CHAPTER II

Policy Analysis and Legislative Options

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Introduction

U.S. forest policy has changed dramatically since the turn of the century. To counteract the destructive exploitation of the Nation's forests that resulted from the "cut-out and get-out" logging practices of the *1800's,* the Federal Government began setting aside forest preserves of uncut timber that later formed the nucleus of what is now the National Forest System. Since then, Federal and State Governments also have become instrumental in conservation programs aimed at improving the management of private forests. Since World War II, the forest products industry in particular has assumed increasing responsibility for promoting, advancing, and practicing sound timber management. The private sector's initiative in developing the Nation's timber resources has thrust it into a position of leadership in expanding the contribution of forest products to the American economy.

Nevertheless, despite the private sector's ascendance, Federal and State forest policies continue to focus primarily on timber management and secondarily on economic issues crucial to the forest products industry beyond those related to timber supply Several Federal Government departments and agencies administer programs dealing with resