, including range forage, timber, water, wildlife and fish, and wilderness. Recreation, unlike the other categories, is an activity rather than a resource and recreation planning requires different kinds of inventory data and management concepts than planning for renewable resources.

An inventory of renewable resources is most useful to resource managers when it provides accurate data on the quantity, quality, and outputs of each resource. The amount of the data on these parameters varies substantially among the resource reports supporting the 1989 RPA Assessment. The Timber Assessment, because of a long history of data collection by the Forest Service, has basic information on quantity, quality, and outputs for evaluating the timber resource. The Recreation Assessment, although dealing with some intangible measures, quantities recreation activities and measures the quality and outputs of the services provided. The Water Assessment also has relatively complete data on quantity, quality, and outputs of the water resources. The remaining Assessments are missing at least one of the inventory components. In particular, data on quality of the resources are lacking. For

example, while the area of wilderness is quantified, no measures for the quality of wilderness are presented. The Range Assessment does not provide useful measures for quality or quantity, due in part to a change in the inventory techniques for rangeland that has restricted the amount of information available to assess historical trends. The Wildlife Assessment also fails to present sufficient quantity and quality information to assess population levels and trends, although it contains output information on many species.

Differences also exist among the types of measures presented and their usefulness in evaluating the resources. Direct, replicable measures are most useful for assessing conditions and trends, although variable measures based on field surveys can be helpful. Indirect measures, as surrogates for conditions, are typically less reliable, while professional judgment often cannot be replicated. Outputs are the least useful measure for conditions, because output levels can often be maintained temporarily at unsustainable levels.

Data presented in the Assessment reports are rarely from direct measures, although some exceptions exist. For example, the status of the timber resource is monitored through periodic surveys of volume of growing stock, growth, mortality, and removals. These data are generally of better quality than those for the other resources. The Water Assessment synthesizes data from several agencies to produce measures of water flows and quality of watersheds and, as with the Timber Assessment, provides better quality data than most of the other Assessments. The Recreation Assessment uses primarily indirect or output measures because some of the variables used to evaluate recreation activities cannot be quantified. The Range Assessment estimates total rangelands that can be used for livestock grazing as a surrogate for forage production, but this does not assess the quantity or quality of the range forage resources. The Range Assessment also estimates productivity in terms of livestock grazing use, but this measure is also of little value because of incomplete data on the acres of forests and rangelands actually grazed by livestock and wild herbivores. The Wildlife Assessment discusses land use and vegetative cover types as indirect measures of the amount of land that supports a faunal community. These measures provide a coarse description of wildlife and fish habitats, but are inadequate for monitoring resource quantity and quality. Professional judgment and variable measures, compiled from numerous State agencies, provide the databases for many of the population estimates, but output measures are often used for small game and furbearers.

Economic Analysis

The Forest Service is directed to analyze current and expected supplies of and demands for renewable resources and to evaluate resource investment opportunities. Econometric models are used for timber resources and for the land base, providing a systematic approach that can be tested. For other resources, the Forest Service has used the "gap" model, projecting future demands and supplies independently and then comparing them. Such an approach can be useful if the projections are based on sound assumptions and logic, but the Assessment generally does not include enough information to evaluate the projection methods. Furthermore, some projections are inconsistent with current trends and with other information. The gap model includes no information about likely price trends, although the size of the gap could be expected to indicate the likely direction and magnitude of changes in the values of nonpriced and subsidized resources. In general, future resource values correlate with supply and demand projections, but future values for range forage and for hunting and fishing seem to be overestimated. While these models are far from perfect, they represent significant efforts and provide useful insights on likely trends.

Although RPA requires an evaluation of opportunities, with investment costs and direct and indirect returns, the Assessment is largely a catalog of possibilities, with virtually no information on costs and returns to help decisionmakers arrive at informed choices. The Wildlife Assessment at least contains a discussion of general priorities, and the Timber Assessment contains an evaluation of opportunities on some timberlands. overall, however, the Draft 1989 RPA Assessment is inadequate in meeting this requirement of the Act.

International Context

RPA requires the supply and demand analysis in the Assessment to consider the international context for domestic resources, because trends in international resource use and protection can affect demands on domestic resources. International trade is considered in the Timber and Range Assessments.

Global resource situations such as demand for fuelwood, atmospheric pollution and acid deposition, loss of rangelands to encroaching deserts, and population declines of migratory songbirds are identified in the individual resource reports. However, two major international environmental concerns, tropical deforestation and global warming, were essentially ignored in the Assessment, despite important implications for the future of America's renewable resources.

Cooperative Assistance and Research

The 1989 RPA Assessment is of little value for assessing cooperative assistance and research. Despite the information on these topics in the individual resource Assessments, the 1989 RPA Assessment neither summarizes the identified needs nor examines their priorities.

Many of the individual resource Assessments suggest specific cooperative assistance actions for increasing supplies or improving quality of resources on State and private lands. The Recreation Assessment, for example, concludes that programs directed at private lands should focus on keeping land open for recreation by providing information to landowners on management, limiting liability risks, and capturing financial benefits. The Timber Assessment suggests increasing timber productivity on nonindustry private lands as a way to slow the expected rate of increase in timber prices. The Water Assessment suggests that lack of knowledge and lack of financial incentives to private landowners are major obstacles to the control of forestry-related nonpoint-source pollution. Two major issues relevant to private lands-habitat restoration and improvement and restricted access to private lands for hunting and fishing-are identified in the Wildlife Assessment. However, the 1989 RPA Assessment downplays the potential for using markets and prices to encourage private landowners to respond to the identified possibilities and problems.

Each of the accompanying individual resource Assessments also contains a section on research needs. The Recreation Assessment identifies standardized information on recreation participation trends, future demands for recreation, and available supplies of recreation opportunities. The Range Assessment calls for research on vegetation management for multiple-resource uses of rangelands. The Timber Assessment suggests continuing importance for research on basic physiological and biological processes of tree growth and timber management. The Water Assessment states that more information is needed on cumulative effects of different management activities on water quality, and on possible control actions. The Wildlife Assessment notes that research is needed on species-habitat relationships and population inventories. However, research priorities and costs are not evaluated in the 1989 RPA Assessment.

Conclusions

The 1989 RPA Assessment, together with the individual resource reports, is a fairly comprehensive document that improves on past efforts. Nonetheless, serious shortcomings remain. Data on resource conditions, particularly on resource quality, are lacking for many resources. Assessments of resource conditions often rely on surrogates, professional judgments, and/or outputs to estimate resource quantity or quality. The supply-demand analysis is generally improved over past RPA Assessments, but the required evaluation of investment opportunities is missing. The Assessment ignores major global resource concerns, and generally contains insufficient information on cooperative assistance and research needs and priorities.

THE RPA PROGRAM

The purpose of the RPA Program is to review management and administrative programs of the Forest Service in relation to Assessment findings. It is to inventory public and private investment needs and opportunities; identify outputs, results, and benefits associated with investments; discuss priorities for the inventoried opportunities; and study personnel requirements. Congress clearly intended the RPA Program to be a strategic plan for Forest Service activities, providing necessary information to the final decisionmakers-the Administration and Congress.

The frost Program under RPA was due by the end of 1975, with succeeding Programs required every 5 years. The three Programs completed to date have not been very useful to the Administration, Congress, or the public for evaluating policy and budget decisions. These documents have been criticized for not providing strategic direction, for inadequately responding to projected resource demands, and for poorly establishing output goals and budget targets. The Forest Service has improved the Draft 1990

Program over previous efforts by including more of the critical components of strategic planning. However, problems remain that limit the value of this document.

Program Structure

The Draft 1990 RPA Program revises the structure of past Programs by discussing roles, issues, strategies, and initiatives. This new structure is closer to a strategic planning model for forest and rangeland resources than previous RPA Programs, but it still fails to set clear goals and priorities. The discussion of roles is a step forward, but the roles are not clearly defined. Issues reflect public concerns about renewable resources, but are not used for comparing strategies. The strategies are really output mixes, and most do not reflect strategic thinking about direction. Finally, the initiatives are presented as separate activities rather than as integral components of the strategies.

The National Forest System dominates the Draft 1990 RPA Program, probably because it accounts for 90 percent of Forest Service funding. The strategies reflect different resource emphasis, with timber programs and wildlife and fish programs showing the greatest variation. The remaining funds are allocated to cooperative assistance, research, and international concerns with little variation in program emphasis among the strategies, sometimes ignoring proposed roles and needs. Timber production is expected to continue to dominate cooperative assistance on private nonindustrial lands with few differences in approach among the strategies. Research under the various strategies responds neither to proposed Forest Service roles nor to the research needs identified in the individual resource Assessments. The international forestry program discusses broad research and assistance programs with foreign countries without providing guidance for the Forest Service on relevant global resource issues, such as tropical deforestation and global warming.

Information Content

Effective strategic planning in the public sector relies on substantial data to describe the current conditions and thorough analysis to examine possibilities. Incomplete inventories in the Assessment make it difficult to present complete resource and economic analyses in the Program. Many of the data presented in the Draft Program are not drawn from the Assessment. For example, the acres of noxious weed infestations is a measure of range management in the Draft Program, but the Assessment contains no information on noxious weeds. For timber, two measures of public concern—acres clearcut and acres of old-growth forests—are discussed in the Draft Program, but again, the Assessment has no supporting data on conditions or trends. Similarly, big game winter range and commercial salmon and steelhead harvests are measures of wildlife and fish management in the Draft Program with no background information in the Assessment.

The Draft 1990 RPA Program proclaims that economic efficiency has been maximized for each strategy, but presents insufficient evidence to evaluate this claim. Evidence from past RPA Programs, likely overestimates of future range and timber revenues, and incomplete cost data tend to refute such undocumented claims. The Forest Service, the Administration, Congress, and many individuals and groups are also concerned about the consequences of Forest Service activities on local communities. The Draft Program responds to such concerns by projecting total employment impacts and county payments under each strategy. Except in the Timber Assessment, however, there is no baseline information on resource industry employment, and the Draft Program does not document how the projections were made.

Budget

The 1980 and 1985 RPA Programs contained two budget levels: the high-bound level representing the Forest Service's view of what is needed for managing the Nation's renewable resources and the low-bound level representing the Office of Management and Budget (OMB) efforts to control total Federal spending. Among the five strategies presented in the Draft 1990 Program, all strategies (except the continuing current budget strategy) contain large budget increases, consistent with past Forest Service efforts but not likely to be acceptable to OMB. The Forest Service has also failed to identify budget priorities and to provide benefit/cost information on proposed actions, as required, making it difficult for the Administration, Congress, and the public to arrive at intelligent budget decisions.

Conclusions

RPA Programs have not been useful documents for evaluating policy and budget decisions. The failure to document sources, to describe analytical methods, to provide realistic near-term revenue estimates and accurate cost information, and to relate programs to the findings of the Assessment make alternative strategies difficult to evaluate. The Programs have generally failed as strategic plans, and have provided little help on budget choices. The Forest Service has taken steps in the Draft 1990 Program to move it toward strategic planning by including critical components of strategic planning as well as better information. The Draft falls short of being an effective planning document, however, because of recurring problems of poor linkage to the Assessment and inadequate resource and budget information.

PRESIDENTIAL STATEMENT OF POLICY

RPA requires the President to transmit to Congress a detailed Statement of Policy to be used in framing budget requests for Forest Service activities. If the budget requests do not conform to the direction set forth in the Statement of Policy, the President is required to explain the differences. The President and OMB have expressed dissatisfaction with this requirement, because of the perceived limitations the Statement imposes on the President in making budget requests and deciding national priorities.

Since RPA was enacted, three Statements of Policy have been transmitted to Congress, by Presidents Gerald Ford (1975), Jimmy Carter (1980) and Ronald Reagan (1985). These Statements have been general pronouncements including only broad commitments to Forest Service programs and not even general guidance for future budgets. Although the law states that the Statement may be modified by Congress, only the 1980 Statement was rejected, primarily for its failure to set forth a firm budget request. The 1975 and 1985 Statements also failed in this regard, but Congress did not respond with a revision within the designated 90-day period and the Statements became the broad budget guides to be used by the Forest Service.

To carry out the original intent of the Act, Congress must hold the President accountable to a budget guide, and deviations must be publicly explained. The purpose of the Statement of Policy is to gain support from the Administration for the recommended Program, a necessary condition for effective strategic planning. If the President cannot beheld accountable in this way, the Statement serves no real purpose.

THE ANNUAL REPORT

RPA requires the Forest Service to report annually on progress in implementing the Program, with appropriate measures of costs and benefits, and on agency activities and expenditures. The Annual Report is to describe accomplishments and backlogs in cooperative forestry programs and significant research findings and applications. Several more specific requirements call for information on acres and location of lands needing reforestation and timber stand improvement, and of lands where successful treatments have occurred; on herbicide and pesticide use; on the benefits and costs of activities; on expenditures on timber practices; and examples of below-cost timber sales.

The Forest Service (or its predecessor) has prepared an Annual Report on its activities since 1886. The Reports have varied in content, and only with the enactment of RPA in 1974 have there been explicit information requirements.

Annual Report—Narrative Portion

The 1989 Annual Report provides a brief but comprehensive description of Forest Service programs and activities, including a section on each branch of the Forest Service-National Forest System, State and Private Forestry, and Research-as well as a chapter on administration. This description is quite laudatory in tone, however, and fails to address adequately such controversial issues as protecting old-growth forests and conducting below-cost timber sales.

The Annual Report contains output measures for most national forest resources, but contains little information on resource conditions. Management activities are described, often quantitatively, but without relating the activities to resource conditions and without adequate expenditure information to evaluate efficiency. Cooperative assistance activities are also poorly evaluated in the narrative portion

of the Annual Report, although measuring such performance is more difficult. Research performance is also difficult to evaluate, but the discussions of priority research programs and of research highlights provide a reasonably complete picture of Forest Service research.

Information Content—Statistical Appendix

The Forest Service has included a statistical appendix with the Annual Report since 1955. Output information is included for most resources, but data on resource conditions and trends are generally missing. Reforestation and timber stand improvement needs are identified, as required by RPA, but backlogs and needs for other resources are lacking. Even the output data are incomplete for some resources, such as water, wildlife and fish, and most notably wilderness.

The data for many of the resources in the Annual Report suffer fromn additional problems. One is inconsistency in the level of detail provided. For example, although road construction is the largest and perhaps most controversial Forest Service program, much more information is presented on range forage. Another problem is inconsistent geographic data. Some data are reported by national forest or by region, while other data are reported by State. A third problem is the inconsistent categories used. Data categories in the 1989 Annual Report often do not match those used in the Draft 1990 RPA Program, the 1989 Assessment, or previous Annual Reports. For example, from 1962 through 1976, the Annual Report included information on quantity and nature of developed facilities on Federal lands. The 1989 Recreation Assessment includes such data, but since 1977 they have not been presented in the Annual Report. Other examples of measures used in the 1989 RPA Assessment but not shown in the 1989 Annual Report include data on timber growth and mortality, instream flows and water quality, and wildlife populations. In addition, several measures used in the Draft 1990 RPA Program were not included in the 1989 Annual Report (or the 1989 Assessment), including acres of old-growth forests and acres clearcut, acres of noxious weeds, and commercial salmon and steelhead harvests.

The Annual Report contains information on management activities, often in lieu of reporting on resource conditions or outputs. For example, information is given on wildlife and fish habitat improvement, acres of watershed improvement, and range allotments under improved management. Such measures implicitly assume that activities and expenditures are beneficial, but they have not been correlated to changes in the quality or quantity of the resources. Thus, the effectiveness of "improved management cannot be determined. Furthermore, because the costs are not matched to the activities, and because most of the data have no geographical disaggregation, the efficiency of "improved management"--over time and in comparison to activities elsewhere--cannot be evaluated.

The statistical sections in the 1989 Annual Report on State and Private Forestry and Research are much shorter than the National Forest System section, reflecting their much smaller budgets. Information on State and Private Forestry is thorough and consistent with past Reports. The data on fire protection and on forest management are particularly useful, but the data on pest management are less valuable. Forest Service research is more difficult to quantify, because it may take years to show the results of research efforts. Data are reported on funding and publications but not on scientist-years or other measures of research effort or interest. Finally, the statistical appendix contains no information on international forestry.

Data presented in the 1989 Annual Report on funding and receipts generally match the 1989 results reported to the Appropriations Committees in the FY 1991 budget request. While the funding data are presented with reasonable effort to allocate funds among the 1989 accounts, problems with the funding and receipt information do exist. For example, biannual changes in the timber funding data show reduced total costs, by removing selected cost items from the analysis, when costs have actually increased. Timber sale values in the receipt data show the value of timber sold, implying that these are actual receipts rather than estimates of future receipts and that all of the receipts are paid into the General Treasury rather than to various trust funds and special accounts.

Meeting Reporting Requirements

The 1989 Annual Report is satisfactory in meeting some requirements, but weak in meeting others. The 1989 Report includes a separate chapter on RPA, making this the second attempt to address RPA Program implementation as required in the

Act. However, not all important outputs and conditions are examined, and information on costs and benefits needed to assess the balance between economic factors and environmental quality factors is missing. Thus, the Annual Report has not fulfilled this RPA requirement.

Of the more specific requirements that RPA defines for the Annual Report, one is met adequately, one is met with shortcomings, and one is met only marginally. The requirement for information on reforestation and timber stand improvement backlogs and accomplishments is met adequately; detailed tables providing more than the required information are included in the Annual Report. The requirement for information on pesticide use in the National Forest System is met with shortcomings, because the section fails to discuss the beneficial and adverse effects of the chemicals. The requirement for reporting on estimated long-term benefits and costs, expenditures on timber activities, and examples of below-cost timber sales is met only marginally. The timber sale accounting system is purported to meet this requirement, but the information is incomplete, the system is not explained, and the validity of the data cannot be evaluated.

Conclusions

The Annual Report is a weak final link in the series of documents required by RPA and does a poor job of making RPA planning an integrated strategic process. The 1989 Annual Report is devoted substantially to the National Forest System, and fails to provide a comprehensive evaluation of our renewable resources. Data in the 1989 Report poorly evaluate resource quantities, qualities, and outputs, and many of the data are inconsistent with measures used in the Assessment, Draft Program, or previous Annual Reports. The requirements under RPA for this document are generally inadequately met or are ignored.

FINDINGS AND CONCLUSIONS

Congress intended RPA to be used as a strategic planning process for long-term planning of our renewable forest and rangeland resources. To date, the process has not resulted in effective strategic planning because of problems with data, analysis, and direction (table l-l). Improvements in these three areas, with input from the Forest Service, the Administration, Congress, and the public, could make RPA work effectively as an instrument for strategic planning and provide useful guidance for the management of our renewable resources.

Much of the information in the RPA documents is incomplete or of poor quality. The resource inventories in the Assessments scarcely provide sufficient data on the quantity, quality, and outputs of each resource to analyze opportunities for improving resource management, and some of the information is based on surrogate measures or on professional judgments. Data are also difficult to trace from one RPA document to another. Some resource measures in the Assessment are not used in the Program and Annual Report. Some measures are introduced in the Program with no explanation or previous use in the Assessment or Annual Report. Still other measures are presented in the Annual Report without mention in the Assessment or Program. Although the Forest Service could make an effort to report consistent measures throughout the RPA documents, the Forest Service is not solely responsible for problems with the data. Other Federal or State agencies have principal responsibility over certain resources, and inadequate funds for research may preclude thorough inventories. However, better data are needed. Better data will not automatically lead to better strategic planning, but it could settle debates over *what is* and focus attention on *what should be.*

Analysis in the RPA documents falls short of the requirements outlined in the Act. The RPA Assessments are required to evaluate opportunities, but none of the individual resource Assessments provide a complete analysis of opportunities for improving yields, with estimates of costs and returns. RPA Programs have not performed well in identifying public concerns over impending threats for sustained resource management; for example, the 1980 Program failed to discuss herbicide use, while the 1985 Program omitted information and discussion on below-cost timber sales, and the importance of biological diversity. The Draft 1990 Program has moved in the right direction by including a more complete list of impending threats but still does not provide a comprehensive examination of relevant issues. Finally, the required analysis of benefits and costs, though more complete in the 1990 Draft Program, still contains inaccurate estimates and only a limited discussion of the economic and social impacts of the alternatives.

Table 1-1—RPA Problems and Possible Congressional Responses

Problems	Possible responses
Data problems:	
Incomplete and weak data in RPA documents	Direct the National Academy of Sciences to study data needs and costs
Poor linkage of data among RPA documents	Require the Forest Service to use consistent measures in all RPA documents
Analysis problems:	
Poor foresight on impending problems for resource management	Require the Forest Service to use public participation in identifying potentially important issues
Lack of an evaluation of opportunities for improving renewable resource yields	Enforce the RPA requirement of evaluating renewable resource needs and opportunities
Poor display of benefits and costs of Program activities	Require full and accurate reporting of all relevant economic information
Direction problems:	
Weak guidance for addressing renewable resource issues	Require the Program to identify guiding principles for addressing issues
Poor support for budget decisions	Enforce the RPA requirement to discuss budget priorities
Poor commitment from decisionmakers	Modify RPA cycle to match political cycles; eliminate the Presidential Statement of Policy
Poor evaluation of Program implementation	Enforce the RPA requirement to include an evaluation of Program implementation

SOURCE: Office of Technology Assessment, 1990.

Lack of direction from the RPA documents has resulted in an ineffective strategic planning process. First, RPA Programs have emphasized resource output goals for the Forest Service managers, rather than resource condition goals which would be more useful in planning for sustainability of the forest and rangeland resources. Second, the requirement to discuss budget priorities has been ignored by the Forest Service. RPA Programs have therefore provided inadequate information for the Administration, Congress, and the public to determine the mix of funding levels that will lead to good resource management within budget limitations. Third, the RPA process has received poor commitment from the Administration and from Congress. The Statements of Policy, intended to show Administration support for the recommended Program, have been overly general. Congress has not followed through with its commitment to the process by rejecting unacceptable documents, by conducting oversight hearings and making recommendations, or by appropriating consistent amounts. Finally, the Annual Report has failed to evaluate the implementation of the program, as required by RPA, and thus has not evaluated successes and failures that could lead to improved resource planning in future Programs.

Chapter 2

Policy Options: CPR for the RPA

RPA established a long-term planning process for the Forest Service to help direct the course of forest and rangeland management in the United States. Congress intended the process to include public participation in setting strategic direction for Forest Service activities. The Act requires the Secretary of Agriculture to prepare: 1) an Assessment of forest and rangeland conditions, of renewable resource supply and demand, and of the opportunities to achieve desired future conditions, every 10 years; 2) a Program, which examines resource needs and opportunities and sets the direction for Forest Service activities, every 5 years; and 3) an Annual Report, which evaluates agency activities and implementation of the RPA Program. By regulation, the Secretary has directed the Forest Service to prepare these documents, but they remain the Secretary's responsibility. The Assessment and Program are transmitted to Congress, together with a Presidential Statement of Policy for use in framing Forest Service budget requests. The Annual Report is submitted to Congress with the annual budget request.

Past Assessments and Programs have not been well received by Congress. Congress has praised the Assessments for presenting substantial information, but has criticized them for lacking essential data and analyses. Congress has broadly condemned the Programs for not providing real direction for the Forest Service nor assisting Congress and the public in making policy and budget decisions. The Statements of Policy have been so brief and general as to be useless. And, the Annual Report has been described as the weakest link in the RPA process, because it has been unrelated to the data and analyses in the Assessment and Program.

Several congressional committees have held hearings on the 1975, 1980, and 1985 RPA Programs, and interested individuals and groups have similarly reviewed the RPA documents. In 1980, Congress revised the Statement of Policy, as allowed under RPA, to specify the direction for Forest Service activities, although Congress did not follow through in subsequent appropriations. In 1986, because of the 18-month delay in releasing the 1985 Program and the general uselessness of the Program for budget decisions, Congress restricted the appropriations available for preparing the RPA documents. Some critics have gone so far as to suggest that the process is such a waste of time and money that it ought to be repealed, although others have argued that the process has merit even though the documents have been inadequate.

MAJOR FINDING

In enacting RPA, Congress intended a *strategic planning* process to assure protection and sustainable use of the renewable resources on all forests and rangelands. Strategic planning establishes a long-term framework for management and decisionmaking. It begins with an evaluation of the current conditions, and then defines the desired direction. Strategic planning requires commitment from top management, and relies on frequent feedback to determine if the desired direction is being followed. With the Assessment for analysis of current conditions, the Program for direction, the Statement of Policy for commitment, and the Annual Report for feedback, Congress clearly intended a process that parallels strategic planning.

To date, the RPA process has not met this intent. Even in the private sector, strategic planning is sometimes not successful, and government agencies have additional, inherent difficulties: they cannot redefine their mission; they cannot easily limit the issues that must be addressed; they cannot control all relevant inputs, especially budgets. RPA planning has been subject to all these difficulties, and thus has been under scrutiny for its failure as a strategic planning process. In particular, the Program and Statement of Policy have provided little guidance for policy and program decisions or for budget formulation, and the Annual Report has supplied poor evaluation of agency performance and RPA Program implementation.

If Congress concludes that Forest Service strategic planning under RPA is inappropriate or impossible, the requirement for the RPA Program could be modified to provide other useful information. For example, the RPA Program could be required to aggregate the land and resource management plans for each national forest, that have been prepared with enormous investments of time and money to balance

resource capabilities and local concerns. The Program could then analyze the direction in which these plans are leading the national forests and evaluate the implications of such direction. Alternatively, Congress could direct the Forest Service to continue its present course of developing initiatives, such as the' National Recreation Strategy, which address specific issues or opportunities. This approach would need flexibility in implementation, so a Program at 5-year intervals would probably be inappropriate. Congress could restructure RPA to provide for special initiatives as an additional chapter in the Annual Report or as periodic reports to Congress.

Despite the difficulties inherent in strategic planning, OTA finds that retaining the strategic nature of the RPA Program is both desirable and feasible.

RPA was enacted in 1974 because of concerns about growing work backlogs and fears of budget-driven shortsightedness. The limited available evidence suggests that the backlogs remain, while budget deficits have led to continual efforts to reduce Federal spending. Thus, the reasons for enacting RPA remain valid. Strategic planning is undertaken for many reasons—to set organizational direction, to identify and understand changing demands, to analyze opportunities, to provide a foundation for program and budget decisions. Decisionmakers in the Administration and Congress need information on opportunities and issues, on direction and priorities; therefore, a strategic RPA planning process is still *desirable.*

A strategic planning process is also *feasible.* A comprehensive picture of resource conditions establishes a common base for discussing the desired future, and an analysis of opportunities provides a comparison of possibilities. With input from the Administration, Congress, and the public on important issues and desired direction, the Forest Service could develop an acceptable strategic plan to set general direction and to assist those who must decide on budget and program priorities. Having an acceptable strategic plan will not solve all dilemmas, because the Forest Service cannot control all the relevant issues and inputs. Implementation requires commitment from all key decisionmakers (i.e., the Administration and Congress). Nonetheless, an acceptable strategic plan can help decisionmakers make choices that provide for people's needs while protecting the resources.

The Draft 1990 RPA Program takes several steps in this direction, and is undoubtedly the best effort under RPA so far to provide strategic planning, but it still has a number of shortcomings as a strategic plan.[1] The examination of Forest Service roles is an admirable attempt to define the agency's goals and objectives, although the discussion of future roles is generally limited to doing more of what is already being done. Identifying resource issues also contributes to the strategic nature of the 1990 Draft, but the agency responses summarize past and current choices, rather than exploring new ways to address the issues. The initiatives described in the Draft Program provide clear direction for agency action in certain key areas, but are separate from alternative strategies, rather than a part of the strategic plan.

By addressing several specific problems, Congress could improve the strategic nature of the RPA process. With some modifications, RPA planning could set direction for Forest Service programs, policies, and budgets, leading to better forest and rangeland management and to stronger support from the Forest Service, the Administration, Congress, and the public.

PROBLEMS IN STRATEGIC RPA PLANNING

Three areas stand out where strategic RPA planning could be improved by modifying the process: ***data, analysis, and direction.*** Some of the problems result from inadequate efforts by the Forest Service, others from insufficient attention within the Administration, and still others from the lack of congressional response or follow-through. It is not the purpose of this report to point fingers at the cause of problems, but to identify options for making the process work more effectively.

Data Problems

The RPA documents contain a wealth of data and analysis, especially on timber resources, that have contributed to public debates about the future of the Nation's renewable forest and rangeland resources.

[1]The Final 1990 RPA Program was not available for the preparation of this report. While the Final is likely to vary substantially from the Draft, this analysis examines the RPA process as strategic planning, and should prove useful for evaluating the Final 1990 RPA Program.

However, many gaps still exist. Some relevant data on resource quantity, quality, and outputs are missing, and some are of poor quality. In addition, data used in the RPA documents are poorly linked. Resource information describing the current situation and assessing opportunities (in the Assessment) often differs from that used to set strategic direction (in the Program), and both may differ from that used to evaluate agency performance and RPA implementation (in the Annual Report).

Having better data will not "fix" RPA planning. Strategic planning, particularly by a government agency, is an inherently political process, because the choices are about future directions, and better data will not tell us what should be. However, better data can tell us what is, reducing the debate about current conditions. For example, many groups oppose timber sales because of potential damage to watersheds, although foresters point to evidence that timber can be cut without such damage. If watershed condition data were sufficient to track changing conditions, the impact of harvesting timber could be shown. If no damage was occurring, the debate would be quieted, but if damage was shown, then cutting would probably be reduced or modified. Thus, having accurate data on renewable resource conditions and outputs can reduce debates about what is, and can refocus them on what the future should be.

Incomplete and Weak Data

Congress enacted RPA in part because of concerns that resource needs and opportunities were being short-changed by annual budget decisions, and that backlogs of needed treatments were growing. To address these concerns, RPA requires an inventory of resources and an evaluation of opportunities. A resource inventory is most useful if it provides sufficient data on the quantity, quality, and outputs of each resource to analyze opportunities for increasing quantity, improving quality, or expanding outputs. However, data for many resources are incomplete, with information on resource quality frequently lacking. In addition, many measures of resource conditions rely on surrogates or professional judgments which are questionable for estimating quantity or quality. The incomplete and weak data on renewable resources limit the evaluation of resource needs and opportunities and the ability to identify responses.

While the Forest Service may be partly to blame for the data problems, it is not solely a Forest Service failure. The Forest Service has limited authority and responsibility for some resources, such as water and wildlife, and is not the principal Federal agency for managing others, such as range forage, although the Forest Service could help to coordinate data collection on renewable resources. In addition, insufficient research and inventory funding have hampered the agency's ability to develop adequate databases for all renewable resources.

Option: Direct a study to identify renewable resource data needs.

Congress could direct the National Academy of Sciences to undertake a study of the resource quantity and quality data needed for strategic planning, and the cost to obtain and maintain the appropriate data. **Congress could then appropriate sufficient funds to complete the inventories and maintain the databases, and could assure the databases are maintained through periodic oversight hearings and/or reviews by the General Accounting Office.**

An independent study could identify the appropriate renewable resource data for guiding Forest Service strategic planning. Such a study would need to assess: 1) data required for evaluating resource quantity, and quality, including trends; 2) inventory methods, frequency, and intensity; and 3) implementation costs. If the Forest Service is to meet its charge for periodically assessing renewable resources, Congress must follow through with the funding to develop and maintain the appropriate resource inventories.

The primary advantage of such a study is having an independent view of resource data needs. The Forest Service conducts periodic forest inventories, but focuses on timber quantity and quality. The agency's limited responsibility for some resources further narrows their view, although the 1989 Water Assessment displays reasonably effective use of secondary data. In addition, inventories would compete for funding against activities that the agency may see as having greater needs. Finally, the agency's professionalism and traditional focus on outputs might prevent the Forest Service from recognizing the limitations of professional judgments and resource outputs as measures for assessing resource conditions. Thus, an independent re-

view by an outside entity, such as the National Academy of Sciences or perhaps the Council on Environmental Quality, would be appropriate.

One disadvantage of an independent study is that it may duplicate other efforts. The Forest Service is working to improve the Assessment, and has been successful in some areas, most notably in the 1989 analysis of water resources. The Forest Service has been researching inventory methods, and the traditional forest survey has been expanded to include additional information for some States. Thus, the Assessments will probably continue to improve over time. Furthermore, a separate study would have costs of its own.

Another aspect of congressional direction for an independent study is the implicit commitment to act on the findings. To require and fired such a study and then not respond to its recommendations would indicate a lack of congressional commitment to making the RPA process work. It would also highlight Congress' lack of interest in the quality of the Assessment. Despite numerous congressional hearings and GAO studies on the RPA process, none have focused on the quality and the limitations of the Assessments.

Poor Data Linkage Among RPA Documents

The resource data in the Assessment, Program, and Annual Report often differ. For example, the 1989 RPA Assessment includes data on ecological status of rangeland, and on timber growth and mortality, but such information is lacking in the Program and the Annual Report. The Draft 1990 RPA Program is replete with data not included in the Assessment or in the Annual Report, such as substandard recreation use, the backlog of facility and trail maintenance, noxious weed infestations on rangelands, acres clearcut, acres of old-growth forests, commercial salmon and steelhead harvests, and acres of big game winter range. Finally, the Annual Report contains substantial data that are not included in the Program or the Assessment: the number of grazing allotments, the number of allotments under improved management, and the acres suitable for grazing; structural and nonstructural range improvements; timber stand improvement needs; acres of watershed improvements; number and acres of wildlife and fish habitat improvements; and the total road mileage and the mileage maintained for various levels of use. A further difference among the documents is that the Program and Annual Report only provide information on National Forest System lands, whereas the Assessment reports on all forests and rangelands, and only occasionally distinguishes resources on National Forest System lands.

Option: **Require data linkage among RPA documents.**

Congress could require the Forest Service to use the same resource output and condition measures in all RPA documents: the Assessment would contain the databases for evaluating Program alternatives, and the Annual Report would evaluate the outputs and changes in resource condition for the measures used in the Assessment and Program.

Congress could require the use of consistent measures of resource quantity, quality, and outputs for the various RPA documents. The Assessment would need to contain only those data essential for decisionmaking (including decisions about cooperative assistance), except perhaps to set the context for decisions. For example, if acres of old-growth forests and backlog of trail maintenance are important measures for comparing Program strategies, the current status and trends in such resources and activities for all lands and for National Forest System lands would be contained in the Assessment. The Annual Report could then evaluate the resource outputs and changes in resource quantity and quality with the measures used in the Assessment and Program, This would not mean an annual update of the Assessment, but rather reporting on activities to improve the quality or increase the quantity of a resource, such as the number of watersheds (or acres if that is the appropriate measure) which changed condition class or the reduction in trail maintenance backlog.

Data linkage would enhance the strategic nature of the RPA process. The Assessment would assure that analysts within and outside the Forest Service would have the databases to evaluate and compare proposed strategies for Forest Service activities. Furthermore, if the Assessment contained all important measures for Program strategies, it would likely contain the data for addressing current issues. Finally, the Annual Report would identify where and how the Program is not being fully implemented, and could then explore the reasons—the Program was not feasible, the funding was inadequate or

unbalanced, a hurricane devastated the resource base in one region, etc. The Annual Report could also address resource issues more directly, and thus help in surfacing issues for the next Program.

Data linkage would require better coordination in preparing the various RPA documents, and might require a realignment of internal responsibilities, since the documents are currently prepared by separate units (the Assessment by the Research branch, the Program by the RPA staff, and the Annual Report by the Budget staff). In addition, linking the Assessment, Program, and Annual Report could reduce the Forest Service's discretion in preparing the documents. If, for example, concern over a resource condition (e.g., the acres of old-growth forests) arose during the development of the Program, additional inventory would be required. Thus, Assessment supplements might be necessary to assure that the relevant data are collected on issues identified after the Assessment is completed.

Analysis Problems

RPA placed enormous analytical requirements on the Forest Service. In some areas, the Forest Service has responded admirably. For example, the required supply and demand analyses have improved significantly for all resources, and now fulfill this requirement reasonably well, although further improvements are still possible. However, in other areas, the Forest Service has not met its responsibilities. In particular, the RPA documents have not effectively identified impending threats for forest and rangeland resources, have not evaluated opportunities, and have poorly displayed the benefits and costs of Program activities.

Poor Foresight on Threats

Concerns about the long-run condition of our renewable resources were one impetus for enacting RPA. The analysis of trends in the Assessment and the long time-horizon specified for the program clearly indicate that the RPA process was intended to provide foresight on impending and potential problems for resource management. To date, the RPA Programs have been only partly successful in the early identification of such important issues. For example, the 1980 RPA program included wood for energy (responding to the energy crisis) as an issue, but missed the concerns about herbicide use (despite reporting on such use). The 1985 RPA Program did not include a discussion of issues, and therefore missed current issues, such as below-cost timber sales and grazing fees, and rising public concerns, such as global climate change and loss of biological diversity. The Draft 1990 RPA Program includes a much more thorough list of issues, but still misses important matters, such as grazing fees, log exports, timber taxation, wilderness management, local regulation of forest practices, and the nature of and changes in resource-dependent communities.

***Option:* Improve scoping of resource issues.**

Congress could require the Forest Service to use public participation in identifying potentially important issues and concerns for future renewable resource management on Federal and non-Federal lands.

RPA implicitly directs scoping of issues by requiring the agency to develop the Program in accordance with the National Environmental Policy Act of 1969. The RPA staff held numerous meetings during the development of the Draft 1990 RPA Program and was thus reasonably well-informed about important issues, a condition reflected in the 1990 Draft. Nonetheless, several issues and potential problems that could affect renewable resource management in the future were not identified in the Draft Program. Congress could assure that the Forest Service identifies and addresses such potential problems by explicitly requiring public participation early in the RPA process.

One advantage of early public participation is assuring that relevant data and analyses are included in the Assessment and then addressed in the Program. Because of the diversity of interests, the public is likely to be an effective source for identifying potential issues and problems. In addition, early participation can help build public support for the findings and responses. Thus, interacting with the public throughout the RPA process could increase the agency's responsiveness to the public and the public's support for the Program.

There are two disadvantages of required early public participation in the RPA process. First, public participation is expensive and time-consuming. More importantly, addressing potential difficulties can result in premature actions to thwart "problems" that might not occur. The Sagebrush Rebellion, for example, seemed to be a major issue in

1980, but faded away before the 1985 RPA Program was developed. Thus, addressing all possible problems could lead to wasted time and energy.

Lack of Opportunity Evaluation

RPA specifically requires the Assessment to include an evaluation of the opportunities for improving renewable resource yields, with estimates of the necessary investment costs and the direct and indirect returns to the government. Although each of the resource reports supporting the 1989 RPA Assessment contains a chapter describing opportunities, only the Timber Assessment evaluates them. The Wildlife Assessment provides a description of which investments should be made first-not estimates of returns, but at least information for determining investment priorities. Even for timber, the evaluation is incomplete, because: 1) public, industry, and some nonindustry timberlands were excluded from the analysis; and 2) returns to the government were not estimated. In addition, RPA implicitly directs an evaluation of research opportunities, since research is one means of improving yields, but as with direct investments, research needs are described without costs, returns, or priorities.

***Option:* Enforce evaluation of needs and opportunities.**

Congress could direct the Forest Service to meet this RPA requirement by examining resource investment priorities and evaluating research needs, with estimated costs and direct and indirect returns.

Congress could direct the Forest Service to explain why the requirement to evaluate investment opportunities has not been met, and to amend the 1989 RPA Assessment to include such an evaluation. Because of the difficulty in estimating returns to the government, identifying investment priorities could be specified as an acceptable substitute, but priorities among the resources as well as for each resource should be discussed. Furthermore, evaluating the opportunities for enhancing resources through research could be explicitly added to the evaluation requirement.

The primary benefit of evaluating research and investment needs and opportunities, with costs and benefits, is that the information could assist decisionmakers in making informed choices. The Forest Service does not determine the research and investment options. Rather, the Administration and Congress determine the mix and the level of renewable resource research and investment, and require information that describes opportunities, estimates fiscal requirements, and assesses the quantitative and qualitative benefits. The Forest Service has failed in its responsibility to provide this required information, and Congress has been negligent in overseeing this aspect of the RPA process.

Providing benefit and cost information on investment and research opportunities also has its drawbacks. It is difficult to estimate returns from research and from investments in nonpriced and subsidized resources, and some benefits are difficult to quantify. Such information also leads to priorities, and could politicize the RPA Assessment. Individuals and groups interested in one or a few resources are likely to be less supportive of the RPA process if identified priorities differ from their preferences. Thus, information on priorities could further polarize interest groups, rather than build consensus toward an acceptable direction for Forest Service activities.

Poor Display of Benefits and Costs

RPA requires that the Program identify outputs and results, so that the costs can be compared to the benefits and to the direct and indirect returns to the Federal Government. The Draft 1990 RPA Program is the best effort to date, reporting Federal revenues as well as two measures of social benefits. However, future returns from range forage and from timber seem to be overstated, while the current costs and probably future, costs are underestimated. The 1990 Draft also makes a weak attempt to evaluate the economic and social impacts of Program strategies by only identifying total jobs and county payments under each strategy.

***Option:* Require full reporting of economic information.**

Congress could require cost and revenue data to be consistent with appropriations data, and could expand the reporting requirement to include economic and social consequences of decisions as well as benefits, returns, and costs.

Congress could direct the Forest Service to use the appropriations data and categories in the RPA planning process. If these data and categories are deemed inappropriate, Congress could request GAO

to examine Forest Service cost and revenue accounts used in the RPA Program, and recommend ways to assure that relevant fiscal data are used in the RPA process as well as in Forest Service appropriations. Congress could also direct the Forest Service to identify the likely economic and social consequences of its proposals. Congress has shown concern about communities and about employment. The Forest Service could be directed to develop appropriate measures of community impacts, with details to distinguish among resource programs, and then to report on the community impacts with sufficient information to understand fully the consequences of its actions.

Having accurate and consistent cost and revenue data is one advantage of this option. Such accuracy is necessary to assure that decisions are built on a firm and consistent base of fiscal information. A second advantage is that information on community impacts can help build community support for Forest Service programs by showing their implications. If the Forest Service identifies likely impacts, it can better predict when actions will be opposed, and by whom, and can modify the actions appropriately to broaden support.

One disadvantage of reporting fiscal information in the RPA process is that fiscal measures can lead to a short-term focus. The impact on renewable resources of shortsighted budget decisions was one of the concerns that led Congress to enact RPA. Reporting fiscal information in an appropriations format could increase the short-term, budget focus of the RPA process, short-changing the long-term needs of the renewable resources. A second disadvantage is that more information on community impacts could heighten conflicts among interests, if alternatives are shown to benefit certain segments of a community at the expense of other segments.

Direction Problems

The RPA process was clearly intended to be strategic planning, but has not functioned effectively in this capacity. It has had little influence on the on-the-ground actions of Forest Service managers, has provided little guidance for budget decisions, and has had poor commitment and follow-through from the Administration and Congress. In addition, the evaluation and feedback have not been adequate to determine if the Program is being followed.

Weak Guidance for Action

The RPA Programs have generally identified agency management direction by describing future output levels for the various resources. This has led to a timber focus, because decisionmakers have more direct control over annual timber outputs than over other annual resource outputs. While many are interested in future outputs, others are interested in the future conditions of the resources, especially in assuring the sustainability of the various forest and rangeland resources. In addition, describing future output levels provides little direction for research, for cooperative assistance, and for addressing problems and issues.

***Option:* Require the RPA Program to establish direction.**

Congress could require the RPA Program to identify guiding principles for addressing issues, and to define goals in terms of resource conditions as well as by resource output levels.

Congress could specify that the RPA Program identify a set of principles for guiding Forest Service actions and for addressing issues and problems. For example, below-cost timber sales is an issue identified in the Draft 1990 RPA Program, but the agency response was to describe the new timber accounting system. Meanwhile, the 1991 budget request proposes a test of eliminating below-cost sales on several national forests. If principles were defined to include reducing subsidies and maintaining local employment, alternative approaches could be identified-e.g., modifying sale practices to reduce Forest Service costs; altering sale design to increase timber value or reduce purchaser costs; researching harvesting, transportation, and processing efficiency; subsidizing private timberland production and/or mill alterations; etc. The Forest Service could also be directed to explain how its guiding principles could be used to address the issues raised in the RPA process. In addition, Congress could direct that the RPA Program establish goals defining the desired quantity and quality of renewable resources, as well as resource outputs.

This approach would turn the RPA process into strategic planning, as intended in the Act. It would establish a coherent direction for agency actions—for managing the national forests, for assisting State and private landowners, for research on renewable resources. It would also explain how the Forest

Service could and would respond to current issues and problems. Such coherent direction could also help the agency address new problems as they arise. Finally, by establishing quantity and quality goals as well as output goals, the various interests would better understand how the forest and rangeland resources are being sustained and protected over the long-term, and consequently would probably conflict less with one another.

The greatest limitation of this approach is the difficulty in defining principles that are: 1) general enough to apply to all agency activities and 2) specific enough to provide direction, while 3) being generally acceptable to the agency, the Administration, Congress, and the public. Guiding principles that are too general would provide insufficient direction for making decisions about policies and programs, but principles that are too specific might reduce local flexibility to deal with local conditions. Defining acceptable principles would undoubtedly be costly and time-consuming with no guarantee of success. Finally, identifying principles and establishing resource condition goals could result in a loss of detail in the Program, especially regional information. Establishing guiding principles that meet the three conditions-generality, specificity, and acceptability-is an inherent difficulty in strategic planning, for the private sector as well as for the government.

Poor Support for Budget Decisions

The IWA Programs have been generally inadequate for framing and evaluating Forest Service budgets. Every recommended Program has included a range of budget levels. In 1975, the range was relatively narrow, increasing from 75 to 90 percent over 5 years. In 1980, the proposed budget increases ranged from 9 to 43 percent over 5 years, reflecting the differing views of the Office of Management and Budget (the low-bound Program) and the Forest Service (the high-bound Program). This difference of opinion was again reflected in the 1985 RPA Program, with OMB's low-bound reducing the budget by 3 percent over 5 years, but the Forest Service's high-bound increasing it by 35 percent. The Draft 1990 RPA Program presents similar information, with one strategy simply extending current budget levels and the other strategies calling for 25 to 40 percent increases by 1995.

In enacting RPA, Members of Congress said they wanted the agency's best professional estimate of the money needed to do the "right" job in terms of protecting and managing the Nation's renewable resources. Others have noted that the Administration, Congress, and the public need information to help in selecting the funding level and mix that best meets the resource needs in the context of overall Federal budget limitations. This concept was included in RPA by requiring the Forest Service to include a discussion of priorities for accomplishing the opportunities identified in the Program. To date, the Forest Service has not fulfilled this requirement.

Option: **Improve budget information in the RPA Program.**

Congress could direct the Forest Service to include the required discussion of priorities, or to provide an analysis of Program outputs and resource conditions under a range of budget levels.

Congress could direct the Forest Service to explain why the required discussion of priorities has not been included in the RPA Programs, and could direct the agency to provide such information if the required discussion is not included in the recommended 1990 RPA Program. Congress could also clarify the priorities requirement by directing that each alternative, or at least the recommended Program, include a display of costs and of quantity, quality, and output data *by resource* for budget levels ranging from the current budget to the agency's professional estimate of the optimum funding level.

This approach would help the Administration (including the Secretary of Agriculture and OMB) and Congress make informed decisions about the Forest Service budget. The Forest Service's professional opinion about the optimum budget level and mix would be displayed, along with the expected trade-offs in resource quality and decreases in quantity and output that would result from lower appropriations.

The primary disadvantage of this approach is that the additional budget details would complicate a document that is already long and cumbersome, and would perhaps distract from the guiding principles for the agency. This problem might be relieved by presenting two separate documents, one with guiding principles and issue responses and the second

with budget details. However, this approach would add to RPA's substantial analytical requirements, and thus increase the cost to prepare the documents.

Poor Commitment From Decisionmakers

Decisionmakers within the Administration have not seemed to be committed to the RPA process. In particular, the Presidential Statement of Policy was intended to gain the Administration's support for the recommended Program, but to date the Statements have contained virtually no information useful for framing budget requests or for directing Forest Service activities. One particular problem has been the mismatch of the RPA cycles with the timing of elections: the first Program and Statement of Policy were prepared under President Ford for implementation under President Carter, while the second set was prepared under Carter for implementation under President Reagan. However, even with the documents prepared under Reagan for implementation during his second term, the Statement of Policy was so general as to provide virtually no direction.

One possible means to strengthen the Administration's commitment to the Program is to have it developed by a special, perhaps temporary, staff in the Secretary's office or by the staff of the Council on Environmental Quality, rather than by the Forest Service. Forest Service personnel could be allowed to participate in, but not to dominate, the process. This approach would involve Administration decisionmakers more in the planning process, and the Program would not be as constrained by the agency's internal structure and politics. It would, however, remove the Forest Service from the role of decisionmaker, and the agency might have less incentive to implement the Program. Also, even this alternative may be insufficient to obtain real Administration commitment to the RPA process.

Congress also seems to lack commitment to the RPA process; congressional feedback (oversight hearings, Statement of Policy revision) has shown little focus and has declined since the early RPA efforts. The 1980 Statement of Policy was revised, as provided for in RPA, but the subsequent appropriations followed OMB's low-bound which was rejected in the revised Statement of Policy. The 1985 RPA Program, which many felt was no improvement over the 1980 effort, received much less congressional review, and the Statement of Policy was left intact, although this could have been due to the late delivery-near the end of the second session of the **99th** Congress. Nonetheless, congressional attention and use of the RPA process seem to have dwindled.

***Option:* Modify the Statement of Policy.**

Congress could modify the RPA cycle to match the political cycles, could eliminate the requirement for a Presidential Statement of Policy, or amend RPA to make the Statement set forth the Forest Service's strategic direction.

Congress could modify the RPA schedule, to acknowledge the inherently political nature of strategic planning by a government agency. The Assessment (or Assessment update) and draft Program could be released for public review shortly following a Presidential election, and the final Program and Statement of Policy could be delivered to Congress together with the first budget of the newly elected President. This sequence would allow anew Administration to influence the recommended Program, such that it could be committed to implementing the Program. However, it could decrease some of the intended (but unrealistic) Forest Service control over the Program.

Since some believe that it is impossible to extract a real commitment from an Administration to implement the recommended RPA Program, perhaps eliminating the *Presidential* Statement of Policy is the only real alternative. Congress could direct that budgets be framed from the recommended Program, rather than from the Statement of Policy as the Act currently requires. Instead of trying to garner complete Administration commitment, Congress could modify the Statement of Policy to be more useful to the agency, the Administration, Congress, and the public. The Statement of Policy could become the Secretary's strategic plan, similar to the recommended Program but stripped of analysis, perhaps defining guiding principles for the agency. Analytical support for this redirected Statement could then be contained in the RPA Program. The principal advantages of this approach would be: 1) to eliminate the waste of time and false sense of commitment with the current approach, and 2) to separate the strategic direction from the detailed analytical support. However, this would also eliminate the technical requirement for commitment from the President.

Congress also needs to increase its commitment to the RPA process. This may be a chicken-and-egg problem: the RPA documents have not met Congress' expectations, so Congress has not used them. Consequently, there has been little congressional feedback to the agency on how to make the process and the documents more useful. Improvements in the documents might improve this aspect of the feedback loop, and increase congressional commitment to the RPA process. However, the authorizing and appropriating committees need to follow through with oversight hearings on the documents, comments on draft documents, efforts to compare budget and policy proposals to the recommended Program, and reaction to the Annual Report.

Limited Feedback

The Annual Report has been used poorly to evaluate the implementation of the RPA Program. RP specifically required the Annual Report to "set forth progress in implementing the Program," but Program implementation was not evaluated until the 1988 Report. Even this evaluation was spotty: important output measures were not examined, implementation successes and failures were not discussed, and significant assumptions and conditions were not reviewed to determine if the Program still could be implemented.

Option: **Require complete evaluation of Program implementation.**

Congress could direct the Forest Service to include a complete evaluation of Program implementation in the Annual Report, including an analysis of causes which have limited its implementation and determination of whether the Program is still adequate.

Congress could direct the Forest Service to include a comprehensive evaluation of the implementation of the RPA Program in the Annual Report, and could expand on the RPA requirement to specify that the Annual Report: 1) display performance for all output targets in the **RPA Program;** *2)* describe progress in achieving the quantity and quality goals established in the Program; 3) identify where progress is slower than anticipated, and the causes and implications of the delays; and 4) discuss whether changes in assumed trends and conditions might require the recommended Program to be modified. In addition, Congress could direct the Forest Service to expand the distribution of the Annual Report, to assure that all individuals and groups expressing interest in the Program also received the reports on its implementation. A thorough evaluation of the implementation of the recommended RPA Program is the necessary final step to complete the strategic process envisioned in RPA.

Chapter 3
Introduction

The Forest and Rangeland Renewable Resources Planning Act of 1974 (RPA) requires the Secretary of Agriculture periodically to prepare long-range Assessments and Programs for renewable resources in the United States; this responsibility has been delegated to the U.S. Forest Service, an agency of the Department of Agriculture. The Forest Service has recently completed its third renewable resource Assessment, and its fourth Program.[1] These documents, together with a Presidential Statement of Policy, are submitted to Congress, to be used in policy and program deliberations and in the annual budget debate.

Congress is concerned that past Assessments and Programs have not been useful to its Members, its Committees, or its constituents for evaluating policy and program decisions or for considering how to allocate funds among Forest Service programs. In 1986 hearings before the House Agriculture Subcommittee on Forests, Family Farms, and Energy (135), numerous witnesses expressed their concerns about RPA, focusing particularly on the 1985 RPA Program. A timber industry spokesman noted that "even a superficial examination clearly shows that the Program sacrifices the nation's resource needs in favor of short-term budget objectives" (82). The Wilderness Society expressed support for the RPA process, but stated that "the 1985 Program fails to meet [the Nation's renewable resource needs] in any environmentally and economically sound way' (100). The concerns were effectively summarized by Bill Shands of the Conservation Foundation (90):

> The RPA Program suffers from a credibility gap. The legislation never intended to commit administrations or Congress to Program targets, yet the widening gap between RPA targets and Forest Service budgets is cited by forests interest groups as evidence of the program's irrelevancy to annual decision making. Further, there is a strong feeling that the Program does not address significant contemporary issues, and has tenuous links with national forest plans and State comprehensive forest resources plans.
>
> If RPA is to work, the Program must be relevant to the day-to-day work of Congress and interest groups.

Congress responded to these concerns in 1986. In addition to the House Agriculture Subcommittee hearings, the Senate Committee on Appropriations (147) stated:

> . . . the Committee does not agree to continue to spend millions of dollars on planning documents that are not provided in a timely manner, do not reflect reasonable and professional judgments and estimates when they are released, and are not of particular value to the Committee when finally available.

Subsequently, in the conference agreement on FY1987 appropriations, Congress restricted the use of appropriations for developing the RPA documents to $500,000 for the year (134).

Some have examined the RPA process, and concluded that it's a waste of time and money. One critic claimed of the process, "At enormous costs in money, manpower, political energy, and activity (and legal fees), we are achieving very, very little," and argued for its repeal (8). Others have noted the problems, but believe that the process is valuable, even if the documents are not, and that repealing the law would be "tantamount to throwing out the baby with the bathwater" (55).

This introductory chapter summarizes the Forest Service's organizational structure, provides some of the historical background on why RPA was enacted, and spells out the requirements that RPA imposed on the Forest Service. Those requirements provide the organizational structure for the remainder of this report. In addition, a section of this chapter explains why mineral resources have generally been excluded from this OTA report.

[1] The Final 1990 RPA Program was not available for the preparation of this report. While the Final is likely to vary substantially from the hi&, this analysis examines the RF?A *process,* and should still prove useful for evaluating the Final 1990 Rl?A Program.

FOREST SERVICE ORGANIZATION

National Forest System

In 1891, Congress authorized the President to reserve (from homesteading and other such entries) forested lands administered by the General Land Office of the Department of the Interior. Presidents Benjamin Harrison and Grover Cleveland proclaimed 17 million acres of reserves over the next few years. Then, on Washington's birthday in 1897, President Cleveland doubled the acreage reserved. Congress responded with the Forest Service Organic Administration Act, limiting the purposes for which reserves could be proclaimed to protecting lands and watersheds and providing continuous supplies of timber.

In 1905, the General Land Office's Forestry Division was merged with the Department of Agriculture's Bureau of Forestry (see *State and Private Forestry*, below), and the agency was renamed the Forest Service. Because President Theodore Roosevelt continued to expand the forest reserves, Congress restricted the President's power to proclaim reserves in certain Western States (and simultaneously renamed the reserves as national forests) in 1907. Despite the restrictions, Roosevelt expanded the National Forest System from 46 million acres in 1901 to 172 million acres in 1909.

Other laws have allowed further expansion of the National Forest System. In 1911, concern over floods and belief in the ability of forests to reduce flood damage led to the enactment of the Weeks Law, authorizing the acquisition of lands. In 1937, the Bankhead-Jones Farm Tenant Act authorized land acquisition for land conservation and utilization, eventually resulting in 19 national grasslands and 13 land utilization projects, totaling nearly 4 million acres.

The National Forest System currently consists of 156 national forests (managed in 119 administrative units), 19 national grasslands, and 103 other units (purchase units, land utilization projects, etc.). In total, the Forest Service manages 191 million acres in 43 States plus Puerto Rico and the Virgin Islands (115). These lands are heavily concentrated in the West, but the 25 million acres in the eastern half of the country make the Forest Service the largest public landowner in the East, with nearly more land than all other Federal agencies combined (132).

The National Forest System is managed for multiple use and sustained yield, as set forth in the Multiple-Use Sustained-Yield Act of 1960. (See box 3-A.) This Act states that the national forests are to be administered for outdoor recreation, range, timber, watershed, and wildlife and fish purposes, and notes that managing areas as wilderness is consistent with the intent of the Act. RPA requires the Forest Service to prepare land and resource management plans for units of the National Forest System using an interdisciplinary approach, and the National Forest Management Act of 1976 (NFMA) provides additional guidance for preparing the plans.

State and Private Forestry

The Federal Government has been providing forestry assistance to States and to private landowners for well over 100 years. In 1881, a Division of

Box 3-A—The Multiple-Use Sustained-Yield Act of 1960

Section *4* of the Multiple-Use Sustained-Yield Act of 1960 defines multiple use and sustained yield as follows:

(a) "Multiple use" means the management of all the various renewable surface resources of the national forests so that they are utilized in the combination that will best meet the needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; that some land will be used for less than all of the resources; and harmonious and coordinated management of the various resources, each with the other, without impairment of the productivity of the land, with consideration being given to the relative values of the various resources, and not necessarily the combination of uses that will give the greatest dollar return or the greatest unit output.

(b) "Sustained yield of the several products and services" means the achievement and maintenance in perpetuity of a high-level annual or regular periodic output of the various renewable resources of the national forests without impairment of the productivity of the land.

Forestry was created in the Department of Agriculture to provide technical assistance to private landowners. The third Chief, Bernhard Fernow, referred to his agency as a "bureau of information and advice" (96). In 1898, technical advice was formally offered to private landowners in Forestry Circular 21, under the fourth Chief, Gifford Pinchot. This aspect of Federal forestry was important enough **that, in** 1908, 3 years after the Forest Service was created, Pinchot established a separate division, State and Private Forestry (S&PF) (96).

Formal congressional authorization of cooperative assistance was granted in the Clarke-McNary Act of 1924. In essence, this law established cooperation, rather than coercion or regulation, as the Federal strategy for influencing State and private forest management. This view was maintained when the Clarke-McNary Act was revised in the Cooperative Forestry Assistance Act of 1978. The new Act specifies the six component activities of S&PF: 1) rural forestry assistance; 2) forestry incentives; 3) insect and disease control; 4) urban forestry; 5) rural fire protection; and 6) management and planning assistance.

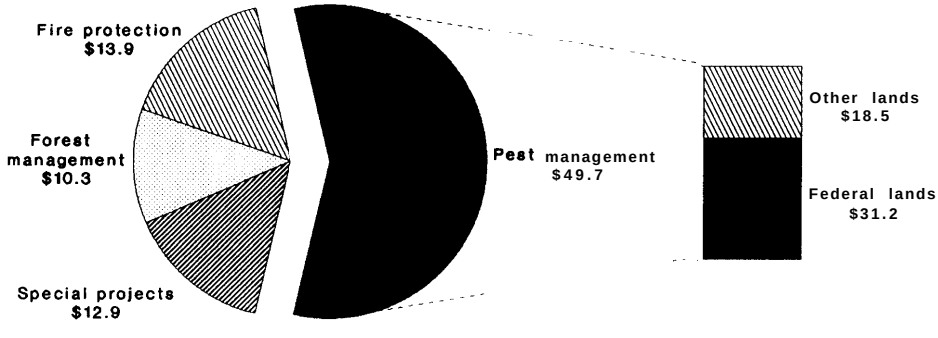
S&PF activities are organized into three major programs:

1. Forest pest management-insect and disease surveys, technical assistance, and control efforts on all forest lands-is the largest program, accounting for more than half of the S&PF budget; however, because much of this money is spent on control activities in the national forests, pest management accounts for only a quarter of Forest Service cooperative activities.
2. Fire Protection-financial and technical assistance, surplus equipment, and fire suppression coordination-is the largest purely cooperative program, accounting for nearly 30 percent of cooperative funds (excluding pest management in the national forests).
3. Forest management and utilization--assistance for State forest resource management and planning, for improved wood utilization by the timber industry, for tree nursery production, and for urban forestry programs-is the smallest of the three, accounting for less than a quarter of cooperative funding.

S&PF also includes numerous special studies and projects (e.g., the Pinchot Institute for Conservation Studies; cooperative trail construction), which account for more than 20 percent of cooperative funds.

Forestry incentives are not funded through the Forest Service, but S&PF cooperates with the other Federal agencies that manage these forestry programs. In particular, the Agricultural Stabilization and Conservation Service operates the Forestry Incentives, Agricultural Conservation, and Conservation Reserve Programs, all of which provide financial assistance to private landowners for tree planting and other forestry practices. S&PF also cooperates with the Soil Conservation Service in providing technical assistance on watershed protection, windbreaks and shelterbelts, and the like. Finally, S&PF works with the USDA Extension Service in providing landowners with information on effective and efficient practices.

Figure 3-I-State and Private Forestry Funding, FY 1989



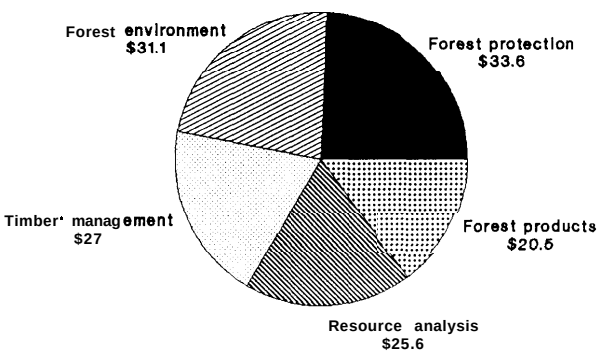
SOURCE: U.S. Department of Agriculture, Forest Service, *1991 Budget Explanatory Notes for Committee on Appropriations* (Washington, DC: 1990).

Forest Service Research

The first Federal forestry research activity was a study on forestry conditions, funded in the 1876 Department of Agriculture appropriations. Dr. Franklin B. Hough was commissioned to do the study, and was subsequently named the first Chief of the Department's Division of Forestry. Research continued to be apart of agency activities in the 1890s, and in 1899, Gifford Pinchot established a separate Section on Special Investigations to conduct forestry research (96). In 1915, Pinchot's successor, Henry Graves, established the Branch of Research to make forestry research independent from local control within the agency (96). This approach laid the foundation for congressional authorization of Forest Service research efforts in the McSweeney-McNary Act of 1928. This law was the basis for Forest Service Research for 50 years, until the authority was revised in the Forest and Rangeland Renewable Resources Research Act of 1978.

The 1978 Act authorizes five basic types of research on renewable resources: 1) research on resource management, 2) research on environmental effects, 3) research on resource protection, 4) research on resource use, and 5) research to support the RPA Assessment. Most of the funding is directed toward projects conducted through the eight experiment stations (with research sites scattered throughout the United States), and through the Forest Products Laboratory in Madison, Wisconsin. The 1978 Act also authorizes competitive grants to conduct research on the subjects described in the Act.

Figure 3-2-Forest Service Research Funding, FY 1989



SOURCE: U.S. Department of Agriculture, Forest Service, 1991 Budget *Explanatory Notes for Committee* on *Appropriations* (Washington, DC: 1990).

Additional forestry research is conducted with Federal funds outside the Forest Service, although with Forest Service consultation. The largest and best known-the McIntire-Stennis program—provides funding for forestry research through the agricultural experiment stations at U.S. land grant colleges. This program is much smaller than the Forest Service research program; in 1988, McIntire-Stennis was funded at $17 million, while Forest Service Research appropriations were $153 million (123). Nonetheless, this independent funding, combined with the relative independence of the Research Branch, helps to assure unbiased research efforts.

International Forestry

The origins of and authorization for the International Forestry program are not clear. International cooperation has supposedly been a tradition since the Forest Service was established in 1905 (116). The Forest Service apparently contributed to the war effort in the 1940s by examining the supplies of timber, rubber, and other forest commodities in the Western Hemisphere for the predecessor of the CIA (76). The Chief has often hosted visiting dignitaries interested in forestry, and since many of these contacts have been through the scientific community, the International Forestry program has grown within the Research Branch of the Forest Service. However, before the FY1990 Interior Appropriations Act (137), the only real authority for international forestry has been implicit, derived from requests by other Federal agencies, such as the State Department, the Agency for International Development, and the Organization for International Cooperation and Development.

International Forestry is technically located within the Research Branch of the Forest Service. It has focused substantially on research and scientific exchange, with additional efforts at technical assistance to foreign countries, training for foreign nationals, and cooperation with other U.S. and international organizations. Thus, International Forestry has both research and cooperative assistance elements, and doesn't fit cleanly into either of these Forest Service branches (42).

HISTORICAL PERSPECTIVE ON RPA

RPA was enacted in the fall of 1974. Its principal sponsor was Senator Hubert H. Humphrey, after he

had returned to the Senate from being the Vice President under Lyndon Johnson. Senator Humphrey was concerned about the future of our Nation's natural resources, because the political processes too often focused on short-term problems and gave short shrift to long-term conditions. During hearings on RPA, Humphrey remarked that "we work too much on an ad ***hoc*** basis in the Congress and the Executive Branch, moving from. crisis to crisis, applying policy and funding band-aids and aspirin to long-term problems that require permanent treatment" (60).

The social setting of the early 1970s contributed to enacting RPA. Demonstrations protesting the Vietnam War and revelations about the Watergate break-in were eroding public trust in government officials. The Congressional Budget and Impoundment Control Act of 1974 preceded RPA by a month, and was in part an attempt by Congress to reestablish its control of the budget, following impoundments (non-spending of appropriations) by the Nixon Administration.

Concerns over actions by the Nixon Administration also were a foundation for RPA. In his floor statement upon introducing RPA, Senator Humphrey said, "The entire National Forest System stands in jeopardy due to shortsighted Nixon administration policies. . . . Every aspect of management of the 187 million acres of forest lands is being short-changed" (145). Humphrey then enumerated accumulating work backlogs for watershed, recreation facilities, pollution abatement, and reforestation and timber stand improvement, and accused the Nixon Administration of ignoring these growing problems in its budget-cutting efforts. Congressmen John R. Rarick, the House sponsor of RPA, concurred, noting that the purposes of RPA were to "establish more long-range planning for the National Forest System, and congressional control over the management of National Forest System lands" (145).

Some Members of Congress were also concerned that many of the controversies were placing disproportionate emphasis on the importance of the National Forest System. The Senate Agriculture Committee staff noted the numerous lawsuits over national forest management, and concluded that widespread agreement on national forest management objectives could not be achieved (54). Senator Humphrey believed that expanding the picture to consider non-Federal forests and rangelands would downplay the importance of the National Forest System in providing renewable resources. The Senate Agriculture Committee report on RPA has numerous references to the comprehensive view resulting in better decisions for national forest management. At one point the report notes that (145):

> One of the most important elements of the Assessment will be the effectiveness with which it displays the totality of forest and rangeland and the dispersion of resources by public and private ownerships and geographic regions. . . . .
>
> Forest Service programs cannot be constructed in a vacuum. The Assessment will give a comprehensive picture of the sum of public and private activities and expectations, thus encouraging a comprehensive and integrated Federal approach at the very least.

RPA became law when signed by President Ford, a week after Nixon resigned. It established a process for long-range thinking about the management of our renewable resources. In describing the goals of RPA's authors, Bob Wolf, a congressional staffer at the time, observed that:

> . . . the goal of RPA is to raise our sights to the future, analyze the interrelationship between resources, and weigh the differences between short- and long-term actions. . . . The purpose of the RPA is to look at the future and outline the actions needed to make it a better future (151).

THE REQUIREMENTS OF RPA

RPA implicitly directs the Forest Service to develop a participatory strategic planning process, and specifically requires the development of four documents to be submitted to Congress. RPA also requires the Forest Service to prepare land and resource management plans for units of the National Forest System; this planning process for the national forests will be examined in detail in the subsequent OTA report, expected to be delivered in 1991. Many believe that the two processes—the RPA Assessment and Program and national forest planning-are intertwined in a rational, iterative process establishing a direct link between national goals and local productivity. However, Congress apparently linked the two processes more by accident than by intent (153). Furthermore, the RPA planning process is clearly to consider all forests and rangelands, not just the National Forest System, and thus can only be

imperfectly linked to national forest management planning. To meet the immediate needs of Congress and to fully examine both processes, separate OTA reports on each process seem most appropriate.

The following section summarizes the RPA requirements (the full text of the Act is in the appendix), beginning with public participation and strategic planning, followed by each of the four documents delivered to Congress. These topics and documents are described in more detail in separate chapters in this report.

Public Participation

Public participation is not directly specified in RPA. Rather, the legal requirement for public participation comes from the requirement that the RPA Program "be developed in accordance with principles set forth in . . . the National Environmental Policy Act of 1969 [NEPA]. " NEPA regulations, at 40 CFR 1500, essentially require agencies: 1) to examine public concerns in advance of making a decision (scoping), 2) to coordinate activities with other government agencies at all levels, and 3) to solicit comments from interested individuals and organizations.

RPA involves both Congress and the Administration, as well as the Forest Service, in the planning process. Thus, interested individuals and groups extend beyond the Forest Service and its traditional interest groups. Congress, as the author of the law, had (and has) expectations about the RPA process, and as the recipient of the required documents, has responsibilities in the process. Interested individuals and groups also have expectations about the RPA process and about their role in the process. The Administration, through the Secretary of Agriculture and the Office of Management and Budget, is another actor in the RPA process, with additional expectations about the process, as well as the responsibility for preparing the documents (although this responsibility is delegated to the Forest Service). Finally, the agency itself should be viewed as an interest group in the RPA process. The Forest Service is clearly a participant, because it prepares the documents, and its expectations undoubtedly influence the nature of the documents as well as the interactions among the other participants.

Strategic Planning

RPA does not specifically mandate strategic planning by the Forest Service, nor does it specify that the RPA Program should be a strategic plan. However, RPA was built on concerns about the long-range future of our natural resources and the need for a written plan to achieve a desired future. This implicitly conforms to current concepts of strategic planning, as practiced by business and taught in universities. Strategic planning sets the basic direction and focus for an entire organization, typically by defining the organization's mission and purposes. The strategic plan defines the strategy by which the mission, goals, and objectives are to be achieved through the organization's activities.

There are many limitations to strategic planning. Some result from poor implementation of the plan, but some are inherent to government agencies. Nevertheless, the *process* of strategic planning is often useful, even if the plans are never fully implemented. The planning process, including evaluation and response, can assist managers in understanding how their decisions support or conflict with the organization's mission and purposes. It can also help organizations to examine options that might otherwise have been ignored. Finally, effective strategic planning can establish a habit of looking to the mission and to the long run, a perspective that is missing in many organizations, especially in government.

The Assessment

RPA requires the Forest Service to prepare a periodic Assessment of renewable resources on America's forests and rangelands. The first Assessment was to be completed by the end of 1975, with an update in 1979 and every 10 years thereafter. The 1979 RPA Assessment was published in January 1980, and was accompanied by a separate, detailed Assessment of the timber resource. A supplement was prepared in 1984 to update the information in the 1979 RPA Assessment. The draft 1989 RPA Assessment was issued during 1988, with the final document released in May 1990. The 1989 Assessment is a brief summary of the resource situation, accompanied by separate, detailed Assessments of many of the resources-recreation and wilderness, range forage, timber, water, and wildlife and fish—and several additional supporting documents.

RPA specifies certain information and analyses which the Assessment must include for all forests and rangelands. First, the Assessment is to include an analysis of current and expected uses, supplies of and demands for renewable resources, and supply, demand, and price trends. The Assessment is also to include an inventory of current and potential renewable resources, with an evaluation of investment opportunities. Next, the Assessment is to describe Forest Service programs and responsibilities, and their relations to public and private activities. Finally, the Assessment is to discuss policy considerations, laws and regulations, and other factors that affect the use, ownership, and management of forests and rangelands. RPA was amended in 1976 to also require the Assessment to include information on fiber potential and increased fiber utilization.

The Program

RPA also requires a renewable resources Program for Forest Service activities, prepared in accordance with the Multiple-Use Sustained-Yield Act of 1960 and the National Environmental Policy Act of 1969. The first Program was to be completed by the end of 1975, with subsequent programs completed by the end of March 1980, and every 5 years thereafter. The 1980 RPA Program was nearly 6 months late. Disagreements within the Administration delayed the release of the 1985 RPA Program by a year and a half. The Draft 1990 RPA Program was issued in June 1989, with the Final 1990 Program released in June 1990.

RPA directs the Forest Service to submit a recommended RPA Program which must include certain specific information. First, the Program is to include an inventory of public and private investment needs and opportunities, distinguishing between capital and operating expenditures. Next, the Program is to identify outputs, results, and benefits so that the costs can be directly compared to total benefits and to direct and indirect returns to the Federal Government. Then, the Program is to discuss priorities for the inventoried opportunities, specifying the costs, outputs, results, and benefits. Finally, the Program is to include a detailed study of agency personnel requirements.

The Presidential Statement of Policy

RPA requires the President to transmit a detailed Statement of Policy to Congress when the Program is sent forth. The Statement of Policy is "to be used in framing budget requests by that Administration for Forest Service activities for the 5- or 10-year program period.' The Statement of Policy could be disapproved by a resolution in either the House or the Senate, and Congress could revise the Statement of Policy. To date, only the 1980 Statement of Policy has been revised by Congress, in an amendment to the FY1981 Forest Service appropriations.

Much of the controversy over RPA has focused on the connection of the Statement of Policy to the budget. The authors of the legislation were clearly intending to reassert congressional control over the Forest Service budget, but acknowledged that the Statement of Policy (and, implicitly, the Program) were to guide budgets, and were not commitments to a particular budget level. However, RPA also require that, if the budget request deviates from the direction set forth in the Statement of Policy, the President must explain the reasons for the discrepancy.

The Annual Report

Finally, RPA requires the Forest Service to prepare an Annual Report to evaluate the "component elements of the Program. ' The Forest Service has produced annual reports since its earliest days, but until RPA was enacted, there was no legal specifications for what it must include. The Annual Report, which is to accompany the annual budget request, is intended: 1) to provide information to assist Congress in its oversight responsibilities, 2) to improve Forest Service accountability for expenditures and activities, and 3) to evaluate progress in implementing the RPA Program. The Report is to contain "appropriate measurements of pertinent costs and benefits" and is to assess the balance between economic impacts and environmental quality. In addition, the 1976 amendments to RPA require an annual report on herbicide and pesticide use in the national forests, a summary of long-term benefits and costs, and a representative sample of below-cost timber sales.

MINERAL RESOURCES

Mineral resources were excluded from RPA, as they had been excluded from national forest management under the Multiple-Use Sustained-Yield Act of 1960. Indeed, RPA is the Forest and Rangeland *Renewable* Resources Planning Act, and minerals are not renewable resources (except in geological time scales). This exclusion was discussed on the Senate floor between Senator Hum-

phrey and Senator James McClure (145). Senator McClure noted that mineral resources are important to our economy, and Federal lands contain important mineral resources. Excluding mineral resources from RPA, according to Senator McClure, "distorts and perverts the responsibility of the Forest Service" to manage the nonrenewable resources under the national forests. Senator Humphrey responded by agreeing about the importance of mineral resources, and pledging cooperation for appropriate legislation. However, mineral resources had specifically been excluded from RPA, because Humphrey thought it would have "delayed the reform we thought quite necessary for the forest management [sic]" (145). The Senate Agriculture Committee has jurisdiction over forest management, and was the initial forum for debating RPA, but has no jurisdiction over mineral resources; Senator Humphrey stated that mineral resources had been excluded from RPA "because, honestly, it was beyond our jurisdiction.'

The legal authorities for managing mineral resources under the national forests are quite different from the authorities for managing other resources, as suggested by their exclusion from RPA and the Multiple-Use Sustained-Yield Act. Mineral resources are "locatable," "leasable," or "salable," with authorities and responsibilities defined in various laws, depending on the type of mineral and the means by which Federal ownership was established. The Forest Service has identified 14 major laws, ranging from the General Mining Law of 1872 to the Federal Onshore Oil and Gas Leasing Reform Act of 1987, which determine the rights to exploration, development, and removal of minerals from the national forests (11 8). Furthermore, several agencies within the Department of the Interior, and a few elsewhere in the executive branch, have some responsibility for mineral activities in the national forests. Thus, Forest Service management of mineral resources is enormously more complicated than the management of renewable resources.

This is not to say that minerals management should be or has been excluded from Forest Service responsibilities, or from the required RPA documents. In comments on the 1985 RPA Program, representatives of the American Petroleum Institute and the American Mining Congress applauded the progress that had been made in incorporating mineral resources in Forest Service resource planning and management, but both acknowledged that a better balance of mineral resources with the renewable resources was needed (70, 77). At the same time, the National Wildlife Federation noted that mineral resources are "still the most poorly managed and integrated of all forest uses" (35).

Nonetheless, mineral management activities by the Forest Service have been excluded from this report. The complex legal situation and plethora of Federal agencies with mineral responsibilities in the national forests greatly complicates any such analysis. Given the time pressures and demands for this special report, minerals management is beyond the scope of the analysis. In addition, in parallel with Senator Humphrey's observation, two of the three committees requesting this study have no jurisdiction over mineral resources in the national forests, and one of the two committees with such jurisdiction is not a requester. With the complexity of the issues, it seems appropriate to postpone the relevant and necessary analysis until this study is completed and a request from the committees of jurisdiction is received.

Chapter 4
Audiences and Players

Congress envisioned RPA as a planning process that would ensure more orderly and responsible management of the Nation's renewable resources. Although the Forest Service had engaged in land management and forest and rangeland planning since its inception, it had never been directed to engage in such an ambitious and comprehensive long-range planning process as is required under RPA. Furthermore, RPA gave Congress and the public significantly greater roles and responsibilities in shaping resource plans and policies.

Congress intended that RPA serve the needs of four general audiences: Congress, the Forest Service, the Administration, and the public. The RPA Assessment and Program were to provide Congress with sufficient information and analysis on which to frame long-term policy and programs and to prepare annual budgets. RPA would serve the management needs of the Forest Service, by providing more comprehensive information on resource conditions and future trends, by establishing long-range goals and objectives to direct activities, and by assisting it in justifying its annual budget needs both to the Administration and to Congress. The RPA documents would substantially improve the Administration's ability to shape more responsible and balanced short- and long-term renewable resources policy and to frame budgets consistent with that policy. And finally, the RPA documents would provide the public with information sufficient to allow its expanded and continuous participation in the planning process.

Interest in RPA has remained relatively high since it was enacted in 1974, as reflected by the numerous symposia and workshops that have studied the process over the years. In addition, Congress commissioned a study of the process by the General Accounting Office (129), and has held several oversight hearings since the first set of documents were delivered in 1976. Despite this interest, there is a growing concern within each of the four main audiences that the RPA documents, especially the Program, are of limited and declining relevance to annual budgets and decisionmaking. In a 1985 study of RPA, the Conservation Foundation surveyed congressional staff and representatives of natural resource organizations, and concluded that "the RPA Program suffers a credibility gap" (89), and recommended that, to serve the needs of its constituents more effectively, the Forest Service should clearly identify RPA's audiences and concentrate on improving the quality of participation by those audiences.

CONGRESS

Expectations

As noted earlier, RPA was born in part from Congress' frustration with the Nixon Administration's annual Forest Service budget requests, which many Members felt had been consistently inadequate for meeting resource needs. The country lacked long-term goals and objectives for managing the Nation's renewable resources, and consequently lacked any strategy to preserve and protect those resources for use by future generations. In short, Senator Humphrey and others perceived that forest policy and planning, being a product of annual budgets, was dangerously short-sighted and fragmented.

Congress intended to create a systematic long-range planning process whose strength would be derived from the aggregation and analysis of comprehensive information on current resource quantity and quality, as well as on present and future supplies of and demands for those resources. Congress expected that acquiring and updating such a base of knowledge would lead to more informed, more rational, and probably better decisionmaking than had been possible, and designed the Assessment to serve this analytical function.

Congress then expected that the renewable resources Program would respond to the findings of the Assessment and to other available information. The Program is intended to set forth goals, objectives, and a recommended course of action for the management of the Nation's renewable resources. Senator Humphrey explained that:

> . . . the program is developed from the assessment and will describe in detail for a 5-year period what the Federal effort should be. This will include the plans on Federal lands, the cooperative efforts needed under the Federal program, and the research that will go forward to meet unsolved prob-

> lems. . . The annual budget request will thus be presented against a background of goals that the Congress will have considered based upon an executive recommendation (145).

While the law makes the Secretary of Agriculture responsible for the Assessment and the Program, Congress expected that both documents would be prepared by the Forest Service, and the Secretary has delegated the authority to develop the RPA Assessment and Program to the Chief of the Forest Service (36 CFR 219.4). The sponsors of the legislation believed that the Forest Service would play the lead role in the process and that RPA would provide "new stature and responsibility" to the agency (145). RPA permits the inclusion of alternative courses of action in the Program, but it requires that a preferred, or recommended, course of action be specified. This reflects Congress' intent that, while the Program is officially the Secretary's document, it would also provide insight to the agency's professional view of the direction renewable resources policy should take both in the short- and the long-term.

Another important RPA document, essential for Congress' oversight role, is the Annual Report. The Annual Report is to be delivered to Congress when the Administration presents its annual budget request. The Annual Report is intended to provide information on and an evaluation of accomplishing policy objectives, and to alert the Administration and Congress of any shortcomings and/or needed changes or modifications in policy. RPA requires that the Report sets forth 'progress in implementing the Program. . . together with accomplishments of the Program as they relate to the objectives of the Assessment, " and that objectives and accomplishments be described in both qualitative and quantitative terms. The Report shall also include plans for corrective action and recommendations for new legislation when necessary. By requiring delivery of the Annual Report with the President's budget request and "structured for Congress in concise summary form with necessary detailed data in appendices,' Congress anticipated that it could readily rely on the Annual Report to update, modify, or completely revise the Program and Statement of Policy, whenever necessary.

Congressional supporters of the RPA legislation did not conceal that a primary motive behind the passage of the law was to assert more congressional control over Forest Service budgeting and policymaking. The RPA Assessment and Program were intended to provide Congress with essentially the same facts that the Administration used in formulating its annual budget requests. The Act vested the President with the responsibility for the Statement of Policy to be used in framing budgets, but Congress reserved the right to rejector revise it. Congress also included provisions in the law to hold the President accountable for budget requests which were inconsistent with the stated goals and objectives set out in the program and Statement of Policy.

Nevertheless, RPA was not intended to set rigid goals, priorities, or budgets, but was meant to be a flexible process that could accommodate new information, changing conditions, new priorities, and fluctuating budget levels where warranted. Senator Humphrey explained that under RPA:

> . . . policy for renewable resources will be subject to revision as new facts become available. . . Both the Executive and the Congress must proceed in a flexible manner to adjust sights, redefine goals, and provide the financing as the facts warrant (145).

B/et only did Congress perceive this flexibility as sound policy, it also recognized that such flexibility was necessary to secure the Administration's support of the legislation.

While Congress preserved a substantial degree of flexibility in planning and policy, it clearly envisioned that any changes and revisions in direction would be premised on more comprehensive and integrated information than had previously been available, thereby leading to more informed decisionmaking. According to Bob Wolf, a congressional staffer who worked on the legislation:

> With RPA in place, it is possible to document whether in the quest to meet overriding national issues, we have impacted conservation goals and, if so, how ***(150).***

RPA as Implemented and Congress' Response

RPA is of limited use as a long-range planning process unless the documents are produced on time and serve the needs of the targeted audiences. Congress understood that RPA directed the Forest Service to engage in an ambitious resource planning process, unprecedented in scope and detail, and it also understood that by creating such high expectations it had assumed responsibility to oversee the

process, to provide the agency with feedback and ongoing guidance on how to meet congressional expectations, and to revise the law, if necessary.

The 1975 RPA Documents

After the first Assessment and Program were released in early 1976, Senator Herman Talmadge, chair of the Senate Committee on Agriculture, Nutrition, and Forestry, commissioned the U.S. General Accounting Office (GAO) to conduct a "separate evaluation of the 1975 RPA Assessment and Program from the standpoint of economics and good management of resources," explaining that "Congress must provide the agency with still more guidance as to how it should proceed in connection with the next Program and Assessment" (129).

GAO concluded that the documents suffered from several problems with organization and presentation as well as from deficiencies in the methods of analysis (129). For example, GAO criticized the Forest Service for failing to sufficiently discuss and highlight issues of broad national importance in a separate section of the Program. GAO recommended that the agency improve the format for presenting and discussing important issues so as to make the document more useful to both Congress and the public. The report also criticized the documents for the lack of regional analysis and failure to analyze adequately the relation between national forests and privately-owned forests.

In response to the GAO findings, Congress held oversight hearings to provide further guidance to the Forest Service before the next round of documents were due in 1980. In 1977, the House Agriculture Subcommittee on Forests, Family Farms, and Energy held 6 hearings around the country and received testimony from 180 individuals, resulting in 10 major findings and 27 recommendations for improvement (9).

The 1980 RPA Documents

A flurry of congressional interest and activity surrounded the development of the 1979 Assessment and the 1980 Program. Following the 1977 oversight hearings, "continued contacts-with individual members, their staff, and committee staffs in both the Senate and House provided a continuous exchange of information on process, issues, and planning during the next several months"(9).

The Administration, by May 1980, still had not submitted the 1980 RPA documents to Congress, and on May 27, the Senate Agriculture Subcommittee on Environment, Soil Conservation, and Forestry held a hearing seeking an explanation for the delay. The 1980 RPA Assessment, Program, and Statement of Policy were finally submitted by the President on June 19, 1980, and met with almost immediate disapproval from Congress. The Senate subcommittee held a hearing a week later to review the documents, and expressed serious concern that the 1980 Program had not included a recommended course of action as required by law, but rather had included only a range of program alternatives, with a high-bound and a low-bound.

In August, Senator John Melcher, chair of the Senate subcommittee, read a white paper into the *Congressional Record* outlining the subcommittee's concerns with the RPA documents, expressing disappointment especially with the Program and the Presidential Statement of Policy, and recommending that Congress work with the President to amend the 1980 Statement of Policy. While generally embracing the high-bound Program alternative, the subcommittee stated that major problems with the RPA documents made them of little practical use to Congress. The white paper outlined the following shortcomings:

- future targets for action are not well-defined, and there is no national focus;
- the Program provides a range of action levels for each program activity, avoiding the recommendation of a preferred Program as required by the Act;
- neither the low-bound nor the high-bound alternative defines the expected outcome for each resource in the 5 years ahead, the impact on future targets, or the best judgment of the professional land managers;
- the Program needs to consider timber supplies in a global context so that reasonable levels of supply can be anticipated from foreign, industry, non-industrial, and Federal lands. Barring this global examination, neither the effect of U.S. supply and demand on world resources, nor the appropriate timber goals for public lands, given multiple use and sustained yield constraints can be determined;
- the Program fails to adequately differentiate between capital and operational activities (64).

The white paper also expressed the subcommittee's disappointment that the Program did not adequately respond to the needs described in the Assessment. While commending the Forest Service for a "comprehensive and well prepared" Assessment, the white paper stated that, "with the possible exception of the timber resource, the databases [sic] used to develop Assessment information must be improved across the board as the programs proposed can only be as valid as the information available on which they are built" (64). The subcommittee expressed confidence that the land and resource management plans prescribed by the National Forest Management Act of 1976 would improve future Assessments.

Despite Congress' strong criticism of the 1980 Program and swift rejection and revision of the Presidential Statement of Policy, actual annual appropriations for 1981-85 closely approximated those budget levels set forth in the 1980 Program's low-bound alternative, which Congress had soundly repudiated. Although the budget requests reflected program mixes that were contrary to congressionally endorsed goals and objectives set forth in the revised Statement of Policy, Congress systematically approved them with little or no changes or revisions in the annual appropriations (84).

The 1985 RPA Documents

The 1985 RPA Program and Statement of Policy were submitted to Congress nearly 11/2 years late, and then only after the House Agriculture Subcommittee on Forests, Family Farms, and Energy had scheduled oversight hearings to review the Program. Earlier hearings were held for public comment with only an advance copy of the Program and a promise from the Secretary that a complete Program and Statement of Policy would be transmitted "very soon" (134).

Like the 1980 Program, the 1985 Program included two alternative levels of funding for the Forest Service-a high- and a low-bound. "The pattern of the 1985 Program [was] much the same as that of the 1980 Program except that initial funding levels [were] below those in 1980 and generally increased] at a slower rate . . . the low-bound call[ed] for zero growth for all programs across the board" (83). The 1985 Statement of Policy was a brief and general statement that, instead of supporting a recommended Program alternative, again embraced a "reasonable range of management directions, outputs, costs, and goals for the long-term future, [which] . . . provides Congress and the public with a valuable information base on which to continue their informed participation in the decisions affecting our National Forests" (81).

Criticism of the 1985 RPA effort echoed much of that which was heard in response to the 1980 documents. Although the Program and Statement of Policy were submitted so late as to be virtually useless to Congress for the purpose of framing the budgets for fiscal years 1986 and 1987, Congress' response to the 1985 RPA effort was tame compared to its response in 1980. Even the failure of the 1985 Program to address issues or to contain a recommended Program did not cause Congress to revise the Statement of Policy. While Congress showed interest in gathering advice on how to improve the process, it was once again clear that Congress could make little practical use of the RPA Program to shape forest policy and appropriate annual funds.

Meeting Congressional Needs and Expectations

Experience with RPA has caused many observers to question whether RPA can be of use to Congress in the manner expected by the framers of the law. According to Sample, RPA should be most useful when there is not enough money to go around, but the "RPA has never provided Congress with information adequate for making budget allocation decisions under constrained budget conditions' (85). One observer has suggested that past RPA documents have not been useful to Congress because they have failed to adequately address current social, economic, and environmental issues, while others have questioned whether Congress "institutionally could really handle long-range goals" (89). As Congress readies itself to address the 1990 RPA documents, it is worthwhile to examine some current congressional concerns and needs with respect to the RPA process.

Although the Program has consistently fallen short of congressional expectations, the Assessment has been said to have some value. Lyons and Knowles wrote:

> In general this document has provided a reasonable benchmark of the status of the Nation's renewable natural resources. Discussions of most resources in the Assessment document have been sufficiently complete to give some indication of where, as a

> Nation, we stand. This is especially true for resources associated with the National Forest System and, in particular, for commodity resources on the forests. Where the Assessment has failed, however, is to provide a more complete picture of the forest and rangeland resources on state and private lands and a report on the status of nontimber resources. . . (58).

They fault the Program and explain that its lack of utility to Congress is a function of a combination of flaws. They noted four particular problems which can be summarized as follows:

1. *Timing.* None of the previous Programs have been presented to Congress in time to guide budget decisions for the first year of the Program. Further, the RPA cycle is out of sync with the political cycles of Congress and the Administration. It is unlikely that a new Administration will accept and implement a program and Statement of Policy that were developed by a prior Administration.[1]
2. ***Format. The*** "high-bound/low-bound" approach used in the 1980 and 1985 Programs still fails to provide Congress with a clear, professional recommendation for how the forests should be managed. As the white paper stressed in 1980, Congress is more likely to respond to a recommended course of action, as is required by RPA.
3. *Continued lack of clear relevance of the Program to the findings of the Assessment. The Program* should, at a minimum, enable congressional observers and others to understand, in strategic terms, what long-range resource problems or situations exist (or are forecast) and what the agency recommends be done to address the identified problems.
4. *Continued failure of Program documents to demonstrate how the activities of the National Forest System, Research, and State and Private Forestry would function together to achieve the goals and objectives of the Program.* What is specifically lacking are statements of quantifiable goals and of the linkages among Forest Service programs that might indicate how each affects the other.

Lyons and Knowles (58) also assert that RPA has been ineffective because the Program has been unrelated to the President's annual budget and because the Forest Service's Annual Report has suffered from some major inadequacies in its function of evaluating Program implementation. These two problems attest not only to a lack of commitment to the process by recent Administrations, but also demonstrates that Congress, by accepting inadequate RPA materials, has not fulfilled its oversight responsibilities under the Act.

As an audience of RPA, Congress demands more from the RPA documents to guide its budget and policy decisions. On the other hand, as a key participant in the RPA process, Congress must be more committed to fulfilling its oversight responsibilities than it has been in the past.

THE FOREST SERVICE

With RPA, Congress elevated the stature and the role of the Forest Service in national renewable resources policymaking. Congress created a mechanism by which the Forest Service could map out its missions, goals, and objectives in a national setting. Although, the agency had been assessing resources and planning activities since its beginning, RPA gave legitimacy to long-term strategic planning and management by establishing a formal framework and procedure.

The Forest Service is the primary actor in the RPA process and played an active role in the development and passage of the Act. Its interpretation of the law and its expectations of the process heavily influence the nature of the documents as well as the interactions among the participants. How the agency perceives its role and how it defines and identifies RPA's audiences significantly affect the utility of the documents and the subsequent successes and failures in implementation.

Forest Service expectations of RPA can perhaps best be gleaned fromthe documents themselves—the methods of analyses, the organization, and the presentation. This task will be taken up in greater detail in the following chapters on the RPA documents. The section below briefly examines agency efforts to encourage and solicit outside professional review of RPA and evaluates the effects these efforts have had on the agency's perceptions and expectations of the process.

[1]This has happened in two of the first three RPA efforts: president Jimmy Carter was to implement the 1975 Program and Statement of Policy developed under President Gerald Ford, while President Ronald Reagan was to implement the 1980 Program and Statement of Policy developed under President Carter.

Pre-RPA Experience

Although RPA may well be the most ambitious long-range planning system ever employed by a Federal agency, the Forest Service has long engaged in a variety of assessment and long-term planning efforts for the Nation's renewable forest and rangeland resources. While some of these efforts were mandated by Congress, many others were instigated by the agency itself.

By 1928, Congress had vested in the Forest Service the authorities to manage the National Forest System, to establish cooperative assistance programs of financial and technical assistance to States and private landowners, and to engage in forest and rangeland related research. In 1933, the Forest Service completed a report entitled *A National Plan for American Forestry* (better known as the *Copeland Report)* which included an extensive inventory of forest lands and resources, a findings section detailing the "forest problem' in the United States, and several short- and long-term recommendations for action. The Report was intended to function as a "coordinated plan which [would] insure all of the economic and social benefits which [could] and should be derived from productive forests by fully utilizing the forest land, and by making all of its timber and other products and its watershed, recreational, and other services available in quantities adequate to meet national requirements" (144).

The Forest Service completed several studies, surveys, and appraisals of the forest resources over the next 26 years, though none matched the Copeland Report in detail and scope. In 1959, the agency completed an extensive long-term plan entitled *Program for the National Forests,* and in 1961, shortly after the passage of the Multiple-Use Sustained-Yield Act of 1960, the Kennedy Administration revised and expanded that plan in a document entitled the *Development Program for the National Forests.* Another multi-resource long-range plan developed before RPA was a draft Forest Service plan entitled *Environmental Program for the Future,* described in the 1972-73 Report of the Chief (101).

RPA differs significantly from those earlier assessment and planning efforts in that it is defined by statute rather than by the agency. It mandates a more formal, systematic, and integrated planning process, and it requires the agency to provide charnels for public participation.

Expectations and Implementation

Although RPA originated in Congress rather than in the Administration, the Forest Service played an active role in its development and passage. Top officials of the agency, including the Chief, supported the legislation, viewing it as providing much needed legislative sanction for long-term planning. "Once satisfied with its essential features and organization, the agency actively pushed the [RPA bill] within the administration by countering and thus eroding OMB arguments against it" (54).

Congress clearly expected RPA to substantially improve the Nation's long-range resource planning and policy. While Congress and the public had participated to some extent in Forest Service planning before 1974, RPA expanded their roles in the process, and therefore demanded more accountability on the part of the agency. It is unclear, however, whether top agency officials viewed RPA as significantly changing the manner in which they had traditionally developed long-range resource management objectives and plans. It is therefore useful to examine the agency's planning efforts since 1974 to discern whether its own expectations of RPA approximate those of its audiences. This examination involves two issues. First, has the Forest Service modified its performance in response to outside review and criticism of the RPA process? And second, do the documents themselves reflect any changes in expectations?[2]

Reviewing the **Process**

The Forest Service assembled an RPA staff and began to prepare the first RPA documents immediately following the enactment of the law. The agency completed drafts of the frost Assessment and Program a year later, in August 1975 (54). Following reviews by State and local governments, academics, public and private interest groups and individuals, and other Federal agencies, the Secretary transmit-

[2]This section examines the extent t. which the Forest Service has solicited and responded to congressional and public participation and review. The last section of this chapter explores public participation and its impact on planning in greater detail; chs. 6 through 9 evaluate the documents themselves more closely.

ted the final documents to Congress by that December, as required. Although, this first round was viewed by many as a "trial-run" (84), the Assessment and Program were subjected to intense scrutiny almost immediately.

In addition to the GAO study discussed earlier, RPA was the subject of a symposium sponsored by the Forest Service and the University of California at Berkeley, at Pajaro Dunes, California, in 1976. The objectives of the symposium were "to encourage academic participation in constructive criticism of the first Assessment and Program, so as to provide the Forest Service with assistance in developing future assessments and programs' (103). In addition to highlighting certain shortcomings in the Act, symposium participants evaluated and critiqued the 1975 RPA documents, generally concluding that "given the time constraints, the Forest Service did a remarkable job . . . [although] a better job should have been done' (103). The symposium participants concluded that the most significant weakness in the 1975 RPA effort was "the absence of an explicit structure explaining the relations among the various assessments of demands and the various programs that resulted from those assessments" (103). They suggested that what was needed was "a more rigorous planning process that increases accountability by allowing the agency to retrace planning decisions" (103).

Since 1976, the Forest Service has engaged in a series of cooperative efforts with individuals and organizations to review the RPA process. Perhaps the most notable is the agency's association with the Conservation Foundation. Before completing the 1980 RPA Program, the Forest Service contracted with the Conservation Foundation to hold a series of educational and informational workshops on RPA around the country for both the public and agency staff, which eventually resulted in *A Citizen's Guide to the Forest and Rangeland Renewable Resources Planning Act (107).* As was true with the 1976 symposium, this study provided a probing and comprehensive analysis of the RPA process, including a critique of the 1980 RPA Assessment and Program. This contract ended in 1981, but the Conservation Foundation has continued to actively study and review the RPA process.

Other efforts to evaluate RPA have included *The RPA Process: Moving Along the Learning Curve,* sponsored by Duke University (93); *Forests in Demand: Conflicts and Solutions,* sponsored by Dartmouth University (46); and *Redirecting the RPA,* sponsored by Yale University (13). These workshops supplement the public participation provided for in the Act, and give the agency an independent professional analysis of its performance in meeting the expectations of various outside interests. In the foreword to *Forests in Demand,* then-Chief R. Max Peterson implied that the agency relies on these outside analytical efforts to modify the ways in which it plans under RPA when he wrote, "This sort of informed discussion and analytical thinking will enable us to improve our forest resource planning in the decades ahead" (79).

Adjustments and Responses

Despite the numerous, extensive reviews of the RPA process, many question whether the Forest Service has adequately modified the process and the documents in response to the needs and expectations of its audiences. As discussed above, many congressional staff members and interest group representatives support the RPA as a concept but question its utility. According to Shands (89), the Forest Service has consistently failed to clearly identify its audiences and thus has failed to produce RPA documents which respond adequately.

Some attribute the growing public indifference to RPA to the perception that RPA planning has had only a minimal impact on budgets and decisionmaking within the Forest Service. This perception may well be an accurate one. A growing number of interests groups have cited the widening gap between targets and budgets as evidence of the Program's irrelevancy to decisionmaking (89). According to Sample, similar perceptions of RPA exist within the agency itself:

> Beyond its impact in constraining the choice of timber sale levels in forest planning, the RPA is regarded by nearly all forest supervisors and district rangers-the key line officers actually directing resource management on the national forests—as being of little or no assistance or relevance to their program planning or daily decisionmaking responsibilities (85).

It is important to note that the agency solicited internal feedback on the Draft 1990 RPA Program. In 1989, the Chief sent a pamphlet to agency employees asking them to review and comment on the Draft; this request resulted in 469 employee responses. The decision to solicit internal feedback

may have been prompted by the 1989 founding of the Association of Forest Service Employees for Environmental Ethics (AFSEEE), a group of more than 1,000 employees concerned with the future direction of agency management. Nonetheless, such internal feedback may provide the kind of information needed to make RPA more relevant to agency operations.

Since 1975, Congress and the public have also criticized the agency for failing to tighten the connection between the findings contained in the Assessment and the recommendations put forth in the Program. In spite of this criticism, and the Act's requirement that the Program must be based on the Assessment, the Forest Service still seems to have a different perception of the relationship between the two documents. According to Thomas Mills, Director of the RPA staff, the Assessment and Program have largely been separate efforts (65). And although the agency asserts that it is improving the linkage between the two documents, the connection between the Draft 1990 Program and the 1989 Assessment is not obvious.

To date, it seems that the agency has inadequately met the needs of its audiences, indicating either that outside expectations are too great, are unrealistic, or simply differ substantially from those of the agency.

THE ADMINISTRATION

The Administration, through the Secretary of Agriculture and the Office of Management and Budget (OMB), is ultimately responsible for producing the RPA documents and for developing annual Forest Service budget requests consistent with those documents. Because the Forest Service has been delegated the responsibility to develop the Assessment, Program, and Annual Report, the Secretary and OMB should be viewed not only as players in the process, but as audiences as well.

The Secretary is responsible for submitting the Assessment and Program to the President, who in turn submits them to Congress, along with a Statement of Policy. But while the Secretary has the authority to disapprove the materials prepared by the agency and to revise them at will, it is unclear to what extent the Secretary exercises this authority. The Secretary has provided the agency with some direction in the past, but it appears that this role has been limited. Fedkiw has described the importance of the Department in developing the 1980 Program *(28),* but the Department's influence in the 1975 and 1985 efforts is not well-documented. The RPA documents appear to have been substantially a result of Forest Service efforts.

On the other hand, OMB clearly plays an active and major role in the RPA process. As chief architect of the President's annual budget requests, OMB is responsible for coordinating programs and balancing spending priorities among all Federal agencies, within overall fiscal constraints. In the context of RPA, the Assessment, Program, and Annual Report could supply sound justification for agency programs and provide sufficient information to meet the President's needs in writing the Statement of Policy and OMB's needs in framing annual budget requests.

Expectations

As discussed above, RPA was born largely from Congress' frustration with the Administration's short-sighted resource management policies and inadequate budget requests. With this Act, Congress intended to exert more control over the Forest Service's planning and budgeting processes, and to establish a certain measure of Presidential accountability which had been lacking. The required Presidential Statement of Policy is to be based on the Assessment and Program and to be used to frame annual budget requests. Most importantly, in any instance in which budget requests fail to meet the established policies, the President is required to explain publicly the reason(s) for requesting Congress to approve the lesser policies or smaller programs than' those presented in the Program and Statement of Policy.

The Administration generally supported the purpose of the RPA legislation, but fervently opposed those accountability provisions which it construed as limiting 'presidential flexibility and discretion in preparing annual operating plans and attendant budget requests" (145). In a letter to the House Agriculture Committee, then-acting Secretary of Agriculture Carroll Brunthaver wrote:

> The regular appropriations process allows ample opportunities and an orderly process for questioning Presidential fiscal priorities and should continue to be relied upon as the appropriate forum for handling budget questions and issues (145).

In spite of the Secretary's opposition, Congress passed the legislation with the disputed language

intact; OMB promptly recommended that the President veto the legislation. While President Ford expressed some concern over those provisions relating to Presidential discretion, he signed RPA into law stating that:

> . . . the benefits of this legislation far outweigh any potential drawbacks, and I am confident that the Congress and the executive branch, working together, can and will manage, develop, and improve our priceless natural legacy of forests and rangelands (29).

Aside from its opposition to the accountability provisions of RPA, OMB saw great promise in the rest of the legislation. Having regarded previous Forest Service national planning efforts as 'no more than program promotion devices lacking any real analytical justification for the increased budgets that were called for, " OMB perceived that RPA documents could potentially provide the "detailed analytical bases needed to justify Forest Service funding requests" (84).

Implementation

The Secretary and OMB played only minor roles, if any at all, in the 1975 RPA process; the effort was almost exclusively that of the Forest Service. However, the Secretary and OMB took a more active interest in the 1980 process, after Congress decided to appropriate 85 percent of the recommended Program level for 1978.

The Secretary viewed this funding approach as inconsistent with the analytic underpinnings of RPA, believing that neither Program development nor annual budgeting could adequately be done unless the Program decision process "was based on increments of management effort on a resource-by-resource basis . . . On the basis of the 1975 RPA Program, which presented highly aggregated, multiple-use alternatives, the Department decisionmakers were unable to comprehend and make informed decisions among alternative levels and mixes of resource outputs and the total costs for such alternatives" (28). While the Forest Service maintained that its "multiple-use" approach would more likely result in a management program that was more consistent with its mandate and which could be physically, economically, and environmentally implemented, the Department's final decision was to adopt the 1980 Program on a resource-by-resource basis (28).

OMB also showed a keen interest in the 1980 RPA process. According to Fedkiw, OMB was dissatisfied with the weak RPA analyses, and concluded that there was a high degree of uncertainty in the demand and supply projections. OMB therefore recommended that the 1980 Program include a wider range of outputs than was suggested by the Secretary and the agency, and instead of a recommended Program as mandated by RPA, OMB developed and advocated a high- and low-bound range of options (as described in ch. 7) to retain the Administration's budget flexibility (28). Sample (85) suggests that the high- and low-bounds resulted from disagreements between the Forest Service, trying to respond to the Assessment, and OMB, rejecting the agency's ambitious plans. Presenting both views instead of one recommended Program was the Administration's compromise in the face of congressional pressure to release the documents.

The extent to which the Secretary was involved in the development of the 1985 RPA Program and supplemental Assessment is not clear. What is apparent, however, is that the Secretary withheld the RPA documents from Congress for over a year and a half after they were due; however, some observers attribute this delay to objections by OMB (84).

OMB's influence in the process was once again apparent in the 1985 Program's use of the high-bound/low-bound approach. And once again, OMB attempted to preserve flexibility in the annual budget process for the Administration by including a wide range of resource output levels in the recommended Program.

Future Role

It seems apparent from these experiences that the Administration, especially OMB, requires at least two things of the RPA documents. First, it demands that the documents provide clear and reasonable analysis of projected output levels and budget needs for each resource rather than on an aggregated, multiple-use basis. Second, it seeks a wide-range of viable alternatives, rather than a single recommended Program, so that it can respond flexibly to a variety of fiscal conditions. Until the Forest Service better meets these needs of the Administration, it is highly likely that the Secretary of the Agriculture and OMB will continue to strongly influence future RPA documents.

RPA documents could be substantially more useful to OMB if the Forest Service improved its methods of economic analysis (84). A lingering feeling exists among OMB officials that the RPA Program has "degenerated to little more than another agency promotion device without adequate analysis to support its budget recommendations' (84). Sample cites two specific examples of the Program's analytical weaknesses. First, OMB believes that the Program fails to provide a straightforward marginal benefit/cost analysis of proposed increases in funding, and that nearly the same incremental benefits could be obtained at much lower incremental cost for many Forest Service activities *(84).* Second, OMB is critical of the methods used by the Forest Service to impute dollar values for nonpriced resources; specifically, prices placed on nonpriced resources are not analytically comparable to prices for market resources (84).

It is clearly within the Forest Service's capacity to improve its economic analyses in RPA. Presumably, if it does so, OMB will rely more heavily on the Program than it has in the past in developing the annual budget. It is questionable, however, whether the agency itself can meet the Administration's demand for flexibility in the budget process, without violating the spirit and intent of the law, which requires that the agency present a single recommended renewable resources Program.

THE PUBLIC

In creating RPA, Congress recognized the inherently political nature of long-term planning for lands and resources. Before RPA, national level planning was a less open process. The Forest Service typically welcomed outside review and comment, but it was not explicitly required to do so. RPA opened the agency's national planning process to public scrutiny and participation in two significant ways: first, it established a congressional forum for Forest Service policy and budgeting by providing a considerable oversight role for Congress; second, it mandated public participation in the agency's national planning process.

Although the Act does not include specific standards and guidelines for public participation, it requires that the Program be developed in accordance with the National Environmental Policy Act of 1969 (NEPA). NEPA generally establishes a host of procedures by which a Federal agency solicits, uses, and responds to public comment.

The following section examines the expectations and role of the public in Forest Service planning and policymaking at the national level, and considers whether RPA, as implemented, has satisfied those expectations. In addition, this section examines how the Forest Service has used public input and whether public participation has had any identifiable impact on the RPA Programs. Finally, it addresses potential roles for the public in future RPA efforts.

Who Are the Publics?

To understand the expectations of the "public," it is important to distinguish who the various publics are. Several general labels are frequently used to compare and contrast broad categories of publics: users and non-users of resources; commodity and amenity interests; business and non-business interests; conservationists and preservationists; industry and environmentalists. Although these labels are somewhat descriptive of the general points of view of the various interest groups, they do not reveal the diversity of objectives of the individual interests composing those larger groups, nor do they illuminate how these varied interests overlap, compete, or complement each other. This section will examine two broad RPA interest groups-environmentalists and business interests-and will identify some of the individual interests that comprise each group.

Environmentalists

The environmental movement includes a multitude of individuals, groups, and associations representing a wide range of interests and dedicated to a variety of purposes. Environmental groups are generally concerned with the amenity resources and values of forests and rangelands, such as wildlife, outdoor recreation, streams and lakes, wilderness, and scenery; they include backpackers, hunters and anglers, birders, trail bikers, recreational vehicle tourists, and so forth (91). While these groups are loosely bound by a common interest in the amenity resources, as opposed to commodity resources, their objectives are diverse and often conflict with one another. As Shands notes:

> Some advocate preservation of wildland with minimum management both for recreation use and to provide ecological services-maintenance of water and air quality, gene pools, and so forth. Others favor

> fairly active management to provide habitats for huntable species. Some like roads through the forests, others abhor them. . . Some see the forests [and rangelands] primarily as a place for active recreation, others prize them for existence values and the ecological services they provide (91).

But despite some differences, individuals and groups aligned with each of the above interests came together in support of RPA as it was making its way through Congress. Many of these groups shared the same concerns: that there had been substantial and disproportionate increases in the amount of timber harvested in the past decade, and that the Forest Service's interpretation of its multiple-use mandate was out-of-step with public values (92). Dan Poole, of the Wildlife Management Institute, testified to the Senate Agriculture Subcommittee on Environment, Soil Conservation and Forestry that:

> [T]he central issue. . . is the urgent necessity to achieve and maintain balance in the national forest management program. Arguments over such issues as clear cutting, log exports, and all the rest are indicative of the current imbalance in the national forest program (145).

Thomas Kimball, of the National Wildlife Federation, voiced support for RPA because its principles were "environmentally sound," and because it enhances more "balanced multiple-use management of national forests" (145).

Members of the environmental community perceived RPA as providing a mechanism through which they could engage in an open and continuous dialog with the Forest Service. It represented a legally mandated channel through which they could express their concerns directly to those in charge of managing the forest and rangeland resources. Most importantly, RPA represented a comprehensive and systematic planning approach that would force the Forest Service to practice "more balanced" multiple-use and sustained-yield resource management.

Business Interests

There are several distinct interest groups that can generally be described as "business interests." Again, while they share some common goals and perspectives, it is important to keep in mind the diversity of interests and objectives held by the various groups in this category.

There at least four primary kinds of **businesses** with an acute interest in Federal forest and rangeland policy and planning-timber processing, recreation businesses such as ski areas, ranching, and mining (41). These businesses typically invest in relatively long-lived assets and each is tied to a specific location once it has made an investment. Although some of the individuals engaged in the above businesses do not actually use Federal lands or resources, Federal policies often have important implications for their business decisions. For example, recreation businesses operating exclusively on private land must, directly or indirectly, compete with those businesses operating on Federal land, and thus have an interest in Federal resource management policy (41).

Business interests generally testified in favor of RPA and supported the basic principles underlying the legislation. Like the spokespersons from environmental interests, representatives from various businesses perceived RPA as establishing a more orderly, logical, and comprehensive framework for resource planning and management. Representatives from the timber industry, probably the most vocal business group to testify at congressional hearings, saw RPA as a way to eliminate some of the controversy generated from previous piecemeal planning efforts. Perhaps most importantly, they believed that RPA would expose the importance of developing long-term forest and rangeland planning, thereby encouraging Congress to increase Forest Service funding to increase the development of the national forests. Speaking on behalf of the National Forest Products Association, John Hall testified:

> We think [RPA] is a tremendous first step in helping to develop the undeveloped potential of the National Forests, not only for timber but for wildlife, watershed, recreation, and other uses. . . [T]he separate consideration of each resource activity has resulted in controversies and stress which could be avoided with a coordinated plan (145).

Others from the timber industry also perceived RPA as providing justification for increased investments in Forest Service programs, and especially in the National Forest System lands. Bill Hagenstein, of the Industrial Forestry Association, stated that RPA would provide the Nation with a' 'new national forest outlook and program for the future" which would recognize the potential of the national forests to provide "more jobs, more timber, more grass,

more wildlife, more recreation, more water, more support for local government" (145).

Business interests typically look to RPA to meet at least four basic needs (41). First, they require a certain degree of predictability: by establishing both a short- and long-term direction, RPA could reduce some of those uncertainties common to the marketplace. "Only in times of crisis do they expect that government should change its course substantially' (41). They also look to the Forest Service to work with them to create a good business climate. This involves providing channels through which business can communicate their views to the government. Third, they expect the Forest Service to provide accurate, timely, and aggregated information that can be used in making business decisions. And finally, they believe the government should provide them with relatively low-priced land and/or resources.

Both environmental and business interests saw value in the planning procedures established by the Act. RPA provided a forum for all publics to review draft RPA documents and to communicate their needs and concerns directly to the Forest Service. Some interpreted the law as providing the public with the opportunity to serve as a sort of consultant to the agency. Each of the interest groups lauded RPA for its potential to bring about a more orderly, more logical, and longer-term planning process for the Forest Service. Each seemed to believe that they could promote and advance their particular interests more effectively with a more coordinated system in place.

RPA as Implemented: Meeting the Public's Expectations?

In 1982, Gene Bergoffen, director of the Forest Service efforts for the 1975 Program, wrote that the RPA process was in "critical danger of rapid atrophy,' and that the 1980 Program had fallen short of expectations in two fundamental ways:

> First, it has not become a tool for policy choices. It does not provide a way of measuring the effects of short-term resource actions on long-term trends in forest outputs and related socioeconomic concerns. Second, it does not serve as a basis for holding accountable the decisionmakers in the Forest Service, the Administration, and the Congress (10).

In 1985, the Conservation Foundation conducted a study to evaluate how useful the RPA documents had been to the public-at-large and to Congress. While most of the persons interviewed supported the principles underlying the law, many expressed frustration with the quality of the documents and questioned RPA's relevance to decisionmaking.

In 1986, the House Agriculture Subcommittee on Forests, Family Farms, and Energy held two oversight hearings on the 1985 RPA Program. The subcommittee solicited testimony from a wide variety of witnesses including representatives from environmental groups, business interests, professional associations, and academia. Again, witnesses generally supported the RPA process, but almost all of them noted significant shortcomings in the 1985 RPA Program.

Mark Rey, of the National Forest Products Association, testified that the 1985 RPA Program failed to address long-term resource needs and goals effectively. "[T]he Program sacrifices many of the Nation's resource needs in favor of shorter term budget or fiscal objectives" (82). Speaking on behalf of the Society for Range Management, Peter Jackson testified that the assessment of public and private rangeland resources had been and continued to be seriously underfunded and that as a result planning for the range resource through RPA was poor in comparison to planning for other renewable resources. "For federal lands, revising priorities so that basic resource values like soil, water, range and wildlife habitat are in better balance with timber production and mineral exploitation seems clearly the most urgently needed change" (49).

Environmentalists also expressed concern that the 1985 RPA Program continued disproportionately to favor some resources over others, and that the plan still failed to address sufficiently long-term resource conditions and needs. Speaking for The Wilderness Society, Peter Kirby alleged that despite RPA, the Forest Service's interpretation of multiple-use continued to be flawed:

> [T]he 1985 update of the RPA program continues and even expands the dominant use of the national forests for timber, mining, and grazing at the expense of recreation, fish and wildlife, wilderness and watershed. . . [A] very different program is required if the national forests are to provide the benefits and uses wanted by the American people in the future (51).

Public sentiment today echoes those earlier criticisms, with calls either to make the process more

useful, or to do away with it. The number of groups and individuals who participate in the RPA dialog has substantially decreased since 1975. During the 100-day public comment period for the 1975 Draft RPA Program, the Forest Service received 3,450 public comments, along with 77 petitions (102). In 1980, the agency received only 1,700 public comments, less than half the number received in 1975. In 1985 there was a slight increase, to 1,800 public comments, but in 1990 public response sharply fell. By October 3, 1989, when the period for public comment closed, the Forest Service had received only 250 comments on the Draft Program from individuals (other than employees), interest groups, and other agencies and officials (92).

According to the 1985 Conservation Foundation survey, many felt that RPA simply required too much time relative to its influence on Congress or the Administration (89). It appears that this belief is even more widespread today.

Forest Service Use of Public Participation

Congress intended that the public would play a significant and meaningful role in the RPA planning process, and required the Forest Service to establish procedures guaranteeing interested members of the public the opportunity to help shape the issues to be addressed in the RPA documents and to review and comment on each RPA draft Program. The public's disappointment with past RPA efforts poses questions of to what extent and how well the Forest Service has used public participation in its national planning process: does the agency perceive its publics as mere reviewers of draft Program alternatives or as consultants to the process?

NEPA regulations require Federal agencies to involve interested members of the public in the process of "scoping." Scoping is defined in the regulations as "an early and open process for determining the scope of issues to be addressed and for identifying the significant issues related to a proposed action" (40 CFR 1501.7). Notice of the agency's intent to engage in such a scoping process are to be published in the *Federal Register* and shall expressly invite participation by any interested persons. In addition, the regulations require that agencies actively solicit public participation throughout the environmental impact statement (EIS) process; the agency is required to:

> (a) Make diligent efforts to involve the public in preparing and implementing their NEPA procedures, and (b) provide public notice of NEPA-related hearings, public meetings, and the availability of environmental documents so as to inform those persons and agencies who may be interested or affected (40 CFR 1506.6).

NEPA contemplates that agencies will use public input to help them identify important issues and concerns and to assist them in shaping the agenda for the proposed action or plan. The Forest Service has indicated that public participation in the RPA process should serve as an "early warning system" of emerging conflicts and new values (92).

Since the first RPA effort in 1975, the Forest Service has actively solicited public comment and review. For each of the previous iterations, the agency has distributed thousands of copies of draft Programs and has conducted numerous public meetings nationwide. In addition, as discussed above, the agency has co-sponsored and funded several workshops on RPA with various universities and private organizations. Nevertheless, some critics of RPA assert that Forest Service has yet to use public participation in a manner consistent with the spirit and intent of NEPA and RPA.

Between 1975 and 1985, "[t]he RPA process did not serve as a forum for public deliberation and policy. Rather, comments from groups and individuals alike were transformed into bureaucratic restatements of issues relating to intra-organization conflicts, e.g., timber versus wildlife, water versus grazing, and so forth" (92). After having reviewed the 1975 RPA Program and its treatment of "major issues of public concern, ' Shannon questioned whether the list of 66 issues was either comprehensive or representative, and asserted that the agency seemed to be deliberately avoiding more contentious issues, such as clearcutting in the national forests (92).

Shannon also criticized the agency's analysis and presentation of public comments in the RPA documents, and asserts that summaries of public comments are typically "disembodied from any real social, political, cultural or historical context," leaving the reader with the impression that he "has heard all this before . . . While the array of dissected comments attests to the differences among those concerned about the use of the [resources and their] management, this process cannot be considered

political dialogue in any form" **(92).** Not only is it difficult for agency officials to evaluate public expectations and demands, but the various publics cannot learn much about each other either. Another critic asserts that instead of advancing the interests of the various publics, RPA has transformed the various views into polarizing issues and has thereby discouraged meaningful interaction among the various interests (20).

Congress intended that the public would significantly influence the strategic direction of the Forest Service by actively participating in scoping and in discussion of important issues. The role that the public plays in defining and developing national renewable resources policy in the future will largely be determined by future efforts by the Forest Service to solicit, analyze, and incorporate public concerns into the RPA process.

The Forest Service appears to have made a serious effort to be more responsive to public participation in the 1990 RPA effort. The Draft 1990 Program includes a chapter on proposed agency roles as well as a discussion of contemporary resource issues. The proposed future roles appear to be largely derived from broad issues that surfaced during the development of the 1985 Program. The discussion of issues directly responds to recurring public concerns.

In a speech to the National Audubon Society in 1989, George Leonard, Associate Chief of the Forest Service, announced:

> The Forest Service is offering an outstretched hand. I invite you to join us in exploring some new ways of doing business. . . I am willing to ask our people to make a greater effort to open up their deliberative and decisionmaking processes so that others can feel like they own apiece of the solution, rather than feeling that they must stand off to the side and throw stones (92).

The extent to which the agency meets this challenge will largely influence the utility of future RPA documents to both Congress and the public.

Chapter 5

RPA as a Strategic Planning Process

Strategic planning sets the basic direction and focus of an organization. It is an attempt to define missions, goals, and objectives, and to develop broadly the means by which best to achieve them. Proponents of strategic planning emphasize its value in long-range thinking. The Forest Service has described the 1990 RPA Program as a strategic plan, and its effort to think and plan more strategically is evident in its more extensive treatment of issues, discussion of agency roles, and inclusion of proposed initiatives. The agency has tried to provide the Administration and Congress with a clearer picture of the current and expected future state of the Nation's forests and rangelands, of current and future needs, and of the recommended course of action. However, some observers have expressed skepticism over whether the Final 1990 RPA Program will be a strategic plan which can be implemented, while others have questioned whether any Federal agency can develop an effective strategic planning system at all.

This chapter discusses the nature of strategic planning and its strengths and weaknesses, examines business and State experiences, and then addresses these specific questions:

1. Does RPA authorize or require the Forest Service to engage in formal strategic planning?
2. What are the limitations to effective strategic planning within the Forest Service? Notwithstanding those constraints, is strategic planning an efficient means by which to accomplish the purposes of RPA?

NATURE OF STRATEGIC PLANNING

Companies and other organizations in the private and public sectors choose to develop formal strategic planning systems for a variety of reasons. (See box 5-A.) The section on principles and objectives of strategic planning is followed by a discussion of prerequisites for strategic planning and its potential problems and limitations.

Principles and Objectives

While most frequently associated with corporate or business planning, strategic planning involves general principles applicable to the public sector as well (boxes 5-B and 5-C). Experience with formal strategic planning may be somewhat limited at the Federal level, but increased use of strategic planning by Federal agencies could serve the public interest by enhancing long-range policies that can adapt to change, and by reducing the risks associated with short-sighted, incremental decisionmaking (97).

Strategic planning in any organization is a function of top management, not solely of generic planners. It is a process that enables an organization

Box 5-A-Common Reasons for Using Formal Strategic Planning

. To provide a road map to show where the [organization] is going and how to get there.

. To change the direction of the company [or organization].

. To develop situation analyses of opportunities and threats to provide better awareness of [an organization's] potential in light of its strengths and weaknesses.

. To concentrate resources on important things and to allocate assets to areas of best potential.

. To provide awareness of the changing environment in order to adapt better to it.

. To develop a sense of security among managers coming from abetter understanding of changing environment and [the organization's] ability to adapt to it.

• To develop better information for top managers to make better decisions.

. To develop a frame of reference for budgets and short-range operating plans.

• To develop better internal coordination of activities.

. To gain control of operations.

SOURCE: G.A. Steiner, ***Strategic Planning (New*** York NY: The Free Press, 1979).

Box 5-B—Principles of Strategic Planning

. *The* highest social purpose, or mission, of an organization provides the framework for strategic planning and management.

. Strategic planning defines measurable goals and objectives, each of which are variable rather than constant.

. Strategic planning deals with a long-run of time.

. Strategic planning applies to a clear enough field of action that plans can be linked to performance.

. Strategic planning focuses on a few fundamental essential forces, objectives, and actions.

. Strategic planning is a line management function for which training in strategic analysis and participative skills is usually necessary.

. Participative strategy development, a prerequisite for successful strategy execution, often requires cultural change at the upper levels of organization and their management units.

. A unit's concept of the business it is in must be formulated in the context of its social, economic, and political setting.

• Strategic business [or management] units need to be defined so that one manager can control the key variables essential to the execution of the strategic plan.

. Well-managed organizations must be both centralized and decentralized--centralized so that strategies and control systems can be integrated, and decentralized so that units can act and be treated individually.

. Organizational structure should be reevaluated, and revised if necessary, to ensure that the structure supports the execution of the strategic plan.

. Strategic planning includes measuring the results of decisions through coordinated and systematic feedback.

. Strategic planning and internal control systems must be integrated in a consistent whole if strategies are to be executed effectively.

. Action plans for achieving program objectives are the key to implementing and monitoring strategy. They require extensive lower-level participation and special leadership skills. Action plans are complete when underlying assumptions, allocation of responsibilities, time and resource requirements, risks, and likely responses have been made explicit.

• Over time, strategic planning done well becomes a mind set, a style, and a set of techniques for running an organization —not something more to do but a better way of doing what has always had to be done.

SOURCES: D.H. Gray, "The Uses and Misuses of Strategic Planning," ***Harvard Business Review 86(l): 89-97 1986.*** P.F. Drucker, ***Management: Tasks, Responsibilities, Practices (New York, NY: Harper &*** Row, **1974). L.C.** Irland, ***RPA as Strategic Thinking: Background, Comparative Experiences, and Some Implications, OTA*** background paper, Feb. 21, 1990.

to chart its direction by identifying short- and long-term goals and objectives and to develop the most appropriate means to accomplish those ends. Before determining where it wants to go, when it wants to get there, and how best to get there, an organization must *clearly* define its general mission or purpose (59). The mission statement expresses an institution's general purpose or reason for being; goals and objectives should be defined in accordance with the mission and therefore necessarily follow it. Rather than attempting to make future decisions today, strategic planning designs a desired future, then identfies ways of bringing it about (97). The likely consequences of today's decisions are evaluated by systematically identifying opportunities and threats that lie ahead.

In his treatise on management, Peter Drucker defines strategic planning as:

> . . . the continuous process of making present entrepreneurial [risk taking] decisions systematically and with the greatest knowledge of their futurity; organizing systematically the efforts needed to carry out these decisions; and measuring the results of these decisions through organized, systematic feedback (26).

Explicit in this definition is that strategic planning is not a discrete act, but rather an ongoing process that links planning with implementation, feedback, and control. Strategic plain-kg does not necessarily require an organization to change its existing direction, but it encourages innovation and allows a more systematic approach for evaluating whether changes

Box 5-C—What Strategic Planning Is Not

- Strategic planning does not make future decisions and does not set multi-year budgets.
- Strategic planning is not an attempt to blueprint the future.
- Strategic planning is not necessarily the preparation of massive, detailed, and interrelated sets of plans.
- Strategic planning is not an effort to replace managerial intuition and judgment.
- Strategic planning is not a simple aggregation of functional plans or an extrapolation of current budgets.
- Strategic planning is not synonymous with scientific, rational decisionmaking.

SOURCE: G.A. Steiner, ***Strategic Planning (New*** York NY: The Free Press, 1979).

in direction are desirable. Thus, the process must be sufficiently flexible to absorb and integrate new information and to respond to changing and/or unanticipated conditions (97). Further, the plans should articulate a few specific and measurable goals and direct courses of action so that the plans can be linked to performance.

Strategic planning is an important centralizing agent—it helps an organization take a comprehensive look at its situation and plot an overall direction by examining its individual units collectively. Large organizations must be centralized so that strategies and control systems can be integrated. They must also be decentralized so that individual units can act and be treated with appropriate differentiation (40).

Also, strategic planning is a subjective and political process that is not based solely on scientific rationality. Better technical data and more thorough analysis are important elements of strategic planning, because they provide a more accurate and agreed-upon picture of what is, and thus a common foundation for the debate on what should be. However, better data do not automatically lead to improved planning and management. Strategic planning involves value judgments and its solutions are more correctly thought of in terms of *better* or *worse,* rather than *true* or *false* (2).

Prerequisites of Effective Strategic Planning

A strategic plan must be sensitive to the particulars of organizational structure and purpose. Before developing a strategic plan (especially in the public sector), top managers must examine and weigh those institutional, organizational, and political constraints and limitations, peculiar to their organizations, which might thwart effective planning and implementation if not detected and addressed up front (97). Plotting a desired future requires some understanding of the present situation. In strategic planning, therefore, it is imperative that sufficient time and energy be devoted to collecting and assessing the kinds of data needed to evaluate the present situation in terms of resources and capabilities. Failure to devote adequate attention to this present situation analysis, or "situation audit," can lead to a finished plan of little or no practical use as a guide for present and future action.

Strategic planning also presumes the ability "to narrow the agenda' '—to subdivide the whole into manageable pieces (40, 48). In businesses or organizations with multiple purposes, this means an ability to divide the whole into several business or management units (or "strategy centers"), and to develop a strategy for each unit. Each unit can then address relatively clear and well-defined problems or objectives. Although there is a need for an overall direction, organizations which attempt to assault all of their problems comprehensively and simultaneously (or try to accomplish all of their objectives at once) frequently find that the approach is unmanageable (40, 48). Thus, a strategic plan must set priorities for addressing problems and accomplishing objectives.

Controlling agendas and maintaining focus on given tasks are also crucial to successful strategic planning (48). Longer-term control is inherently more difficult in the public sector because of changing administrations and agendas, shifting political pressures, and changing perceptions of the public demands and priorities.

If strategic planning is to be successful, planners and managers must be trained in strategic analysis and participative skills (40). Strategic planning often begins as a separate function with a separate staff. If done well, it explains external factors to managers and evolves into strategic management "which treats strategicthinking as a pervasive aspect of

running [an organization] and regards strategic planning as an instrument around which all other control systems—budgeting, information, compensation, organization-an be integrated" (40). Sound strategic planning demands the intimate involvement of line managers and a strong commitment to the process by the top officers. Balanced interplay between officers and management is critical to successful plan implementation (40, 97). In a well-managed organization, "top management knows the direction; those below know the terrain" (40).

Finally, the progress of strategic planning must be carefully monitored, using performance indicators that clearly measure the effectiveness of the plan. "Planning and doing are separate parts of the same job; they are not separate jobs" (97). Failure to effectively monitor progress prevents collecting the feedback needed to evaluate the strategic decisions and adapting the plan to new information and changing conditions.

Problems in Strategic Planning

Strategic plans that break down or are withdrawn frequently suffer from faulty design, preparation, or implementation. Others fail because of a lack of commitment by top officers or managers of an organization or from a variety of other internal or external factors. Gray (40) examines a variety of experiences with strategic planning in the corporate sector, and identifies six factors which most commonly cause difficulty in plan implementation:[1]

1. vaguely formulated goals;
2. inadequate information bases for action planning;
3. poor preparation of line managers;
4. faulty definition of business units;
5. badly coordinated business unit plans; and
6. inadequate linkage with other control systems.

Gray also suggests some workable solutions to each of these problems. The first problem, vague goals, is probably the most common obstacle to effective strategic planning. Legion are the stories of planning that went awry because directions imposed from above were too vague and provided little or no real guidance to those responsible for implementation. For example, broad, imprecise goals such as "improve asset conditions' or 'optimize balance of resource uses" are subject to vastly different interpretations, and give no guidance to unit chiefs on how to deal with "cross impacts and tradeoffs" (40). Conceivably, such a broad goal could lead two managers to pursue diametrically opposed actions. Goals should be specified in more concrete and concise terms, the success of which could be measurable in quantity, quality, and time.

One way to move beyond broad, general goals and into actual strategy is through "action detailing" (40). "Action detailing" involves developing specific, detailed plans that set forth options and opportunities for accomplishing the various objectives and is frequently considered a part of operational, rather than strategic planning. However, after the strategic direction has been determined, organizations could use action detailing as a way to further test a strategy's feasibility, and to refine the strategic plan, if necessary. Once an organization has determined its basic "strategic thrusts, " it can then use task forces to weigh options for reaching particular objectives and to recommend actions necessary to accomplish an advocated option. Gray describes this process as follows:

> The team's job is to explain and defend what it considers the best way of bringing this option to life. Each team must deal with time frame, risk analysis, allocation of responsibility, resource requirements, organization obstacles, and monitoring devices. In mapping out and testing strategic options, managers begin to think explicitly about assumptions, alternatives, contingencies, and what competitive reactions to expect. Failure to come to grips with these details can undermine the execution of the strategy (40).

Some assert that the process of developing the strategic plan can be as valuable as the plan itself. Strategic planning forces managers to think and act in accordance to the organization's missions and goals-strategic planning is a thought process and if done well develops into strategic management (97).

Another common problem, poorly prepared line managers, results because top officers often do not realize that strategic planning is a management function. Line managers (or unit heads) who are not prepared to think and plan strategically frequently perceive plans as a burden imposed on them, rather than as "abetter way of doing things. " Top officers

[1] In his essay, Gray examines experiences with strategic planning in the corporate world. The preparation and implementation problems he discusses are not peculiar to the business world, and his prescriptions for overcoming these common problems are valuable to planners in the public sector.

must assure that a good climate for planning is established, and thus it is essential that line managers are involved in strategy development and are trained how to think and plan strategically for their particular management units (97).

Frequently, an organization begins the strategic planning process without questioning its existing structure to determine whether the units are appropriate "centers for strategy. " Organizational structure should not be taken for granted, and organizations must reevaluate existing boundaries prior to formal planning.[2] "The main purpose of organization (including both structure and process) is to support the development and execution of strategy. Thus organization should come after strategic planning" (40).

In an organization with multiple management units or strategy centers, it is essential that the individual unit strategies conform to and promote the organization's overall strategy. Also, since an organization is inevitably constrained somewhat by budgets and other limiting factors that may prevent it from fulfilling the demands of each unit plan, it is important to aggregate the individual plans to resolve conflicts between them and to establish priorities for action. This process of aggregation is known as the reconciliation stage, or the "face-off." This stage involves "queuing, down sizing, redirection, and recycling," so that the unit plans can fit into the overall plan.

A final common problem is the poor linkage of strategic plans with other control system, such as budgets, monitoring systems, and incentive and reward systems (40). These controls should be designed to guide behavior and performance; if not in harmony with the strategic plan, they can slow down or even prevent successful implementation. For instance, managers are typically rewarded with bonuses and/or promotions tied to specific outputs, programs, or accomplishments. If these targets do not conform to the strategic direction, the incentive to adhere to the strategy is greatly reduced (97). Likewise, budgets are frequently produced independent of the strategic plan, leading to inconsistent emphases and priorities. Spending which is inconsistent with the strategy can easily derail long-term planning.

LESSONS FROM BUSINESS AND STATE GOVERNMENT

Strategic planning has been practiced by corporations since the early 1950s and became popular with State governments in the 1970s. A look at experiences with strategic planning in business and in State governments can provide meaningful lessons to the Forest Service in its efforts to think and plan strategically.

Business Experience With Strategic Planning

Formal modern strategic planning in the business sector began in the 1950s when large companies, especially corporations involved in many businesses, began to develop "long-range planning systems' (97). Strategic planning gradually evolved and spread to smaller companies around the United States and the world, and became especially popular in the 1970s. While many companies have reported problems with or failure of strategic planning, the process continues to be a valuable planning system for many corporations today (40).

As described above, failures with strategic planning have resulted less from inherent weaknesses than from poor development and implementation of the plans. Some companies established separate strategic planning departments which, instead of providing necessary support and training to line managers, tended to usurp management's planning responsibilities. In several instances, failure has been blamed on management's unwillingness to follow through with tough decisions and risky resource commitments. Once planning became bureaucratized, management confidence in elaborate plans and analyses often declined (4, 59, 73). In other cases, companies have continued to confuse budgeting with strategic planning; although budgeting is an element of planning, a multi-year budget is no substitute for a comprehensive, long-range plan (59, 72). Despite shortcomings in preparation and frustration in implementation, however, most corporations that have tried strategic planning express a firm commitment to the concept and continue to practice it in some form today (40).

In the private sector, corporate planning is considered the "umbrella" for the more detailed planning

[2]Gray (40) explains that some existing business units "may owe their boundaries to many factors that make them inappropriate to use as a basis for strategic planning: geography, administrative convenience, . . . or old ideas about centralization and decentralization."

in which a corporation engages. Generally, the corporate plan is:

> . . . a statement concerning the long-term destiny of a company. The destiny of any company, whatever its size, will normally depend upon two or three or four absolutely huge decisions. Corporate planning consists of identifying what those decisions are for any given company and getting them right (59).

As a top management planning tool, strategic planning is often the most critical component of the corporate plan. It is at this stage that the company engages in a' 'situation audit' to answer some basic, but essential questions, such as: "What business are we in? What business should we be in? What is our distinctive competence? In what areas are we the weakest?" (59, 97).

A basic tool in business strategic thinking is the WOTS UP analysis-a short, focused review of a firm's *weaknesses, opportunities, threats, and strengths underlying planning* (97). This analytical approach is strategic because it focuses on the dominant internal and external forces affecting an organization's prospects for survival and growth. Many companies consider this analysis to be so essential that they begin the planning process with it (97). Corporations with multiple units typically undertake a WOTS UP analysis for each unit.

A strategic plan should be written with sufficient clarity to guide operations. Once the plan has been completed and implementation has begun, corporations typically engage in an annual review, or recycling process to evaluate whether the plan is being implemented as conceived, whether the plan is still viable, and whether changes need to be made. According to Steiner (97), shortly after formal strategic planning was developed in the 1950s, many companies failed to review or revise their plans until long after the plans were obsolete. Since then, however, the awareness of the importance of monitoring performance and implementation has been growing, and most companies today systematically review their plans.

Why should the Forest Service design a planning system based on the corporate model, when its purposes and objectives are fundamentally different from those of private companies? Lessons from strategic planning in the corporate sector are not valuable as specific prescriptions for action for a public agency. Rather, they provide valuable lessons in strategic thinking that are generic in nature and can be applied to organizations not motivated primarily by financial profit. Lessons from strategic planning in business can be adapted by the Forest Service (as well as other public agencies), if the similarities and dissimilarities between the private and public sectors are recognized and the significance of those differences is carefully evaluated (72, 97). (See box 5-D.)

Strategic Planning by State Governments[3]

Since the late 1970s, there has been a strong interest in strategic thinking and planning in State governments. This interest has been fostered in part by large-scale economic dislocations in the Frost Belt States, as well as by the oil boom-and-bust in the Western States. In many instances cities and States began discovering the need for longer-term and more comprehensive planning only after all of the most serious adverse economic consequences had already occurred; "the incremental approach to annual planning and budgeting [had] failed to surface the critical issues, despite the recognizable portents of decline' (72). These changes stimulated public concerns, raised many public policy issues, and uncovered an intellectual and political void that elected officials and senior staff rushed to fill. In a few instances, governors from successful business backgrounds were attracted to the idea of strategies in public policy.

An interest in strategic thinking was also fostered by a growing unease at the high cost and uncertain results of past *ad hoc,* smorgasbord schemes designed to attract new jobs. A body of literature arose, narrowly focused on economic development planning, with statistical compendia and feasibility studies, but without the overall vision of what should be done. Many were just lists of programs.

Many States found that their offices charged with policy development had the capacity to plan strategically. The increased use of "blue ribbon commissions' to elevate issues and focus public and political attention led many governors to establish task forces to study economic conditions and to recommend development strategies. In contrast with the laundry list of inducements many States inherited from the 1950s and 1960s, new initiatives were

[3]This section is taken from Irland (4S).

Box 5-D—Key Similarities and Dissimilarities Between the Public and Private Sectors

Key **similarities**

. Managers in both sectors recognize that strategic planning is an integral part of good management. Business and agency managers/planners are concerned about future impacts on their organizations, and must spend time looking ahead to identify critical issues.
. Business and agency managers feel an increasing need to engage in long-term thinking and planning.

Key dissimilarities

• Politics and public concerns dominate the government sector, whereas economic factors are central to business decisions.
. Individuals and interest groups exert significant power in the decisionmaking process of government agencies (pluralism), leading to a more open and fragmented decisionmaking process than in the private sector.
• Missions, goals, and objectives have typically been expressed in broad terms for government agencies, whereas strategic planning is facilitated when they are more specifically defined, as is more common in the private sector.
. In business, decisionmaking criteria are usually specific economic measures, whereas in government the three most common decisionmaking criteria are: a) the public interest (a vague and shifting concept, conceptually useful, but operationally difficult); b) political expediency (i.e., will it have sufficient public support?); and c) benefit-cost analysis (fiscal efficiency).
. In the public sector, the chain of command is frequently not as clear as in the private sector, and total control of implementation mechanisms (e.g., budgets) is frequently lacking.

SOURCE: G.A. Steiner, ***Strategic Planning*** (New York, NY: The Free Press, 1979).

increasingly oriented to measures designed to improve the-operation of capital markets and to support the development and application of new technologies.

Several States identified target industries to receive special support. This concept emerged from frustration with the weak results from spreading limited financial assistance across the State's economy. Geographic targeting was already well established in many traditional assistance programs, such as Federal programs aimed at rural, low-income, and/or high unemployment areas.

Finally, as economic development thinking and policy analysis improved during the late 1970s and 1980s, it became clear that generic weaknesses in State or regional economies, such as inadequate infrastructure or lack of skilled labor, were important long-term obstacles to development. Several low-income States made dramatic efforts to upgrade the quality of their education systems. Others made major commitments to eliminating backlogs in infrastructure construction and maintenance. The many efforts at strategy development kept coming back to these basics as the important areas in which the State government could promote and support economic growth. From a political standpoint, this new emphasis on the significance of "getting the basics right" had a major advantage: the moves required were generic in nature and did not require the choosing of winning firms, industries, or regions.

These efforts in strategic planning have been only qualified successes, however. Commissions and strategies do not end the political partisanship that major initiatives frequently encounter. Several sound initiatives, strongly supported by governors, have failed legislatively or in referenda on key financial proposals. State development strategies have encountered implementation difficulties, as well. Unwieldy coordinating committees smother proposals as unresolved conflicts reemerge. Multiagency "packaging" efforts struggle with practical and political difficulties. In some instances, economic development has proven to be nearly as resistant to strategic planning as it was previously to untargeted programs of loans and grants. Also, States still frequently fail to distinguish long-range planning from budgeting. "Budgeting has been the principle vehicle for management innovation in State government, and at the same time perhaps the greatest barrier to innovation" (72). All too often annual, incremental budgeting overrules plans, making planning either less productive or completely ineffective (72).

Despite setbacks in implementation of strategic plans at the State level, the process of developing strategy as a means to make policy has been

beneficial to many States. The strategic planning movement, taken across all States, has elevated awareness of the complexity of economic development and the dependence of local areas on national and international developments. Strategic planning has enhanced awareness of the critical importance of sound foundations: infrastructure, trained workers, flexible markets, and entrepreneurship in economic development. Strategic planning has reinforced skepticism as to the efficacy of previous smorgasbord approaches to attracting businesses by loading their plates with inducements and subsidies. Finally, the strategic planning experience has led most observers to acknowledge the limitations of industrial targeting strategies.

The hoped-for benefits of strategic planning are sometimes difficult to measure in terms of the stated objectives of job creation, diversification, and stabilization. But thinking strategically has led State officials to reach and publicize important and basic insights about their State economies. Many instances exist in which broad strategic analyses created the information base and climate of opinion that enabled States to make useful policy moves that had previously been considered politically impossible. In sum, the benefits of strategic planning have been in the unanticipated lessons learned, in the involvement of wider groups in thinking about economic policy, and in forging alliances capable of making policy changes.

Lessons learned from States' experience with strategic planning should provide encouragement to the Forest Service to continue its long-term planning efforts through RPA, and to work towards forging programs which are more strategic in nature. Examples from the States show that the process of strategic planning can sometimes be valuable in and of itself, because it allows a State (or an agency) to see itself in the context of the national and international arenas. Because the Forest Service is a public agency, it is necessarily constrained by some of the same political and institutional limitations faced by State planners; politics and budgets can effectively override plans long before implementation. But where strategic planning at the State level has generally been driven by the governor's office, only to falter from the lack of legislative embrace, Congress has provided the Forest Service with legislative sanction for long-range strategic planning through RPA. This statutory "license' to engage in a long-term planning process is an invaluable justification for thinking and planning strategically.

There is a growing awareness in the public sector that long-term planning is an integral part of good management (97). Despite this awareness, annual incremental budgeting, not long-range planning, is still the "preeminent management tool and executive decisionmaking process in the public sector" (72). Since executive agencies must necessarily respond to changing administrations and agendas, agency managers rarely have the realistic capacity to plan independently for the long term; seldom does a new administration want to be tied to the policies and priorities of its predecessor. Nonetheless, sound strategic thinking can provide a firm foundation for setting direction that can be adapted to differing political views. Perhaps most importantly, if the Federal Government is to engage in strategic planning at all, there must be some real commitment from the "top" (i.e., the Administration and Congress) to do so.

RPA AND STRATEGIC PLANNING

RPA as a Strategic Planning Statute

RPA maybe the most ambitious Federal planning statute ever enacted by Congress. The Act directs the Forest Service to collect, analyze, and evaluate vast amounts of information on: resource quantity, quality, and outputs; the interrelationships of renewable resources; present and future supplies and demands; and a host of other social, economic, and political factors affecting land and resource use, ownership, and management. RPA then requires that the Forest Service use this comprehensive Assessment as a basis for developing the recommended RPA Program, charting short- and long-term goals and directions for Forest Service activities. The President is required to transmit these documents to Congress together with a Statement of Policy, that is to be used to guide the formulation of annual budget requests. The Act also requires the Secretary to prepare an Annual Report informing Congress of its progress in implementing the RPA Program and accomplishing policy objectives.

Since RPA was enacted in 1974, much discussion has focused on the nature of the RPA process and its potential to shape responsible, far-sighted resource policy. Many saw RPA's chief virtue as providing Congress with a greater oversight role in resource policy as well as establishing an orderly means by

which the Forest Service could present to the Administration and Congress a clearer picture of its annual budget needs and priorities. Others stressed the Act's potential as the agency's long-range goal-oriented planning tool: the RPA process, by providing insight into future demands and supplies of resources and by examining a range of alternatives for action, could provide for more efficient and balanced uses of the Nation's resources. Still others interpreted RPA's main strength as directing the Forest Service to engage in policy analysis by examining particular contemporary problems, developing alternative ways of addressing and correcting those problems, and presenting their findings to the Administration and Congress.

Despite establishing extensive standards and guidelines on procedure, Congress did not clearly specify whether it expected the RPA process to serve primarily as a budget guide, as policy analysis, or as a strategic planning system. These different objectives for RPA compete for limited time and money, and failure to distinguish them may lead to a product or process that does not serve any function very well.

Budget Guide?

A primary impetus behind the development and passage of RPA was a widespread belief in Congress that planning for and management of the Nation's forests and rangelands was too fragmented and short-sighted, and that long-term objectives and goals either did not exist or were obscured by shorter-term objectives and recurring budget limitations. Sponsors of the legislation believed that the Administration's budget requests were consistently inadequate and unresponsive to growing demands on the resources and that work backlogs were increasing. To correct this, they sought to reform the budget process by requiring a more open planning process and by reasserting more congressional control over Forest Service budget and policy (145). Upon delivering the conference report to the Senate, Senator Humphrey explained, "As the initiator of this renewable resource reform legislation, one of my goals was to assist in strengthening the linkage of goal setting and budget performance' (145). Congress expected that the RPA Program would strengthen this linkage through a clear presentation of a set of short-and long-term goals, objectives, and priorities for Forest Service activities. The President would then use the Program to write the Statement of Policy, which in turn would be used to guide the budget.

Congress envisioned a flexible process whereby new data would be collected on a continuous basis, with policy and budgets adjusted as necessary to accommodate and reflect new information, changing conditions, and changing priorities. Congress did not direct the Program to be a 5 year budget nor did it intend to force Presidential commitment to a 5 year budget; the Program was designed to guide annual budget decisions, not dictate them. It is equally important to note that improving the linkage between budgets and goals was only one of several motivations Congress had in passing RPA.

Policy Analysis?

Some argue that it is simply too difficult for a government agency to engage successfully in strategic planning, and recommend that planning efforts under RPA emphasize policy analysis instead. Planning and analysis are two related but distinct disciplines, and some suggest that efforts by an organization to plan comprehensively for the long-term can impede its ability to engage in "more useful and practical" policy analysis. "A common model for [policy analysis] is to define a problem, select criteria for evaluating it, lay out alternatives, predict and value outcomes, and recommend a course of action" (53). The two approaches are distinguished by their viewpoints: policy analysis tends to strive "for understanding of the present through consideration of policies other than those in place"; whereas planning, as a forward looking "scheme of action,' places more emphasis on decisionmaking than on understanding (53). Policy analysis focuses on finding solutions to particular policy issues or problems, typically deals with the short-term, and usually addresses simpler problems (3). Policy analysis generally places less importance on design and emphasizes instead analysis and comparison of alternatives (3). Strategic planning, on the other hand, involves establishing broader goals and charting the means to accomplish those goals (12). Planning generally deals with the long-term, typically involves complex multi-sectoral problems with a large measure of uncertainty, and has traditionally emphasized design of solutions and innovation (3).

Leman (53) asserts that RPA, as an exercise in long-range planning, has been too rigid, and recommends that the agency discard formal planning in

favor of "more flexible and rational" policy analysis. He argues that the agency has sacrificed thorough and penetrating analysis by its attempts to plan comprehensively. "Another barrier to analysis in the RPA as so far conducted has been the insistence that each alternative include policy questions that are present in several regions. The problem is that because of the diversity of the National Forests, the key issue in a region may not be present in many, or any other regions" (53). He also blames RPA's ineffectiveness on the Program's tendency to "sidestep' some of the most controversial issues facing the agency, and suggests that more focused analytical efforts on specific activities could deal more effectively with touchy issues (53).

Other critics have also questioned RPA's value as a strategic planning tool, asserting that a host of political and institutional limitations, such as limited budgetary control, constrain the agency's ability to plan strategically. They typically suggest that problem-solving through policy analysis would be both more feasible and more practical. RPA could serve as a "distant early warning system" helping the agency to spot future problems and issues which might warrant special attention by itself, Congress, or the private sector (12). Once the agency identified likely problems, it could establish priorities for dealing with those problems according to their proximity and likely consequences.

Most of the above criticism of RPA (e.g., failure to address significant issues, lack of regional differentiation) focuses on shortcomings of previous agency planning efforts rather than on the strategic planning model itself. Strategic planning done well provides a set of guiding principles and priorities as well as a framework on which to confront issues and base future operations. Such direction setting is generally missing from policy analysis models. "The focus on specific issues or programs, . . . and the absence of a rigorous process hardly qualify policy analysis to meet the pressing need for governments to set priorities and to make painful choices among broad courses of action" (72). The RPA as policy analysis alone may well prevent the Forest Service from responding to Congress' express desire for better, more integrated long-range management of the Nation's forest and rangeland resources.

Box 5-E—Strategic Elements in RPA

Assessment

- Strategic planning of the desired future direction requires definition of the organization's present situation ***(Present Situation Analysis)***
- Strategic planning frequently includes a WOTS UP analysis ***(Weaknesses, Opportunities, Threats, and Strengths Underlying Planning).***
- Action planning depends on adequate information bases.

Program

- Strategic planning deals with a long time period, where goals and objectives are variables, and can be revised or modified.
- The strategic plan provides a forum for defining missions, goals, and objectives and provides broad direction (i.e., recommended course of action) on the best means to achieve those ends.
- Unit plans (individual agency programs) should be integrated with the strategic whole.

Statement of Policy

- Top-level commitment to the plan is essential.
- Budget process should be directly linked to the plan. Missions and goals are variables and can be revised or modified.

Annual Report

- Monitoring is needed to evaluate performance and feasibility; feedback should be organized and systematic.

SOURCE: Office of Technology Assessment 1990.

Strategic Planning Process?

It is apparent that Congress intended that RPA result in more than a budget guide or a tool for policy analysis. The language of the Act clearly reflects Congress' intent for a long-range renewable resources planning system. Although the framers did not use the term strategic planning per se, the requirements of the Act closely parallel basic principles contained in strategic planning models. The four documents required-the renewable resources Assessment, the renewable resources Program, the Presidential Statement of Policy, and the Annual Report-when taken together, provide the frameworkfor a strategic planning system (box 5-E). Furthermore, the Forest Service has interpreted the Act to require strategic planning, and has expressly dubbed the 1990 RPA Program as its "strategic plan. '

The Assessment provides the information base and the present situation analysis which are critical starting points to effective strategic planning. The strategic value of the Assessment lies especially in its intended comprehensiveness, treatment of the interrelationships of agency units or programs, and analysis of issues and other external forces which influence agency decisionmaking and direction setting. It parallels the WOTS UP analysis used in strategic planning by the private sector, forcing the agency to take a close and systematic look at where it is now, ' and 'where it can go. " The Assessment provides the agency with sufficient information to see itself in both the national and international context. If done well, the process of preparing and updating the Assessment can provide valuable insights into internal strengths and weaknesses, and can serve as a catalyst for innovation and change.

The RPA Program is the strategic plan itself. It is intended to be a short- and long-term course of action—to cover the 5-year period immediately following its release as well as the subsequent 4 decades. It is to include the definition of goals and objectives and a discussion of priorities, and to provide the general framework needed to guide operations and the direction on how to address important issues. Ideally, it should be crafted with simplicity and clarity so that performance can be measured against it.

As RPA is written, the Program could serve one of two strategic functions. First, by including a series of alternative courses of actions or initiatives, the Program could function as a choice document for decisionmakers in the Administration and Congress. Rather than setting forth a recommended plan, it could present several feasible alternative courses of action, each with a different emphasis or balance. If the Administration embraced one of these alternatives in its Statement of Policy, then the Program could serve as the strategic plan for the chosen direction. Alternatively, and probably more reflective of Congress' intent, the Program could function as a decision document. In this case, the Forest Service would develop and present to Congress one recommended Program which reflected its professional view of the proper strategic direction for the agency. This professional view would be tempered by public desires for natural resources, and by broader public concerns, such as controlling Federal spending. Successful implementation of the chosen plan would then largely depend on commitment to the plan from both branches of government through the appropriations process.

Regardless of which strategic function is chosen, effective strategic planning requires that the top-level officers of an organization participate in the planning process and be firmly committed to implementing the plan. RPA's inclusion of a Presidential Statement of Policy represents Congress' effort to obtain top-level Administration commitment to the plan and contemplates a commensurate level of involvement and commitment from itself as well.

Also, strategic planning will not be effective unless plans are directly linked to key control systems. Control systems, such as budgets, should be adjusted as necessary so that they are consistent with and promote the goals and objectives set forth in the strategic plan. All too often, the priorities which emerge from the budget process are significantly different from those established in the planning process. Congress intended that RPA would lead to greater consistency between planning and appropriations. In order to secure a greater commitment from the Administration to improving this linkage between plans and budgets, RPA requires the President to publicly explain how and why the budget requests deviate from the direction set in the program and Statement of Policy. As previously discussed, RPA does not mandate the formulation of a 5-year budget; not only would such a commitment be difficult to secure politically, it is not appropriate for strategic planning. Rather than making future policy today, strategic planning evaluates the future impact of present decisions and provides guidance for future policy and spending decisions. RPA is consistent with this strategic principle, because it contemplates that each Program inform and guide the annual budget process rather than mandate specific spending levels.

Finally, in a strategic planning system, monitoring is essential. There must be a direct connection between plans and actions. As intended in the statute, the Annual Report was to ensure that this link is made and maintained. The Annual Report could provide the agency, the Administration, and Congress with sufficient information to answer several questions: is the Program still feasible? is the Program being implemented as conceived? are annual budgets (and other control systems) consistent with the program's objectives? what adjust-

ments in the Program and/or in its implementation are needed?

RPA as a Strategic Planning System: Potential and Limitations

RPA provides legislative sanction for strategic planning within the Forest Service and establishes a statutory framework sufficient to drive such a system. Done well, the RPA Program can provide a clear strategic direction and vision for the future, not solely in terms of outputs but also in terms of resource conditions. The Program should set forth priorities and provide the Administration and Congress with information needed to reflect these priorities in annual appropriations, regardless of the agency's budget level. The Program could also effectively serve as a conceptual guide for day-to-day decisionmaking within the agency. The Annual Report could then be used to gauge progress in implementation and to alert the Administration and Congress to new priorities, changing conditions, and emerging issues.

However, while the strategic planning model may be sound in theory, its principles are often difficult to apply in practice. Faulty preparation, inadequate implementation, and lack of commitment to the process are frequently cited as the leading causes of problems or failure with strategic planning. However, such problems can usually be reduced or avoided, if precautions are taken.

While it is essential for the Forest Service to anticipate and address those potential problems common to corporate planning, it is of special importance that the agency closely examine and evaluate institutional constraints peculiar to planning in the public sector. Some have argued that the RPA process has failed to produce effective strategic plans, because a host of organizational and political pressures impede effective and innovative long-term planning within the Forest Service (12, 23, 53). Some suggest that unless some basic changes are made either legislatively or administratively, RPA simply cannot function effectively as a strategic planning system.

Decision Criteria

Government planners must examine and understand the basic differences between private and public sector entities before engaging in strategic planning (72, 97). (See box 5-D.) First, business goals and objectives are primarily motivated by financial considerations, and planning success is largely measured and reported in financial terms. On the other hand, political demands dominate public sector programs and activities. While economic efficiency is an important concern, a host of other dynamic social and political factors influence the policymaking process. Therefore, success of public strategic planning can rarely be measured solely in monetary returns.

RPA requires the Forest Service to consider benefits and costs in the planning process, but not to be controlled by them. For example, execution of the laws is strongly influenced by the agenda of the particular Administration and by various interest groups and individuals, whose interests are not necessarily satisfied by simply achieving high economic returns. Since the Forest Service is formally required to include public participation in the process, success of agency decisions and plans is at least related to the degree of public support. Thus, the criteria for decisionmaking within the Forest Service are generally more vague and more subjective than those used in the private sector, making strategic planning more difficult and time-consuming. Nonetheless, the dual measures of improved efficiency and public acceptance do provide reasonable criteria for successful strategic planning in the public sector.

Missions, Goals, and Objectives

Missions, goals, and objectives for government agencies tend to be expressed in broad terms, again making strategic planning more difficult (box 5-F). This is understandable since the ultimate mission of any public agency is to serve the public interest, which rarely lends itself to a narrow or precise definition. However, unless there is an effort by policymakers, inside and outside of the agency, to define more concretely how the public interest might best be served in a given context, agency managers will have little guidance on how to implement the plans. This is especially important in the Forest Service where important goals and objectives may conflict with one another. The mandate of multiple-use and sustained-yield provides only the most general direction, without any guidelines on how to resolve conflicts, to determine trade-offs, or to set output levels. There must be some effort in the planning stage to articulate goals and objectives and to set clear priorities. The regional foresters, forest

Box 5-F—Missions, Goals, Objectives

Strategic planning requires an organization to define its ***mission, goals, and objectives.*** Although closely related, and often used interchangeably, these are distinct concepts. The definitions below illustrate these distinctions as commonly used in strategic planning. Some organizations use different words; what is important is that, once terms are applied to a particular definition, they are used consistently throughout an organization (97).

Mission: ***The chief function or purpose of an organization. The*** mission typically is expressed in a short, general statement and often is not directly measurable. A mission guides the development of goals and objectives.

Goal: ***A condition or state to be brought about through a course of action. Goals are*** typically expressed broadly, but are typically measurable in quantity and/or quality for a specified time period or in terms of a deadline. Goals should conform to an organization's mission and should guide the development of objectives.

Objective: ***Something toward which effort is directed.*** Objectives are usually defined in specific task and time terms, and must be directly measurable. Objectives should be set according to the goals of an organization.

Below are examples of missions, goals, and objectives in the context of Forest Service strategic planning, based on the initiatives contained in the Draft 1990 RPA Program:

Forest Service **Mission: "Caring** for the land and serving people. ' (This mission statement is defined in more depth through three enabling statutes which prescribe Forest Service authorities and responsibilities: the Multiple-Use Sustained-Yield Act of 1960; the Forest and Rangeland Renewable Resources Research Act of 1978; and the Cooperative Forestry Assistance Act of 1978.)

Goal I: Increase the level of outdoor recreation opportunities on National Forest System lands by X percent within the next 4 decades, and maintain that higher level.

Objective IA: Eliminate all deferred maintenance on recreation facilities and trails by 2000.

Objective IB: Fully implement the challenge cost-sharing program designed to create partnerships with recreation customers by 2000.

Goal II: Increase population levels of critical wildlife and fish species by at least X percent within the next 4 decades, and maintain healthy populations of each of those species.

Objective 11A: Accomplish all salmon and steelhead habitat restoration plans by 2000.

Objective IIB: Complete recovery plans for all current threatened and endangered species by 2000.

supervisors, and district rangers cannot be expected to effectively resolve local and regional conflicts without such guidance.

The current Forest Service mission--caring for the land and serving people--by itself is too broad to be usefu; in decisionmaking. In past RPA programs, the Forest Service has failed to translate this mission into clear and measurable goals and objectives. In the Draft 1990 RPA Program, the Forest Service has attempted to provide clearer direction through the discussion of issues, roles, and initiatives. However, as discussed in more detail in chapter 7, this treatment of issues falls short of providing strategic guidance to those responsible for implementation. If RPA is to serve as a strategic planning system, in which activities are more closely integrated and implementation is closely linked to the plan, agency policymakers must devote more attention to addressing timely issues by defining goals and objectives with sufficient clarity to guide managers at all levels.

While clear goals and objectives are needed to provide a conceptual guide for decisionmakers throughout the agency, a strategic plan should be sensitive to regional differences. Some critics assert that past RPA planning has been overly centralized and that the process has consequently not elicited meaningful participation and support from local managers or local publics (85). Strategic planning contemplates that organizations should be centralized so that strategies and controls can be integrated, yet decentralized so that components can act individually and be treated with appropriate differentiation. Input from field managers and staff, and information from the individual national forest plans should provide the agency planners with sufficient information to assure that an appropriate degree of decentralization is maintained.

Control of the Process

A third major difference between public and private sector strategic planning is the amount of control an organization has over its planning process. As a mechanism for developing goals, options, and a broad course of action, strategic planning presumes that a single decisionmaker (or a small group) will act on the recommendations and control the resources needed to implement the plans (48, 97). Corporate strategic planning is generally the product of top officers and managers, and usually takes place behind closed doors. Part of the strength of strategic planning in the private sector is the proprietary nature of the process.

This control over the planning process is lacking in Federal management of renewable resources. While the Forest Service, as the primary actor in the RPA process, prepares the Assessment, Program, and Annual Report, the Secretary of Agriculture is ultimately responsible, and thus has the authority to revise or modify the documents. OMB also plays a role in developing the recommended RPA Program and the President is officially responsible for the Statement of Policy.

The Forest Service does not completely control its budget. Administration and congressional control of the Forest Service budget limits the agency's ability to control the resources needed to implement the plan's recommendations. Thus, the plans require a strong commitment from the Administration and Congress, if they are to be successfully implemented. Also, because the agency lacks total control over its budget, the plans necessarily take more time to develop, and are more vulnerable to outside influences than is generally true in the private sector.

By law the RPA process is also open to public participation and review, making the planning process necessarily even more fragmented and time-consuming. This does not suggest that because planning is more fragmented and time-consuming, it is not feasible or desirable. If the agency uses public participation effectively, it could produce a plan which responds to the "public interest," and which has a high degree of public commitment and support.

Finally, the Forest Service shares management responsibilities over some renewable resources with other Federal and State agencies. For example, States, along with the U.S. Fish and Wildlife Service, have primary authority over fish and wildlife in national forests, the Environmental Protection Agency exercises jurisdiction over air and water quality, and the Department of the Interior has jurisdiction over hard rock minerals and oil and gas on all Federal lands. Because the Forest Service shares resource management authority with other Federal agencies, it has limited jurisdiction to fully implement and control resource plans.

Organizational Maintenance

Part of effective strategic planning is a reevaluation of the organizational structure and a willingness to change the structure to conform to the strategy if necessary. As discussed earlier, organizational structure should be consistent with the strategy, and support its development and execution. Therefore, decisions on organization should follow decisions on the strategic direction (40). However, Federal agencies tend to be especially resistant to changes in organizational structure, and some use planning as a means to justify the status quo rather than as a mechanism for exploring alternative approaches or for setting strategic direction:

> Because all units seek to protect their present roles in the organization and to build expanding roles in influencing the future, planning becomes a vehicle to "sell' staff programs and to obtain additional visibility and influence within the organization. Significant reductions in any traditional area of emphasis can be achieved only at a substantial internal cost to the agency (23).

RPA directs that the Assessment include a description of the three branches of the Forest Service-research, cooperative assistance, and land management; of their interrelationships; and of the relationship of each of them to public and private activities. The Act also requires that the Program include a "discussion of priorities for accomplishment of inventoried Program opportunities. ' Implicit in these requirements is that with each RPA effort, the agency will reexamine and reevaluate its organizational structure and make any changes necessary to execute the recommended Program. If RPA is to function as an effective strategic plan, the agency must be willing to reevaluate the existing balance of funding and emphasis among its three branches.

CONCLUSIONS

Strategic planning is a systematic process that enables an organization to develop along-term plan to guide present and future management decisions. It begins by assessing the present situation and evaluating internal strengths and weaknesses as well as external threats and opportunities. Strategic planning designs a future by defining missions, goals, and objectives and by developing the general approach to action. Goals and objectives are set according to the overriding mission and should be considered as variables rather than constants. Done well, strategic planning helps managers predict the likely consequences of present decisions and establishes clear guidelines on which to premise future decisions. Also, strategic plarnning is a fluid process; it provides a mechanism for continuously monitoring implementation and for revising plans as conditions change or as new information is collected.

Organizations adopt strategic planning systems for a variety of reasons—to change the direction or emphasis; to adapt more quickly to a changing environment; to develop a better frame of reference for budget decisions; to assist top managers in making better decisions. It is a particularly useful tool for large organizations with multiple units, because it helps to coordinate the activities of the various units, ensuring that each promotes the general direction of the organization as a whole.

Although the term "strategic planning' does not appear in the wording of the Act, RPA clearly directs the Forest Service to engage in a long-term planning process modeled after the principles of strategic planning. Most problems experienced with strategic planning in business and in State governments have resulted from poor preparation and/or implementation rather from deficiencies in the planning model itself. The inherent limitations of an open process and the lack of control over significant inputs complicates the Forest Service's task. However, concerns about the long-term conditions of renewable resources have grown since RPA was enacted, especially in the global context. Furthermore, efforts to restrain the burgeoning Federal debt could increase the potentially "penny-wise, pound-foolish" budget-driven decisions that concerned Senator Humphrey and his colleagues. Thus, the need for strategic planning for the Nation's renewable resources may even be greater now than it was in 1974.

Past RPA efforts have fallen short of effective strategic planning, causing many to question whether RPA can function as a strategic planning system. However, many of the flaws appear to have resulted not from poor direction in the Act, but rather from the agency's interpretation and implementation of the Act and from insufficient commitment to the process by the Administration and Congress. To plan strategically, the Forest Service must carefully and critically address those political, organizational, and contextual limitations which impede successful planning. Because the agency lacks total control over the process, however, strategic planning can only be successful if the Administration, Congress, and the public become more actively involved in and committed to the RPA planning process.

Chapter 6
The RPA Assessment

RPA requires the Secretary of Agriculture, through the Forest Service, to prepare a Renewable Resource Assessment. RPA specifies the Assessment shall include the following (see appendix for the full text of the Act):

1. an analysis of present and anticipated uses, demand for and supply of the renewable resources, and pertinent supply and demand and price trends, considering the international resource situation;
2. an inventory of present and potential renewable resources, and an evaluation of opportunities for improving their yield of tangible and intangible goods and services, with estimates of investment costs and direct and indirect returns to the Federal Government;
3. a description of Forest Service programs and responsibilities in research, cooperative programs and management of the National Forest System, and their relationship to public and private activities; and
4. a discussion of important policy considerations, laws, regulations, and other factors expected to affect significantly the use, ownership, and management of forests and rangelands.

The Act further directs the Secretary of Agriculture "to make and keep current a comprehensive survey and analysis of the present and prospective conditions of and requirements for the renewable resources of the forest and range lands of the United States . . ." [sec. 3(6)].

This directive calls for information that fits well into the strategic planning process described in chapter 5. The analysis of use, inventory of resources, and survey of conditions describe the current situation, a prerequisite of effective strategic planning. Furthermore, the analysis of trends, evaluation of opportunities, and description of programs is comparable to the WOTS UP analysis (weaknesses, opportunities, threats, and strengths underlying planning) used in strategic planning by businesses. Having such data and analysis does not guarantee effective planning, but lacking it will probably prevent effective planning.

The first RPA Assessment was due on December 31, 1975, with an update due in 1979 and subsequent Assessments due every 10 years after that. In addition, the Forest Service updated the 1979 Assessment in 1984 to contribute to the 1985 RPA Program. Most reviewers commend the Assessment efforts, but note limitations and weaknesses in the process or the documents. For example, the Assessment has been described as "a reasonable benchmark of the status of the Nation's renewable natural resources but which] . . . has failed to provide a complete picture. . . " (58). Some environmental groups disagree with the predictions of shortages for all resources. Further, the Assessment "has become so predictable in its conclusions that anyone who read the last one already knows what the next one will say" (84). Shands (89) describes the 1984 Supplement as "shorter and more focused' than the previous full Assessments, calling it "an excellent document" and praising its treatment of imminent resource shortages.

This chapter examines how well the Assessments meet the legal requirements and strategic planning intent of RPA. The first section describes and evaluates the resource data used in the 1989 Assessment, focusing on the adequacy of the resource inventories in describing the current resource situation. The next section discusses the economic data and analyses that project future threats and opportunities. This is followed by a description of the international resource context. The chapter concludes with an analysis of cooperative assistance and research needs identified in the Assessment, and the agency's strengths and weaknesses for responding to projected threats and opportunities.

RESOURCE DATA

RPA requires information on resource conditions and trends because Congress was concerned that some resources were not being adequately managed and protected. The Multiple-Use Sustained-Yield Act of 1960 directs management of renewable resources at a high level of sustainable output

"without impairment of the productivity of the land." Congress enacted RPA because of concerns that short-range budget decisions were short-changing long-range resource needs. The Assessment was intended, in part, to describe resource conditions and trends periodically so that Congress could know if long-range resource needs were being met and if resource outputs were sustainable.

Determinations of resource supply and sustainable output have generated a considerable amount of controversy (124). In 1979, the Committee of Scientists (21) warned that "In many cases, inventory data are too fragmentary or insufficiently detailed to allow firm judgments in developing management programs of the complexity demanded by RPA/NFMA. In other cases, data on certain organisms, resources, or management effects have simply never been gathered. " Several critics have questioned the validity of the databases used in the Assessment (23, 24, 25, 82). Criticism of data has not only come from outside reviewers but Forest Service personnel as well. A Forest Service review team evaluating the 1979 Assessment found "almost unanimous agreement by respondents that input data was not accurate, data was arbitrarily changed, valid updates to data were not known, and control over data was lost during processing [sic]" (53). In 1980, the Senate Agriculture Subcommittee on Environment, Soil Conservation, and Forestry called for an across-the-board improvement of all databases used to develop the Assessment (64).

The 1989 RPA Assessment (111) is a short, general document supported by several more detailed reports on each of the major resources. In analyzing the more detailed reports on renewable resources it is important to ask how much information is available on resource quality and quantity; what is the quality of the information; and what are the measured outputs of the resource. Resources evaluated include range forage, timber, water, wildlife and fish, and wilderness. Recreation, unlike the other assessment categories, is an activity rather than a renewable resource and requires different kinds of inventory data and management concepts than does planning for renewable resources (21). Thus, while the Forest Service pairs recreation with wilderness in the Assessment, they are treated separately in this report. Similarly, although the Forest Service discusses wildlife and fish in the same report, these two resources are sufficiently different to warrant separate documents. OTA, however, has not separated its discussion of these resources into separate headings because of the limited amount of information on fish resources in the Assessment.

The most useful inventory of a resource would be based on: 1) a data set that provides information on resource quantity, quality, and outputs; and 2) replicable, direct measurements rather than indirect measurements or professional judgment alone. When a direct measure of a resource is not available, a variable measure or an indirect measure must be used to evaluate the quantity and quality of a resource. (See box 6-A for descriptions of types of measures.) For example, direct measurement of wildlife populations is difficult because of their mobility. Variable measures, compiled from a variety of sources, may also pose a problem for some resources because of inconsistent data collection among Federal and State agencies. The next alternative for measuring resource quantity and quality is an indirect measure. For example, the amount of suitable habitat can sometimes be used to derive a wildlife population estimate.

For some resources, the output (e.g., wildlife harvest) is the principal measure of the resource. This measure is important for users and managers, but is usually a poor measure of resource quantity and quality. The assumption behind this measure-that increased output (harvest) reflects greater quantity or higher quality-may not be valid, because outputs can be increased, at least temporarily, by exceeding sustainable use levels. Without more direct measures, trends in the resource base cannot be determined and the sustainability of the output level is questionable.

When logical indirect measures are not available, planners may resort to narrative descriptions of predicted change and professional judgment to estimate resource conditions. For example, planners may report that some area has been placed under improved resource management, implicitly assuming that the resource is improving because of the increased management attention. Furthermore, professional judgments often are not reliable for consistent, replicable data. Narrative descriptions and professional judgments can be useful if they contain specific information or analysis. As with output measures, however, usually little can be determined about the current quantity or quality of a resource, trends in the resource base, or the sustainability of current output levels.

Box 6-A—Resource Data Measures

The purpose of data collection is to provide accurate, replicable information on resource quantity, quality, and outputs. The following categories are useful for evaluating the resource data collected, listed in descending order of desirability:

Direct Measure—Data for assessing a resource based on direct measurements. An example is the number, size, and species of trees in a forest. Data include information from censuses and systematic samples of flora and fauna to assess population trends as accurately and precisely as possible.

Variable Measure—Data for assessing a resource based on estimates. These data may come from a wide variety of sources that have collected data indifferent ways or from a combination of field inventory data mixed with professional judgment. An example is the consolidation of acreage estimates of wetlands in each State.

Indirect Measure—Data for an indirect estimate of a resource, based on a correlated attribute of the resource. An example is the area of vegetative cover types as an indirect measure of area of specific wildlife species habitat.

Output Measure—Data on resource outputs or use often used to supplement other estimates for an indirect measurement of resource quantity and quality. An example is the number of animals harvested as a measure of the size of a wildlife population.

Descriptivel/Professional Judgment-information on resource quality, quantity, or outputs that is not based on systematic data collection. An example is suggesting low population levels for red-cockaded woodpeckers (a federally-listed endangered species) in a forest that has not been censused for woodpeckers.

Recreation

As noted above, recreation stands apart from the assessments of renewable resources because recreation is an activity-comparable to grazing, bird-watching, or timber harvesting-rather than a ***resource, like*** forage, birds, or trees. Quality of the recreational experience varies with individuals and interest groups, and must often be determined by subjective measures, such as personal perceptions. Some recreational activities that are facility-based, such as camping and downhill skiing, have closer parallels with renewable resources because the facilities can be evaluated objectively as a resource rather than subjectively as an activity. Nonetheless, recreation planning often requires different kinds of data than does planning for renewable resources.

The Recreation Assessment (112) divides the discussion of recreational activities into three categories: land, water, and snow and ice. Land recreation activities are described using acres of developed sites, roaded and partially developed areas, and extensive undeveloped areas. Water recreation activities are described using measures for partially developed water resources (acres of national rivers, lakeshores, and seashores) and developed water resources (swimming areas, beaches, boating, marinas, and swimming pools). The land and water recreation sections also include information on the wilderness resource, which is discussed later in this report. Snow and ice recreation activities are described using trails, roads, and cross-country and downhill ski facilities, although snowmobile use is essentially ignored.

All of these measures are either indirect or output measures for the amount of recreation activity available. They are not direct measures because the amount of recreational activity available depends on many variables, some of which cannot be quantified. For example, the Recreation Assessment states recreation 'is limited only by our capacity to invent new ways to have fun" (112). Recreation supplies can be invented, for instance, by converting an empty swimming pool to a skateboarding site or by using cliff edges for hang gliding. Physical measures of the land or water are said to "identify as much about the supply of recreation as the quantity of paints reveals about the supply of art" (112). The Recreation Assessment acknowledges the unique characteristics of recreation and its intangible nature, listing standardized data and improved assessment methods as ways to increase recreation benefits. The 1989 Assessment uses available measures to make generalizations about the status of and future trends in recreation, and identifies potential supply shortfalls that warrant attention.

Range Forage Resources

The quantity and quality of range forage resources are described in terms of area of rangelands, ecological status, and resource value ratings. Outputs for range forage are described using animal unit months (AUMS), defined as the amount of forage

required to sustain one cow plus one calf for one month. The diverse outputs of rangelands are described in the Range Assessment (119), and include forage for domestic and wild herbivores, firewood and specialty wood products, seed sources, habitat for threatened and endangered species, and open space and scenic value. Despite the amount of information provided, the Range Assessment has serious shortcomings as an assessment of the quantity and quality of forage resources.

Rangeland Area and Outputs

The Range Assessment describes in detail the difficulty of quantifying the national production of forage and of linking the area of rangeland and timberland to forage production and consumption (119). Total rangelands are estimated at 770 million acres, or 34 percent of the total land base of the United States.[1] As an indirect measure, these land use data may provide a useful base for working toward forage production estimates, but they are not directly useful for assessing status of range forage resources. Furthermore, the rangeland base is broken down only regionally, and with virtually no landowner information.

The Range Assessment also uses the output measure AUMs to estimate productivity. The conceptual weakness of this measure of resource conditions is compounded by incomplete data on the acres of forests and rangelands that are actually grazed by livestock, and by the near-universal lack of estimates of the acres grazed by wild herbivores (88).

The Nation's forage-producing lands are classified and described using the 34 ecosystems of the Forest and Range Environmental System (104). Ranges of forage production for the 34 ecosystems are provided, along with other output measures (types of plants, large herbivores, and threatened and endangered animals), but no estimates are given for the area occupied by the various ecosystems. A direct measure of the amount of rangeland in each ecosystem is apparently not available, and thus forage production for each ecosystem cannot be determined (88).

Ecological Status and Resource Value Rating

Rangeland inventory techniques have been evolving, and because the changes have not been linked to past efforts, little information is available to assess historical trends in rangeland quality and production. The Forest Service has adopted, and the Bureau of Land Management (BLM) is adopting, a new system to assess forage resources based on: 1) the maintenance of a site's long-term productive potential; and 2) the present level of production relative to the potential production for a specific use, such as livestock grazing or wildlife habitat (80). In this system, forests and rangelands are assessed in terms of ecological status and resource value rating. The categories of ecological status-potential natural community (PNC), late seral, mid seral, and early seral stages—are not equivalent to the Soil Conservation Service's (SCS) range condition categories of excellent, good, fair, and poor (119). The percentage of land moving toward or away from the PNC is shown, implying that this is important. However, the implications of ecological status and trends for the quantity, quality, and output of range forage resources is not discussed.

The resource value rating for range forage is used to assess the usefulness of the vegetation for grazing. The rating hinges on: 1) the adequacy of soil protection, and 2) the acceptability of current species composition and production or their trends. Because the rating is based on adequacy and acceptability, it is probably determined by professional judgment, rather than on field measurements, and thus its replicability is questionable. Furthermore, because the rating is only satisfactory or unsatisfactory, trends in quality for a given area cannot readily be displayed. Therefore, the resource value rating, as currently applied, is an inadequate measure of the quality and quantity of the forage resource.

Despite differences in inventory systems, the Range Assessment gives percentages of rangelands in various condition classes for private rangelands (from SCS) and for Federal rangelands (fromBLM). Without acreage figures to show that field inventories of all rangeland have been completed, it is assumed that the percentages represent a variable measure of rangeland status.

[1] The 1989 RPA Assessment (111) defines rangelands as lands "on which the native vegetation (climax or natural potential plant communities) is predominantly grasses, grasslike plants, forbs, or shrubs suitable for domestic livestock or wildlife grazing or browsing use."

Timber Resources

The Assessment of the timber resource follows a long series of studies of the Nation's timber supply. The Forest Service provides a chronological list, starting in 1866, of 34 publications and reports considered to be at least partial predecessors of the 1989 Timber Assessment (113).

Data on the status of the timber resource have been collected periodically in each State for decades. The Forest Inventory and Analysis Research Units and Forest Service Regional Timber Management staff, as well as State forestry representatives and other users of the data, design and conduct the inventories. A typical State timber resource report contains data on timberland area,[2] ownership, timber volume by species, stand conditions, timber use, and biomass volume, along with a description of the sampling scheme used to collect the data and estimates of sampling error. Access to the data is provided through published reports, requests for special analysis, and direct computer access to the database (88).

These inventories are generally accepted by the professional natural resource community as state-of-the-art efforts using the latest inventory and computational techniques. Improvements in inventory techniques have been frequent during the long history of periodic inventories and older data are adjusted to maintain continuity and allow the monitoring of trends. Data users are more likely to want more frequent inventories, increased sampling intensity for areas of special concern, and/or additional data collection for resource management concerns other than timber status. Inventory data on timber-related issues, such as old-growth forests and timberland suitability, are rather sparse, limiting the value of the Assessment for addressing some important issues.

The data in the Timber Assessment are an aggregation of the data from the periodic State and national forest inventories. Older inventories were updated to 1986 by adding estimates of growth and deducting estimates of mortality and removals. The timber resource in this Assessment is described using the several direct measures derived from field measurements: acres of timberland; volume of timber; volume lost to mortality; net annual growth; timber removals; and 1986 ratio of growth to removals. Timberland productivity classes, a descriptive scheme of the potential productivity of the land, are also used in the Assessment to describe the timber resource.

Because the status of the timber resource has long been monitored in terms of volume of growing stock, growth, mortality, and removals, predictions of future trends in the Assessment rest on a considerable historical base of information. Most of the uncertainty in predicting timber resource flow has to do with estimates of future demand and removals, although changing conditions that can affect growth rates, such as atmospheric pollution and global warming, make growth predictions less certain than many assume. Clawson (18) has showed that the Forest Service has consistently underestimated future net timber growth (figure 6-l). Nonetheless, data in the Timber Assessment are generally more complete than for the other resources, and the inventories for timber are conducted using sampling designs that produce replicable estimates.

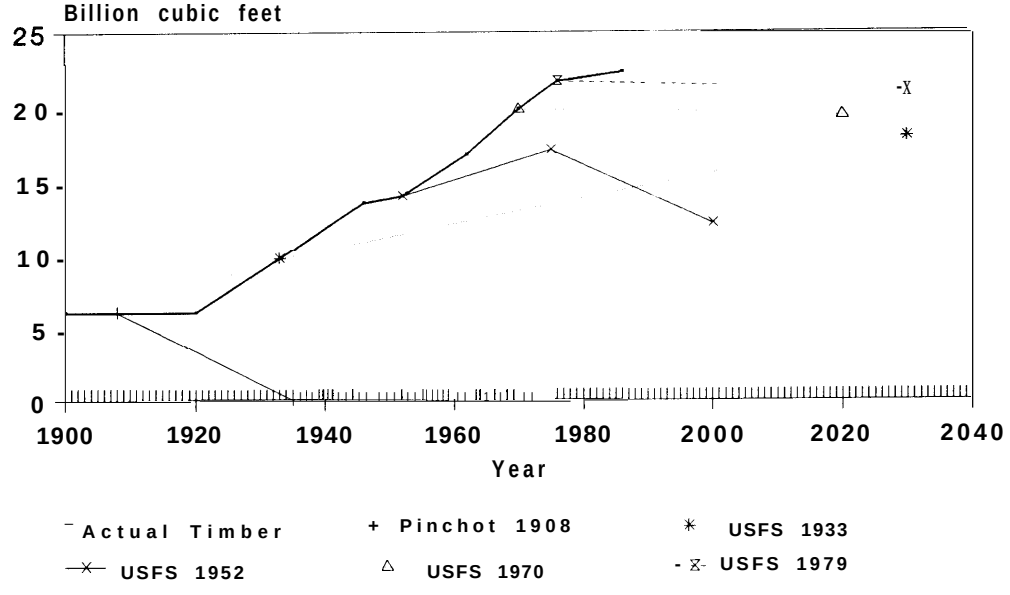
Water Resources

Historically, several Federal agencies have conducted national water assessments, including the U.S. Geological Survey (USGS), the U.S. Environmental Protection Agency (EPA), and the Soil Conservation Service (SCS). The Forest Service used data from all of these sources to prepare the 1989 Assessment of the Nation's water quantity and quality.

The Water Assessment (120) describes the water resource and the anticipated effects of management programs using several measures, including in-stream flows, watershed condition class, and acres of wetlands. These measures calibrate water quantity and quality much better than might be expected for a noncommodity resource. Other terms are used in the Water Assessment, but are only descriptive because they fail to use any units of measurement to evaluate the quantity, quality, or output of the resource. These descriptive terms include enhanced soil productivity, improved timing of runoff, improved riparian areas, installation of watershed improvements to avoid flood damage, and implementing nonpoint-source pollution abatement for silvicultural and range-management activity.

[2]The 1989WAAssessmmt(111) defines timberland as forested land [at least 10 percent covered by trees] "that can grow more than 20 cubic feet of industrial wood per acre per year."

Figure 6-l—Annual Net Timber Growth and Forest Service Projections



SOURCE: M. Clawson, "Forests in the Long Sweep of American History," Science 204:1168-1 174, June 15, 1979; U.S. Department of Agriculture, Forest Service, *An Analysis of the Timber Situation in the United States: 1989-20&Part/: The Current Resource and Use Situation [by* Haynes, R.W.], draft (Washington, DC: U.S. Government Printing Office, 1988).

Instream Flows

Necessary instream flow levels are based on wildlife and fish needs, because "Navigation and recreation activities, such as water skiing and swimming, generally do not suffer. . . over a long-term if low instream flows occur" (120). The flow estimates for each USGS-defined Water Resources Region are based on average precipitation, with deductions for groundwater storage depletion, net reservoir evaporation, and instream flow requirements for maintaining optimal wildlife and fish habitat. Projections show surplus or deficit stream outflow between 1985 and 2040 for two levels of precipitation (average and low) and two levels of fish and wildlife habitat maintenance (optimal and minimal).

The estimates of streamflow are classified as variable measures of water quantity. The concepts and assumptions underlying the estimates are generally accepted by water resource managers. The estimates are replicable, and sufficient for assessing trends. They provide insights as to where current instream flows are inadequate, why deficits exist, and what might be done to improve conditions.

Watershed Condition

The Water Assessment examines water quality in two ways. First, reports from USGS and EPA are synthesized into a general description of how water quality is affected by point and nonpoint sources of pollution. Major pollutants contributing to degradation of the Nation's waters are listed and recent trends described. Particular pollutants posing a problem in specific regions are discussed. Because no units of measurement are used, however, this assessment of water quality is only descriptive and not a measure of the condition of the resource.

Water quality is also assessed by classifying watershed condition. The watershed condition class is determined by the watershed's ability to "sustain water quality, quantity, and timing necessary to support water-dependent ecosystems, instream uses, and downstream withdrawals of water" (120). In addition to land management and land uses affecting water quality and quantity, watershed condition class depends on management of natural and human-made stream channels, associated fauna, and groundwater flows (120).

The Water Assessment describes three watershed condition classes: class I watersheds that represent "an attainable, desirable condition' class II watersheds that require special consideration in resource management; and class III watersheds that require "technologically and economically feasible capital investments to restore watershed conditions. " The status of watersheds that need restoration, but where the investments are not technologically or economically feasible, is unclear from this classification.

Data for determining watershed condition class were developed by sampling watersheds in each Forest Service region. These watersheds were assumed to be representative of all watersheds in the United States, but this assumption has not been tested. The percentage of watersheds in each condition class are then presented by Assessment region (one or more Forest Service regions), but acreage data and landowner information are not reported.

This classification is used as a variable measure to group watersheds with similar needs for improvement. Under this system, the Water Assessment provides useful data: one-fifth of the Nation's watersheds need capital investments and one-half need special management. The Forest Service nonetheless recognizes a need for more data to evaluate watershed improvement needs and for better quality data to improve the reliability of this measure. For example, information on watershed and stream charnel conditions and capabilities is based on inventories collected by several agencies for various ownerships and has not been consolidated, with current data generally covering only a portion of a watershed. Geographic information systems (GIS) may provide a way of consolidating, standardizing, and displaying the data collected by the various levels of government, but until these systems are in widespread use, inventories of watershed condition class on many lands will continue to depend, in part, on professional judgment.

Wetlands

One measure that seems to have sufficient supporting data is acres of wetlands. The Water Assessment reports that an estimated 90 million acres of wetlands are found in the lower 48 States with an additional 200 million acres in Alaska. This variable measure is from the consolidation of estimates from several agencies. General agreement exists on the definition of this resource category and the process of making the estimates seems replicable. A reliable assessment of the number of acres of wetlands is therefore possible, and trends can be monitored. The 1989 Assessment estimates an annual loss of approximately 300,000 acres of wetlands, an improvement over the estimated annual loss of 550,000 acres from the 1950s through the 1970s. Again, however, regional acreage data and landowner information are not reported.

Wildlife and Fish Resources

The Forest Service uses four aspects of wildlife and fish resources to characterize the quantity, quality, and outputs of these resources in the 1989 Wildlife Assessment (121): 1) habitats, 2) population levels, 3) number of users, and 4) harvest levels. Except where harvest levels are used as indirect measures of resource conditions, only measures of habitats and population levels are described in this section, because the other measures do not evaluate the quantity and quality of wildlife and fish resources.

Habitats

National inventories of the amount of suitable habitat available for a single species do not exist, but the Assessment describes and estimates land area that supports a faunal community based on land use and vegetative cover types. Land use types used as indirect measures for wildlife habitats include forestland, rangeland, wetland, water, and agricultural land. The Assessment reviews relevant literature establishing the relationships between faunal populations and land use/vegetative cover types and notes limitations to the use of these relationships in estimating populations or assessing change. Trends inland use and changes in vegetative cover types are discussed for the Nation and for each Assessment region. The use of models to analyze how species respond to changes in forestland characteristics is also discussed and illustrated with a case study (121).

Although land use and land cover patterns provide "a coarse description of wildlife and fish habitats that is appropriate for national and regional evaluations' (121), these indirect measures provide no real opportunity to monitor resource quantity and quality. They do not provide a sufficiently detailed database from which to assess the impact of the planning process on wildlife populations or species-specific habitat requirements.

Population Levels

Estimates are provided for the condition of some species, primarily game animals and threatened and endangered species. Population estimates for small game and furbearers rely primarily on harvest levels which, as output measures, are not very reliable for determining population levels or trends. There are very few population data on nongame species because funding for their collection has never been adequate. The one exception is birds.

Nongame Birds—The U.S. Fish and Wildlife Service (FWS) administers the Breeding Bird Survey to assess population trends of breeding birds in the United States and southern Canada. Data are gathered by volunteers. This survey has critics in the scientific community and its limitations are discussed in the Wildlife Assessment. Nevertheless, the survey is a systematic census of breeding birds serving as a direct measure that is sufficiently reliable to assess population trends.

Migratory Game Birds—The FWS estimates the status of migratory game birds annually. Using a combination of field measurements and professional judgment, population estimates are made for waterfowl (ducks, geese, and swans) and webless migratory game species (such as woodcock and mourning doves). These estimates are reliable for key areas that are monitored closely and are generally sufficient to describe long-term trends.

Big Game Populations—Data on big game populations in the 1989 Assessment are derived from cooperating State wildlife agencies and their associated professional game managers. Because the number of States with data on any one species varies, and because data collection and consolidation are not described, the reliability of these variable measures for the population status of big game is unknown.

Small Game Populations—Population estimates for small game are also compiled from data supplied by cooperating States. Most States use harvest trends (output measures) to evaluate the status of small game, but there is no consistency as to which species are evaluated. Consequently, very few States have substantial information on any one species and the reliability of these population estimates is thus probably low.

Furbearers—Many furbearing species are evasive in nature and consequently difficult to monitor for population data. Although several national summaries reporting furbearer population trends were quoted, this Assessment does not identify survey techniques for the animals discussed nor make clear when harvest levels were used to determine population estimates. The Assessment does correctly point out that harvest may be more a reflection of fur prices than of animal numbers. Thus, when such output measures are used for the population estimates for furbearers, the estimates are weak and their accuracy questionable.

Fish—The 1989 Wildlife Assessment states that, despite the recreational and economic importance of the Nation's fishery resources, there is little information with which to identify or evaluate changes in fish species distribution and abundance in the Nation's fresh waters and estuaries (121). Inventories of fish species are rare. The Assessment did report on the 1982 National Fisheries Survey (128), which tabulated the number of miles of streams in which various species occur. Estimates are not available for fish caught for recreational purposes. Commercial harvest in millions of pounds (an output measure) is reported each year by the National Marine Fisheries Service, but like most other indirect measures of resource status, this estimate is weak and provides little opportunity to monitor the impact of natural resource management activity.

Threatened and Endangered Species—The Assessment presents the number of species currently listed by the U.S. Fish and Wildlife Service as threatened and endangered, and the number found in the national forests and on lands managed by the BLM. It discusses the relationship between population declines and land types, lists the number of approved recovery plans and describes the status of the listing process. There is discussion of some recovering and declining species with population trends given, but in general, no direct or indirect estimates are produced in this section and data regarding individual species are not presented.

Wilderness Resources

Wilderness is combined with recreation in the RPA Assessment, and receives limited attention in several chapters. Measures used to describe wilderness include acres of wilderness/remote backcountry/extensive roadless areas given by region and ownership; miles of wild and scenic rivers by region and ownership; and recreational and non-recreational

uses (in recreation visitor days and percent of areas hosting subsistence, commercial, therapeutic, ecological, and social research values).

Data presented in the Recreation Assessment for evaluating the quantity of the wilderness resource are difficult to evaluate without a detailed description of how the areas were measured. The data on recreational use, as pointed out in the Assessment, have several shortcomings, including inconsistencies in collection methods and irregularity of collection (112). Thus, while trends in wilderness use have been described, the replicability of these data is questionable. The Assessment also points out that because most benefits of wilderness are not as easily measured as those for other renewable resources, many uses of wilderness have not been included in the forest planning process. The Assessment states that 'Interest in the uses and values of wilderness is increasing and improved methods to measure and describe these uses will have to be developed" (112).

The Recreation Assessment lists five actions that might be taken to enhance non-recreation use of wilderness:

1. inventory roadless areas for non-recreation wilderness values and propose areas with high non-recreation values for designation;
2. establish more wilderness and wilderness-like recreation opportunities on non-wilderness public and private land to reduce recreation pressure on sensitive wilderness areas;
3. complete "limits to acceptable change' 'assessments for each national forest wilderness;
4. incorporate protection of non-recreation values into wilderness management plans; and
5. systematically assess threats to wilderness areas (112).

Although the Assessment follows this list with a statement declaring that these actions would provide better information for wilderness managers and result in improved management of wilderness areas for recreation and non-recreation values, no goals or priorities are set to see that these actions are in fact implemented.

One serious shortcoming of the Recreation Assessment is the lack of data on wilderness quality. In 1988 hearings on wilderness management, Forest Service Associate Chief George Leonard acknowledged "a number of problems within wilderness areas, such as soil erosion, stream sedimentation, overgrazing, and insufficient trail maintenance (138). Despite such problems and concerns, apparently no effort has been made to evaluate the current quality or trends in wilderness resources.

ECONOMIC ANALYSIS

RPA indirectly requires the Forest Service to use economic tools in assessing forest and rangeland resources. The Forest Service is specifically directed to analyze current and expected supplies of and demands for renewable resources and to evaluate resource investment opportunities.

Demand and Supply Analysis

The Forest Service assessed current resource uses and projected demand and supply for renewable resources in the supporting Assessments for each of the resources. In two cases, the analysis is based on economic theories and projections are made using econometric models (computer models that make economic projections from certain economic assumptions and data about likely future conditions and responses). For other resources, the analysis is less sophisticated, with demand and supply projected independently, and likely "gaps" identified.

Before discussing the demand and supply analyses in the Assessment, one must consider the role of prices in economics. In a free market, changing prices influence demand and supply, bringing them into a satisfactory balance. If demand exceeds supply at a paticular price, the price would rise, reducing the demand and encouraging increased production and other supply adjustments. Similarly, if prices are expected to rise in the future, producers would be inclined to invest in increased production. The importance of prices in driving private landowner decisions is discussed in the 1989 RPA Assessment (42). However, the concept of using market incentives to harness the creativity and productivity of the private sector is notably lacking (11). Ultimately, market prices *are signals* to consumers and producers.

For goods and services provided free or substantially subsidized, market prices do not provide such signals. There are numerous methods of calculating values of nonpriced or underpriced goods and services (see box 6-B). Regardless of the method used, predicted changes in values should reflect the

Box 6-B—Valuing Nonpriced Goods and Services

Total economic value of nonpriced resources results from both value in use and certain non-use values. Use values include not only today's use, but the value of having the option to use the resource in the future (commonly known as option value). Non-use values include the value of knowing the resource exists as well as the value of preserving the resource for the future; these values are often referred to as existence and bequest values, respectively.

There are two basic approaches to measuring economic value of nonpriced resources. One is based on the financial impacts of current use, usually by measuring either total expenditures or the value added because of those expenditures. Except for evaluating local community impacts, this approach is rarely used, because it doesn't measure the value of the resource. It would be like measuring the value of timber by tabulating how much timber purchasers spent on labor, equipment, gasoline, etc.

The second approach is based on estimated demand for the resource. This approach is generally preferred for its sound theoretical basis, but is difficult to apply, because it requires demand curves. Two methods have been developed for calculating demand curves for recreation resources: the *travel cost* ***method*** and the *contingent valuation method. The* former relies on participation rates, with travel costs as a proxy for the nonexistent market price, and thus measures current use value. The latter uses bidding in an artificially structured market, and therefore can include option, existence, and bequest values. In either case, a demand curve is developed to estimate the quantity demanded at various prices .

Demand curves for nonpriced resources are usually used to calculate ***consumer's surplus.*** Consumer's surplus is the aggregate additional willingness-to-pay for the resource, in excess of current expenditures. It is also described as the possible revenues of a perfectly discriminating monopolist (i.e., one who could charge a different price to each customer). This is a useful measure, but it is not directly comparable to market prices for commodities, since the market price is how much buyers do pay, not how much each would be willing to pay.

The Forest Service has taken nonpriced resource valuation another step in the Draft 1990 RPA Program by estimating the ***market-clearing price,*** the price that would balance demand and supply if the resource were marketed. Theoretically, supply curves would be developed for the resources, and the market-clearing price is the price at which supply and demand are in balance. The Draft 1990 RPA Program discusses developing supply curves from production cost data, but presents no evidence of such with its estimates of market-clearing prices. Thus, although this approach is conceptually strong, it is difficult to evaluate the accuracy of the Forest Service calculations.

same economic picture that price changes indicate for market goods and services. Thus, one would expect values to increase for resources with demand rising faster than supply, and to decline for resources with supply rising faster than demand. In this reamer, current and future values of nonpriced and subsidized goods and services can serve policymakers and government managers in the same manner as price changes can serve consumers and producers.

Econometric Analyses

Econometrics is the application of mathematical and statistical techniques to economic problems. Typically, computer models are used to predict future supplies of and demands for resources, and relevant price trends, considering relevant economic variables, such as demographic trends, technological developments, and the impact of price changes on investments. One difficulty in applying econometric models is posed by the long time horizons for forest management; often, trends must be projected farther into the future than we have history over which to test the models. In addition, occasional social and cultural changes can overwhelm economic analyses. For example, the Great Depression, World War II, and the energy crisis radically affected the U.S. economy, but it would have been difficult to forecast such major changes. Although long-term econometric projections are subject to much uncertainty, the results may be useful for policymakers.

In the 1989 Assessment, the Forest Service used econometric models to examine the land base and the timber resource (11). The land use model projects the amount of land in various categories from 1987 to 2040: Cropland, pasture/rangeland, urban/other, public timberland, industrial timberland, and other private timberland. Except for urban and public lands, land use shifted toward the category with the greatest present net value of current and future returns to landowners. Timber price forecasts from the other econometric model

(described below) were included in determining land use changes, but the feedback loop-of timber management intensity influencing future timber prices—appears to be lacking. Thus, the econometric model for projecting land use patterns has flaws, but the basic approach is consistent with economic theory and seems to fit the intent of RFA.

The future demands, supplies, and prices of timber are projected using the Timber Assessment Market Model—TM (l). TM was originally designed to project softwood lumber and plywood demand and supply regionally, with prices rising (or falling) to dampen demand and enhance supply (or vice versa), as necessary to bring the market into balance. Production was translated into timber demand (adjusted for changing production technologies), with future timber demands and supplies balanced by raising or lowering prices. TAMM has since been revised to include hardwood products, the pulp and paper sector, and Canadian suppliers. However, TAMM is lacking in a few important areas, including market interactions with importers of U.S. wood products, linkage of prices through time (i.e., expected future prices affect today's harvests and thus affect today's prices) and price sensitivity of technological developments. (See box 6-C.) In addition, TAMM is quite sensitive to the many necessary assumptions about future U.S. economic performance, wood use in construction, and the like. Nonetheless, T-provides valuable insights into the workings of timber markets, and thus is useful in examining likely future timber demands, supplies, and prices.

Non-Econometric Analyses

Econometric models are not the only means of analyzing demand, supply, and price trends, although they do provide a replicable means of testing assumptions and assessing the likely effects of decisions. In addition, computer models are probably essential to balance supply and demand trends, and thus to predict prices. Except for certain types of developed recreation, the non-timber resources in the national forests are not priced in a market sense (see box 6-D), and therefore price prediction is not relevant, although future values of the nonpriced or subsidized resource uses should be related to future demand and supply.

For the nonpriced and subsidized resources—recreation, range forage, water, wildlife and fish, and wilderness-the Forest Service has projected demand and supply using its traditional 'gap' model.

Box 6-C—Timber Processing Technology

The Timber Assessment Market Model (TAMM) does not contain an explicit link between timber prices and technology, although research has shown that timber processing efficiency (technology) is sensitive to timber prices (11). Processing technology is ***exogenous*** **to the** model; that is, technology is forecast separately, and the forecast is then assumed in TAMM.

In contrast, the technology forecasts assumed in TAMM do affect future timber prices, but in an unexpected manner. As processing technology improves, timber prices rise, and the faster technology improves, the faster prices rise (43). The explanation behind this relationship is that timber prices are assumed to be a residual value-mill owners will bid as much as they can afford for timber, after paying their labor and capital costs. Improvements in technology either reduce labor costs or reduce the amount of timber (the number of logs) needed to produce the wood products (lumber and plywood). Lower labor costs and/or wood requirements permit the mill owners to bid higher for timber, and thus timber prices will rise. Some of the characteristics of timber and wood product markets suggest that, while timber is the largest cost in lumber and plywood production (19), that the amount paid for the timber is, indeed, a residual, to be paid after other variable and fixed obligations are met. However, some research refutes this assumed relationship (15).

This assumed relationship-technological advance leading to higher timber prices-has important policy implications. Rising prices for resources are normally considered to be a sign of impending shortage, and a condition to be avoided if possible. This is the idea behind RPA--an Assessment of future conditions and a Program that reacts to undesirable future conditions. However, rising timber prices due to improvements in processing technology might actually increase social benefits. If the technological improvement lowers production costs or wood requirements, then product prices and producer profits may remain unchanged, while landowners receive more for their timber. Under such conditions, rising prices would probably be desirable. In fact, one timberland investor observed that rising timber prices are necessary to justify most timberland investments (99). Thus, as a policy goal, the absolute undesirability of rising timber prices may need to be reconsidered.

Box 6-D—Economics of Range Forage

The economics of range forage present an unusual case. Although livestock operations are commercial enterprises, the Forest Service system for allocating grazing permits is not a market system. Permittees must have abase ranch reasonably near the grazing allotment, and allotments are renewed automatically, unless the base ranch is sold or the permittee violates the terms of the permit. In addition, Federal grazing fees are substantially below market prices, as little as one-seventh (14 percent) of the subleasing price on the few BLM leases where subleasing is legal (71). The Forest Service calculated that the fair market rental value of grazing in the western national forests is 2 to 4 times above the current grazing fee (1 16). Thus, livestock grazing on Federal lands clearly does not operate under a market system.

Another problem is the relative lack of information on non-Federal forage supplies. In timber, Federal lands dominate in one of the largest supply regions (the Pacific Northwest), and the Forest Service provided more than 17 percent of softwood timber harvests in 1986 (113). In contrast, livestock grazing on Federal lands accounts for less than 7 percent of the total (1 19). The Forest Service supplies 5 percent or less of livestock grazing in the three largest grazing regions-the South, the North, and the northern Roe@ Mountains. When this situation is combined with the lack of Federal marketing of livestock grazing, it is not surprising that relatively little market supply information on range forage exists.

Further complicating the economics of livestock forage is a more complex demand equation. As with timber, the demand for forage is a secondary demand--consumers want beef, lamb, wool, etc. However, consumers accept a much greater variety of substitutes, U.S. imports come from a wider array of suppliers, and there are more non-land-based technologies (e.g., crop residues, feedlots, etc.) to improve forage supplies (11). Thus, demand projections for range forage are much more complicated than for timber.

The Forest Service did project supply of and demand for range forage in the Range Assessment (119). In contrast to the timber and land base projection models, the models for projecting range forage have not yet been published, and thus their economic foundation cannot be evaluated (1 1). However,Binkley(11) notes that, “prices are not seriously considered as a determinant of either output demand or input supply. ” Thus, the economic logic behind the demand and supply projections appears questionable. Furthermore, the Range Assessment contains no historic or projected prices for livestock products or for forage. Therefore, the Range Assessment appears to be a deficient analysis of livestock forage demand, supply, and price trends.

Under this approach, demand and supply are projected independently, using historic patterns, socioeconomic variables, demographic trends, and other relevant information; however, price or cost data are rarely included. Future demand and supply are then compared, and if demand exceeds supply, a shortage--or gap-exists (or will exist). Gaps are treated much as rising market prices: they are considered undesirable, and policies should be formulated to address this problem. However, potential use of market forces to address supply-demand gaps, and the resulting social and economic implications, have not been considered in the 1989 RPA Assessment (11).

The gap model could provide useful information on demand and supply trends, if the projections are based on sound logic and assumptions. For example, one might expect demand projections to respond to demographic and economic changes, including the impact of changing user costs and increased crowding. Similarly, supply projections should be consistent with general land use decisions, and should reflect anticipated management activities and market responses, such as the development of recreation sites and fee hunting areas. However, the Assessment generally does not include adequate information to determine the adequacy and accuracy of the supply and demand projections for the various resources. In some cases, the projections are inconsistent with other trends. For example, in the next 50 years, the wilderness/roadless area land base is projected to decline by 31 percent, but the supplies of primitive camping and of backpacking are projected to increase by 34 and 98 percent, respectively (112). Similarly, wilderness use is apparently leveling off, but demands for primitive camping and backpacking are projected to increase by 64 and 155 percent, respectively (11). Thus, the demand and supply projections for the nonpriced and subsidized resources appear to be tenuous, at best.

Another potential limitation of the gap model is in the prediction of future values for the resources, which economic theory suggests are related to the projected supplies and demands-the relative scar-

city of the resources. However, most research on nonpriced resource values has focused on estimating current values, a difficult enough task, and no accepted or reliable methods for predicting future values presently exist (12 1). Thus, it is not surprising that none of the resource Assessments, except for timber, contain price or value projections.

Despite the lack of such information in the Assessment, the Forest Service has estimated current and future market-clearing prices and consumer's surplus for the renewable resources of the national forests. 'Appendix F: Resource Pricing and Valuation Guidelines" in the Draft 1990 RPA Program (116) provides a description of the economic concepts employed and then the value estimates by Forest Service region. Overall, the relative size of the Assessment's projected gaps between demand and supply correlates with the 1990 Draft Program's projected change in market-clearing prices. (See table 6-1.) However, there are a number of inconsistencies and problems. For example, the gaps in range forage and in nonconsumptive wildlife use are quite small, yet large increases in market-clearing prices are projected. Future market-clearing price increases for hunting and fishing are also relatively high, when compared with other recreational activities. There were problems in comparing demand/supply gaps with market-clearing price changes for water, because the demand/supply regions do not conform to Forest Service regions. In recreation, there are problems with two of the categories used for projecting market-clearing prices. Hiking/horseback-riding/water travel is an illogical mixture of activities, with large demand/supply gaps for hiking and horseback-riding and small gaps for water travel (canoeing, boating, etc.). The projected increase in market-clearing price is, therefore, probably too high for water travel and too low for hiking and horseback-riding. Winter sports is also a problematic category. Downhill skiing is projected to have excess supply, while the supply of cross-country skiing is projected to meet only 55 percent of the demand. The small increase in market-clearing price is probably an accurate weighted average, but doesn't really apply to either activity. Furthermore, snowmobiling has become an important winter recreational activity, but was apparently excluded from the Recreation Assessment.

Table 6-1—Demand-Supply Gaps and Changes in Market-Clearing Prices

	Demand/ supply gap	Change in M-C price
Recreation;		
Camping/picnicking/swimming . . .	0-1%	4%
Mechanized travel/viewing scenery.	7-26%.	10%
Hiking/horseback riding	27-29%	17%
Water travel	0-6%	
Winter sports:		
Downhill skiing	0%	4%
Cross-country skiing	55%	
Resorts	?	0%
Other activities	0-34%	1470
Livestock forage:	2%	24%
Water:		
Surplus regions	none	0-4%
Shortage regions	under 40%	8-22%
Severe shortage regions	over 90%.	8-22%
Fish and wildlife:		
Hunting	5-16%	10%
Fishing	4-1270	14%
Nonconsumptive use	0%	16%
Wilderness:	22-29%	18%

SOURCES: U.S. Department of Agriculture, Forest Service, *Draft 1990 RPA Program* (Washington, DC: U.S. Government Printing Office, 1989); U.S. Department of Agriculture, Forest Service, *An Analysis of the outdoor Recreation and Wilderness Situation in the United States: 7989-2040,* draft (1988); U.S. Department of Agriculture, Forest Service, *An Analysis of the Range Forage Situation in the United States: 1989-2040 [by* Joyce, L.A.], General Technical Report RM-180 (Ft. Collins, CO: 1989); U.S. Department of Agriculture, Forest Service, *An Analysis of the Water Situation in the United States: 1989-*2040 [by Guldin, R.W.], General Technical Report RM-177 (Ft. Collins, CO: 1989); U.S. Department of Agriculture, Forest Service, *An Analysis of the Wlldlife and Fish Situation in the United States: 1989-2040* [by Flather, C.H. and Hoekstra, T.W.], General Technical Report RM-178 (Ft. Collins, CO: 1989).

Evaluation of Opportunities

In addition to the demand, supply, and price trend analysis, RPA requires an evaluation of opportunities to enhance renewable resource yields, 'together with estimates of investment costs and direct and indirect returns to the Federal Government. " All of the supporting Assessments (except, of course, the Land Assessment) contain sections describing opportunities to improve resource management. However, except for the Timber Assessment, none contain any estimates of investment costs or of direct and indirect returns. Thus, while dozens of opportunities are described, there is virtually no information for evaluating those opportunities.

The Wildlife Assessment does contain some basis for setting priorities. It notes that the first priority is habitat management, since habitat is often the

limiting factor in wildlife and fish management. This is followed by population manipulation, and then user regulation, because appropriate populations must exist before regulating users is relevant. Although this set of priorities does not directly reflect relative economic opportunities, and cost and return information are not presented, it at least sets forth a logical approach to selecting which opportunities to invest in first.

There is some evaluation of investment opportunities for timber (114). Even this evaluation is severely limited, because government and industry lands are excluded. The Forest Service assumed that all economic opportunities would be implemented on industry lands, but this ignores potential limitations on available investment funds and opportunities to increase timber supplies by subsidizing industry timber investments (with direct financial support or through the tax code). Opportunities on government lands are not evaluated, because such decisions "are subject to public policy determinations as much as economic analysis" (114). However, this hampers the ability of policymakers to evaluate the potential of such opportunities, in comparison with timber investment opportunities elsewhere. The evaluation of opportunities on nonindustry private lands is also unnecessarily constrained. There was no evaluation of many areas, because the "stands were judged to be sufficiently productive that no specific treatment was warranted at the time" (114). This standard, which apparently excluded any economic criterion, eliminates many potential opportunities to expand timber supplies. Several types of investments are examined, including three harvest-with-regeneration 'investments," which one might expect to be profitable to the landowner already and not an opportunity to be captured.

INTERNATIONAL CONDITIONS

While RPA directs the Assessment to examine the renewable resources on America's forests and rangelands, it also requires the supply and demand analysis to *consider* international conditions. Global conditions are examined in the Timber, Range, and Wildlife Assessments. Such considerations are probably not relevant for water resources, since water is not (yet) an international commodity. Similarly, foreign visitors account for only a small component of outdoor recreation in the United States, and their characteristics and demands are examined briefly in the Recreation Assessment (112).

International Trade

Chapter 5 of the Timber Assessment describes international trade in wood products. The United States is the world's largest wood importer and second largest exporter (after Canada); Canada is the major U.S. supplier, while the Pacific Rim nations are our major export markets. There is substantial international trade in wood products, primarily among the industrialized nations, with general trends toward freer import markets and more market responsiveness by exporters. Restrictions on log exports from the Philippines, Indonesia, and peninsular Malaysia are noted in the Timber Assessment, but not the widespread trend toward additional export restrictions. (Bans on log exports from Thailand and Brazil and on lumber exports from the Philippines were announced after the draft Timber Assessment was written.) However, the implications of these trends are not discussed.

The Range Assessment contains a brief section on international trade in livestock products. The United States is a net meat importer, but the Assessment doesn't identify the sources of our imports. Depressed international meat prices have apparently led to increased protectionism and export subsidies. However, it is unclear what this means for U.S. consumers or livestock producers, and the implications are not discussed in the Assessment.

Global Resource Concerns

Problems Examined in the Assessment

In the chapter on international trade, the Timber Assessment asserts that, overall, for all regions globally, timber growth exceeds timber harvests. There are localized shortages, especially in the poorest nations, implicitly caused by the demand for fuelwood, and the demand for fuelwood is expected to continue to grow, leading to more common and more severe localized wood shortages.

The other global timber resource concern discussed in the Timber Assessment is atmospheric pollution and acid deposition. This is primarily a problem of the forests in the industrialized world, with the most severe impacts in Eastern Europe, and incipient problems in Western Europe, Scandinavia, and North America. There is, however, no discussion of the implications of either of these conditions

on domestic timber supplies, demands, or prices or on future international trade in wood products.

The Range Assessment observes that the loss of rangelands to encroaching deserts (desertification) is a serious global problem, with losses increasing in area and in intensity. However, the implications for domestic forage resources or for international trade in livestock products are not examined.

International conditions are also mentioned in the Wildlife Assessment. Clearly, migratory birds, and perhaps anadromous fish, can be affected by changing resource situations in other countries. Migratory game birds predominately breed in the United States and Canada, and winter in the United States; since Canadian resource situations are similar to our own, there are probably few significant global problems for migratory game birds. However, many nongame birds (songbirds, etc.) migrate to Central and South America for the winter. Some populations have been declining, allegedly due to Latin American use of organochlorine pesticides (e.g., DDT), loss of wetlands, and tropical deforestation.

Concerns Not Addressed in the Assessment

The discussion of tropical deforestation in the Assessment is totally inadequate. Although tropical deforestation is mentioned as possibly affecting migratory nongame bird populations, effects of protecting tropical forests are not discussed. Tropical timber harvesting and efforts to slow the rate of cutting will influence international trade in wood products, and thus the demands on U.S. timber resources. Similarly, some deforestation in Latin America is to create pasturage to expand beef exports to North America and Europe. Thus, attempts to protect tropical forest resources will affect the demands on U.S. forage resources. Finally, tropical deforestation has been linked with global warming.

Global warming is another major, international concern that can affect renewable resources. Global warming is expected to alter the quantity and timing of precipitation, and thus will affect water resources. These changes, together with increasing temperatures, will affect both flora and fauna. The distributions of tree species will be altered, and could shrink for some important timber species. Endangered species are particularly susceptible to climate changes. While these changes may not be imminent, RPA requires a long-term vision of renewable forest and rangeland resources. Furthermore, the Draft 1990 RPA Program identifies global climate change as 1 of the 15 issues to be addressed. Yet, the 1989 RPA Assessment contains no discussion of global warming.

Finally, in addition to the lack of discussion of the implications of global resource issues, there **is** nothing on the opportunities to influence these trends. There are a variety of possible U.S. actions that could affect these trends, such as expanding technical assistance for sustainable land use practices and increasing financial assistance for efficient use of fuelwood. While an analysis of international opportunities is not a required part of the Assessment, it fits with the intent of the law. Options that could be employed in the United States, such as planting more trees (here as well as abroad) to absorb carbon and thereby slow global warming, would certainly be relevant to a discussion of forest and rangeland resources in the United States.

COOPERATIVE ASSISTANCE

RPA does not specifically require an analysis of cooperative assistance needs in the Assessment. However, because different resource ownerships require different Forest Service responses, it seems appropriate that resource inventories and opportunities should distinguish among landowner categories. Such an analysis is a critical step in strategic planning. The Senate Agriculture Committee stated that the display of lands and resources by public and private ownership and geographic regions was one of the Assessment's most important elements (145). One means of presenting landowner information is by assessing the needs and opportunities for cooperative assistance.

The 1979 RPA Assessment (105) took such an approach. It pointed to a need to increase production and supplies of resources on all forests and rangelands. It also stated that "Substantial increases . . . from [private] ownerships can only be achieved by such measures as cost-sharing programs to help finance management practices, and technical assistance and educational programs to show landowners how to develop and manage forest and range resources' (105). Many of the resource chapters in the 1979 Assessment have a section on specific cooperative assistance actions for increasing resource supplies. For example, the recreation chapter notes the need for cooperative assistance to private

landowners to increase access to private lands for recreation. The timber chapter points to the importance of reducing losses from fire, insects, and disease through strong cooperative protection programs and the wildlife chapter identifies the need for technical assistance and education for landowners on providing access to their lands and on habitat management.

Several of the resource reports supporting the 1989 RPA Assessment distinguish resource ownership by landowner category. Timber resources, for example, are delineated for Forest Service lands, other public lands, forest industry lands, and other private lands. Federal range forage resources and recreational facilities are distinguished from non-Federal resources and facilities. Overall, however, the 1989 Assessment does not clearly define Federal resource responsibilities.

Several findings in the 1989 RPA Assessment are relevant to Forest Service cooperative assistance programs by the Forest Service (116). One is the importance of markets and prices as forces that drive private landowners. Another is the ubiquity of vegetation management as a plausible action to improve future resource conditions and supplies, including water quality and streamflows, range conditions, wildlife habitat, timber supplies, and conditions for recreation. The Assessment notes that management responses to market forces are limited by: 1) management philosophies and priorities for Federal lands (e.g., lack of recreation fees affects private opportunities); 2) the broad societal nature of some outputs of forests and rangelands (e.g., State ownership of wildlife and their migratory nature limit private landowners' ability to capture the benefits of habitat improvements); 3) the lack of market prices for some outputs; and 4) inadequate knowledge of production opportunities, which can lead to failure of markets to respond (116). These limitations broadly define the matters for which cooperative assistance programs could provide solutions (42).

The resource reports supporting the 1989 Assessment provide much more information than the Assessment itself on cooperative assistance. The Recreation Assessment (112) states that increasing opportunities on private lands could help redress the geographic imbalance between Federal recreation sites and the bulk of the population. Barriers to increased use of and access to private lands for recreation by the public include potential liability issues that have inhibited owners from making lands available, and lack of information on the markets for recreation use of their lands. As a result of these kinds of concerns, at least 75 percent of private land is closed to the public for recreation and this proportion is increasing. The Recreation Assessment concludes that programs directed at private lands should focus on keeping land open for recreation by providing information to landowners on management, on ways of limiting liability risks, and on means to capture financial benefits.

The Timber Assessment (114) identifies the increase in projected timber prices as the primary concern of the timber portion of Forest Service programs. Various ways to increase the productivity of forest lands for timber include reducing losses from free, insects, and disease and, most importantly, increasing timber productivity on nonindustry private lands. The Timber Assessment also notes that the greater sustained harvests on nonindustry private lands that would be necessary to slow the expected rate of increase in timber prices "would require expanded public programs,' presumably those aimed at private lands (114).

The Water Assessment (121) notes that lack of knowledge and financial incentives are major obstacles for private landowners in the control of silviculture-related nonpoint-source pollution on private lands. Needed actions for Federal, State, and private lands include assistance in dealing with pollution related to past farming practices, protecting riparian areas, managing vegetation to reduce runoff, and protecting land and vegetation from wild fire. The Wildlife Assessment (122) identifies habitat restoration and improvement and limits on access as two major wildlife issues relevant to private lands. The Assessment notes the importance of cross-boundary planning and coordination for wide-ranging wildlife. A major obstacle to improved vegetation management for wildlife habitats is lack of knowledge by landowners and managers. A trend toward additional fee hunting and access fees for private lands will lead toward improved management for the preferred species, but landowners need technical assistance on vegetation management for wildlife and information on markets (i.e., users and prices).

RESEARCH

RPA does not explicitly require an analysis of forest and rangeland research needs. It does direct the Forest Service to describe its research programs and responsibilities, and their relations to other Forest Service programs, and to private and other public programs. One document supporting the 1989 RPA Assessment, *A Description of Forest Service Programs and Responsibilities (122),* substantially fulfills this requirement.

Nonetheless, an analysis of research needs, resulting from Assessment findings, appears desirable, especially in the context of strategic planning. The 1979 RPA Assessment emphasized the lack of information and the need for more research, stating that "Much can be done to increase and extend supplies of forest and range products by better use of existing technology and by further research to develop new technology" (105). That Assessment noted the need for more information on physical responses to management of wildlife populations and timber growth; on the cost of management practices and prices and uses of forest and rangeland products; and on ways of using land and water to minimize environmental impacts. It also states that there is a need to "explore the economic, social, and environmental implications of a future in which demands for nearly all forest and rangeland products are increasing more rapidly than supplies" (105).

The sections on research opportunities in each chapter of the 1979 RPA Assessment are fairly detailed in their identification of research needs (42). For example, the recreation chapter notes the need for further information on existing and potential recreation resources, trends in participation, and the effects of management. The range chapter identifies needs for ecosystem analysis, range management methods, and multi-resource management of rangelands. The timber chapter focuses on research needed to improve utilization and multi-resource management. The wildlife chapter notes the need for information on the effects of management, minimum habitat conditions to support wildlife populations, and methods to quantify wildlife values.

Despite the serious data limitations described above, the 1989 RPA Assessment raises very few concerns about the adequacy of the information on which its findings are based. And, except for noting the need for appropriate databases and models for evaluating the threat of global climate change, almost no mention is made of research needs that emerged in preparing the 1989 Assessment (42). The accompanying resource reports suggest research needs but contain no estimates of costs and potential benefits which policymakers could use to compare research opportunities. Excluding research needs from the RPA Assessment effectively prevents any discussion of research priorities.

The Recreation Assessment identifies several information needs: standardized information on participation trends, future demands, and available supplies; methods for assessing recreation resources in urban and wild environments; information on how recreation opportunities and uses are related; and ways to estimate and evaluate recreation benefits. The report also identifies the need for research on management of recreation resources, including wilderness and other special areas; on the management of recreation facilities; and on ways to balance the allocation of recreation resources in view of social equity concerns.

The Range Assessment identifies the need for research on vegetation management for multiple-resource uses of rangelands, and on the management of combined livestock and wildlife grazing. This Assessment also notes the need for research on the use of livestock as a management tool in a broad range of ecosystems.

The Timber Assessment identifies research on basic physiological and biological processes of tree growth and timber management, and accelerated technology transfer as having continuing importance. It also notes that utilization research has the greatest potential for curbing the rate of increase in timber prices in the near term. Research in support of management and assistance programs on regenerating timber stands are judged to have the greatest long-term potential for increasing timber growth.

The Water Assessment states that additional information is needed on the cumulative effects of different management activities on water quality (sediment generation and transport) and possible control actions. The Assessment also identifies information needs on instream flows that are required for various uses of forests and rangelands. In a broader context, this Assessment notes that research is needed on the cumulative effects of acid deposition and of chemical buildup in soils.

The Wildlife Assessment notes that obstacles to improving wildlife and fish resources include lack of knowledge on species-habitat relationships, on population inventories, and on public attitudes and wildlife and fish values. The report suggests that monitoring be done to measure the response of wildlife and fish to management and that this information be combined with species-habitat research to learn more about multiple-use management. The report also claims that Forest Service efforts are perceived as being at the forefront of wildlife research and that steps should be taken to assure that this continues.

CONCLUSIONS

The 1989 RPA Assessment is a comprehensive document, produced with substantial efforts by the Forest Service, but one that lacks some of the resource quality and quantity data needed to make well-informed resource management decisions. The data included in the individual Assessments on recreation, range forage, timber, water, wildlife and fish, and wilderness are often incomplete, with measures often relying on surrogates or professional judgments, and with information on resource quality frequently missing.

The Forest Service uses econometric models and the "gap' model to analyze supply and demand for renewable resources. The Assessment generally does not include enough information to evaluate the projection methods and some projections are inconsistent with current trends and with other projections. The required evaluation of opportunities is largely a catalog of possibilities that lacks information on investment costs and on direct and indirect returns to help make informed choices.

The 1989 Assessment considers the international context for domestic resources in brief discussions of international trade and global resource concerns, including demand for fuelwood, atmospheric pollution, and population declines of migratory songbirds. Inadequate attention is given, however, to two major international environmental issues—tropical deforestation and global warming—with important implications for the future of America's renewable resources.

Finally, the 1989 RPA Assessment is not a very useful document for assessing cooperative assistance and research programs. Despite the information in the individual resource Assessments, the 1989 RPA Assessment contains very little on these topics. The 1989 Assessment fails to summarize the needs identified in the individual assessments and does not present cost and benefit information to compare opportunities.

Chapter 7
The RPA Program

RPA requires the Secretary of Agriculture to transmit a renewable resources Program to the President "to provide for periodic review of programs for management and administration of the National Forest System, for research, for cooperative State and private Forest Service programs, and for conduct of other Forest Service activities in relation to the findings of the Assessment. . .' The RPA Program is to be developed in accordance with the Multiple-Use Sustained-Yield Act of 1960 and the National Environmental Policy Act of 1969 (NEPA). RPA specifies that the Program shall include (see appendix for the full text of the Act):

1. an inventory of needs and opportunities for public and private investments, differentiating between capital and operational activities;
2. identification of Program outputs, likely results, and benefits from investments, such that anticipated costs can be compared with total benefits and with direct and indirect returns to the Federal Government;
3. a discussion of priorities for accomplishing the inventoried opportunities, with costs, outputs, results, and benefits;
4. a study of personnel requirements for implementing and monitoring activities; and
5. recommendations which—
   a. evaluate objectives for the major Forest Service programs to assure multiple-use and sustained-yield of the renewable resources;
   b. explain the opportunities for private owners of forests and rangelands to participate in programs to improve and enhance the condition of the land and the renewable resources;
   c. recognize the fundamental need to protect and improve soil, water, and air quality;
   d. state national goals that recognize the interrelationships between and interdependence among the renewable resources; and
   e. evaluate the impact of log exports on domestic timber supplies and prices.

Congress clearly intended the recommended RPA Program to be the agency's strategic plan, with periodic reviews to examine whether the current direction is the most appropriate direction. Because the Administration and Congress are the ultimate decisionmakers, however, the Program is required to include an inventory of opportunities, the identification of costs and results, and a discussion of priorities. Thus, the Program must have an adequate information base to describe opportunities and impacts of alternative directions for Forest Service programs and activities.

RPA required the first Program to be transmitted to Congress by the end of 1975, with an update by the end of March every fifth year thereafter. The 1975 RPA Program established resource output goals and budget targets beginning with fiscal year 1977, and outlined renewable resources management needs for 1977 to 2020. Because of the short time period between the signing of the law and the date the frost program was required, many saw the 1975 effort largely as a trial run. The first full-scale set of recommendations under the RPA came in the 1980 Program (84).

The 1980 Program established two sets of output goals and budget targets, the high-bound and low-bound, beginning with fiscal year 1981. These two levels appeared to set quite different strategic directions, based on differing views of budget and resource priorities. The Senate Agriculture Subcommittee on Environment, Soil Conservation, and Forestry strongly criticized the 1980 Program. The 1985 program retained the high-bound/low-bound approach, and established goals and targets beginning with fiscal year 1986, although its release was delayed until early in fiscal year 1987 (85). Because of the internally inconsistent direction and the delays in release, neither the 1980 nor the 1985 Program has been an effective strategic plan for the Forest Service.

STRUCTURE OF THE DRAFT 1990 RPA PROGRAM

The format for the Draft 1990 RPA Program differs substantially from that of previous Programs. The Draft 1990 Program defines several possible roles for the Forest Service, examines 15 issues, and defines five strategies to fulfill various selected roles. The Draft Program also examines how several

special Forest Service initiatives are affected by its choice of roles and strategies. This role-and-strategy approach contrasts with that of previous RPA Programs which were driven by goals identified during Program development (42).

Roles

The Draft 1990 RPA Program identifies eight Forest Service roles, grouped into four categories, that provide general direction for agency interactions with the Administration, Congress, and the public:

- National Resource Management
  - —Role 1: Multiple-use management
  - —Role 2: Future resource opportunities
- Local Resource Management
  - —Role 3: Contributions to local economies
  - —Role 4: Management in mixed ownerships
- Research
  - —Role 5: Scientific information
- Complementary
  - —Role 6: Resource inventory and analysis
  - —Role 7: Natural resources communication
  - —Role 8: International forestry

Irland (48) described these eight roles as important in adding to the Program's review of Forest Service activities. He also criticized the discussion of the roles as 'not crisply set forth in clear terms, " Claiming that the Forest Service has defined the roles "indirectly, by listing activities falling into the role areas discussed" rather than defining the roles themselves (48). He concluded that the roles do not really provide the "strong common thread that ties an RPA Program together, ' alluded to in the Draft 1990 program. Wolf pointed out that Congress has already defined roles for the Forest Service: land management, research, and cooperative assistance (152). As the Draft 1990 Program now reads, research and cooperative activities "are treated as almost an after thought" (152). For the RPA Program to effectively address resource needs, Wolf claims that both research and assistance "should be elevated and made visible, " with alternatives offered that discuss maintaining, revising, or dropping each of the three roles.

Most of the roles reflect the dominance of national forest management in Forest Service thinking. One role proposes a two-pronged approach for Forest Service research: 1) to expand the scientific information on multiresource problems, using an ecosystem approach and emphasizing amenity resources; and 2) to increase the understanding of how natural resources are affected by broad environmental changes, including those that are global in scope. Research is a minor consideration in other proposed roles. Cooperative assistance is discussed in the two natural resource management roles as well as in the communications role. Increased assistance for multiple-use management of State and private lands is discussed, but cooperative assistance is proposed to "increase technical and financial assistance to stimulate timber production" (116). Except for the scientific information and international forestry roles, national forest management is the focus of current and proposed Forest Service actions.

Issues

Decisions to include or omit policy issues in the program have varied throughout the history of the RPA process. After the GeneraI Accounting Office (GAO) and others criticized the 1975 RPA Program for not centaining a discussion of policy issues, the Forest Service revised the 1980 Program format to include issues. The 1980 Assessment and Program generated positive reactions from conservationists because of the greater emphasis on issues, which they hoped would lead to greater responsiveness to their concerns (50). The 1980 RPA Program included some unconventional ideas, such as making recreation the dominant use of the eastern National Forests and making the Forest Service a government corporation. An internal Forest Service review team, however, concluded that this effort did 'not respond to what GAO apparently intended in its recommendation that there be a discussion of issues' (53). After making this determination, the Forest Service did not include a discussion of issues in the 1985 Program, and was again criticized for this omission.

Hewitt (45) examined ways to improve the effectiveness of issue identification in the RPA process. He recommended that the Forest Service develop better mechanisms to involve more people in the process, and suggested establishing an annual conference to facilitate this. Such a proposal is consistent with the scoping process required by NEPA as part of public participation, and would be more consistent with a strategic planning process for the public sector.

The Draft 1990 RPA Program identifies 15 issues that the Forest Service claims "fit into the strategic

planning nature of the RPA Program" (116). The issues selected met three criteria: a) national significance, b) impact on several Forest Service programs, and c) implications for the recommended 1990 RPA Program. The 15 issues in the Draft are:

- changing recreation needs;
- endangered, threatened, and sensitive species;
- riparian management;
- water quality;
- air quality;
- catastrophic fires;
- range condition;
- minerals development;
- below-cost timber program;
- old-growth forests;
- clearcutting;
- timber supply from nonindustrial private lands;
- international forest-products competitiveness;
- biological diversity; and
- global climate change.

These issues cover many of the current concerns of the individuals and groups interested in forest and rangeland resources. Only timber industry competitiveness is not a resource issue, while timber supply concerns are unnecessarily restricted to nonindustry private lands. A number of other important issues—e.g., grazing fees, log exports, timber taxation, wilderness management, local regulation of forest practices, and the nature of and changes in resource-dependent communities-are not included in the 1990 Draft.

The agency's issue responses in the Draft 1990 RPA Program are not very useful. Alternative responses are not explored, and some responses are simply a description of current policies. For example, below-cost timber sales continue to be a concern for many groups, but the agency's response was to describe the new timber accounting system. A strategic planning approach would consider possible responses, such as modifying sale design to enhance revenues, altering sale practices to cut costs, researching mill efficiency to improve purchaser profitability, subsidizing timber production on private lands, etc. Then, the Forest Service would have possible responses that could conform to the various strategies proposed and to the recommended Program when it is complete. This would allow the Forest Service to respond to concerns in a manner consistent with the strategic plan.

Strategies

Chapter 5 of the Draft RPA 1990 Program identifies five possible long-term program **strategies**:

1. continue budget and relative resource emphasis of the 1980s;
2. implement local resource plans;
3. high-bound 1985 RPA Program (adjusted);
4. special emphasis on responding to the 1989 RPA Assessment; and
5. shift resource balance among private and public lands.

There is relatively little information on how these strategies were developed; the section in the Program titled "How the Forest Service Developed Strategies' lists the strategies, but does not describe their development. Irland (48) criticizes the strategies, noting that:

> . . . the strategies identified are really output mixes, not strategies. They represent a set of incremental changes from present patterns. In a few cases, the summaries of strategy contain terms that better express a strategic sense of what is being proposed. We learn that High-Bound-a meaningless phrase to people who have not followed RPA history-is really a strong emphasis on revenues and net public benefits. And "shifting resource balance among private and public lands" is really a proposal to reduce emphasis on commodity production on national forests.

Most of the strategies are not consistent with the strategic planning intent of RPA. Strategy 1 is a simple continuation of the status quo and contains no strategic guidance for Forest Service activities; an unexamined continuation implies no strategic thinking. Strategy 2 suggests that the forest plans be implemented, implying that the agency has not really decided to implement these locally developed plans, generated with so much public attention and cost. Furthermore, an aggregation of local decisions is not strategic planning for an organization. Strategy 3 proposes following a previous recommendation, the 1985 RPA High-Bound Program, that was based on the previous Assessment (rather than on the current situation analysis) and was not really implemented. Strategy 4--"Emphasize responding to the Assessment' '—likewise indicates that whether and in what ways the Assessment should drive programs remains an open question. Only Strategy 5 presents an attempt to define an alternative way of meeting

the resource problems and opportunities identified in the 1989 RPA Assessment. Furthermore, except for Strategy 1, the various strategies establish surprisingly similar direction for Forest Service activities.

Cooperative Assistance

Strategy 1 continues the current program direction and level for cooperative assistance. A variation—Strategy IA—would eliminate financial assistance, but no explanation is offered for why this variation is presented nor of why it might be appropriate.

Cooperative assistance programs in the other strategies are quite similar, with total costs remaining within a very narrow range (between 4 and 5 percent) of the total Forest Service budget (42). The two largest programs-pest management and fire protection-appear to be virtually the same under these strategies. Overall, under the Draft 1990 RPA Program, the direction for cooperative assistance will be quite similar-in focus and in total funding-under any of the strategies, except Strategies 1 and 1A. One might expect greatest reliance on cooperative assistance in Strategy 5 and this strategy does yield generally greater results from cooperative assistance than the other strategies. However, these results are achieved at lower costs than most other strategies, which leads one to wonder why any other strategy would ever be selected.

National Forests

The Draft 1990 RPA Program focuses strongly on the national forests, not surprisingly, since they account for about 90 percent of total Forest Service expenditures. The Draft acknowledges that the analyses of environmental and economic effects have only been done for the National Forest System because of difficulties in extending these analyses to private lands (116). However, when one management strategy contemplates shifting commodity production toward private lands, and away from Federal lands, excluding environmental and economic effects from private land management seriously skews the results (11).

Except for Strategy 1, all strategies anticipate substantial increases in funding, outputs, and receipts for nearly all resources by 2040. Recreation shows surprisingly consistent increases under Strategies 2 through 5. By 2040, funding will increase by 164 to 187 percent over 1987 funding, accounting for 14 to 15 percent of national forest funding (compared with 8 percent in 1987). Use is expected to increase by 85 to 111 percent, and receipts to increase within a smaller range, by 90 to 104 percent. Strategy 5 generates the greatest use and the highest receipts at the lowest cost; this probably results from *the* shift of commodity production toward private lands, although this rationale is not documented.

Funding projections for range forage and for water programs are fairly consistent across Strategies 2 through 5, but range forage shows markedly different use and receipt projections. Forage use would decline under Strategies 4 and 5, while increasing under Strategies 2 and 3. However, receipts are projected to increase by two to three times current receipts under all strategies, even for the 10 percent use decline under Strategy 1. The rationale for this implicit rise in Federal grazing fees is not presented, but is certainly contrary to the trend of the past 20 years.

Timber funding and outputs in 2040 have the smallest changes from 1987 levels for any resource, but with much variation among the strategies. Funding and sales offerings would decline by 7 percent under Strategy 5, increase by 27 percent under Strategies 2 and 4, and increase by 38 percent under Strategy 3. However, gross timber receipts in 2040 will be substantially above 1987 receipts, ranging from $2.4 to $2.5 billion under all strategies (including under Strategy 1).

Wildlife and fish management shows the largest increases and the largest range of increase in funding and use levels. Use and funding are projected to at least double and possibly quadruple by 2040, with Strategy 5 showing the greatest increase, followed closely by Strategy 4. Wildlife and fish funding is also projected to account for a larger share of funding, rising from 3 percent of the 1987 national forest funding to 5 percent under Strategies 2 and 3, to 8 percent under Strategy 4, and to 10 percent under Strategy 5. Thus, Strategy 5 and, to a lesser extent, Strategy 4 clearly emphasize wildlife and fish activities in the National Forest System.

Wilderness is treated as a subset of recreation, and thus the Draft 1990 RPA Program contains virtually no data on funding or on the estimated roadless acreage or extent of the Wilderness System. It was noted that "acres in the Wilderness System increase . . . about 25 percent' under Strategies 2 through 5(1 16), but that total roadless area (and thus roadless area outside the Wilderness System) will

decline by "about one-third from the 1987 level" under Strategies 2 through 4, and by a lesser amount under Strategy 5 (116).

Research

Some of the strategies discussed in the Draft 1990 Program, particularly Strategies 1 and 3, do not respond to the two-pronged approach to research proposed under the roles (42). Strategy 1 proposes no change in the level or mix of Forest Service research programs. This is consistent with the findings in the individual resource Assessments on the need for commodity-related research, but does not respond to Assessment findings on research needs for other resources. Strategy 3 responds to needs for timber-related research at the expense of research on recreation, wildlife, fish, and water.

The other strategies do a better job of responding to the research roles proposed in the Draft 1990 RPA Program. Strategy 2 places more emphasis on multiresource studies, non-commodity resources, and broader based issues such as biodiversity, although how this direction can be derived from local resource plan implementation is unclear. Strategy 4 emphasizes research on recreation and wildlife and fish, especially nongame wildlife and threatened and endangered species. In its attempt to focus on integrated rather than single-function concerns, support for national forest programs declines somewhat in this strategy. Strategy 5 also emphasizes research on recreation and wildlife and fish, especially habitat management in the framework of biodiversity issues. The slight decrease in timber-related research is marked by greater emphasis on holistic management strategies.

By 2040, research gains an increased share of the Forest Service budget under all of the strategies except Strategy 1. The research share of total Forest Service expenditures rises from 7 percent in 1987 to 11.5 percent by 2040. Even with the proportionate increases in funding for research in Strategies 2 through 5, however, the array of research needs identified in the several individual resource Assessments cannot be addressed adequately (42).

International Forestry

Except for Strategy 1, all strategies propose shifting International Forestry to relatively more technical assistance and cooperation with international organizations. The implications for research and scientific exchange are unclear, because there are no cost data for International Forestry, and thus no information on whether research and scientific exchange will have fewer dollars or simply less emphasis. Further, "the rationale for these proposed changes is not apparent, nor is the way in which they respond to the 'increased challenge' of international issues" (42).

Initiatives

Following the presentations of the five strategies, the Draft 1990 RPA Program identifies several Forest Service initiatives, defined as "special, short-term strategies designed to eliminate or prevent backlogs of work or to accelerate work that has become high priority" (116). Six initiatives were analyzed in the 1990 Draft Program:

1. threatened and endangered species recovery;
2. restoration of anadromous fish habitat;
3. facilities maintenance and equipment purchase;
4. national recreation strategy;
5. healthy and diversified local economies; and
6. strengthened intergovernmental relationships.

No information is provided on what system or process was used to designate the initiatives as the six most important short-term strategies. Furthermore, the discussion of the initiatives and how they relate to the strategies is sketchy and difficult to follow. The justification for the initiatives and their connection with the strategies need further clarification to aid in comparing strategies. Although the intent behind the development of the initiatives was to reduce the number of Program alternatives, two of the initiatives are not affected by choice of strategy and could easily have been incorporated into all strategies.

Thus, while the idea of including initiatives in the Program is probably a good one, their presentation in the Program is ineffective. They fall short of their potential to set goals to eliminate backlogs of Forest Service tasks, such as reforestation, stand improvement, watershed treatment, and soil conservation. Rather than driving strategies, they are viewed as separate exercises with activities and costs added to those of the strategies.

INFORMATION CONTENT

Congress clearly intended that the Program be derived from the Assessment. RPA specifically states: "In order to provide for periodic review

of. . . Forest Service programs. . . in relation to the findings of the Assessment, the Secretary of Agriculture. . . . shall prepare and transmit to the President a recommended Renewable Resource Program." Based on this intent, part of the analysis in the following sections examines the relationship between the documents and the presentation of new, unexplained data in the Program.

Resource and Activity Data

Recreation Activities

Recreation is discussed in 1 of the 8 roles, 1 of the 15 issues, and 1 of the 6 initiatives in the Draft 1990 RPA Program. The recreation-related role of the Forest Service in multiple-use management has been to provide 40 percent of the recreation on Federal lands, and to provide various facilities, including campgrounds; picnic, boating and interpretive sites; ski areas; lodges and resorts; and trailheads and scenic trails. The recreation-related issue identified in the Program is the American public's changing preferences in recreation. The Forest Service responded to this issue with an initiative-the National Recreation Strategy. The primary objectives of the National Recreation Strategy are: 1) to implement fully the challenge cost-sharing program designed to create partnerships with recreation users; and 2) to eliminate all deferred maintenance on recreation facilities and trails by 2000.

Measures used to evaluate recreation within the five strategies include recreation use (measured in recreation visitor days [RVDs]), condition of facilities and trails, below-standard use, miles of trail built, and backlog of facility and trail maintenance. The discussion of these measures in the Program is generally brief and the relationship between the measures and the quantity and quality of recreation provided is not always clear. Some of the measures, notably below-standard use and the maintenance backlogs, were not included in the Recreation Assessment. The discussion of the National Recreation Strategy is much more useful and presents a good description of how the Forest Service defines customer satisfaction in recreation. Specific examples for improving recreation experience are listed and include anticipating changing needs; having flexibility to provide new experiences; and providing physical improvements such as new and better interpretive and informational signs and improved maps showing recreation opportunities.

Range Forage Resources

Alternative strategies, in terms of range forage resources, are compared using animal unit months (AUMs) of permitted grazing; the resource value rating (proportion of rangelands in satisfactory condition); and the level of noxious weed infestations.

The key output for rangeland is AUMs of permitted grazing. In the Assessment, this unit of output was said to be a conservative estimate for forage produced, because not all land is grazed, and no estimate is made of forage consumed by wildlife. AUMs, however, do not measure the quantity or quality of, or trends in, the range forage resource.

The only measure of resource conditions presented in the Assessment and carried forward to the Program is the resource value rating. The expected change in percentage of rangeland with a satisfactory rating is shown for the five strategies. This measure is of limited value, however, because a satisfactory rating implies no need or opportunity to improve the quantity or quality of forage produced.

Using the level of noxious weed infestation as a measure for comparing strategies is problematic. The definitions of noxious weeds are usually set by State agricultural agencies, and the considerable variation among State definitions makes consolidating the data difficult and of questionable reliability. Control of undesirable plants is discussed in the Assessment, but there are no nationwide data presented for noxious weed infestations on national forests or other lands. Thus, this variable measure is of limited use in evaluating alternative Draft Program strategies.

No clear relationship exists between the data presented in the Range Assessment and the estimated effects of alternative strategies on the rangeland resource. While the scientific rationale for defining the resource value rating for range condition class is described and overall percentages are reported in the Draft Program, it is not clear how much, where, and why a portion of the resource is rated as unsatisfactory; what can be done about it; and at what cost. Data on number of acres in a specified class, location of these lands, and rationale for designating them as satisfactory or unsatisfactory would seem well-suited for discussion in the Assessment. Furthermore, ecological status of

rangelands presented in the Assessment is not used for comparing strategies in the Draft Program.

Public concern over range condition is recognized and was included as 1 of the 15 contemporary resource issues discussed in the Program. It would again be appropriate to draw on data from the Assessment to address this concern in the Program. For example, it seems likely that policymakers and members of the public are interested in how many acres of rangeland in the southwestern shrubsteppe ecosystem are rated in unsatisfactory condition, but such information is not presented in the Assessment. Budget requests might generate increased support if activities were related to the needs of specific ecosystems and regions. It would be beneficial, for example, if the Forest Service could show improvements in rangeland condition resulting from its efforts. Conversely, lack of improvement could be supported with evidence explaining why the problems remain intractable and a case made for continued efforts and perhaps for more research.

Timber Resources

Several measures are used to compare the outputs and environmental effects of alternative timber management strategies for the national forests. These include volume of timber offered for sale; acres of timber cutting; miles of road construction; volume of long-term sustained yield; acres of reforestation; and acres of old-growth forests. The flow of data from the 1989 Assessment to the 1990 Draft Program is not clear. In some cases, the source of data for estimating future outputs and effects may be the Assessment, but such information is not identified in the Draft Program. For example, the volume of timber offered for sale is presumably calculated using the national forest portion of the Assessment database, but this is never stated. The volume offered for sale is the key output for the timber resource, but was not used as a measure of timber resource status in the Assessment.

The volume of long-term sustained yield is used in two ways—to estimate forest land productivity and to assess soil disturbance and water quality. As with timber offerings, this is presumably calculated from the Assessment database, but this measure was not in the Assessment. It seems likely that long-term sustained yield provides the base for the other timber-related measures used in the Draft Program, but one cannot be certain because no information sources are identified.

Several measures-acres of timber to be cut; miles of road construction; acres of reforestation; and acres of old-growth forests--cannot be derived from the database described in the Assessment. It is difficult to classify these measures without knowing how they were generated. They cannot be measured until the volume offered for sale has been allocated to specific harvest locations and preliminary timber harvest planning completed. The extent to which this process has been completed was not described anywhere in the Program. If they were developed by field measurements or by remote sensing techniques, they would be direct measures. If, however, they were developed from other sources, including judgments based on experience, they are variable measures with uncertain validity. The estimate of road construction mileage, for example, may have been developed by measuring proposed roads to expected timber harvest locations, or as seems more likely, by a rule-of-thumb estimate of miles of road per acre or per thousand board feet of proposed timber sales.

Information presented in the Draft 1990 RPA Program on timber resources sometimes mixes description with data. The narrative description of alternative strategies, for example, makes a distinction between new road construction and reconditioned roads, and the percentage of each is given in the description of the strategies. Miles of new road construction, however, is the only measure given in the analysis of environmental effects.

The treatment of old-growth forests in the Draft 1990 Program is especially poor. The importance of old-growth forests as habitat for wildlife species is only described, without data on its extent and location. Acres of old-growth forests (total and in Forest Service Regions 3,6, and 10) are presented in appendix C of the Draft Program to indicate wildlife and fish habitat capabilities, but it is not possible to determine the validity of this measure, because the Forest Service acknowledges that it is still proceeding with its efforts to inventory old-growth forests (126). The Forest Service discusses the difficulty of obtaining agreement on a definition of old-growth forests in the Draft Program, and notes the public's concern over old-growth forests. Nonetheless, without reliable baseline data on quantity, quality, and distribution of old-growth forests, it is difficult to address their relation to such issues as threatened and endangered species, biodiversity, esthetics, and community stability. More appropriate-and of

greater use to the public and to policymakers—would be a presentation of the acres of old-growth forests for various ownerships in the Assessment, with the projected impact of the alternative strategies then described in the Draft Program.

Water Resources

Water resource information presented in the Draft 1990 RPA Program is not always supported by data presented in the Water Assessment. For example, one of the measures used to compare the alternative strategies is watershed acres in "improved condition.' There are few data in the Assessment to arrive at this measure: the number of watersheds (not acres) in each condition class was in the Assessment, but national forest lands are not distinguished from other lands. Furthermore, the inventory of watershed condition class derived from field measurements is not yet complete. Thus, professional judgments rather than field measurements were apparently used to broadly classify watersheds by condition in the Draft Program.

There are further discrepancies in water resource data between the Assessment and the Draft Program. The 1990 Draft evaluates how well various management alternatives would meet the needs for such goals as: a) enhancing soil productivity and water quality; b) maintaining instream flows for wildlife and fish habitat and recreation; c) improving timing of runoff; and d) reversing the trend of wetland loss. None of these goals meet the definition of a reliable measure, because none were expressed in identifiable units of measurement that can be used to assess performance. Some of the goals are predicted effects of "if-then" propositions associated with different management strategies and arrived at by a series of professional judgments. For example, increased timber harvests are assumed to improve the timing of runoff, because: 1) increased timber harvest will create more openings in the forest, which 2) with proper orientation and size will increase snow deposition, thereby 3) prolonging the snow melt, and thus 4) improving the timing of runoff. These aggregations of professional judgments are not predictions of change in measures developed and described in the 1989 Assessment, but instead are often new and partially independent estimates about some of the measures presented in the Assessment.

The lack of established databases for measures of resource conditions is disturbing. Periodic estimates based in large part on the professional judgment of planners are not equivalent to periodic repetitive inventories developed from field measurements. The Water Assessment states that "One of the most important tools for solving complex ecological problems, such as determining the effect of acid deposition and ozone on forests and rangelands, is having long-term trend data available" (120). With inadequate or incomplete databases, it is impossible to assess these effects or to monitor the cumulative effects of local management activities on an entire watershed or region.

Wildlife and Fish Resources

Three measures of the quality and quantity of the wildlife and fish resources are used to compare the predicted outcomes of alternative strategies in the Draft 1990 RPA Program: commercial salmon and steelhead harvest; acres of big game winter range; and acres of old-growth forests (examined under timber resources, above).

Commercial salmon and steelhead harvest is an output measure used to estimate the status of salmon and steelhead populations. Although this estimate is replicable and available annually, it is conceptually weak as an estimate of population size, because harvests are not a fixed proportion of the total population. Also, because these species spawn in streams outside as well as inside the national forests, it is difficult to justify the use of their status to compare predicted outcomes of Forest Service programs under alternative strategies.

Acres of big game winter range is classed as a variable measure, although the development of this measure is not described in either the Assessment or the Draft Program. It seems likely that the inventory of big game winter range is conducted in conjunction with range allotment analysis, and thus consists of both field measurements and professional judgments. There is no way, however, to assess the replicability of the estimates and no attempt is made to estimate the quality of the winter range.

Several descriptive terms are used to compare the predicted outcomes of alternative strategies in the Draft 1990 program, but none calibrate quantity or quality of the resource. These include: wildlife and fish user-days; backlogs in maintenance of wildlife and fish habitat; funding for wildlife and fish habitat management programs; Knutson-Vandenberg (K-V) funding for mitigation and direct habitat improvement; and capability for trout and warm-water fish.

The key output for wildlife and fish resources is expressed in terms of predicted wildlife and fish user-days, and is based on demand and habitat capability. The Forest Service defines capability as:

> The potential of an area of land to produce resources, supply goods, and services, and allow resource uses under an assumed set of management intensity. Capability depends upon current site conditions such as climate, slope, landform, soils and geology, as well as the application of management practices, such as silviculture or protection from fire, insects, and disease (121).

Habitat capabilities for all big game species and for trout and warm-water fish are thus not measures of the resource, but rather predictions of changes that could occur depending on funding levels available under alternative strategies. Although "elimination of backlog in maintenance of wildlife and fish habitat" is not a measure of status, somewhere an inventory of the backlog must exist, and would probably be a direct or variable measure of wildlife habitat conditions. A description in the Assessment or Program would have been helpful. Funding for management, mitigation, and habitat improvement describes anticipated levels of management activity for the alternative strategies, but does not measure the quantity or quality of the wildlife and fish resources.

Acres of old-growth forests, acres of big game winter range, and riparian capability are used as measures for evaluating effects on wildlife and fish habitat capability in the Draft program. There are two problems with this. One is the uncertain quality of the first two measures, as described above; neither measure was included in the Assessment. Second, the acres of riparian area, improved or otherwise, are not reported in either the Assessment or Draft Program. The Forest Service proposes completing its comprehensive inventory of riparian areas and their ecological condition by 1995. It seems premature to speculate on changes in the potential of this resource category when the initial inventory of resource condition has not been conducted.

It is surprising how few direct measures are available to evaluate the status of wildlife and fish resources. Although the lack of information on habitat condition and population levels is identified by Forest Service and BLM biologists as high-priority issues, existing population inventory techniques are of questionable reliability or too costly to be used in a comprehensive, systematic survey (121). Therefore, very little discussion is possible regarding anticipated effects of the various strategies on wildlife and fish resource quantity and quality.

Wilderness Resources

The Draft 1990 RPA Program devotes limited space to the discussion of wilderness. Wilderness is mentioned in only one of the eight roles developed for the Program, the multiple-use management role. The wilderness "outputs" provided by the national forests include more than 3,300 miles of wild and scenic rivers and designated wilderness areas that account for 1 out of every 6 acres of Forest Service land. Wilderness is mentioned briefly in 1 of the 15 issues identified in the Program: under changing recreation needs, the Forest Service has placed strong emphasis on recreation management on the national forest wilderness areas and on wild and scenic rivers.

The information provided on wilderness within the strategy and initiative discussions is not only limited but also unclear. Four measures are mentioned in the comparison of Draft Program strategies: acres in the wilderness system, use of the wilderness system, quality of the wilderness experience, and total roadless acres. These measures are never defined and are alluded to only briefly in a short paragraph comparing recreation management among the five strategies. Some of these measures are also used in the Recreation Assessment, but no reference is given to previous Assessment discussions of what the terms mean and of how conclusions about increases and decreases were derived.

The indirect measure for determiningg the quality of the recreation experience--the amount of deferred maintenance of recreation facilities and trails—may also have been used to evaluate the quality of the wilderness experience, but the Draft Program never explains how the latter was defined or measured.

The Forest Service stated in the Draft Program that it has placed strong emphasis on national forest wilderness areas and wild and scenic rivers in response to the 1989 RPA Assessment findings related to wilderness. Judging from the meager attention given to wilderness in the Assessment and Draft Program, and from the sketchy descriptions of measures of the quantity and quality of the wilderness resource, especially in the 1990 Draft Program,

this strong emphasis on the wilderness system lands and wild and scenic rivers is not apparent.

Economic Analysis

RPA virtually dictates the use of economic analysis in calling for an analysis of investment needs and opportunities and of the costs, benefits, and returns to the Federal Government from Program outputs and priorities. These requirements essentially express a concern over the economic efficiency of Forest Service programs-having the right level of total funding and having the right mix of funding among the resource programs-as well as the desire for useful benefit and cost information.

In addition to concerns about economic efficiency, many groups have expressed concern about the economic impacts of Forest Service programs on communities and on society. Congress has only indirectly expressed these concerns in legislation for the Forest Service; the definition of sustained yield—a high level of annual or regular periodic output-in the Multiple-Use Sustained-Yield Act reflects such concerns. In the 1976 Senate floor debate over economic standards for timber management, Senators on all sides expressed concern over employment in the timber industry (145). Yet, despite Congress' concern, the Forest Service has never been directed to consider employment impacts or community stability (78). Nevertheless, measures of economic impacts are examined.

Economic Efficiency

Congress makes two decisions that bear on the economic efficiency of Forest Service programs: the total funding level and the funding mix among programs. (See box 7-A for methods of evaluating economic efficiency.) With RPA, Congress clearly intended that the Forest Service provide information that would help in making such decisions.

The Forest Service claims that "For each Strategy, economic efficiency has been maximized given the Strategy's particular constraints" (116). However, for decisions at the broadest scale-whether to invest in research or in cooperative programs or in the national forests---economic efficiency is not considered, because of the noted difficulty in quantifying and valuing the benefits of the research and cooperative assistance programs. Quantifying the benefits and costs of research and of cooperative programs is admittedly very difficult, but ignoring them necessarily precludes economic efficiency from two of the three congressionally defined Forest Service roles. Furthermore, even for the National Forest System, the Draft 1990 RPA Program does not provide enough information to evaluate the claim of maximum economic efficiency (11).

Some evidence discredits the agency's claim. The standard for economic efficiency is responsiveness to price (market value) signals, but the Forest Service "sets targets regardless of market prices or consumer demand" (75). One study found that "the Forest Service appears to have been able to meet the output targets with less funding than anticipated in the 1980 RPA Program" (140). Binkley and Hagenstein (14) evaluated the 1985 RPA Program, and found that the recommended Program did not begin to approach an efficient mix of funding among the resources.

Finally, the revenue data in the Draft 1990 RPA Program probably distort any analyses of Federal fiscal efficiency. One can argue about the likelihood of the long-term price projections, but the near-term (1995) revenue estimates for range and timber overstate the likely receipts. Range receipts were estimated to exceed $20 million in 1995 for all strategies (116), but Forest Service range receipts were only $9 million in 1989 (126), and have been declining since 1980. For timber, the projected revenues apparently include the value of timber purchaser road credits, even though these credits are non-cash transactions (timber is exchanged for road construction) which have no affect on the U.S. Treasury. (See box 9-A.) If all receipts were equally inflated, the efficiency of the funding mix might not be distorted. However, the 1995 estimates for recreation receipts, $31 to $39 million, are no higher than the 1989 receipts of $38 million. Thus, the overblown revenue projections for some resources probably distort any analyses of efficiency based on revenues.

Benefit and Cost Information

Congress clearly requested information on benefits and costs of the recommended Program, and the Programs (including the 1990 Draft) have included much information. However, Congress also distinguished benefits from direct and indirect Federal returns. Thus, Congress at least implicitly desired an analysis of the fiscal effect on the U.S. Treasury as well as the analysis of social benefits and costs.

Box 7-A—Measuring Economic Efficiency

In theory, economic efficiency is determined by comparing the marginal benefits of an activity with the marginal costs. This is *not* total benefits and total costs, but rather the ***additional*** benefits generated by ***additional*** expenditures. Additional investments are warranted as long as the additional benefits are greater than the additional costs. Thus, assuming that the most rewarding investments are made first, the optimal funding level occurs when the additional benefits exactly match the additional costs.

This type of marginal analysis also determines the optimal mix among programs. For example, if an additional investment in watershed protection yields more benefits than an equal investment in forage production, the watershed investment is a' 'better' (more rewarding) investment. In natural resources, such an analysis can be quite complicated, because an investment in one resource can generate benefits for another resource; the investment in forage production, for example, might also yield some watershed benefits. In theory, all such benefits and any environmental damages would be included, but in practice, it is difficult to measure all such effects for each investment opportunity.

Measuring Benefits-There are many ways to measure the benefits that result from investments. One measure is revenues generated. In tight fiscal times, revenue is an important consideration. However, Federal revenue shouldn't be the sole criterion, because many resources are subsidized or provided free. As discussed earlier, there are ways of measuring the social value of nonpriced goods and services (see box 6-B). The Forest Service calculated ***market-clearing prices in the Draft*** 1990 RPA Program; in essence, this measures total producer revenues at the output level which would occur if the resources were marketed. Thus, market-clearing price data define the producer benefits that would result from private ownership and marketing of the resources. The Forest Service also estimated ***consumer's surplus,*** a measure of benefits received by consumers in excess of the payments they make. By adding consumer's surplus to the market-clearing price, the Forest Service has generated a reasonable estimate of benefits to society from providing resources and uses in the national forests.

Measuring Costs—Measuring costs is deceptively simple. Again, one key is to measure the additional costs, both investment and operating costs. In addition, the costs measured must be comparable to the benefits measured. For example, Federal costs should be compared with Federal revenues, to measure the impacts of the investment on the U.S. Treasury. producer costs, including the profit needed to keep the firm in business, would be compared to the Forest Service's market-clearing prices. Finally, societal costs would be compared with societal benefits; these costs should include additional financial and environmental costs imposed on others (public and private) by the investment decision.

The Draft 1990 RPA Program is the first RPA document to include such fiscal information. However, as noted above, the near-term revenue projections for some resources are probably overestimated. In addition, the Draft Program contains inaccurate cost data. The total 1987 cost for the National Forest System was reported as $1,691 million in the Draft RPA Program (116), but the actual expenditures were $2,027 million (123). Furthermore, the Draft Program estimates that 42 percent of the costs were capital investments (116), but less than 10 percent of actual expenditures were identified as capital outlays in the 1988 Report of the Forest Service (123).

Finally, environmental costs of producing resources on private lands have been excluded from the economic analysis in the RPA Programs, including the Draft 1990 Program. This is not a problem if all strategies have similar roles for the public and private sectors in resource production (11). However, Strategy **5 in the** Draft contemplates shifting more commodity production to private lands. Excluding private land environmental costs allows the Federal Government to transfer environmental costs to the private sector with no consequence to the government. From a social standpoint, however, the environment is still affected, regardless of where the commodity production occurs. In fact, if Federal production occurs under stricter environmental protection, then shifting commodity production to private lands might increase environmental costs, a condition clearly not reflected in the analysis in the Draft 1990 RPA Program.

Economic Impacts

The Forest Service has no statutory mandate to consider employment or other economic impacts of its programs (78). Nonetheless, Congress and many

individuals and groups are concerned about the economic consequences of Forest Service activities. This concern is often expressed in terms of "community stability," but this phrase is not clearly defined, either in law or by academia (52, 78). Historically, Congress and the Forest Service have thought that a stable, sustainable supply of timber resources could lead to stable communities (87). However, recent research has shown that stable timber supplies are, at best, ineffective at providing stable employment levels (37, 148).

Measuring community stability is not a simple task. Stable timber industry employment and Federal payments to counties are measures of concern to Congress (74). However, communities may also depend on other industries, such as commercial fishing and recreation and tourism, that can be affected by Forest Service activities (39, 86). Thus, community stability depends on more than just timber industry employment.

The Draft 1990 RPA program projected total employment and county payments resulting from Forest Service activities under each strategy (116). By law, county payments are 25 percent of gross Forest Service receipts,[1] and the projections are consistent with this requirement. However, the methods for making the employment projections were not described, and thus their accuracy cannot be assessed. Furthermore, the Draft Program contains no disaggregations by region or by industry. Because there were no data on resource industry employment, except in the Timber Assessment, or of the local importance of Forest Service county payments in the Assessment, the relative magnitude and importance of the information in the Draft Program cannot be evaluated.

Other measures of the economic and social impacts of Forest Service activities are excluded entirely. Employment can be subdivided into permanent and temporary, full-time and part-time. Local income and State and local taxes are also useful measure of economic impacts. Furthermore, the mix of jobs in a community, and changes in the mix, are useful measures of the social setting. The Forest Service needs to develop a spectrum of relevant measures to accurately report on the economic and social impacts of the recommended RPA program.

THE RPA PROGRAM AND THE BUDGET

As discussed earlier, Congress intended the RPA process to help frame Forest Service budget requests. Many interest groups viewed RPA as a means of raising the importance of Forest Service budget needs, relative to other agencies within and outside the Department of Agriculture. In congressional testimony on the 1980 Program, the National Wildlife Federation observed that insufficient funding would make RPA planning 'fruitless' (95). The implicit commitment to future budget targets, based on the Program and Statement of Policy, were a major objection from OMB during the enactment of RPA (84).

These hopes and concerns probably overstate Congress' expectations for budget direction from the RPA process. Wolf succinctly summarized Congress' views (150):

> Neither the President nor the Congress would be required to implement the program at full funding, and the program would not be in the nature of an authorization. Thus, [Senator Hubert] Humphrey sought to create something that could best be defined as a guide to budget directions and levels.

Thus, Congress never expected the RPA Program and Statement of Policy to be a straitjacket for or even a commitment by the President. The Forest Service concurred in this view; ex-Chief John McGuire identified one reason for long-range planning as the need to "establish a multi-year framework for evaluating budget alternatives (emphasis added)' (60). The provisions requiring an explanation for budgets that deviated from the *direction* set forth in the Program and Statement of Policy, however, illustrated that Congress wanted to know when short-term decisions, to reduce the Federal deficit or whatever, were constraining long-run renewable resource management.

Past Performance

The Forest Service asserts that the RPA Program should not be constrained by budget limitations, because: 1) it should present the agency's professional opinion of ideal renewable resource management, and 2) it should display the opportunities foregone because of insufficient funding (85). While

[1]The Department of the Interior collects receipts from mineral activities in the national forests, and makes required payments to States from those receipts.

foregone because of insufficient funding (85). While this concept has merit, others have noted that the Forest Service has attempted to resolve conflicts by essentially throwing money at the problems (53). The approach has been described as the old "good news/bad news" pitch—the bad news is demand is rising, but the good news is that all problems can be solved with another billion dollars or so (84).

Congress apparently thought reasonably well of the Forest Service's 1975 RPA program, but because of overall budget constraints, Congress only funded 85 percent of that Program's budget proposal for 1978 (83). However, the Administration and some interest groups argued that the mix among programs needed to be adjusted if the budget level was reduced—that the interactions among resource activities didn't allow for equal reductions in all programs-and Congress has not tried such a fried-mix approach again.

In 1980, and again in 1985, instead of the single recommendation required by RPA, the Program contained two levels of budget and output targets, known as the high-bound and the low-bound. The high-bound essentially reflected the agency's goals for improving renewable resource management. The low-bound responded to OMB's concern for reducing the Federal budget deficit. In addition, OMB believed that the Forest Service budget proposals were generally excessive, and that most of additional benefits could have been obtained with much lower additional expenditures (84).

Congress explicitly rejected OMB low-bound in the 1980 RPA Program by revising the Presidential Statement of Policy to proclaim that the high-bound *was the* 1980 RPA Program. (The Statement of Policy and the 1980 revision by Congress are described more fully in the next chapter of this report.) However, the subsequent appropriations have actually followed the low-bound targets quite closely (85). Furthermore, OMB's contention of inflated Forest Service budget targets is supported by an analysis that found that the Forest Service actually achieved more than 100 percent of low-bound targets for nearly all Program activities (and 100 percent of high-bound targets for some activities) with less than two-thirds of the low-bound budget level from 1982 through 1985 (140). That report notes that "this might have occurred because the location and/or quality of the outputs differs from those anticipated in the 1980 RPA Program" but no information was presented to verify such possibilities (140).

Draft 1990 RPA Program

The Draft 1990 RPA Program presents 1987 cost data for the National Forest System, with projections for 1995,2000,2005, and 2040. Appendix E of the Draft Program contains several tables with costs and cost projections by strategy and by Forest Service region, including proportional costs by resource category (figure 7-l). These tables are labeled as the costs for RPA strategies by region and for the Nation, but do not include any data on research or cooperative assistance.

The tables in the Draft 1990 RPA Program, both in the appendix and in the text, are not consistent with 1987 Forest Service costs shown in the 1988 Report of the Forest Service (123). That Report shows higher costs for each branch of the Forest Service than does the Draft 1990 Program, as well as identifying several costs apparently not included in the Draft (table 7-l).

It is unclear whether these inconsistent cost data imply a smaller increase in Forest Service funding to achieve the 1995 through 2040 cost projections, or whether the cost projections underestimate the fiscal requirements because the base was understated. It seems much more likely that the projections were made from the understated 1987 cost base, and thus the *percentage* increases would be accurate and the funding requirements in the Draft Program are underestimated by nearly 38 percent.

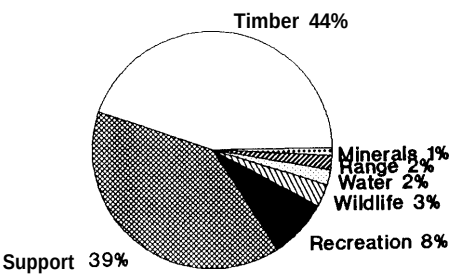
Table 7-1—1987 Forest Service Cost Data
(In millions of dollars)

	Draft Program	Annual Report
National Forest System:		
Capital outlays	$ 715	$ 197.4
Operating costs	976	1,829.6
Subtotal	$1,691	$2,027.0
Research	140	147.4
State and Private Forestry	60	73.3
Human resources	—	80.5
Payments to States and counties	—	278.3
Forest Service total	$1,891	$2,606.5

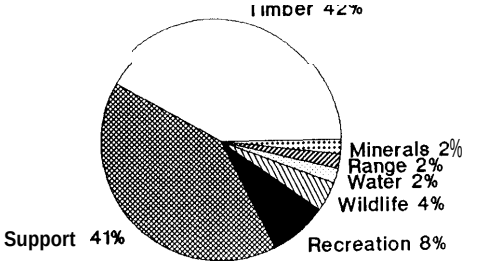
SOURCE: U.S. Department of Agriculture, Forest Service, *Draft 1990 RPA Program* (Washington, DC: U.S. Government Printing Office, 19S9); U.S. Department of Agriculture, Forest Service, Report of *the Forest Service, Fiscal Year 1988* (Washington, DC: U.S. Government Printing Office, 1989).

Figure 7-1—National Forest System Funding in 1987 and *2040*

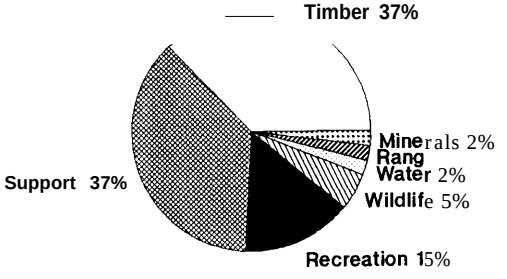
1987



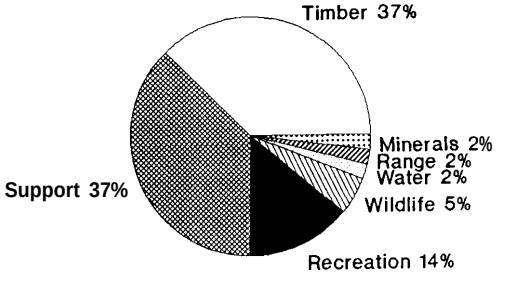
Strategy 1 for the year 2040



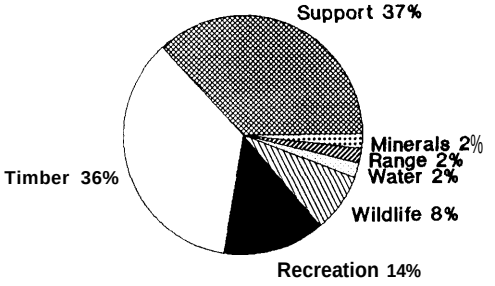
Strategy 2 for the year 2040



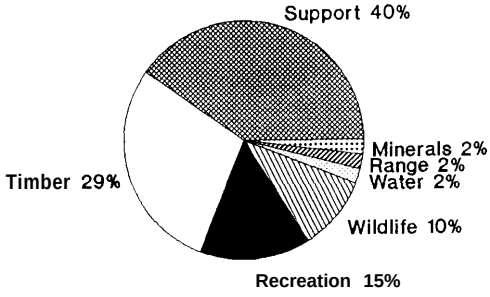
Strategy 3 for the year 2040



Strategy 4 for the year 2040

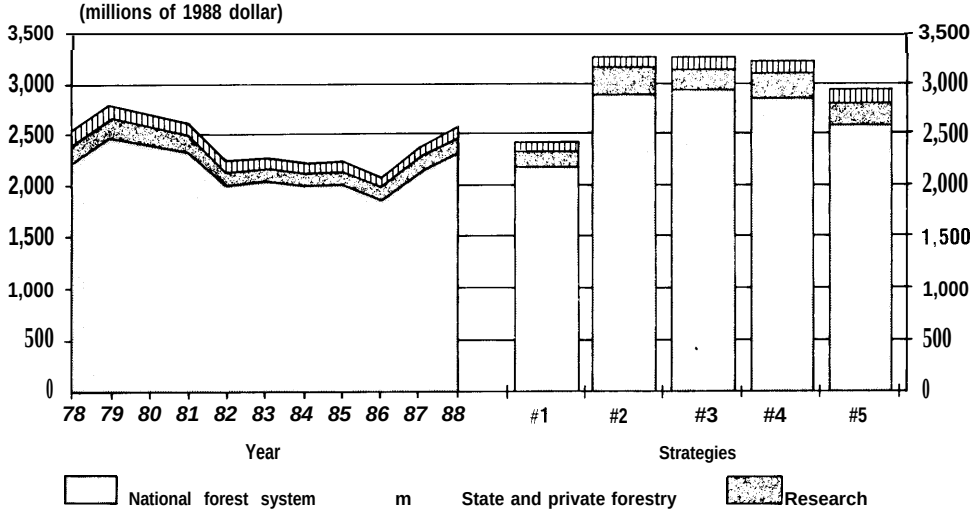


Strategy 5 for the year 2040



SOURCE: U.S. Department of Agriculture, Forest Service, *Draft 7990 RPA Program* (Washington, DC: U.S. Government Printing Office, June 1989).

Figure 7-2—Forest Service Expenditures



SOURCE: U.S. Department of Agriculture, Forest Service, *Draft 7990 RPA Program* (Washington, DC: U.S. Government Printing Office, June 1989), adjusted by OTA (see table 7-l); U.S. Department of Agriculture, Forest Service, *Report of the Forest Service* (Washington, DC: U.S. Government Printing Office), annual series, 1978-1988.

For the National Forest System, all strategies are shown to require an increase in funds. Even under Strategy I---+ontinuation of the current budget—the budget would increase by nearly 3 percent. This strategy is not very useful to Congress, because it simply extends the current congressional budget decisions, rather than providing the agency's concept of the proper funding mix. Furthermore, it may be inconsistent with the Multiple-Use Sustained-Yield Act, unless the current budget mix provides for managing the resources 'in the combination that will best meet the needs of the American people. '

Strategies 2 through 5 all propose substantial increases in funding-more than 40 percent for Strategy 5, more than 50 percent for Strategies 2 and 4, and more than 60 percent for Strategy 3. The Draft 1990 Program asserts that these increases are really not that large—"less than 1 percent per year for each Strategy" (116). This is true, but the majority of the increases are concentrated in the first 5 years. Strategy 5 requires a 25 percent budget increase by 1995 (only 4.5 percent per year for 5 years), while Strategies 2,3, and 4 require about 40 percent budget increases by 1995 (nearly 7 percent per year). These increases are even bigger than they may seem, because they are in addition to inflation. From 1978 through 1988, Forest Service expenditures have not exceeded $2.8 billion annually (in 1988 dollars), and have been less than $2.5 billion since 1982, but three of the five strategies in the Draft Program would require more than $3.0 billion (after adjusting for the cost understatement described above). (See figure 7-2.) This departure from recent expenditures clearly illustrates that the Draft 1990 RPA program is based on a radically different trend in future budgets than has been seen in the past few years.

The Draft 1990 RPA Program also presents total 1987 cost data for State and Private Forestry (S&PF) and for Research, with cost projections for 2040. The strategies contain descriptions of the proportional emphasis of S&PF and of Research, but without cost data. Except under Strategy 1 (and 1A), the budgets for both S&PF and Research are projected to more than double by 2040. However, because only cost projections for 2040 are included, it is unknown whether the proposed budget increases are slow and steady or are substantially concentrated in the first few years (as they are for the National Forest System). Such substantial proposed increases are unlikely to be funded, although they may be more feasible than the proposed increases for the National Forest System because fewer total dollars are involved.

Current Needs and Opportunities

What can the RPA process offer to the agency, the Administration, Congress, and the public for the annual budget process? According to two congressional staffers, Congress seeks information on what needs to be done, and what it will cost in the short term to achieve the long-run forest management goals (58). Further, Congress also needs "a clear, professional recommendation for how the forests should be managed" (58).

In addition to the professional recommendation, Congress and the public also need information to determine priorities. If the entire recommended course of action cannot be funded, Congress needs information on priorities, with benefits and costs of alternative actions spelled out. The persistent, high Federal budget deficits and rising interest payments suggest that a substantial increase in Federal renewable resource funding is unlikely in the foreseeable future (56). The RPA Assessment and Program could provide information to help establish priorities; in fact, RPA requires such information. As Jim Giltmier, a congressional staffer who worked on RPA, noted, "RPA has provided the best tool in government for dealing with budget examiners who insist that agencies operate in the most cost-effective manner" (36).

While many have complained about the budget ranges presented in the 1980 and 1985 Programs—the high-bound/low-bound approach—a range of budget levels can be useful (53). One method, consistent with economic efficiency theory (44), is to present a schedule for displaying the efficient funding mix (and relevant resource output and condition data) for a variety of budgets under each alternative or strategy. This would assist Congress and the public in understanding feasible funding combinations, and what can be bought with additional funds. Unfortunately, this approach would substantially increase the analytical requirements, as well as add to the complexity of an already bulky document. The next best option, a discussion of priorities, is required by RPA. This could include economic efficiency criteria, identifying the investments needed first to achieve the goals of each alternative or strategy.

One additional aspect of the budget is also important for decisionmakers to understand. The Appropriations Committees, and Congress as a whole, do not address all Forest Service funds, because some funds are permanently appropriated (i.e., the money is available without congressional action). (See box 7-B.) The nature of the funds is not particularly important when funds are unlimited. However, when total funds are limited, the funding balance can become skewed, because some funds are permanently available while others must compete against other Federal priorities annually. Furthermore, because some funds generated by Forest Service actions (notably the K-V Funds resulting from timber harvesting) are available to the Forest Service, the agency is highly likely to continue such actions (and arguably to focus on expanding them), regardless of their efficiency or desirability. (See *Reforming the Forest Service (75)* for a lengthy discussion of this concern.) In discussing opportunities and priorities, the Forest Service needs to be explicit about the sources and uses of permanent appropriations that might influence the decisions.[2]

CONCLUSIONS

Congress intended the RPA Program to be a strategic plan for Forest Service activities, providing essential resource management and budget information. The Program has been criticized for not providing strategic direction, for inadequately responding to projected resource demands, and for poorly establishing resource goals and budget targets. The Forest Service has improved the Draft 1990 Program over previous efforts, but there are still problems that make this document of questionable use to the agency, the Administration, Congress, and the public.

The Draft 1990 RPA Program's revised structure is closer to a strategic planning model for forest and rangeland resources than previous RPA Programs, but still fails to set clear goals and priorities. Agency roles are not clearly defined, issues are not used to set the stage for recommended strategies, strategies do not set direction, and initiatives are not presented as integral components of the strategies. In addition to these structural problems, the strategies present unbalanced funding levels among international forestry, cooperative assistance, research, and the

[2]A thorough analysis of factors which influence agency decisions is beyond the scope of this OTA special report. Such factors, including budgets and personnel evaluation will be explored in more detail in the full OTA Assessment of Forest Service planning.

Box 7-B—Forest Service Trust Funds and Special Accounts

The Forest Service has six special accounts and trust funds which require annual appropriations and 15 with permanent appropriations. (For a description of budget terms and these Forest Service accounts, see *The Forest Service Budget: Trust Funds and Special Accounts (141).) The 15* permanent appropriations accounted for more than a third of total Forest Service appropriations in 1989. The 10 major permanent appropriations (more than $10 million annually) include:

. Payments to States ($371 million in 1989);
- The Knutson-Vandenberg (K-V) Fund ($237 million in 1989);
- The Timber Salvage Sale Fund ($132 million in 1989);
- The Working Capital Fund ($118 million in 1989);
- National Forest Roads and Trails *($96* million in 1989, but since 1982, these funds have been transferred to the U.S. Treasury to offset annual appropriations for road and trail construction and maintenance);

. Other Cooperative Work ($57 million in 1989);
. Brush Disposal ($54 million in 1989);
- The Tongass Timber Supply Fund ($36 million of annual appropriations in 1989, but which will again be permanently appropriated in 1990 unless Congress repeals the permanent appropriation);

. The Reforestation Trust Fund ($31 million in 1989); and
. Timber Roads, Purchaser Election ($10 million in 1989).

It is interesting to note that all 10 of these major permanent appropriations are largely or entirely tied to the timber sale program. The only major special account or trust fund not tied to timber-the Land and Water Conservation Fund ($64 million for the Forest Service in 1989)--requires annual appropriations.

national forests, and do not follow-through with concerns for diversified resource studies and program appropriations.

RPA requires the Program to review management and a administrative programs of the Forest Service in relation to Assessment findings. Incomplete inventories in the Assessment make it difficult to present complete resource and economic analyses in the Program. The presentation of new data in the Draft program disregards the importance of presenting the best scientific evidence in the Assessment and then integrating it with the Program. The Draft 1990 Program also proclaims that economic efficiency has been maximized within each strategy, but there is insufficient evidence to evaluate this claim. The Forest Service has failed to document sources, to describe analytical methods, and to provide realistic near-term revenue estimates and accurate cost information. The failure to identify budget priorities and to provide benefit/cost information on proposed actions makes it difficult for Congress and the public to arrive at intelligent budget choices.

Chapter 8
The Presidential Statement of Policy

RPA requires that, along with the RPA Assessment and Program, the President transmit to Congress a' 'detailed Statement of Policy intended to be used in framing budget requests by that Administration for Forest Service activities" for the 5-year program period. In essence, this was an attempt to gain Administration commitment to the recommended program, a necessary condition of effective strategic planning. The President is to "carry out programs already established by law in accordance with such Statement of Policy or any subsequent amendment or modification thereof approved by the Congress." Either the House or Senate can disapprove of the Statement by resolution and/or revise or modify it if they so choose. The revised or modified Statement of Policy is then to be used in framing future budget requests. Since RPA was enacted, three Presidential Statements of Policy have been transmitted to Congress: the 1975 Statement signed by Gerald Ford (30); the 1980 Statement signed by Jimmy Carter (16); and the 1985 Statement signed by Ronald Reagan (81).

The Act states that the Statement of Policy is to be used in framing budget requests for Forest Service activities. If the budget request does not conform to the Statement, the President "shall specifically set forth the reason or reasons for requesting the Congress to approve the lesser programs or policies presented.'

The Presidential Statement of Policy has been a controversial requirement in the RPA process. This is due, in part, to concerns at the Office of Management and Budget (OMB) about the President's need for flexibility in responding to shifting budget needs and priorities (85). OMB did not like the accountability implied by the signing of a Statement of Policy laying out the President's commitment to a 5-year Program, and recommended in 1974 that the legislation be vetoed by then-President Nixon (84, 85). Although President Ford chose to disregard OMB recommendation and sign RPA into law, he noted that:

> I would be less than candid if I did not admit that certain provisions of this act disturb me, especially those provisions relating to Presidential discretion in formulating annual budget requests for our national forestry programs (29).

In the 1975 Statement of Policy, President Ford acknowledged problems encountered in preparing the Program, including the lack of adequate and accurate data and the difficulty of determining the relative priority of competing uses. He declared that his policy would be to implement the goals recommended in the 1975 Assessment 'in accord with two basic principles— maximizing the Federal budget's contribution to the Nation's welfare and minimizing Government interference with the normal operation of the market" (30). The recommended 1975 RPA Program goals were to:

1. increase supply of outdoor recreation opportunities;
2. provide a moderate increase in wilderness;
3. provide for species diversity;
4. provide forage without impairing land productivity;
5. increase timber supplies and quality in an environmentally sound reamer;
6. meet minimum air and water quality standards; and
7. increase emphasis on involvement in discrete human and community development efforts that complement Forest Service activities.

As stated in the law, the Presidential Statement may be revised or modified by Congress. Among the three statements transmitted to date, only the 1980 Statement by President Carter was rejected by Congress. The objections to this statement centered on: 1) its failure "to send Congress a preferred program of work rather than a range of options" to assist Congress in forming future environmentally and socially sound budgets (64); and 2) the limited budget choices: the high-bound alternative in which the annual rate of program growth had been reduced from 6.7 to 4.9 percent or the low-bound alternative in which the annual growth rate was 3.2 percent (84). Neither of the budget alternatives described the effects of the recommended budgets on the condition of the resources, nor did they assess the long-term impact on goals.

After rejecting the 1980 Statement of Policy, the Senate Agriculture Subcommittee on Environment, Soil Conservation, and Forestry prepared a "white

paper" to further explain congressional opposition (64). The subcommittee generally accepted the high-bound alternative, with amendments calling for forest productivity to be at 90 percent of the land's potential by 2030, and for forage-producing rangeland to be at 85 percent of potential by 2000.

Several hearings were held to obtain public comment on the 1979 Assessment, 1980 Program, and 1980 Statement of Policy. At one, Dennis LeMaster, chair of the Department of Forest and Range Management at Washington State University, recommended that, if no accord could be reached between the Congress and the executive branch, the Act be revised to provide for congressional responsibility for the Statement of Policy (9). Other witnesses at the hearings also expressed dissatisfaction with the 1980 Statement of Policy and their agreement with the subcommittee's white paper. On December 12, 1980, the Appropriations Act for the Department of the Interior and Related Agencies (Public Law 96-514) was signed into law containing a revised Statement of Policy. The revised statement put forth the ideas included in the white paper, stating that Congress generally accepted the high-bound Program, but cautioned that even this budget level might not be sufficient to accomplish the goals of the revised Statement of Policy, particularly in the areas of range and watershed resources, State and private forest cooperation, and timber management.

The 1985 Statement of Policy, signed by President Reagan, was submitted in September 1986, 18 months after the due date designated in RPA. It emphasized: 1) the need for judicious review of our choices and decisions regarding the short- and long-term planning of our renewable resources, and 2) acceptance of the 1985 Recommended RPA Program, because "it identifies a reasonable range of management directions, outputs, costs, and goals for the long-term future" (81). Lyons and Knowles (58) criticized this Statement for not providing specific objectives for Forest Service activities and for not offering guidance for the development of budget requests for the remainder of the Program period. They further stated that, "In fact, the objective of the low-bound element of the 1985 RPA Program--to defer investments in Forest Service programs in the short run-is essentially similar to the direction provided by the low-bound of the 1980 RPA Program that was rejected by the Congress" (58). Congress did not respond with a revised or modified Statement of Policy within the 90 days specified in section 8(a) of the RPA, and thus the Presidential Statement from Reagan became the guidance to be used by the Forest Service in framing budget requests. Congress might not have responded because the delivery was late in the second session of the 99th Congress, when Congress was rushing toward adjournment, but it may also demonstrate a lack of congressional attention and commitment to the process.

In sum, the Presidential Statement of Policy has failed to provide real guidance for framing budget requests for Forest Service activities. Critics of this provision, including OMB and the President, claim that the Statement of Policy commits the President to a 5-year budget, and restricts needed flexibility. The three Presidential Statements transmitted to date have been general proclamations of anticipated needs without any real commitments to Forest Service direction or sufficient information to guide budget requests for Forest Service programs. To increase the effectiveness of this RPA requirement it may be necessary to further assure OMB and the President that the Statement is not a 5-year budget commitment, but rather will be used to inform and guide the annual budget process only. Deviations from the direction set forth in the Statement are permitted as long as the President publicly explains the changes. Alternatively, the Statement of Policy could be restructured to try to increase the Administration's commitment to the RPA process. However, if OMB and the President are unwilling to be held accountable in this way, the Statement serves no real purpose and could be eliminated from the RPA requirements.

Chapter 9
The Annual Report

The Forest Service (and its predecessor) has been preparing reports on its activities almost every year since at least 1886. The Report of the Chief, originally a part of the Secretary of Agriculture's annual report on USDA programs, described forest management planning assistance to private landowners (the original purpose of the Bureau of Forestry) and provided a wealth of information on various forestry topics, such as lumber production and international trade in wood products. The focus of the report shifted when the forest reserves (later renamed the national forests) were transferred from the Department of the Interior to the Department of Agriculture in 1905. Discussions of Forest Service activities-national forest management, cooperative assistance, and forestry research-have been included in every Annual Report since 1905.

The initial legal requirements for the Report of the Chief are not clear. It presumably began as part of the Secretary's annual report, but has traditionally been printed as an independent volume. In 1974, RPA (sec. 8(c)) required the preparation of an Annual Report by the Secretary of Agriculture (who delegated the responsibility to the Forest Service), and the report was renamed the Report of the Forest Service.

The Annual Report, the fourth document required by RPA, is to provide information evaluating the component elements of the RPA Program to support congressional oversight and enhance agency accountability. In addition, the Annual Report is to appraise the progress in implementing the RPA Program, with objectives and accomplishments "in qualitative and quantitative terms and. . . [with] appropriate measures of pertinent costs and benefits." Thus, the Annual Report was intended to be the piece that closed the circle, making RPA a continuing and interactive process (83). However, most who have examined the Annual Report have concluded that it falls short of the mark. In the early 1980s, one congressional staffer observed that 'thus far, the Annual Report has been the weakest of the three [sic] parts of RPA" (36). Subsequent analyses have suggested that it has not improved (58, 140).

The Annual Report typically contains a narrative section, describing Forest Service programs and activities, and a statistical appendix, intended to provide sufficient details to assess agency performance. The narrative and the statistical appendix are surprisingly independent. Although they address the same topics, the narrative rarely refers to data in the statistical appendix, and the appendix rarely contributes to the narrative. Thus, the two halves of the Annual Report are examined separately, even though better coordination would contribute to a more complete picture of Forest Service programs and activities. Finally, RPA also imposed a number of specific requirements for the Annual Report, addressed at the end of this chapter.

NARRATIVE PORTION OF THE ANNUAL REPORT

The narrative portion of the 1989 Annual Report (126) describes agency programs and activities. There is a separate chapter on each branch of the Forest Service-National Forest System, State and Private Forestry, Research, and Administration. In addition, since 1988, the Annual Report has included a chapter specifically addressing RPA.

As an Overview of Agency Programs

The narrative portion of the Annual Report provides general information on Forest Service programs useful for congressional staff and interest groups who may be new to Forest Service issues or who deal with the agency only occasionally. Some observers note that the needs for general descriptive information and for reporting accomplishments probably requires separate reports, rather than a single document (94). Nonetheless, the Forest Service apparently tries to serve both needs in the Annual Report.

The narrative portion of the Annual Report does inform the public about Forest Service programs and activities. The descriptions are concise and generally readable, with coverage of virtually all agency programs and activities. The abundant tables, charts, and photographs in the 109 pages of text in the 1989 Annual Report provide an interesting overview of who and what the Forest Service is.

The narrative has also been criticized as a source of information about the Forest Service. Its tone has

been described as that of propaganda (38). The Report contains numerous broad generalizations that can be misleading. For example, the 1989 Report of the Forest Service states that "We have increased cooperation and communication with every segment of the society" (126), implying that all interest groups are being listened to. However, some groups would probably object to this characterization, and the large number of appeals and lawsuits over forest plans and activities tend to refute the assertion. The Forest Service *has* improved relations with groups in many areas, and such efforts should be recognized and rewarded, but when stated so broadly, the Forest Service loses credibility.

In addition, many controversial aspects of Forest Service activities are given short shrift. For example, Congress has had several acrimonious debates over appropriations for Forest Service road construction, with the final results being substantially above or below the requested level (139), but the controversy was described as a "misunderstanding about the number of miles of road constructed" in the 1989 Report. Other contentious issues, such as protecting old-growth forests and improving riparian areas, are described in bland terms, while a few major controversies, such as below-cost timber sales and efforts to reform the Tongass Timber Supply Fund, have been completely ignored.

As a Report of Forest Service Accomplishments

The problems of bias and the glossing of controversy become more serious when it comes to examining Forest Service accomplishments. The Annual Report was intended to assist congressional oversight and "improve the accountability of agency expenditures and activities. ' The inadequacies of the Annual Report in terms of measuring accomplishments have been noted (58, 140), and some of these weaknesses have been described (38). The following section analyzes these problems of the narrative portion of the 1989 Annual Report in more detail, examining each branch of the Forest Service in the order presented in that Report.

National Forest System

The Annual Report was clearly intended to address congressional and public interest in the quantity, quality, and annual outputs of the various renewable resources. One would expect the Annual Report to focus on annual outputs, but relevant resource quantity and quality data should also be included at least periodically, if not annually. One would also expect a discussion of management accomplishments, with information on expenditures and results of the activities. Finally, one would expect the Annual Report to examine the current controversies over management of the national forests.

Output measures are presented in the narrative portion of the Annual Report for nearly all resources-timber harvested, livestock grazed, total recreation, and recreation associated with wildlife and with wilderness. However, no outputs are given for watershed or other forest protection activities, even though these were cited in 1897 as primary purposes for reserving forest lands. No regional differences are discussed. Geographic disaggregations are presented in the statistical appendix for the output measures for most resources, but the narrative rarely refers the reader to relevant information in the appendix.

Information on resource quality and quantity is much less complete. For example, the recreation section describes trail condition and facility maintenance, but the backlog of deferred facility maintenance has only been shown in the 1988 Report. Most of the information on resource conditions is a brief description of concerns about resource conditions, often describing what should be and what is intended, rather than what is. For example, the 1989 Annual Report notes that the Forest Service protects wilderness resources by educating users, enforcing regulations, rehabilitating damaged areas, inventorying uses and conditions, and preparing and implementing protection plans. However, no data are presented on education or enforcement, on wilderness resource conditions, on rehabilitation needs or efforts, or on the number of wilderness plans or the area protected under such plans.

The Annual Report contains substantial information on management activities, but virtually no information on what this means for the resources. For example, the 1989 Report displays acres of watershed improvements and discusses range improvements, but does not indicate what, if any, changes in resource quantity or quality will result from these efforts. Similarly, the 1989 Report trumpets the successes of the challenge cost-share programs for improved quality of recreation sites

and for wildlife and fish habitat improvements, but does not relate these efforts to the quantity or quality of the resources. Even for timber, activities and results are poorly related. Reforestation and timber stand improvement accomplishments are compared to targets, but not to needs. The volume of timber prepared and offered for sale is reported, together with the total volume under contract, but problems resulting from administrative appeals and from litigation are mentioned only briefly, despite, affecting 17 percent of the prepared volume.

The narrative portion of the Annual Report has generally not contained adequate expenditure information to oversee the agency's fiscal performance. The 1989 Report includes receipts and expenditures for recreation and range management, and funding for watershed improvements and for wildlife challenge cost-sharing. However, virtually no timber revenue or cost data are shown in this narrative, even though below-cost timber sales have been a controversy for most of the decade. The only unit cost information in the 1989 Report is on road construction, but these data are not very useful, because building new roads is combined with rebuilding existing roads and because construction is not distinguished byroad function (arterial, collector, or local). Furthermore, the unit cost data are not consistent with the road construction and cost data in the statistical appendix.

Finally, some current concerns about national forest management are glossed over, while others are ignored entirely. For example, litigation to protect spotted owls halted half the Forest Service timber sale program in Washington and Oregon in 1988 and 1989, but was ignored in the 1988 Report and was only mentioned in the middle of the discussion of old-growth forests in the 1989 Report. Concerns about road construction were not mentioned in the Annual Report until 1989, and then only characterized as a misunderstanding. President Bush's announced wetlands policy-no net loss—is not mentioned, although 5 percent of the National Forest System is classified as wetlands. Concerns over administrative appeals and litigation have led Members of Congress to introduce legislation to modify the current system, but such attention is not acknowledged in the 1989 Report. These examples of poorly addressed issues demonstrate the inadequacies of the Annual Report.

State and Private Forestry

Relatively little attention is given to cooperative assistance in the narrative, probably because State and Private Forestry accounts for less than 4 percent of the total Forest Service budget, and because evaluating performance for cooperative assistance is much more difficult than for management activities. Most cooperative activities are discussed briefly, but the information on cooperative assistance is not very useful for evaluating Forest Service performance. The statistical appendix contains substantial information on cooperative activities, but the narrative portion of the 1989 Annual Report only displays fire protection and pesticide use information on National Forest System lands, and the narrative does not refer to the wealth of information in the appendix.

The severe 1987 and 1988 fire seasons, especially the fires around Yellowstone National Park, led to an expanded discussion of fire protection activities. Although fire protection on all lands (including the national forests) is coordinated through State and Private Forestry, fire protection usually accounts for more funds than any other activity in the national forests. Thus, discussing fire protection only under State and Private Forestry seems inappropriate.

Research

In many ways, Forest Service Research suffers from the same problems as State and Private Forestry-less focus because of a much smaller total budget (only 6 percent of the Forest Service budget) and more difficulty in assessing accomplishments. Measuring research performance is probably even more difficult than measuring cooperative assistance performance, because research efforts may require years to show any tangible results.

The discussion of research in the narrative portion of the 1989 Report is perhaps the most useful section of the narrative. It begins with a look at six priority research programs, and includes background on why these are important problems. Various interest groups might argue about whether these are the most important research topics, but all six relate directly or indirectly to issues identified in the Draft 1990 RPA Program. The discussion of research priorities is followed by a brief presentation of research highlights, describing several of the major findings in each of nine categories; one minor fault is that these categories do not match the categorization used in the statistical appendix or in the Draft 1990

RPA Program. This approach-describing research priorities and highlighting research findings-is reasonably effective at presenting Forest Service research accomplishments.

The research chapter of the 1989 Report also briefly describes the highlights of international activities. However, cooperative assistance is a major element of International Forestry. More comprehensive information on international cooperative assistance (types of programs, countries assisted, etc.) comparable to the information provided for domestic cooperative assistance programs, would help Congress and others to evaluate the Forest Service's international activities.

Administration

The Annual Report traditionally includes a separate chapter on Forest Service Administration. The 1989 Report contains sections on improving productivity; on managing the human, capital, and information resources; and on public involvement. Efforts to improve agency productivity are laudable, and need to be heralded. The 1989 Report describes one particular effort, the National Pilot Study, intended to increase flexibility for and creativity by agency employees. There are undoubtedly other efforts to increase performance or reduce costs that also deserve praise that are not discussed in the Annual Report. This failing probably results from the lack of direct Washington Office support (in contrast to the Pilot Study, which has been strongly endorsed by the Chief). Nonetheless, other efforts to improve productivity, large and small, should be highlighted in the Annual Report, both to reward such efforts and to spread the word about successes.

There are two important elements to managing human resources: work force management and human resource programs. The increasing diversity of the work force—more women and minority employees throughout the agency—is described, but the narrative contains no data to illustrate the diversity. An important trend is the rise of women and minorities to line management positions (particularly district rangers and forest supervisors), but there are no data by type of position or level within the agency. Another important trend is the mix of educational backgrounds. It seems likely that the number of biologists, ecologists, archeologists, landscape architects, and other specialists has been increasing, relative to the number of foresters and engineers, but this aspect of work force diversity has been entirely ignored in the Annual Report. Finally, Congress was quite concerned about the the huge numbers of Forest Service workers who were not full-time permanent employees (36), and the statistical appendix presents information showing the change in numbers of such employees over the past 10 years, but the importance of these changes is not noted in the text.

The human resource programs are more fully examined in the 1989 Report than is the work force. The narrative describes the five current human resource programs-Job Corps, Senior Community Service Employment, Youth Conservation Corps, Volunteers in the National Forests, and Hosted Programs. The narrative includes a little information on the use of these programs (e.g., the number of people served), but without referring to the more comprehensive information in the statistical appendix.

The section on Administration also discusses Forest Service interaction with the public in a variety of ways, including on a few controversial issues. This section, however, does not *evaluate* Forest Service **interaction with the public. Although public interaction is difficult to present quantitatively, even the relatively easy measures to quantify, such as the number of various types of publications distributed and the number of school presentations made by Forest Service employees, are not presented. Furthermore, public interest in national forest management appears to be rising, and some sort of measure of this interest, such as numbers of comments on forest plans and on other agency decisions, might be a useful indication of the level of interest.**

As a Report of RPA Program Implementation

The 1989 Annual Report contains a separate chapter on RPA, continuing the format begun in 1988. It contains a very brief summary of the **major** findings of the 1979 RPA Assessment and 1984 Assessment Supplement, followed by a description of the 1985 RPA Program, both high-bound and low-bound, for the resource elements of the National Forest System, for State and Private Forestry, and for Research. The **narrative is accompanied by several figures showing some historical data, RPA Assessment projections, the 1985 RPA targets, and accomplishments through 1989 for selected outputs and activities. At least three of the measures—** commercial salmon and steelhead harvests, deferred

recreation facility maintenance, and reforestation on nonindustry private lands-are not shown elsewhere in the Annual Report, and the source of the data is not identified. Other figures display funding for the three branches of the Forest Service, including some historical information, the high-bound and low-bound projections, and the actual funding. These measures are certainly not comprehensive, and some might argue that important measures are excluded, but it is a beginning (more than a decade late) at reporting on the implementation of the RPA Program.

INFORMATION CONTENT—THE STATISTICAL APPENDIX

The Annual Report has contained a statistical appendix since 1955. This appendix is organized in the same manner as the narrative, with separate sections addressing each branch (National Forest System, State and Private Forestry, Research, and Administration), but with virtually no statistics on RPA Program implementation. The National Forest System section of the statistical appendix focuses on resource and activity data, with the fiscal data included with human resource management under Administration. This pattern is followed in this report.

National Forest System

The Annual Report was clearly intended to support congressional oversight of Forest Service activities, displaying resource outputs and management accomplishments for the National Forest System in ways that would assist the Members and Committees of Congress. Therefore, one would expect the Annual Report: 1) to focus on the most costly and most controversial programs; 2) to provide sufficient geographic detail to serve congressional interests; and 3) to support the RPA planning process. However, the Annual Report has generally not met these expectations.

One problem is inconsistency in the level of detail provided: the statistical appendix does not reflect the importance of the various activities. For example, forest and watershed protection were two of the original authorized purposes of the forest reserves, but the statistical appendix contains no information on watershed management or fire protection in the national forests. Similarly, road construction is the largest budget line item (accounting for nearly 10 percent of annual Forest Service appropriations) and perhaps the most controversial Forest Service program, but relatively little information is presented on the road program. In contrast, appropriations for range management are much lower (roughly comparable to watershed protection appropriations), but the statistical appendix presents more information on range management activities.

Data presentation is also geographically inconsistent. Some data, such as range improvements and watershed improvements, are only reported nationally. Other information, such as suitable rangeland acres and wildlife habitat improvements, is reported by Forest Service region, while reforestation and timber stand improvement needs and certifications are presented by national forest. Still other data-on recreation use, livestock grazing, timber cut and sold, road construction, and wilderness acres-are reported by State. These differences are important. While national forest data can be summed to regional data, they cannot be aggregated to State totals because 28 national forests have land in more than one State. Similarly, State data cannot be summed to regional totals, because only one region (Alaska) follows State boundaries.

This geographical inconsistency limits the Report's value to Congress. National and regional statistics mask the enormous diversity of the National Forest System. For example, the 1989 Annual Report shows a net gain of $403 million on timber sales, but 72 of the 120 national forests (including several in nearly every region) reported a net loss, with the losses on these forests totaling $61 million (127). Most Members of Congress are interested in a relatively small area, usually one or a few national forests or perhaps an entire State. Thus, national and regional data not only provide insufficient information to examine the relative efficiency of investments in various areas, they also fail to provide adequately detailed information for Congress.

Finally, the information reported annually often does not match that which appears in the RPA Assessment and Program, limiting the ability to use the Annual Report to evaluate the implementation of the RPA Program. The differences are discussed below for the various resources and for facilities in the National Forest System.

Recreation

Recreation use is reported in recreation visitor days (RVDs), a measure of the amount of time people spend recreating. The 1989 Annual Report shows total RVDs by State for nine use categories. These categories conform with those used in the Draft 1990 RPA Program for projecting future recreation values. However, they do not match the categories used in the Recreation Assessment, and they differ from the traditional recreation categories used in the Annual Report from 1969 through 1986. Furthermore, the new categories combine inappropriate mixes of activities; for example, all camping (from backpacking to house trailers) is reported with picnicking and swimming, while hiking and horseback-riding are combined with water travel (boating, canoeing, etc.).

The 1989 Annual Report also reports the existing miles of trails, the miles built, and the miles maintained, by State. This displays the management activity (miles built) and the resource quantity (miles) and quality (miles maintained), although one might expect different levels of maintenance for assessing quality, and trail use is an important output measure. The Recreation Assessment only identities the total existing trail mileage, while the Draft 1990 RPA Program only includes trail construction mileage, and thus the Annual Report is more complete for this aspect of recreation.

The Recreation Assessment includes data on the area available for various types of recreation and on the quantity and nature of developed facilities on Federal lands, while the Draft 1990 RFA Program includes the recreation facility maintenance backlog and use of substandard sites as measures of recreation quality. From 1962 through 1976, the Annual Report contained information on use capacity and quality by type of facility, but this information has not been presented since. No data have been reported on the location or on the types of facilities in need of repair since 1976.

Range Forage

The 1989 Annual Report contains more information on livestock grazing than either the 1989 Range Assessment or the Draft 1990 RPA Program. Grazing use, measured in animal unit months (AUMs), is reported in the 1989 Report of the Forest Service by State for various types of livestock. This measure of forage output has been the standard measure for the national forests for decades, and is used in both the 1989 RPA Assessment and in the Draft 1990 RPA Program. It indirectly measures the amount of forage consumed, but does not measure the amount produced.

The 1989 Annual Report displays the status of grazing allotment management, showing the number of allotments, the number where "improved management was started, and the number where "improved management' was maintained; it does not show the. number where "improved management" wasn't maintained, although the historic data clearly indicate that "improved management" was not maintained on some allotments. These tables also show total acres in the allotments and the acres that is "suitable' '---deemed as that "which can be grazed on a sustained yield basis without damage to the resource" (126). This measure does not match either the ecological status used in the Range Assessment or the resource value rating used in the Assessment and in the Draft Program. Suitability might be a useful measure of rangeland quality, but no information is presented to assess its validity. The term can also be confusing, because RPA--as amended--directs the Forest Service to identify suitable timberlands, considering economic as well as physical and biological factors.

Finally, total structural and nonstructural range improvements are identified in the Annual Report. Structural improvements include water developments and other site facilities, and miles of range fence and pipelines. Nonstructural improvements include acres of cover manipulation, range plant control, forage improvement, and noxious weed control. This last category is used as a measure of management in the Draft 1990 RPA Program. All of these measures report on management performance, with cost data. Some geographic details could make these useful measures of management efficiency, although they are still unrelated to resource quantity or quality.

Timber

More data are provided on the timber program than on any other Forest Service activity, but the data still have limitations. Reforestation and timber stand improvement are reported by: 1) total acres treated by funding source for 1985 to 1989; 2) needs by national forest; and 3) certified performance by national forest. Reforestation is an important measure, both as annual performance and as an indicator

of future resource quantity, and was included in the Draft 1990 RPA Program. However, reforestation efforts are not always successful. One study showed that 16 percent of Forest Service reforestation efforts, averaging more than 60,000 acres per year, failed between 1976 and 1984 (133), although the 1989 Report claims that success rates have risen to 93 percent (only 7 percent failures). Therefore, second (or subsequent) efforts on the same site should be separated from initial efforts. The certification of performance indicates successful reforestation, but most observers are only aware of total reforestation efforts, without distinguishing successful from unsuccessful or repeat efforts.

Timber offered for sale, sold, and harvested is reported by Forest Service region. Volume offered and sold could be used to compare locations and conditions where offered timber is and is not being purchased, but the data are not sufficient for this task. For 4 of the 9 Forest Service regions in 1988 and 3 of the 9 in 1989, more timber was sold than was offered for sale, a peculiar condition that is not explained in the Annual Report. In addition, timber released for harvest under long-term contracts in Region 10 (Alaska) is included in timber offered and in timber harvested, but not in timber sold. The Draft Program uses timber offered as the output measure for the timber program, implicitly assuming that if timber is offered for sale, it will eventually be cut. This probably overstates the sale and harvest levels, because some offered sales are not purchased. Timber offered as the output measure also focuses Forest Service efforts on getting timber sales prepared, without regard to efficiency or salability.

The volume harvested differs from volume sold (or offered) in any one year, because timber sales have harvesting deadlines of 3 years or more. The volume of uncut timber under contract, shown in the Annual Report, is the link between timber sold and timber harvested. However, uncut timber under contract cannot be tracked with sale and harvest data (38). In practice, each region provides a new estimate of uncut timber under contract each year, without necessarily considering the previous estimate, even though such information could be generated from the agency's computerized timber contract database, and the causes of variation could be identified. Uncut volume under contract is an important short-term measure of available Federal timber, and thus is of interest to timber purchasers, but it is not included in either the Timber Assessment or in the Draft 1990 Program.

There are several additional measures of timber resource quantity, quality, and output that are included in the Timber Assessment and/or the Draft Program, but not in the Annual Report. The Timber Assessment includes data on commercial timberland, timber productivity classes, and timber inventory; annual updates may not be necessary, but significant variations found in field inventories should be noted when uncovered. Annual growth and mortality estimates could be reported to indicate near-term salvage and reforestation needs, especially following drought, frees, hurricanes, and other natural disasters. The Draft 1990 Program also includes acres harvested, acres clearcut, and acres of old-growth forests as measures of importance to timber and other resources. The Annual Report has never included such data, although there is a brief discussion of old-growth forests in the narrative. However, all three of these measures are important to issues in national forest management, and some efforts to monitor trends are needed to show what is happening on the ground.

Water

The statistical appendix of the Annual Report contains no information on the water resources of the National Forest System. The only water resource data in the 1989 Report are in a table in the narrative showing total acres of watershed improvement. These data represent agency activities, but are not linked to the condition classes used to measure watershed quality in the 1989 Water Assessment and in the Draft 1990 Program. Linking management efforts to watershed condition class, with site-specific unit cost information, would be very useful for congressional oversight of agency performance and of RPA Program implementation.

Acres of wetlands are noted as important resource characteristics in both the 1989 Assessment and the Draft Program, although neither has good measures of wetland quantity or quality for the national forests. The 1989 Annual Report contains no data on the extent, location, or changes in wetlands.

Wildlife and Fish

The Annual Report contains little information on wildlife and fish in the National Forest System. The data presented are often unrelated to resource condition and have not been reported consistently in

other Annual Reports or RPA documents. Hunting and fishing are reported under recreation use, measured in recreation visitor days (RVDs), and total wildlife and fish use is shown in the summary tables, measured in wildlife and fish user days (WFUDs). Unfortunately, WFUDs cannot be directly converted to RVDs, because the number of WFUDs per RVD depends on the type and location of the activity; the 1989 Wildlife Assessment and the Draft 1990 Program use WFUDs. The recreational use of wildlife and fish is an important measure of the resource value, but it is at best indirectly related to resource quantity and quality or to Forest Service efforts.

The 1989 Annual Report shows habitat improvements in acres and numbers of structures by Forest Service region. The types of habitats being improved and the means of improving the habitats are not specified, so historical comparisons and efficiency measures are impossible. As with watershed improvements, habitat improvements measure agency activities, but are not particularly helpful in understanding wildlife and fish resource quantity, quality, or output, and are not included in either the Wildlife Assessment or the Draft Program.

Big game harvests from national forests were reported in early Annual Reports, but have not been included since 1977. The Annual Report includes none of the relevant measures of wildlife and fish resources found in the Draft 1990 Program, such as acres of old-growth forest, acres of big game winter range, and habitat maintenance backlog.

Wilderness

The wilderness resource may have the poorest statistical base of any of the renewable resources in the National Forest System. As noted earlier, the Recreation Assessment includes wilderness with remote back country (lands more than 3 miles from a road) in estimating recreation resources. The Draft 1990 RPA Program only mentions wilderness in passing, and includes no data or projections on wilderness designations. Despite concerns about degradation of wilderness areas (138), there are no measures of the quality of the wilderness resource in any of the RPA documents.

Designated national forest wilderness areas in each State and the past year's additions are reported in the 1989 Annual Report. Wilderness use nationally is shown in one of the summary tables of the 1989 Report, but is not a distinct recreation use category in any of the RPA documents. Wilderness use data are identified for special requests, such as studies of potential wilderness designations (see, for example, the Congressional Research Service analysis of Montana wilderness (143)), but are not reported consistently. This seems a serious gap, since declining use has been cited in recent arguments against additional wilderness designations.

Facilities

While facilities are not part of the renewable resources of the National Forest System, they are assets that are created and maintained and should be tracked. The major categories of facilities are lands, roads, and non-resource-related structures (e.g., ranger stations, in contrast to resource-related structures, such as campgrounds and livestock fences). Aside from the effects of road construction on soil and water resources, discussion of facilities is generally lacking in the 1989 Assessment and Draft 1990 Program. Neither these documents nor the Annual Report contain any information on non-resource-related structures.

The Annual Report always includes a table identifying total National Forest System lands by State. In addition, since 1978, the agency has identified the land purchases, exchanges, and donations by number of cases, acres, and value of the transactions. Finally, boundary surveying, known as landline location, is an ongoing activity. The 1989 Report identifies total miles of boundary, miles surveyed in 1989, and the total surveyed to date, by Forest Service region. This table presents: a) long-term goals (surveying all boundaries); b) current status (accomplishments to date); and c) current output (1989 accomplishments), and thus effectively summarizes boundary measurement for the national forest land resource, although it lacks cost data to evaluate efficiency and rationale for the goal.

Information on roads is less complete. One table shows the road mileage and number of bridges built from appropriations and purchaser road credits, by State. However, unit costs generated from these data are seriously misleading, because about half of appropriations are used to plan, engineer, and oversee roads built with purchaser credits (139). Appropriations to support purchaser credit roads are identified in the annual budget request, but comparable details are not included in the Annual Report. Construction and reconstruction (upgrading an ex-

isting road because of deterioration or because a better road than had originally been anticipated is now needed) are separated for the first time in the 1989 Report. This will help link the RPA documents, since only new construction is identified in the Draft 1990 Program, but the data flow is still inadequate.

In contrast to past efforts, the total road mileage in the National Forest System is not shown in any of the current RPA documents. Maintenance of the road network is mentioned in the narrative of the 1989 Annual Report, but no data are included in the statistical appendix. This lack of information is a serious flaw, because virtually all interest groups are concerned about roads—their cost, location, construction standards, maintenance and/or closure, etc.

State and Private Forestry

The statistical appendix to the Annual Report contains relatively little information on Forest Service cooperative assistance. However, in contrast to the information on the National Forest System, the few statistical tables on State and Private Forestry are relatively thorough, with most cooperative activities reported quantitatively, and the information has been presented in a consistent manner for more than a decade. It was noted earlier that using solely quantitative data misses important information about resource quality, **and this limitation applies to the data on cooperative assistance. Nonetheless, with some additional information** for the development and improvement of quality and effectiveness measures, the data for evaluating cooperative forestry could be quite useful.

The only information on pest management is the Pesticide Use Report, which identifies the quantity of each herbicide and pesticide used, along with the purpose or intended target and a measure of the units treated-acres, seedlings, pounds of seed, or whatever is relevant. The Pesticide Use Report has been included in the Annual Report since 1976, as required by RPA, and it has contained the same measures each year. The value of the data is limited by the lack of location information (e.g., geographical region) and the lack of effectiveness measures. Herbicide and pesticide use is not the only activity of pest management, but it is the only activity with any reported quantitative data with which to evaluate performance.

The statistical appendix contains some information on cooperative fire protection, showing area protected and area burned by State. No data on cooperative expenditures or fire damages are reported, so it is impossible to evaluate efficiency. Nonetheless, these data exceed the data on fire protection in the national forests.

Forest Service Research

Forest Service Research also receives little coverage in the statistical appendix of the Annual Report. Quantitative measurements for research are probably more difficult to develop than for other activities, because research results may require years to affect resources or management. Tables in the 1989 Annual Report show research funding and number of publications, by research category. Information about research efforts in scientist-years would also be useful. For many years, the categories used to report funding had differed substantially from those used to report publications. However, the funding categories in the 1989 Report are virtually identical to the major categories used to report publications for more than a decade, although insect and disease research is combined with fire and atmospheric sciences research. Since 1988, the budget requests have also conformed to the format now used for the Annual Report, and the Draft 1990 Program uses the same structure.

The Statistical appendix of the Annual Report contains no information on International Forestry.

Forest Service Administration

The Annual Report contains statistical information on managing human and capital resources in the section on Forest Service Administration. Human resource management involves both the work force and various human service programs, while capital management focuses substantially on expenditures, receipts, and social benefits. The Annual Report contains no statistics on productivity improvement, information management, or public involvement.

Human Resources

The work force, and its diversity and changing nature, are described in the narrative portion of the Annual Report. However, the tables in the statistical appendix provide no data to illustrate the diversity by type of position or level within the agency. There are no data on the rise of women and minorities to line management positions (particularly district

rangers and forest supervisors), and no data on the increasing diversity in the mix of educational backgrounds. The 1989 Annual Report does show a radical change in the mix of permanent fill-time, other permanent, and temporary employees since 1980. Permanent full-time workers increased by 42 percent, while other permanent workers declined to only 13 percent of the 1980 level and temporaries declined to 60 percent of the 1980 level. This has important implications for the agency's work force, but is not even noted in the narrative.

The human resource programs are more fully evaluated in the 1989 Report of the Forest Service than is the work force. Only one table is presented on the human resource programs (Job Corps, Senior Community Service Employment, Youth Conservation Corps, Volunteers in the National Forests, and Hosted Programs), but this table is reasonably complete, identifying funding, numbers served (including the proportion of women and minorities), the work accomplished in person-years and in value, and a few other relevant measures. Furthermore, this table has been included in the Annual Report in the same format for more than a decade, thus providing a valuable historical perspective on human resource programs.

Fiscal Resources

Measuring financial and economic performance is also important for assessing accomplishments and evaluating performance. Expenditures and receipts are important fiscal measures, but because the Forest Service was not created as a profit-making venture, social benefits need to be reported as well.

Expenditures-One of the purposes of the Annual Report is to improve accountability for expenditures. One means of examining financial performance is to display unit costs for various activities, showing geographic variation and changes over time. However, the statistical appendix to the Annual Report contains virtually no unit cost data on any activity for any branch of the Forest Service, and contains insufficient detail to calculate unit cost data. Thus, the effectiveness or efficiency of management, research, and cooperative efforts cannot be evaluated.

Congress specified that the Annual Report accompany the budget request, suggesting that the Report was intended to provide supplemental information. However, some expenditure data in the 1989 Annual Report is internally inconsistent (various tables have different data) and is inconsistent with the FY1991 budget request (125). The discrepancies are generally small, but Forest Service payments to counties ($371 million in 1989) are consistently excluded from all tables in the Annual Report.

Data on timber sale funding have been included in the Annual Report for more than a decade, and illustrate how information reported has changed, making historical analyses extremely difficult. Timber funding has risen in 8 of the past 10 years, declining by 14 percent in 1986 and by 8 percent in 1988. Yet, total timber funding was reported as $918 million in 1979 and only $477 million in 1989. This misleading "decline" results from the removal of selected cost items from the timber funding table. General administration and purchaser road credits were eliminated in the 1982 Report, removing $375 million of 1981 timber funding. In the 1984 Report, reforestation and timber stand improvement expenditures were dropped, reducing 1983 funding by $249 million. In 1986, landline location and road maintenance were eliminated and purchaser roads built by the Forest Service were revised to show the lower actual expenditures rather than the authorized level, saving a total of $115 million of 1985 timber funding. And finally, in 1988, reforestation and timber stand improvement funding from the Tongass Timber Supply Fund was deleted, reducing timber funding by about $15 million. Thus, since 1981, timber funding as shown in the Annual Report has been revised four times, deleting about $750 million from "timber funding" without changing anything on the ground. Interestingly, purchaser credit roads, landline location, and the Tongass Fund were still reported as timber funding expenditures in the 1991 budget request.

Receipts—The Annual Report shows National Forest System receipts by source-by resource, under various special deposits, and numerous other categories. (The other Forest Service branches do not generate receipts, except for a few minor cooperative deposits.) Although the data generally match the receipts shown for 1989 in the FY1991 budget request (with small discrepancies for two special deposits), the Forest Service inappropriately includes the value of purchaser road credits used ($107 million in 1989), in total receipts. The credits are actually an exchange of timber for road construction, an in-kind receipt not a cash receipt, and the

FY1990 budget request shows them, but properly excludes them from total receipts. (See box 9-A.)

The 1989 Annual Report also shows timber sale values. The Report, and most other Forest Service documents, show the value of timber sold, implying that these are timber receipts. This is misleading, because receipts are not collected until timber is harvested, which may be several years after the contract is awarded. Thus, the value of timber sold is an estimate of future receipts, and can vary from actual receipts for several reasons. First, timber prices are adjusted periodically after the contract is signed, based on changes in lumber prices, under a standard Forest Service procedure (known as escalation) in use for many years. In addition, most Forest Service timber is paid for at the bid *rate, so* errors in volume estimates will lead to errors in receipt estimates. Volume estimates can vary widely from the actual volume removed, although no bias has been observed (63). The accuracy of the receipt estimates has never been evaluated, but several critics have noted that bids can be (and have been) intentionally skewed to lead to errors in receipt estimates (130, 146). Thus, it is possible that the Forest Service ultimately never collects all of the receipts estimated as the value of timber sold, although this possibility has never been evaluated.

Finally, the presentation of receipts implies that all this money is paid into the General Treasury. Such is not the case. Some are deposits made directly into individual trust funds or special accounts. In particular, deposits to the Knutson-Vandenberg Fund are reported as timber receipts, but are permanently appropriated for reforestation, timber stand improvement, or other sale-area related activities. Many national forest receipts are subsequently used to cover other special accounts and trust funds (141). The major accounts paid from receipts include payments to counties, the Roads and Trails Fund, the Tongass Timber Supply Fund, purchaser roads built by the Forest Service (the Purchaser Election Program), the Land and Water Conservation Fund, the Range Betterment Fund, and a few other minor accounts. (See box 7-B.) Because of the ways in which these transfers are calculated, the amount going to the General Treasury fluctuates. Over 60 percent of receipts were deposited in the General Treasury in the late 1970s, but this fell to less than 12 percent in 1982 before recovering to 47 percent in 1987 (142). Thus, indications of $1.5 or $1.6 billion in receipts mislead the casual observer into thinking this is entirely beneficial to the Federal Treasury, when half or more is already allocated to various Forest Service activities.

Other Benefits-The Forest Service generates benefits other than just cash receipts for the U.S.

Box 9-A—Timber Purchaser Road Credits

Under the 1964 National Forest Roads and Trails Act, the Forest Service is authorized to construct roads in the national forests "by requirements on purchasers of national forest timber and other products, including provisions for amortization of road costs in contracts." In practice, the Forest Service specifies the location and standards for roads to be built in each timber sale contract, estimates the construction costs, and grants the purchaser credits (equal to the estimated construction costs) which can then be used to pay for the timber.

There are situations where the purchaser cannot use the credits-the credits are "ineffective." The Forest Service establishes base rates as the minimum cash payments per thousand board feet of timber, ostensibly to recover the reforestation costs plus $0.50 per thousand board feet. (In practice, the base rates are arbitrary.) When the timber is offered for sale, potential purchasers may bid on the timber, raising the price of the timber. However, if the bid price is at or near the base rates (the minimum required ***cash*** payment), all or some of the credits cannot be used to pay for timber. This situation is actually more complicated, because timber prices are often adjusted after contracts are signed, a standard procedure for most Forest Service contracts. These timber price changes can make more or fewer credits ineffective, depending on whether prices are falling or rising. Thus, when the contract is signed, the purchaser may not know how many of the credits can be used.

One further point needs to be made about purchaser road credits. After the downpayment on a timber sale is made, the purchaser can use all the credits to pay for timber before putting forth any cash. Thus, the credits amount to short-term, interest-free loans for timber purchasers. In addition, purchasers can transfer effective credits (but not ineffective credits) among timber sales within a national forest, although they cannot be shifted to another forest or to another purchaser. Thus, some purchasers with several timber sales on one forest maybe able to delay making cash payments for several years.

Treasury. The Draft 1990 RPA Program notes that the social benefits of research and of cooperative assistance are difficult to calculate, and makes no effort to do so. The Annual Report continues this approach, with no reporting of cooperative assistance or research benefits.

The Annual Report does show the value of benefits generated by the National Forest System. There are many ways to calculate the social benefits of nonpriced or underpriced resources. (See box 6-B.) The approach used in the Draft 1990 RPA Program, calculating both market-clearing price and consumer's surplus, is consistent with economic theory. Thus, one might expect that the nonpriced and underpriced resources would be valued similarly in the Annual Report, but this is not so. The 1988 Report used values substantially below the market-clearing price for recreation and wilderness, and below the social value (market-clearing price plus consumer's surplus) for all four resources. The 1989 Report used values for recreation and for wilderness that were above the social values identified in the Draft 1990 Program. (See table 9-l.) In addition, the reported timber value ($103 per thousand board feet (MBF)) is noted as the "actual value at time of sale," but matches neither the value of timber sold in 1989 ($128 per MBF) nor the value of timber harvested in 1989 ($110 per MBF).

The Annual Report also overstates the outputs in calculating total benefits. Timber is reported at 11.5 billion board feet, the. amount of timber offered for sale, not the amount sold or harvested (8.4 and 12.0 billion board feet, respectively). Timber offered may measure agency activity, but it does not measure value generated for society. Forage use is similarly reported at the permitted level of use, not the actual use that occurred, and thus overstates benefits generated by 18 percent. Recreation use in the table matches total recreation use elsewhere in the Annual Report, which *includes* hunting, fishing, and recreation in wilderness areas; the benefits of recreation use is overstated because these three activities account for 17 percent of total recreation use. The accuracy of the wilderness use data cannot be evaluated, because wilderness use is not discussed elsewhere in the Annual Report, nor in the Recreation Assessment or the Draft 1990 Program. Finally, the wildlife and fish use data also cannot be compared, because of differences in the measures reported.

The Forest Service also includes tables on the financial performance of the timber sale program, apparently in place of reporting a representative sample of timber sales where the costs exceeded the benefits. The latter is required by RPA and a sample was included in the Annual Report from 1977 through 1982. A new table showing values, costs, and associated outputs first appeared in the 1984 Report. The Forest Service provided data in this new format in 1984 and 1985, but in 1986 replaced the data with a statement noting that the Timber Sale Program Information Reporting System (TSPIRS) was being developed to generate such information, and the data would become available after full implementation of TSPIRS. The 1989 Report is the first to show data from this new system.

The House Appropriations Committee initially requested the Forest Service to develop a timber sale cost accounting system. The Forest Service argued that tracking costs for every timber sale was far too cumbersome for the 500,000 sales made annually, although fewer than 1,500 sales annually actually account for more than 75 percent of the sale volume and more than 88 percent of estimated timber receipts (126). Nonetheless, the Forest Service developed TSPIRS to display costs, receipts, and

Table 9-1—Nonpriced Resource Values in the 1988 and 1989 Reports of the Forest Service and in the Draft 1990 RPA Program

			Draft 1990 RPA Program	
	1988 Annual Report	1989 Annual Report	Market price	Market price + consumer's surplus
Recreation-per RVD (recreation visitor day)	$8.96	24.59	13.68	22.08
Wilderness-per RVD	$10.74	32.75	15.68	30.42
Wildlife and fish-per WFUD (wildlife/fish user day)	*$24.36*	*24.36*	*20.42*	*37.13*
Livestock forage--per AUM (animal unit month)	$6.30	6.89	5.12	8.41

SOURCE: U.S. Department of Agriculture, Forest Service, *Draft* 1990 *RPA Program* (Washington, DC: U.S. Government Printing Office, 1989). U.S. Department of Agriculture, Forest Service, *Report of the Forest Service, Fiscal Year* 1988 (Washington, DC: U.S. Government Printing Office, 1989). U.S. Department of Agriculture, Forest Service, *Report of the Forest Service,* Fiscal *Year* 1989 (Washington, DC: U.S. Government Printing Office, 1990).

other benefits generated by the timber sale program. There are many problems with TSPIRS as a measure of timber sale economics. Revenues include deposits to the Knutson-Vandenberg Fund and timber purchaser road credits, although neither benefits the U.S. Treasury. The comparable expenses (plus other road construction, reforestation, and other stand investment costs) are "depreciated" over long time periods, often 100 years or more, so that most road construction and reforestation expenditures are reported in the short-term as net social benefits of timber sales. This approach is unlikely to assist congressional oversight of agency accountability for expenditures.

TSPIRS also reports employment and income generated by timber sales. Such social benefits may well be appropriate for reporting annually, and Congress has frequently expressed interest in such information. Employment, income, payments to counties, and other relevant measures of the economic and social impacts of Forest Service activities are important, as described earlier, but such information should only be reported when the complete picture can be shown. Presenting such data only for Forest Service timber sales seriously skews the information base. This can focus attention on increasing timber sales, at the expense of generating social benefits through management of, research on, and assistance for other renewable resource production and protection activities.

MEETING ANNUAL REPORTING REQUIREMENTS

In addition to assessing agency activities and RPA program implementation, the Annual Report is to meet certain specific reporting requirements. This section examines each of these requirements, and evaluates the performance of the 1989 Annual Report in meeting them.

The Forest Service has produced an Annual Report every year since RPA was enacted, as required by section 8(c). As described above, the evaluation of the elements of the RPA Program is now satisfactory in some areas, although few RPA Program targets are shown and the effort is rather weak in other areas.

The Annual Report is reasonably successful at meeting the requirement for "a description of the status of major research programs [and] significant findings, " and the statistical appendix presents a reasonably comprehensive summary of cooperative forestry accomplishments, as required in section 8(c). However, the discussion of research applications is weak, and the analysis of cooperative assistance needs and work backlogs is entirely lacking. The Report describes priority research programs, which is not required, but which should prove useful in helping to develop future RPA Assessments and Programs.

In general, the Annual Report does not fulfill the requirement that it provide "appropriate measures of pertinent costs and benefits. . . to assess the balance between economic factors and environmental quality factors' [sec. 8(d)]. One table provides a summary of benefits by resource category, but the measures used are inconsistent with quantities and values elsewhere in the Annual Report and in the RPA Program. Furthermore, some of the benefits specified, such as esthetics and public access, are excluded from that table, while others, such as cost savings and rate of return, are excluded from the Annual Report entirely. Assessing the balance between economic and environmental factors is admittedly a difficult task, but the Annual Report has made no attempt to meet this requirement.

The Annual Report is also to include "plans for implementing corrective actions and recommendations for new legislation where warranted" [sec. 8(e)]. If the Report truly assessed the implementation of the RPA Program, deviations from the targets and difficulties in meeting targets would have been identified. Then, corrective actions and legislative needs could be discussed. However, until it evaluates RPA Program implementation, the Annual Report probably cannot meet this requirement.

Section 3(d)(1) requires the Annual Report to include information on reforestation and timber stand improvement needs and on certification of successful reforestation and stand improvement efforts, by national forest and by State. The Report has included tables providing such information, with more details than specified, every year since 1978, although site productivity details for the certifications were eliminated in the 1989 Report. Nonetheless, the Annual Report has clearly met this requirement.

The Annual Report is required to identify "the amounts, types, and uses of herbicides and pesti-

cides used in the National Forest System, including the beneficial or adverse effects of such uses" [sec. 3(e)]. The Report of the Forest Service has included the Pesticide Use Report annually since 1978, but it contains no discussion of the beneficial or adverse effects of herbicide and pesticide use. Thus, the Annual Report has met only part of the requirements of this section of RPA.

Finally, section 6(l)(1) directs the Secretary to develop a process for estimating long-term benefits and costs, including information on the "estimated expenditures associated with the reforestation, timber stand improvement, and sale of timber from the National Forest System, and. . . a comparison of these expenditures to the return to the Government resulting from the sale of timber. " Subsection (2) then requires a summary of these data in the Annual Report, 'including an identification on a representative sample basis of those advertised timber sales made below the estimated expenditures for such timber as determined by the above cost process." From 1977 through 1982, the Annual Report included a table with a sample of timber sales, some with costs exceeding receipts, although it is impossible to determine if those sales were ' 'representative. " It is also unclear whether the costs included reforestation and stand improvement costs; one might expect that the timber funding table, described earlier in this chapter, might be the basis for these costs, and this table did include reforestation and stand improvement costs until 1984. However, since 1984, this requirement has been largely ignored.

The Timber Sale Program Information Reporting System (TSPIRS) identifies timber receipts, allocated expenses, and other economic consequences of the timber sale program, but critics charge that it presents an inaccurate picture, particularly of the costs. The Annual Report neither explains the system used, nor refers the reader to source material, so the validity of the data cannot be readily evaluated. It clearly does not meet the legal requirement for comparing the expenditures (including reforestation) and returns of a representative sample of below-cost timber sales.

CONCLUSIONS

The Annual Report provides an informative overview of Forest Service programs and activities for individuals and groups not familiar with the agency, although it presents an extremely favorable picture of the agency and ignores or glosses over most controversies.

As a report of Forest Service accomplishments, the Annual Report is much less useful. The narrative portion of the Report presents output measures for most national forest resources, but information on resource conditions is generally lacking. The Annual Report contains information on national forest management activities without explaining the implications for resource conditions. For example, the 1989 Report displays acres of watershed improvement, but does not relate this effort to changes in watershed conditions. Furthermore, some activities, such as forest protection, are excluded entirely. The narrative also does not contain adequate expenditure information to oversee Forest Service fiscal performance. The description of cooperative assistance is even less useful, with virtually no assessment of results or of efficiency, and no reference to the relatively complete picture contained in the statistical appendix. In contrast, the discussion of research priorities and of major research findings is reasonably effective at presenting the agency's research accomplishments. Finally, the 1989 Report describes public interactions, human resource programs, and the increasing work force diversity, but without any supporting data.

As a report on the implementation of the RPA Program, the Annual Report has been nearly useless. The 1988 Report was the first to include a separate section addressing RPA implementation. Accomplishments are compared with several RPA output and budget targets, although the analysis is far from comprehensive and RPA targets are excluded from the other chapters of the Annual Report and from most of the tables in the statistical appendix. The recent efforts are a late and incomplete beginning for reporting on RPA Program implementation.

The Annual Report's statistical appendix presents the details of Forest Service activities and accomplishments. One problem is inconsistency in the level of detail; the Report contains relatively little information on some important resources or issues, such as watershed protection and road construction. Another problem is the inconsistent geographic base for reporting. Some measures are reported only nationally, while others have regional, State, or national forest information. In addition, the measures used often differ from those in the RPA Assessment and Program. For example, the 1989

Annual Report identifies trail maintenance, suitable rangeland, watershed and wildlife habitat improvements, and road reconstruction-not used in the other RPA documents-but excludes information on recreation facility maintenance, rangeland condition, old-growth forests, clearcutting, and wetlands.

Finally, the statistical appendix is generally treated as independent from the narrative. The information does not support the narrative, and the narrative rarely refers to the copious statistics that are presented.

Adequate statistical information on cooperative assistance and on research is difficult to develop, but the Forest Service has reasonably thorough data on these branches. The statistical base for human resource programs is similarly thorough, but the data on the work force is nearly useless. Finally, the Annual Report is inadequate for examining the financial and economic performance of the agency. While generally consistent with the budget requests, the fiscal data are inadequate to calculate and compare unit costs for activities and areas over time. One table, reporting timber sale funding, has been modified biannually to show declining costs while costs have actually been increasing. Information on the local and regional economic and social consequences of Forest Service activities are lacking.

RPA also imposed numerous specific reporting requirements on the Forest Service. Several of the requirements, such as the pesticide use report and the needs and certifications for reforestation and timber stand improvement, have been met annually, although often the required reporting is incomplete. Other requirements, such as reporting long-term benefits and costs, have not been so effectively addressed. A few, such as identifying needed corrective actions and presenting representative below-cost timber sales, have been virtually ignored.

Overall, the Annual Report has been a mediocre tool for evaluating Forest Service performance, and its independence from the RPA process has rendered it ineffective for documenting implementation of the RPA Program. Furthermore, there have been few changes to improve the ability of the Report to meet these tasks, and some changes have actually reduced its value. In examining the potential of the Annual Report to serve as the final step in the RPA process, Stairs and Maurer (94) observed that the needed changes in the Annual Report "are not compatible with incremental revisions of the present process . . . . [T]he annual reporting process can no longer be perceived as an autonomous process. " Until the Annual Report displays Forest Service efforts toward achieving the resource quantity and quality goals established in the RPA Program, with sufficient geographic and unit cost details to oversee performance, the Report will continue to be the weak link in the RPA process.

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Appendix

Forest and Rangeland Renewable Resources Planning Act of 1974 As Amended

CHAPTER 36-FOREST AND RANGELAND RENEWABLE RESOURCES PLANNING

SUBCHAPTER I–PLANNING

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CHAPTER REFERRED TO IN OTHER SECTIONS

This chapter is referred to in section 472a of this title.

SUBCHAPTER I—PLANNING

SUBCHAPTER REFERRED TO IN OTHER SECTIONS

This subchapter is referred to in sections 46000, 460vv--4, 472a, 497b, 539c, 582a, 6700, 1641, 2101 of this title; title 43 section 1721.

51600. Congressional findings

The Congress finds that—

(1) the management of the Nation's renewable resources is highly complex and the uses, demand for, and supply of the various resources are subject to change over time;

(2) the public interest is served by the Forest Service, Department of Agriculture, in cooperation with other agencies, assessing the

Nation's renewable resources, and developing and preparing a national renewable resource program, which is periodically reviewed and updated;

(3) to serve the national interest, the renewable resource program must be based on a comprehensive assessment of present and anticipated uses, demand for, and supply of renewable resources from the Nation's public and private forests and rangelands, through analysis of environmental and economic impacts, coordination of multiple use and sustained yield opportunities as provided in the Multiple-Use Sustained-Yield Act of 1960 (74 Stat. 215; 16 U.S.C. 528-531), and public participation in the development of the program;

(4) the new knowledge derived from coordinated public and private research programs will promote a sound technical and ecological base for effective management, use, and protection of the Nation's renewable resources;

(5) inasmuch as the majority of the Nation's forests and rangeland is under private, State, and local governmental management and the Nation's major capacity to produce goods and services is based on these nonfederally managed renewable resources, the Federal Government should be a catalyst to encourage and assist these owners in the efficient long-term use and improvement of these lands and their renewable resources consistent with the principles of sustained yield and multiple use;

(6) the Forest Service, by virtue of its statutory authority for management of the National Forest System, research and cooperative programs, and its role as an agency in the Department of Agriculture, has both a responsibility and an opportunity to be a leader in assuring that the Nation maintains a natural resource conservation posture that will meet the requirements of our people in perpetuity; and

(7) recycled timber product materials are as much a part of our renewable forest resources as are the trees from which they originally came, and in order to extend our timber and timber fiber resources and reduce pressures for timber production from Federal lands, the Forest Service should expand its research in the use of recycled and waste timber product materials, develop techniques for the substitution of these secondary materials for primary materials, and promote and encourage the use of recycled timber product materials.

(Pub. L. 93-378, § 2, as added Pub. L. 94-588, § 2, Oct. 22, 1976, 90 Stat. 2949.)

REFERENCES IN TEXT

The Multiple-Use Sustained-yield Act of 1960, referred to in par. (3), is Pub. L. 86-517, June 12, 1960, 74 Stat. 215, as amended, which is classified to sections 528 t. 53 I of this title. For complete classification of this Act to the Code, see Short Title note set out under section 528 of this title and Tables.

SHORT TITLE OF 1988 AMENDMENTS

Pub. L. 100-521, § 1, Oct. 24, 1988, 102 Stat. 2601, provided that: "This Act [amending section 1642 of this title and enacting provisions set out as a note under section 1642 of this title] may be cited as the 'Forest Ecosystems and Atmospheric Pollution Research Act of 1988'. "

Pub. L. 100-231, 31, Jan. 5, 1988, 101 Stat. 1565, provided that: "This Act [amending sections 1674 and 1675 of this title and provisions set out as a note under section 1671 of this title] may be cited as the 'Renewable Resources Extension Act Amendments of 1987'. "

SHORT TITLE OF 1980 AMENDMENT

Pub. L. 96-554, § 1, Dec. 19, 1980, 94 Stat. 3257, provided: "That this Act [enacting subchapter- **IV** of this chapter and enacting provision set out as a note under section 1681 of this title] may be cited as the 'Wood Residue Utilization Act of 1980'."

SHORT TITLE OF 1978 AMENDMENTS

Pub. L. 95-307, § 1, June 30, 1978, 92 Stat. 353, provided: "That this Act [enacting subchapter II of this chapter, repealing sections 581 to 5811 of this title, and enacting provisions set, out as a note under section 1641 of this title] may be cited as the "Forest and Rangeland Renewable Resources Research Act of 1978'."

Pub. L. 95-306, § 1, June 30, 1978, 92 Stat. 349, provided: "That this Act [enacting subchapter III of this chapter and provision set out as a note under section 1671 of this title] may be cited as the "Renewable Resources Extension Act of 1978'. "

SNORT TITLE OF 1976 AMENDMENT

Section 1 of Pub. L. 94-588 provided: "That this Act [enacting sections 472a, 521b, 1600, and 1611 to 1614 of this title, amending sections 500, 515, 516, 518, 576b, 581h, and 1601 to 1610 of this title, repealing sections 476, 513 and 514 of this title, and enacting provisions set out as notes under sections 476, 513, 528, 594-2, and 1600 of this title] may be cited as the 'National Forest Management Act of 1976'."

SHORT TITLE

Section 1 of Pub. L. 93-378, Aug. 17, 1974, 88 Stat. 476, provided: "That this Act [enacting this subchapter and amending section 581h of this title] may be cited as the 'Forest and Rangeland Renewable Resources Planning Act of 1974'."

SEPARABILITY OF PROVISIONS

Section 21 of Pub. L. 94-588 provided that: "If any provision of this Act [see Short Title of 1976 Amendment note set out above] or the application thereof to any person or Circumstances is held invalid, the validity of the remainder of the Act and of the application of such provision t o other persons and circumstances shall not be affected thereby. "

ACT REFERRED TO IN OTHER SECTIONS

The National Forest Management Act of 1976 is referred to in sections 46011, 460qq. 497b, 544k, 5440 of this title; title 43 section 1635.

§ 1601. Renewable Resource Assessment

(a) Preparation by Secretary of Agriculture; time of preparation, updating and contents

In recognition of the vital importance of America's renewable resources of the forest, range, and other associated lands to the Nation's social and economic well-being, and of the necessity for a long term perspective in planning and undertaking related national renewable resource programs administered by the Forest Service, the Secretary of Agriculture shall prepare a Renewable Resource Assessment. (hereinafter called the "Assessment"). The Assessment shall be prepared not later than December 31, 1975, and shall be updated

during 1979 and each tenth year thereafter, and shall include but not be limited to—

(1) an analysis of present and anticipated uses, demand for, and supply of the renewable resources, with consideration of the international resource situation, and an emphasis of pertinent supply and demand and price relationship trends;

(2) an inventory, based on information developed by the Forest Service and other Federal agencies, of present and potential renewable resources, and an evaluation of opportunities for improving their yield of tangible and intangible goods and services, together with estimates of investment costs and direct and indirect returns to the Federal Government;

(3) a description of Forest Service programs and responsibilities in research, cooperative programs and management of the National Forest System, their interrelationships, and the relationship of these programs and responsibilities to public and private activities; and

(4) a discussion of important policy considerations, laws, regulations, and other factors expected to influence and affect significantly the use, ownership, and management of forest, range, and other associated lands.

(b) **Contents of Assessments**

The Secretary shall report in the 1979 and subsequent Assessments on:

(1) the additional fiber potential in the National Forest System including, but not restricted to, forest mortality, growth, salvage potential, potential increased forest products sales, economic constraints, alternate markets, contract considerations, and other multiple use considerations;

(2) the potential for increased utilization of forest and wood product wastes in the National Forest System and on other lands, and of urban wood wastes and wood product recycling, including recommendations to the Congress for actions which would lead to increased utilization of material now being wasted both in the forests and in manufactured products; and

(3) the milling and other wood fiber product fabrication facilities and their location in the United States, noting the public and private forested areas that supply such facilities, assessing the degree of utilization into product form of harvested trees by such facilities, and setting forth the technology appropriate to facilities to improve utilization either individually or in aggregate the units of harvested trees and to reduce wasted wood fibers. The Secretary shall set forth a program to encourage the adoption by these facilities of these technologies for improving wood fiber utilization.

(c) **Public involvement; consultation with governmental departments and agencies**

In developing the reports required under subsection (b) of this section, the Secretary shall provide opportunity for public involvement and shall consult with other interested governmental departments and agencies.

(d) Congressional policy of multiple use sustained yield management; examination and certification of lands: estimate of appropriations necessary for reforestation and other treatment; budget requirements: authorization of appropriations

(1) It is the policy of the Congress that all forested lands in the National Forest System shall be maintained in appropriate forest cover with species of trees, degree of stocking, rate of growth, and conditions of stand designed to secure the maximum benefits of multiple use sustained yield management in accordance with land management plans. Accordingly, the Secretary is directed to identify and report to the Congress annually at the time of submission of the President's budget together with the annual report provided for under section 1606(c) of this title, beginning with submission of the President's budget for fiscal year 1978, the amount and location by forests and States and by productivity class, where practicable, of all lands in the National Forest System where objectives of land management plans indicate the need to reforest areas that have been cutover or otherwise denuded or deforested, and all lands with stands of trees that are not growing at their best potential rate of growth. All national forest lands treated from year to year shall be examined after the first and third growing seasons and certified by the Secretary in the report provided for under this subsection as to stocking rate, growth rate in relation to potential and other pertinent measures. Any lands not certified as satisfactory shall be returned to the backlog and scheduled for prompt treatment. The level and types of treatment shall be those which secure the most effective mix of multiple use benefits.

(2) Notwithstanding the provisions of section 1607 of this title, the Secretary shall annually for eight years following October 22, 1976, transmit to the Congress in the manner provided in this subsection an estimate of the sums necessary to be appropriated, in addition to the funds available from other sources, to replant and otherwise treat an acreage equal to the acreage to be cut over that year, plus a sufficient portion of the backlog of lands found to be in need of treatment to eliminate the backlog within the eight-year period. After such eight-year period, the Secretary shall transmit annually to the Congress an estimate of the sums necessary to replant and otherwise treat all lands being cut over and maintain planned timber production on all other forested lands in the National Forest System so as to prevent the development of a backlog of needed work larger than the needed work at the beginning of the fiscal year. The Secretary's estimate of sums necessary, in addition to the sums available under other authorities, for accomplishment of the reforestation and other treatment of National Forest System lands under this section shall be provided annually for inclusion in the President's budget and shall also be transmitted to the Speaker of the House and the President of the Senate together with the annual report provided for under section 1606(c) of this title at the time of submission of the President's budget to the Congress beginning with

the budget for fiscal year 1978. The sums estimated as necessary for reforestation and other treatment shall include moneys needed to secure seed, grow seedlings, prepare sites, plant trees, thin, remove deleterious growth and underbrush, build fence to exclude livestock and adverse wildlife from regeneration areas and otherwise establish and improve growing forests to secure planned production of trees and other multiple use values.

(3) Effective for the fiscal year beginning October 1, 1977, and each fiscal year thereafter, there is hereby authorized to be appropriated for the purpose of reforesting and treating lands in the National Forest System $200,000,000 annually to meet requirements of this subsection (d). All sums appropriated for the purposes of this subsection shall be available until expended.

(e) **Report on herbicides and pesticides**

The Secretary shall submit an annual report to the Congress on the amounts, types, and uses of herbicides and pesticides used in the National Forest System, including the beneficial or adverse effects of such uses.

(Pub. L. 93-378, § 3(a) [formerly § 2(a)], (c)-(e), Aug. 17, 1974, 88 Stat. 476, renumbered § 3(a) and amended Pub. L. 94-588, §§ 2, 3, 4, Oct. 22, 1976, 90 Stat. 2949, 2950.)

CODIFICATION

Section is constituted as follows:

Subsec. (a) consists of section 3(a), formerly 2(a), of Pub. L. 93-378, as renumbered by section 2 of Pub. L. 94-588. Section 3(b), formerly section 2(b), of Pub. L. 93-378 amended section 581h of this title.

Subsec. (b) consists of section 3(c) of Pub. L. 93-378. as added by section 3 of Pub. L. 94-588.

Subsec. (c) consists of section 3(d) of Pub. L. 93-378, as added by section 3 of Pub. L. 94-588.

Subsec. (d) consists of section 3(d) of Pub. L. 93-378, as added by section 4 of Pub. L. 94-588.

Subsec. (e) consists of section 3(e) of Pub L. 93-378, as added by section 4 of Pu b L. 94 588.

AMENDMENTS

1976–Subsecs. (b) to (e). Pub. L,. 94-588. §§ 3, 4, added subsecs. (b) to (e)

TRANSFER OF FUNCTIONS

Enforcement functions of Secretary or other official m Department of Agriculture. Insofar as they involve lands and programs under jurisdiction of that Department, related to compliance with this subchapter and system activities requiring coordination and approval under general authorities of this subchapter with respect to pre-construction, construction, and initial operation of transportation system for Canadian and Alaskan natural gas were transferred to the Federal Inspector, Office of Federal Inspector for the Alaska Natural Gas Transportation System, until the first anniversary of date of initial operation of the Alaska Natural Gas Transportation System, see Reorg. Plan No. 1 of 1979, §§ 102(f), 203(a), 44 F.R. 33663, 33666, 93 Stat. 1373, 1376, effective Julv 1, 1979, set out in the Appendix to Title 5, Government Organization and Employees.

SECTION REFERRED TO IN OTHFR SECTIONS

This section is referred to in sections 1606, 1606a, 1642. 1674, 1675 of this title; title 7 section 3121.

51602. Renewable Resource Program; preparation by Secretary of Agriculture and transmittal to President; purpose **and development of program; time of preparation, updating and contents**

In order to provide for periodic review of programs for management and administration of the National Forest System, for research, for cooperative State and private Forest Service programs, and for conduct of other Forest Service activities in relation to the findings of the Assessment, the Secretary of Agriculture, utilizing information available to the Forest Service and other agencies within the Department of Agriculture, including data prepared pursuant to section 1010a of title 7, shall prepare and transmit to the President a recommended Renewable Resource Program (hereinafter called the "Program"). The Program transmitted to the President may include alternatives, and shall provide in appropriate detail for protection, management, and development of the National Forest System, including forest development roads and trails; for cooperative Forest Service programs; and for research. The Program shall be developed in accordance with principles set forth in the Multiple-Use Sustained-Yield Act of June 12, 1960 (74 Stat. 215; 16 U.S.C. 528-531), and the National Environmental Policy Act of 1969 (83 Stat. 852) [42 U.S.C. 4321 et seq.]. The Program shall be prepared not later than December 31, 1975, to cover the four-year period beginning October 1, 1976, and at least each of the four fiscal decades next following such period, and shall be updated no later than during the first half of the fiscal year ending September 30, 1980, and the first half of each fifth fiscal year thereafter to cover at least each of the four fiscal decades beginning next after such updating. The Program shall include, but not be limited to—

(1) an inventory of specific needs and opportunities for both public and private program investments. The inventory shall differentiate between activities which are of a capital nature and those which are of an operational nature;

(2) specific identification of Program outputs, results anticipated, and benefits associated with investments in such a manner that the anticipated costs can be directly compared with the total related benefits and direct and indirect returns to the Federal Government;

(3) a discussion of priorities for accomplishment of inventoried Program opportunities, with specified costs, outputs, results, and benefits;

(4) a detailed study of personnel requirements as needed to implement and monitor existing and ongoing programs; and

(5) Program recommendations which—

(A) evaluate objectives for the major Forest Service programs in order that multiple-use and sustained-yield relationships among and within the renewable resources can be determined;

(B) explain the opportunities for owners of forests and rangeland to participate in program:, to improve and enhance the con-

dition of the land and the renewable resource products therefrom;

(C) recognize the fundamental need to protect and, where appropriate, improve the quality of soil, water, and air resources;

(D) state national goals that recognize the interrelationships between and interdependence within the renewable resources; and

(E) evaluate the impact of the export and import of raw logs upon domestic timber supplies and prices.

(Pub. L. 93-378, § 4, formerly § 3, Aug. 17, 1974, 88 Stat. 477, renumbered § 4 and amended Pub. L. 94-588, §§ 2, 5, Oct. 22. 1976. 90 Stat. 2949, 2951,)

REFERENCES IN TEXT

The Multiple-Use Sustained-Yield Act of 1960, referred to in text, is Pub. L. 86-517, June 12, 1960, 74 Stat. 215, as amended, which is classified to sections 528 to 531 of this title. For complete classification of this Act to the Code, see Short Title note set out under section 528 of this title and Tables.

The National Environmental Policy Act of 1969, referred to in text, is Pub. L. 91-190, Jan. 1, 1970, 83 Stat. 852, as amended, which is classified generally to chapter 55 (§ 4321 et seq.) of Title 42, The Public Health and Welfare. For complete classification of this Act to the Code, see Short Title note set out under section 4321 of Title 42 and Tables.

AMENDMENTS

1976—Par. (4). Pub. L, 94-588 substituted "implement and monitor" for "satisfy".

Par. (5). Pub. L. 94-588 added par. (5).

TRANSFER OF FUNCTIONS

For transfer of certain enforcement functions of Secretary or other official in Department of Agriculture under this subchapter to Federal Inspector, Office of Federal Inspector for the Alaska Natural Gas Transportation System, see Transfer of Functions note set out under section 1601 of this title.

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in sections 1604, 1606 of this title; title 7 section 3121.

61603. **National Forest System resource inventories; development, maintenance, and updating by Secretary of Agriculture as part of Assessment**

As a part of the **Assessment,** the Secretary of Agriculture shall develop and maintain on a continuing basis a comprehensive and appropriately detailed inventory of all National Forest System lands and renewable resources. This inventory shall be kept current so as to reflect changes in conditions and identify new and emerging resources and values.

(Pub. L. 93-378, § 5, formerly § 4, Aug. 17, 1974, 88 Stat. 477, renumbered § 5, Pub. L. 94-588, § 2, Oct. 22, 1976, 90 Stat. 2949.)

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in title 43 section 1903.

§ 1604. National Forest System **land and resource management plans**

(a) Development, maintenance, and revision by Secretary of Agriculture as part of program; coordination

As a part of the Program provided for by section 1602 of this title, the Secretary of Agriculture shall develop, maintain, and, as appropriate, revise land and resource management plans for units of the National Forest System, coordinated with the land and resource management planning processes of State and local governments and other Federal agencies.

(b) Criteria

In the development and maintenance of land management plans for use on units of the National Forest System, the Secretary shall use a systematic interdisciplinary approach to achieve integrated consideration of physical, biological, economic, and other sciences.

(c) Incorporation **of standards and guidelines by Secretary; time of completion; progress reports; existing management plans**

The Secretary shall begin to incorporate the standards and guidelines required by this section in plans for units of the National Forest System as soon as practicable after October 22, 1976, and shall attempt to complete such incorporation for all such units by no later than September 30, 1985. The Secretary shall report to the Congress on the progress of such incorporation in the annual report required by section 1606(c) of this title. Until such time as a unit of the National Forest System is managed under plans developed in accordance with this subchapter, the management of such unit may continue under existing land and resource management plans.

(d) Public participation in management plans; availability of plans; public meetings

The Secretary shall provide for public participation in the development, review, and revision of land management plans including, but not limited to, making the plans or revisions available to the public at convenient locations in the vicinity of the affected unit for a period of at least three months before final adoption, during which period the Secretary shall publicize and hold public meetings or comparable processes at locations that foster public participation in the review of such plans or revisions.

(e) Required assurances

In developing, maintaining, and revising plans for units of the National Forest System pursuant to this section, the Secretary shall assure that such plans—

(1) provide for multiple use and sustained yield of the products and services obtained therefrom in accordance with the Multiple-Use Sustained-Yield Act of 1960 [16 U.S.C. 528-5311, and, in particular, include coordination of outdoor recreation, range, timber, watershed, wildlife and fish, and wilderness; and

(2) determine forest management systems, harvesting levels, and procedures in the light of all of the uses set forth in subsection (c)(1) of this section, the definition of the terms

"multiple use" and "sustained yield" as provided in the Multiple-Use Sustained-Yield Act of 1960, and the availability of lands and their suitability for resource management.

(f) Required provisions

Plans developed in accordance with this section shall—

(1) form one integrated plan for each unit of the National Forest System, incorporating in one document or one set of documents, available to the public at convenient locations, all of the features required by this section;

(2) be embodied in appropriate written material, including maps and other descriptive documents, reflecting proposed and possible actions, including the planned timber sale program and the proportion of probable methods of timber harvest within the unit necessary to fulfill the plan;

(3) be prepared by an interdisciplinary team. Each team shall prepare its plan based on inventories of the applicable resources of the forest;

(4) be amended in any manner whatsoever after final adoption after public notice, and, if such amendment would result in a significant change in such plan, in accordance with the provisions of subsections (e) and (f) of this section and public involvement comparable to that required by subsection (d) of this section; and

(5) be revised (A) from time to time when the Secretary finds conditions in a unit have significantly changed, but at least every fifteen years, and (B) in accordance with the provisions of subsections (e) and (f) of this section and public involvement comparable to that required by subsection (d) of this section.

(g) Promulgation of **regulations** for **development and revision of plans; environmental considerations; resource management guidelines; guidelines** for **land management plans**

As soon as practicable, but not later than two years after October 22, 1976, the Secretary shall in accordance with the procedures set forth in section 553 of title 5, promulgate regulations, under the principles of the Multiple-Use Sustained-Yield Act of 1960 [16 U.S.C. 528-5311 that set out the process for the development and revision of the land management plans, and the guidelines and standards prescribed by this subsection. The regulations shall include, but not be limited to—

(1) specifying procedures to insure that land management plans are prepared in accordance with the National Environmental Policy Act of 1969 [42 U.S.C. 4321 et seq.], including, but not limited to, direction on when and for what plans an environmental impact statement required under section 102(2)(C) of that Act [42 U.S.C. 4332(2)(C)] shall be prepared;

(2) specifying guidelines which—

(A) require the identification of the suitability of lands for resource management;

(B) provide for obtaining inventory data on the various renewable resources, and soil and water, including pertinent maps, graphic material, and explanatory aids; and

(C) provide for methods to identify special conditions or situations involving hazards to the various resources and their relationship to alternative activities;

(3) specifying guidelines for land management plans developed to achieve the goals of the Program which—

(A) insure consideration of the economic and environmental aspects of various systems of renewable resource management, including the related systems of silviculture and protection of forest resources, to provide for outdoor recreation (including wilderness), range, timber, watershed, wildlife, and fish;

(B) provide for diversity of plant and animal communities based on the suitability and capability of the specific land area in order to meet overall multiple-use objectives, and within the multiple-use objectives of a land management plan adopted pursuant to this section, provide, where appropriate, to the degree practicable, for steps to be taken to preserve the diversity of tree species similar to that existing in the region controlled by the plan;

(C) insure research on and (based on continuous monitoring and assessment in the field) evaluation of the effects of each management system to the end that it will not produce substantial and permanent impairment of the productivity of the land;

(D) permit increases in harvest levels based on intensified management practices, such as reforestation, thinning, and tree improvement if (i) such practices justify increasing the harvests in accordance with the Multiple-Use Sustained-Yield Act of 1960, and (ii) such harvest levels are decreased at the end of each planning period if such practices cannot be successfully implemented or funds are not received to permit such practices to continue substantially as planned;

(E) insure that timber will be harvested from National Forest System lands only where—

(i) soil, slope, or other watershed conditions will not be irreversibly damaged;

(ii) there is assurance that such lands can be adequately restocked within five years after harvest;

(iii) protection is provided for streams, streambanks, shorelines, lakes, wetlands, and other **bodies** of water from detrimental changes in water temperatures, blockages of water courses, and deposits of sediment, where harvests are likely to seriously and adversely affect water conditions or fish habitat; and

(iv) the harvesting system to be used is not selected primarily because it will give the greatest dollar return or the greatest unit output of timber; and

(F) insure that clearcutting, seed tree cutting, shelterwood cutting, and other cuts designed to regenerate an evenaged stand of timber will be used as a cutting method on National Forest System lands only where—

(i) for clearcutting, it is determined to be the optimum method, and for other such cuts it is determined to be appropriate, to meet the objectives and requirements of the relevant land management plan;

(ii) the interdisciplinary review as determined by the Secretary has been completed and the potential environmental, biological, esthetic, engineering, and economic impacts on each advertised sale area have been assessed, as well as the consistency of the sale with the multiple use of the general area;

(iii) cut blocks, patches, or strips are shaped and blended to the extent practicable with the natural terrain;

(iv) there are established according to geographic areas, forest types, or other suitable classifications the maximum size limits for areas to be cut in one harvest operation, including provision to exceed the established limits after appropriate public notice and review by the responsible Forest Service officer one level above the Forest Service officer who normally would approve the harvest proposal: ***Provided,*** That such limits shall not apply to the size of areas harvested as a result of natural catastrophic conditions such as fire, insect and disease attack, or windstorm; and

(v) such cuts are carried out in a manner consistent with the protection of soil, watershed, fish, wildlife, recreation, and esthetic resources, and the regeneration of the timber resource.

(h) Scientific committee to aid in promulgation of regulations; termination; revision committees; clerical and technical assistance; compensation of committee members

(1) In carrying out the purposes of subsection (g) of this section, the Secretary of Agriculture shall appoint a committee of scientists who are not officers or employees of the Forest Service. The committee shall provide scientific and technical advice and counsel on proposed guidelines and procedures to assure that an effective interdisciplinary approach is proposed and adopted. The committee shall terminate upon promulgation of the regulations, but the Secretary may, from time to time, appoint similar committees when considering revisions of the regulations. The views of the committees shall be included in the public information supplied when the regulations are proposed for adoption.

(2) Clerical and technical assistance, as may be necessary to discharge the duties of the committee, shall be provided from the personnel of the Department of Agriculture.

(3) While attending meetings of the committee, the members shall be entitled to receive compensation at a rate of $100 per diem, including traveltime, and while away from their homes or regular places of business they may be allowed travel expenses, including per diem in lieu of subsistence, as authorized by section 5703 of title 5, for persons in the Government service employed intermittently.

(i) Consistency of resource plans, permits, **contracts, and other instruments with land management plans; revision**

Resource plans and permits, contracts, and other instruments for the use and occupancy of National Forest System lands shall be consistent with the land management plans. Those resource plans and permits, contracts, and other such instruments currently in existence shall be revised as soon as practicable to be made consistent with such plans. When land management plans are revised, resource plans and permits, contracts, and other instruments, when necessary, shall be revised as soon as practicable. Any revision in present or future permits, contracts, and other instruments made pursuant to this section shall be subject to valid existing rights.

(i) **Effective date of land management plans and revisions**

Land management plans and revisions shall become effective thirty days after completion of public participation and publication of notification by the Secretary as required under subsection (d) of this section.

(k) Development of land management plans

In developing land management plans pursuant to this subchapter, the Secretary shall identify lands within the management area which are not suited for timber production, considering physical, economic, and other pertinent factors to the extent feasible, as determined by the Secretary, and shall assure that, except for salvage sales or sales necessitated to protect other multiple-use values, no timber harvesting shall occur on such lands for a period of 10 years. Lands once identified as unsuitable for timber production shall continue to be treated for reforestation purposes, particularly with regard to the protection of other multiple-use values. The Secretary shall review his decision to classify these lands as not suited for timber production at least every 10 years and shall return these lands to timber production whenever he determines that conditions have changed so that they have become suitable for timber production.

(2) **Program evaluation; process for estimating long-term costs and benefits; summary of data included in annual report**

The Secretary shall—

(1) formulate and implement, as soon as practicable, a process for estimating long-terms [1] costs and benefits to support the program evaluation requirements of this subchapter. This process shall include requirements to provide information on a representative sample basis of estimated expenditures associated with the reforestation, timber stand improvement, and sale of timber from the National Forest System, and shall provide a comparison of these expenditures to the return to the Government resulting from the sale of timber; and

[1] So in original. Probably should be "long-term".

(2) include a summary of data and findings resulting from these estimates as a part of the annual report required pursuant to section 1606(c) of this title, including an identification on a representative sample basis of those advertised timber sales made below the estimated expenditures for such timber as determined by the above cost process; and

(m) **Establishment of standards to ensure culmination of mean annual increment of growth; silvicultural practices; salvage harvesting exceptions**

The Secretary shall establish—

(1) standards to insure that, prior to harvest, stands of trees throughout the National Forest System shall generally have reached the culmination of mean annual increment of growth (calculated on the basis of cubic measurement or other methods of calculation at the discretion of the Secretary): Provided, That these standards shall not preclude the use of sound silvicultural practices, such as thinning or other stand improvement measures: Provided ***further,*** That these standards shall not preclude the Secretary from salvage or sanitation harvesting of timber stands which are substantially damaged by fire, windthrow or other catastrophe, or which are in imminent danger from insect or disease attack; and

(2) exceptions to these standards for the harvest of particular species of trees in management units after consideration has been given to the multiple uses of the forest including, but not limited to, recreation, wildlife habitat, and range and after completion of public participation processes utilizing the procedures of subsection (d) of this section.

(Pub. L. 93-378, § 6, formerly, § 5, Aug. 17, 1974, 88 Stat. 477, renumbered § 6 and amended Pub. L. 94-588, §§ 2, 6, 12(a), Oct. 22. 1976, 90 Stat. 2949, 2952, 2958.)

REFERENCES IN TEXT

The Multiple-Use Sustained-Yield Act of 1960, referred to in **subsecs. (e) and (g), is Pub.** L. 86-517, June 12, 1960, 74 Stat. 215. as amended, which is classified to sections 528 to 531 of this title. For complete classification of this Act to the Code, see Short Title note set out under section 528 of this title and Tables.

The National Environmental Policy Act of 1969, referred to in subsec. (g)(1), is Pub. L. 91-190, Jan. 1, 1970, 83 Stat. 852. as amended, which is classified generally to chapter 55 (§ 4321 et seq.) of Title 42, The Public Health and Welfare. For complete classification of this Act to the Code, see Short Title note set out under section 4321 of Title 42 and Tables.

AMENDMENTS

1976—Subsec. (a). Pub. L. 94-588, § 12(a), substituted "section 4" for "section 3" in the original, which, because of the translation as "section 1602 of this title" required no change in text.

Subsecs. (c) to (m). Pub. L. 94-588, § 6, added subsecs. (c) to (m).

TRANSFER OF FUNCTIONS

For transfer of certain enforcement functions of Secretary or other official in Department of Agriculture under this subchapter to Federal Inspector, Office of Federal Inspector for the Alaska Natural Gas Transportation System, see Transfer of Functions note set out under section 1601 of this title.

EXPEDITIOUS COMPLETION OF MANAGEMENT PLANS OF FOREST SERVICE AND BUREAU OF LAND MANAGEMENT; CONTINUATION OF EXISTING PLANS; JUDICIAL REVIEW

Pub. L. 100-446, title III, § 314, Sept. 27, 1988, 102 Stat. 1825, provided that: "The Forest Service and Bureau of Land Management are to continue to complete as expeditiously as possible development of their respective Forest Land and Resource Management Plans to meet all applicable statutory requirements. Notwithstanding the date in section 6(c) of the NFMA (16 U.S.C. 1600) [16 U.S.C. 1604(c)], the Forest Service, and the Bureau of Land Management under separate authority, may continue the management of lands within their jurisdiction under existing land and resource management plans pending the completion of new Plans. Nothing shall limit judicial review of particular activities on these lands: *Provided, however,* That there shall be no challenges to any existing plan on the sole basis that the plan in its entirety is outdated, or in the case of the Bureau of Land Management, solely on the basis that the plan does not incorporate information available subsequent to the completion of the existing plan: *Provided further,* That any and all particular activities to be carried out under existing plans **may** nevertheless be challenged. "

Similar provisions were contained in the following prior appropriation acts:

Pub. L. 100-202, § 101(g) [title III, $3141, Dec. 22, 1987.101 Stat. 1329 213, 1329-254.

Pub. L. 99-500, § 101(h) [title II, 52011, Oct. 18, 1986, 100 Stat. 1783-242, 1783-268, and Pub. L. 99-591, § 101(h) [title 11, 52011, Oct. 30, 1986, 100 Stat. 3341-242, 3341 268.

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in sections 46000. 460vv-4, 539d, 542d, 1611 of this title; title 42 section 8855; title 43 section 1752.

51605. **Protection, use and management of renewable resources on non-Federal lands: utilization of Assessment, surveys and Program by Secretary of Agriculture to assist States, etc.**

The Secretary of Agriculture may utilize the Assessment, resource surveys, and Program prepared pursuant to this subchapter to assist States and other organizations in proposing the planning for the protection, use, and management of renewable resources on non-Federal land.

(Pub. L. 93-378, § 7, formerly § 6, Aug. 17, 1974, 88 Stat. 478, renumbered § 7, Pub. L. 94-588, § 2, Oct. 22, 1976, 90 Stat. 2949.)

51606. **Budget** requests by President **for Forest Service activities**

(a) Transmittal to Speaker of House and President of Senate of Assessment, Program and Statement of Policy used in framing requests; time for transmittal; implementation by President of programs established under Statement of Policy unless Statement subsequently disapproved by Congress: time for disapproval

On the date Congress first convenes in 1976 and thereafter following each updating of the Assessment and the Program, the President shall transmit to the Speaker of the House of Representatives and the President of the Senate, when Congress convenes, the Assessment as set forth in section 1601 of this title and the Program as set forth in section 1602 of

this title, together with a detailed Statement of Policy intended to be used in framing budget requests by that Administration for Forest Service activities for the five- or ten-year program period beginning during the term of such Congress for such further action deemed appropriate by the Congress. Following the transmission of such Assessment, Program, and Statement of Policy, the President shall, subject to other actions of the Congress, carry out programs already established by law in accordance with such Statement of Policy or any subsequent amendment or modification thereof approved by the Congress, unless, before the end of the first period of ninety calendar days of continuous session of Congress after the date on which the President of the Senate and the Speaker of the House are recipients of the transmission of such Assessment, Program, and Statement of Policy, either House adopts a resolution reported by the appropriate committee of jurisdiction disapproving the Statement of Policy. For the purpose of this subsection, the continuity of a session shall be deemed to be broken only by an adjournment sine die, and the days on which either House is not in session because of an adjournment of more than three days to a day certain shall be excluded in the computation of the ninety-day period. Notwithstanding any other provision of this subchapter, Congress may revise or modify the Statement of Policy transmitted by the President, and the revised or modified Statement of Policy shall be used in framing budget requests.

(b) Contents of requests to show extent of compliance of projected programs and policies with policies approved by Congress; requests not conforming to approved policies; expenditure of appropriations

Commencing with the fiscal budget for the year ending September 30, 1977, requests presented by the President to the Congress governing Forest Service activities shall express in qualitative and quantitative terms the extent to which the programs and policies projected under the budget meet the policies approved by the Congress in accordance with subsection (a) of this section. In any case in which **such budget so presented recommends** a course which fails to meet the policies so established, the President shall specifically set forth the reason or reasons for requesting the Congress to approve the lesser programs or policies presented. Amounts appropriated to carry out the policies approved in accordance with subsection (a) of this section shall be expended in accordance with the Congressional Budget and Impoundment Control Act of 1974.

(c) Annual evaluation **report to Congress of Program components; time of submission; status of major research programs; application of findings; status, etc., of cooperative forestry assistance programs and activities**

For the purpose of providing information that will aid Congress in its oversight responsibilities and improve the accountability of agency expenditures and activities, the Secretary of Agriculture shall prepare an annual report which evaluates the component elements of the Program required to be prepared by section 1602 of this title which shall be furnished to the Congress at the time of submission of the annual fiscal budget commencing with the third fiscal year after August 17, 1974. With regard to the research component of the program, the report shall include, but not be limited to, a description of the status of major research programs, significant findings, and how these findings will be applied in National Forest System management and in cooperative State and private Forest Service programs. With regard to the cooperative forestry assistance part of the Program, the report shall include, but not be limited to, a description of the status, accomplishments, needs, and work backlogs for the programs and activities conducted under the Cooperative Forestry Assistance Act of **1978 [16 U.S.C. 2101 et seq.].**

(d) Required contents of annual evaluation report

These annual evaluation reports shall set forth progress in implementing the Program required to be prepared by section 1602 of this title, together with accomplishments of the Program as they relate to the objectives of the Assessment. Objectives should be set forth in qualitative and quantitative terms and accomplishments should be reported accordingly. The report shall contain appropriate measurements of pertinent costs and benefits. The evaluation shall assess the balance between economic factors and environmental quality factors. Program benefits shall include, but not be limited to, environmental quality factors such as esthetics, public access, wildlife habitat, recreational and wilderness use, and economic factors such a.. the excess of cost savings over the value of foregoing benefits and the rate of return on renewable resources.

(e) Additional **required contents of annual evaluation report**

The reports shall indicate plans for implementing corrective action and recommendations for new legislation where warranted.

(f) **Form of annual evaluation report**

The reports shall be structured for Congress in concise summary form with necessary detailed data in appendices.

(Pub. L. 93-378, § 8, formerly § 7, Aug. 17, 1974, 88 Stat. 478, renumbered § 8 and amended Pub. L. 94-588, §§ 2, 7, 12(b), Oct. 22, 1976, 90 Stat. 2949, 2956, 2958; Pub. L. 95-313, § 12, July 1, 1978, 92 Stat. 374.)

REFERENCES IN TEXT

The Congressional Budget and Impoundment, Control Act **of 1974, referred to in subsec.** (b), is Pub. L. 93-344, July 12, 1974, 88 Stat. 297, as amended. For complete classification of this Act to the Code, see Short Title note set out under section 621 of Title 2, The Congress, and Tables.

The Cooperative Forestry Assistance Act of 1978, referred to in **subsec. (c), is** Pub. L. 95-313, July 1, 1978, 92 Stat. 365, which is classified principally to chapter 41 (§ 2101 et seq.) of this title. For complete classification of this Act to the Code, see Short Title note set out under section 2101 of this title and Tables.

AMENDMENTS

1978—Subsec. (c). Pub. L. 95-313 inserted provisions relating to inclusion in report of findings involving cooperative State and private Forest Service programs, and provisions relating to scope of report descriptions involving programs and activities under the Cooperative Forestry Assistance Act of 1978.

1976-Subsec. (a). Pub. L. 94-588, §§ 7(a), 12(b)(l), substituted "section 3" and "section 4" for "section 2" and "section 3", respectively, in the original, which, because of their translation as "section 1601 of this title" and "section 1602 of this title" required no change in text, and substituted "ninety calendar days of continuous session" for "'sixty days of continuous session" and "ninety-day period" for "sixty-day period".

Subsec. (c). Pub. L. 94-588, §§ 7(b), 12(b)(2), substituted "section 4" for "section 3" in the original which, because of its translation as "section 1602 of this title" required no change in text and inserted provision requiring that the report include a description of the status of major research programs, significant findings, and how such findings will be applied in National Forest System management.

Subsec. (d). Pub. L. 94-588, § 12(b)(3), substituted "section 4" for "section 3" in the original which, because of the translation as "section 1602 of this title", required *no* change in text.

EFFECTIVE DATE OF 1978 AMENDMENT

Amendment by Pub. L. 95-313 effective Oct. 1, 1978, see section 14 of Pub. L. 95-313, set out as an Effective Date note under section 2101 of this title.

STATEMENT OF POLICY

Pub. L. 96-514, title III, § 310, Dec. 12, 1980, 94 Stat. 2984, provided that: "The Statement of Policy transmitted by the President to the Speaker of the House of Representatives and the President of the Senate on June 19, 1980, as required under section 8 of the Forest and Rangeland Renewable Resources Planning Act of 1974 [this section], is revised and modified to read as follows:

"STATEMENT OF POLICY

"BASIC PRINCIPLES

"It is the policy of the United States—

"(1) forests and rangeland, in all ownerships, should be managed to maximize their net social and economic contributions to the Nation's well being, in an environmentally sound manner.

"(2) the Nation's forested land. except such public land that is determined by law or policy to be maintained in its existing or natural state, should be managed at levels that realize its capabilities to satisfy the Nation's need for food, fiber, energy, water, soil stability, wildlife and fish, recreation, and esthetic values.

"(3) the productivity of suitable forested land, in all ownerships, should be maintained and enhanced to minimize the inflationary impacts of wood product prices on the domestic economy and permit a net export of forest products by the year 2030.

"(4) in order to achieve this goal, it is recognized that in the major timber growing regions most of the commercial timber lands will have to be brought to and maintained, where possible, at 90 percent of their potential level of growth, consistent with the provisions of the National Forest Management Act of 1976 [see Short Title of 1976 Amendment note set out under section 1600 of this title] on Federal lands, so that all resources are utilized in the combination that will best meet the needs of the American people.

"(5) forest and rangeland protection programs should be improved to more adequately protect forest and rangeland resources from fire, erosion, insects, disease, and the introduction or spread of noxious weeds, insects, and animals.

"(6) the Federal agencies carrying out the policies contained in this Statement will cooperate and coordinate their efforts to accomplish the goals contained in this Statement and will consult, coordinate, and cooperate with the planning efforts of the States.

'I(7) in carrying out the Assessment and the Program under the Forest and Rangeland Renewable Resources Planning Act of 1974 [this subchapter] and the Appraisal and the Program under the Soil and Water Resources Conservation Act of 1977 [section 2001 et seq. of this title], the Secretary of Agriculture shall assure that resources and economic information and evaluation data will be continually improved so that the best possible information is always available for use by Federal agencies and the public

"RANGE LAND DATA BASE AND ITS IMPROVEMENT

"The data on and understanding of the cover and condition of range lands is less refined than the data on and understanding of commercial forest land. Range lands have significant value in the production of water and protection of watersheds: the production of fish and wildlife food and habitat; recreation; and the production of livestock forage. An adequate data base on the cover and condition of range lands should be developed by the year 1990. Currently, cattle production from these lands is annually estimated at 213 million animal unit months of livestock forage. These lands should be maintained and enhanced, including their water and other resource values, so that they can annually provide 310 million animal units months of forage by the year 2030, along with other benefits.

"GENERAL ACCEPTANCE OF HIGH BOUND PROGRAM

"Congress generally accepts the 'high-bound' program described on **pages** 7 through 18 of the 1980 Report to Congress on the Nation's Renewable Resources prepared by the Secretary of Agriculture. However, Congress finds that the 'high-bound' program may not be sufficient to accomplish the goals contained in this statement, particularly in the area of range and watershed resources, State and private forest cooperation and timber management.

"STATE AND PRIVATE LANDS

"States and owners of private forest and rangelands will be encouraged, consistent with their individual objectives, to manage their land in support of this Statement of Policy. The State and private forestry and range programs of the Forest Service will be essential to the furtherance of this Statement of Policy.

"FUNDING THE GOALS

"In order to accomplish the policy goals contained in this statement by the year 2030, the Federal Government should adequately fund programs of research (including cooperative research), extension, cooperative forestry assistance and protection, and improved management of the forest and rangelands. The Secretary of Agriculture shall continue his efforts to evaluate the cost-effectiveness of the renewable resource programs."

STATEMENT OF PURPOSES OF AMENDMENT BY COOPERATIVE FORESTRY ASSISTANCE ACT OF 1978

Section 12 of Pub. L. 95-313 provided in part that the amendment of subsec. (c) of this section by Pub. L. 95-313 is to insure that Congress has adequate information to implement its oversight responsibilities and to provide accountability for expenditures and activities under the Cooperative Forestry Assistance Act of 1978. See Short Title note set out under section 2101 of this title for classification of the Cooperative Forestry Assistance Act of 1978 in the Code.

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in sections 1601, 1604, 1684 of this title.

§ 1606a. Reforestation Trust Fund

(a) Establishment; source of funds

There is established in the Treasury of the United States a trust fund, to be known as the Reforestation Trust Fund (hereinafter in this section referred to as the "Trust Fund"), consisting of such amounts as are transferred to the Trust Fund under subsection (b)(1) of this section and any interest earned on investment of amounts in the Trust Fund under subsection (c)(2) of this section.

(b) Transfer of certain tariff receipts to Trust Fund; fiscal year limitation; quarterly transfers; adjustment of estimates

(1) Subject to the limitation in paragraph (2). the Secretary of the Treasury shall transfer to the Trust Fund an amount equal to the sum of the tariffs received in the Treasury after January 1, 1989, under headings 4401 through 4412 and subheadings 4418.50.00, 4418.90.20, 4420.10.00, 4420.90.80, 4421.90.10 through 4421.90.20, and 4421.90.70 of chapter 44, subheadings 6808.00.00 and 6809.11.00 of chapter 68 and subheading 9614.10.00 of chapter 96 of the Harmonized Tariff Schedule of the United States.

(2) The Secretary shall not transfer more than $30,000,000 to the Trust Fund for any fiscal year.

(3) The amounts required to be transferred to the Trust Fund under paragraph (1) shall be transferred at least quarterly from the general fund of the Treasury to the Trust Fund on the basis of estimates made by the Secretary of the Treasury. Proper adjustment shall be made in the amounts subsequently transferred to the extent prior estimates were in excess of or less than the amounts required to be transferred.

(c) Report **to Congress; printing as House and Senate document; investments; sale and redemption of obligations; credits for Trust Fund**

(1) It shall be the duty of the Secretary of the Treasury to hold the Trust Fund, and (after consultation with the Secretary of Agriculture) to report to the Congress each year on the financial condition and the results of the operations of the Trust Fund during the preceding fiscal year and on its expected condition and operations during the next fiscal year. Such report shall be printed as both a House and Senate document of the session of the Congress to which the report is made.

(2)(A) It shall be the duty of the Secretary of the Treasury to invest such portion of the Trust Fund as is not, in his judgment, required to meet current withdrawals. Such investments may be made only in interest-bearing obligations of the United States or in obligations guaranteed as to both principal and interest by the United States. For such purpose, such obligations may be acquired (i) on original issue at the issue price, or (ii) by purchase of outstanding obligations at the market price. The purposes for which obligations of the United States may be issued under chapter 31 of title **31** are hereby extended to authorize the issuance at par of special obligations exclusively to the Trust Fund. Such special obligations shall bear interest at a rate equal to the average rate of interest, computed as to the end of the calendar month next preceding the date of such issue, borne by all marketable interest-bearing obligations of the United States then forming a part of the Public Debt; except that where such average rate is not a multiple of one-eighth of 1 percent, the rate of interest of such special obligations shall be the multiple of one-eighth of 1 percent next lower than such average rate. Such special obligations shall be issued only if the Secretary of the Treasury determines that the purchase of other interest-bearing obligations of the United States, or of obligations guaranteed as to both principal and interest by the United States on original issue or at the market price, is not in the public interest.

(B) Any obligation acquired by the Trust Fund (except special obligations issued exclusivey to the Trust Fund) may be sold by the Secretary of the Treasury at the market price, and such special obligations may be redeemed at par plus accrued interest.

(C) The interest on, and the proceeds from the sale or redemption of, any obligations held in Trust Fund shall be credited to and form a part of the Trust Fund.

(d) Obligations from Trust Fund

The Secretary of Agriculture is on and after December 19, 1985, authorized to obligate such sums as are available in the Trust Fund (including any amounts not obligated in previous fiscal years) for—

(1) reforestation and timber stand improvement as specified in section 1601(d) of this title; and

(2) properly allocable administrative costs of the Federal Government for the activities specified above.

(Pub. L. 96-451, title HI, § 303, Oct. 14, 1980, 94 Stat. 1991; Pub. L. 97-424, title IV, § 422, Jan. 6, 1983, 96 Stat. 2164; Pub. L. 99-190, § 101(d) [title II, 32011, Dec. 19, 1985, 99 Stat. 1224, 1245: Pub. L. 100-418, title 1, § 1214(r), Aug. 23, 1988, 102 Stat. 1160.)

REFERENCES IN TEXT

The Harmonized Tariff Schedule of the United States, referred to in subsec. (b)(l), is not set out in the Code. See Publication of Harmonized Tariff Schedule note set out under section 1202 of Title 19, Customs Duties.

CODIFICATION

Section was not enacted as part of the Forest and Rangeland Renewable Resources Planning Act of 1974 which comprises this subchapter.

In subsec. (c)(2)(A), "chapter 31 of title 31" was substituted for "'the Second Liberty Bond Act, as amended" on authority of Pub. L. 97-258, § 4(b), Sept. 13, 1982, 96 Stat 1067, the first section of which enacted Title 31, Money and Finance.

AMENDMENTS

1988—Subsec. (b)(1). Pub. L. 100-418 amended par. (1) generally. Prior to amendment, par. (1) read as follows: "Subject to the limitation in paragraph (2), the Secretary of the Treasury shall transfer to the Trust

Fund an amount equal to the sum of the tariffs received in the Treasury after September 30, 1979, under subparts A and B of part 1 of schedule 2 of the Tariff Schedules of the United States (19 U.S.C. 1202) and under part 3 of such schedule."

1985—Subsec. (d). Pub. L. 99-190 amended subsec. (d) generally, substituting Provisions authorizing the Secretary to obligate available sums in the Trust Fund, for provisions requiring the Secretary to **expend all available** amounts in each of fiscal years 1983, 1984, and 1985.

SubSec. (e). Pub. L. 99-190 struck out subsec. (e) which related to sense of Congress with respect to disposition of unexpended funds.

1983—Subsec. (b)(1). Pub. L. 97-424, § 422(b), struck out "and before October 1, 1985, " after "September 30, 1979".

Subsec. (d). Pub. L. 97-424, § 422(a), substituted provisions relating to fiscal years 1983 through 1985 for provision that directed that for each of the first 5 fiscal years beginning after Sept. 30, 1980, there was authorized after that date to be appropriated to the Secretary of Agriculture, out of any amounts in the Trust Fund, an amount equal to the sum of the amount by which the sum estimated by the Secretary of Agriculture for the fiscal year under section 1601(d)(2) of this title to be necessary for reforestation and other treatment of acreage, as set forth in the report transmitted by the Secretary to the Congress under that section for the fiscal year, exceeded the sum of the amounts appropriated for the fiscal year under the authorization contained in section 1601(d)(3) of this title and under any other provision of law to carry out the same purpose; and such sums as were determined by the Secretary of Agriculture to be properly allocable to administrative costs of the Federal Government incurred for the fiscal year in connection with the reforestation program carried out under this chapter.

SubSec. (e). Pub. L. 97-424, § 422(a), substituted provision that it is the intent of Congress t hat the Secretary expend all of the funds available in the Trust Fund in each fiscal year and that any such funds which are not expended in a given fiscal year remain available for expenditure without fiscal year limitation; except that any funds not expended prior to Oct. 1, 1985, shall, no later than Apr. 30, 1986, be distributed to the States for use in State forestry programs pursuant to the formula set forth in section 500 of this title for provision that the Secretary of the Treasury pay into the general fund of the Treasury any amounts, including interest earned on such amounts, remaining in the Trust Fund after Sept. 30, 1985, which were not expended and remained in the Trust Fund.

EFFECTIVE DATE OF 1988 AMENDMENT

Amendment by Pub. L. 100-418 effective Jan. 1, 1989, and applicable with respect to articles entered on or after such date, see section 1217(b)(1) of Pub. L. 100-418, set out as an Effective Date note under section 3001 of Title 19, Customs Duties.

51607. National Forest System renewable resources; development and administration by Secretary of Agriculture **in accordance with multiple use and sustained yield concepts for products and services; target year for operational posture of resources; budget requests**

The Secretary of Agriculture shall take such action as will assure that the development and administration of the renewable resources of the National Forest System are in full accord with the concepts for multiple use and sustained yield of products and services as set forth in the Multiple-Use Sustained-Yield Act of 1960 [16 U.S.C. 528-5311. To further these concepts, the Congress hereby sets the year 2000 as the target year when the renewable resources of the National Forest System shall be in an operating posture whereby all backlogs of needed treatment for their restoration shall be reduced to a current basis and the major portion of planned intensive multiple-use sustained-yield management procedures shall be installed and operating on an environmentally-sound basis. The annual budget shall contain requests for funds for an orderly program to eliminate such backlogs: *Provided,* That when the Secretary finds that (1) the backlog of areas that will benefit by such treatment has been eliminated, (2) the cost of treating the remainder of such area exceeds the economic and environmental benefits to be secured from their treatment, or (3) the total supplies of the renewable resources of the United States are adequate to meet the future needs of the American people, the budget request for these elements of restoration may be adjusted accordingly.

(Pub. L. 93-378, § 9, formerly § 8, Aug. 17, 1974, 88 Stat. 479, renumbered § 9, Pub. L. 94-588, § 2, Oct. 22, 1976, 90 Stat. 2949.)

REFERENCES IN TEXT

The Multiple-Use Sustained-Yield Act of 1960, referred to in text, is Pub. L. 86-517, June 12, 1960, 74 Stat. 215, as amended, which is classified to sections 528 to 531 of this title. For complete classification of this Act to the Code, see Short Title note set out under section 528 of this title and Tables.

TRANSFER OF FUNCTIONS

For transfer of certain enforcement functions of Secretary or other official in Department of Agriculture under this subchapter to Federal Inspector, Office of Federal Inspector for the Alaska Natural Gas Transportation System, see Transfer of Functions note set out under section 1601 of this title.

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in section 1601 of this title.

$1608. National Forest Transportation **System**

(a) Congressional declaration of policy; time for development; method of financing; financing of forest development roads

The Congress declares that the installation of a proper system of transportation **to service** the National Forest System, as is provided for in sections 532 to 538 of this title, shall be carried forward in time to meet, **anticipated needs on** an economical and environmentally sound basis, and the method chosen for financing the construction and maintenance of the transportation system should be such as to enhance local, regional, and national benefits: ***Provided,*** That limitations on the level of obligations for construction of forest roads by timber purchasers shall be established in annual appropriation Acts.

(b) Construction of **temporary roadways in connection with timber contracts, and other permits or leases**

Unless the necessity for a permanent road is set forth in the forest development road system plain any road constructed on land of the Na-

tional Forest System in connection with a timber contract or other permit or lease shall be designed with the goal of reestablishing vegetative cover on the roadway and areas where the vegetative cover has been disturbed by the construction of the road, within ten years after the termination of the contract, permit, or lease either through artificial or natural means. Such action shall be taken unless it is later determined that the road is needed for use as a part of the National Forest Transportation System.

(c) Standards of roadway construction

Roads constructed on National Forest System lands shall be designed to standards appropriate for the intended uses, considering safety, cost of transportation, and impacts on land and resources.

(Pub. L. 93-378, § 10, formerly § 9, Aug. 17, 1974, 88 Stat. 479, renumbered §10 and amended Pub. L. 94-588, §§ 2, 8, Oct. 22, 1976, 90 Stat. 2949, 2956; Pub. L. 97-100, title II, § 201, Dec. 23, 1981, 95 Stat. 1405.)

AMENDMENTS

1981—Subsec. (a). Pub. L. 97-100 substituted *"Provided,* That limitations on the level of obligations for construction of forest roads by timber purchasers shall be established in annual appropriation Acts" for ", except that the financing of forest development roads as authorized by clause (2) of section 535 of this title, shall be deemed 'budget authority' and 'budget outlays' as those terms are defined in section 1302(a) of title 31, and shall be effective for any fiscal year only in the manner required for new spending authority as specified by section 1351(a) of title 31".

1976—Pub. L. 94-588, § 8, designated existing provisions as subsec. (a) and added subsecs. (b) and (c).

TRANSFER OF FUNCTIONS

For transfer of certain enforcement functions of Secretary or other official in Department of Agriculture under this subchapter to Federal Inspector, Office of Federal Inspector for the Alaska Natural Gas Transportation System, see Transfer of Functions note set out under section 1601 of this title.

51609. National **Forest System**

(a) Confessional declaration of constituent elements and purposes; lands etc., included within; return of lands to public domain

Congress declares that the National Forest System consists of units of federally owned forest, range, and related lands throughout the United States and its territories, united into a nationally significant system dedicated to the long-term benefit for present and future generations, and that it is the purpose of this section to include all such areas into one integral system. The "National Forest System" shall include all national forest lands reserved or withdrawn from the public domain of the United States, all national forest lands acquired through purchase, exchange, donation, or other means, the national grasslands and land utilization projects administered under title III of the Bankhead-Jones Farm Tenant Act [7 U.S.C. 1010 et seq.], and other lands, waters, or interests therein which are administered by the Forest Service or are designated for administration through the Forest Service as a part of the system. Notwithstanding the provisions of section **473** of this title, no land now or hereafter reserved or withdrawn from the public domain as national forests pursuant to section 471 of this title, or any act supplementary to and amendatory thereof, shall be returned to the public domain except by an act of Congress.

(b) Location of Forest Service offices

The on-the-ground field offices, field supervisory offices, and regional offices of the Forest Service shall be so situated as to provide the optimum level of convenient, useful services to the public, giving priority to the maintenance and location of facilities in rural areas and towns near the national forest and Forest Service program locations in accordance with the standards in section 3122(b) of title 42.

(Pub. L. 93-378, § 11, formerly § 10, Aug. 17, 1974, 88 Stat. 480, renumbered § 11 and amended Pub. L. 94-588, §§ 2, 9, Oct. 22, 1976, 90 Stat. 2949, 2957.)

REFERENCES IN TEXT

The Bankhead Jones Farm Tenant Act, referred to in subsec. (a), is act July 22, 1937, ch. 517, 50 Stat. 522, as amended. Title III of the Bankhead Jones Farm Tenant Act is classified generally to subchapter III (§1010 et seq.) of chapter 33 of Title 7, Agriculture. For complete classification of this Act to the Code, see Short Title note set out under section 1000 of Title 7 and Tables.

Section 471 of this title, referred to in subsec. (a), was repealed by Pub. L. 94-579, title VII, § 704(a), Oct. 21, 1976, 90 Stat. 2792.)

AMENDMENTS

1976 --Subsec. (a). Pub. L. 94-588, § 9, prohibited the return to the public domain of land reserved or withdrawn from the public domain as national forests pursuant to section 471 of this title except by an act of Congress.

TRANSFER OF FUNCTIONS

For transfer of certain enforcement functions of Secretary or other official in Department of Agriculture under this subchapter to Federal Inspector, Office of Federal Inspector for the Alaska Natural Gas Transportation System, see Transfer of Functions note set OUt **under section 1601 of this title.**

SECTION REFERRED TO IN OTHER SECTIONS

This section is referred to in title 42 section 8401.

91610. **Implementation of provisions by Secretary of Agriculture; utilization of information and data of other organizations; avoidance of duplication of planning, etc.; "renewable resources" defined**

In carrying out this subchapter, the Secretary of Agriculture shall utilize information and data available from other Federal, State, and private organizations and shall avoid duplication and overlap of resource assessment and program planning efforts of other Federal agencies. The term "renewable resources" shall be construed to involve those matters within the scope of responsibilities and authorities of the Forest Service on August 17, 1974 and on the date of enactment of any legislation amendatory or supplementary thereto.

(Pub. L. 93-378, § 12, formerly § 11, Aug. 17, 1974, 88 **Stat. 480,** renumbered §12 and amend-

ed Pub. L. 94-588, §§ 2, 10, Oct. 22, 1976, 90 Stat. 2949, 2957.)

AMENDMENTS

1976—Pub. L. 94-588, §10, inserted "and on the date of enactment of any legislation amendatory or supplementary thereto".

TRANSFER OF FUNCTIONS

For transfer of certain enforcement functions of Secretary ***or*** other official in Department of Agriculture under this subchapter to Federal Inspector, Office of Federal Inspector for the Alaska Natural Gas Transportation System, see Transfer of Functions note set out under section 1601 of this title.

§ 1611. Timber

(a) Limitations on removal; variations in allowable sale quantity; public participation

The Secretary of Agriculture shall limit the sale of timber from each national forest to a quantity equal to or less than a quantity which can be removed from such forest annually in perpetuity on a sustained-yield basis: ***Provided,*** That, in order to meet overall multiple-use objectives, the Secretary may establish an allowable sale quantity for any decade which departs from the projected long-term average sale quantity that would otherwise be established: *Provided further,* That any such planned departure must be consistent with the multiple-use management objectives of the land management plan. Plans for variations in the allowable sale quantity must be made with public participation as required by section 1604(d) of this title. In addition, within any decade, the Secretary may sell a quantity in excess of the annual allowable sale quantity established pursuant to this section in the case of any national forest so long as the average sale quantities of timber from such national forest over the decade covered by the plan do not exceed such quantity limitation. In those cases where a forest has less than two hundred thousand acres of commercial forest land, the Secretary may use two or more forests for purposes of determining the sustained yield.

(b) Salvage harvesting

Nothing in subsection (a) of this section shall prohibit the Secretary from salvage or sanitation harvesting of timber stands which are substantially damaged by fire, windthrow, or other catastrophe, or which are in imminent danger from insect *or* disease attack. The Secretary may either substitute such timber for timber that would otherwise be sold under the plan or, if not feasible, sell such timber over and above the plan volume.

(Pub. L. 93-378, §13, as added Pub. L. 94-588, § 11, Oct. 22, 1976, 90 Stat. 2957.)

TRANSFER OF FUNCTIONS

For transfer of certain enforcement functions of Secretary or other official in Department of Agriculture under this subchapter to Federal Inspector, Office of Federal Inspector for the Alaska Natural Gas Transportation System, see Transfer of Functions note set out under section 1601 of this title.

§ 1612. Public participation

(a) Adequate notice and opportunity to comment

In exercising his authorities under this subchapter and other laws applicable to the Forest Service, the Secretary, by regulation, shall establish procedures, including public hearings where appropriate, to give the Federal, State, and local governments and the public adequate notice and an opportunity to comment upon the formulation of standards, criteria, and guidelines applicable to Forest Service programs.

(b) Advisory boards

In providing for public participation in the planning for and management of the National Forest System, the Secretary, pursuant to the Federal Advisory Committee Act (86 Stat. 770) and other applicable law, shall establish and consult such advisory boards as he deems necessary to secure full information and advice on the execution of his responsibilities. The membership of such boards shall be representative of a cross section of groups interested in the planning for and management of the National Forest System and the various types of use and *enjoyment* of the lands thereof.

(Pub. L. 93-378, § 14, as added Pub. L. 94-588, § 11, Oct. 22, 1976, 90 Stat. 2958.)

REFERENCES IN TEXT

The Federal Advisory Committee Act, referred to in text, is Pub. L. 92-463, Oct. 6, 1972, 86 Stat. 770, as amended, which is set out in the Appendix to Title 5, Government Organization and Employees.

TRANSFER OF FUNCTIONS

For transfer of certain enforcement functions of Secretary *or* other official *in* Department of Agriculture under this subchapter to Federal Inspector, Office of Federal Inspector for the Alaska Natural Gas Transportation System, see Transfer of Functions note set out under section 1601 of this title.

51613. **Promulgation of regulations**

The Secretary of Agriculture shall prescribe such regulations as he determines necessary and desirable to carry out the provisions of this subchapter.

(Pub. L. 93-378, §15, as added Pub. L. 94-588, §11, Oct. 22, 1976, 90 Stat. 2958.)

TRANSFER OF FUNCTIONS

For transfer of certain enforcement functions of Secretary or other official in Department of Agriculture under this subchapter to Federal Inspector, Office of Federal Inspector for the Alaska Natural Gas Transportation System, see Transfer of Functions note set out under sect ion 1601 of this title.

51614. Severability of provisions

If any provision of this subchapter or the application thereof to any person or circumstances is held invalid, the validity of the remainder of this subchapter and of the application of such provision to other persons and circumstances shall not be affected thereby.

(Pub. L. 93-378, §16, as added Pub. L. 94-588, § 11, Oct. 22, 1976, 90 Stat. 2958.)

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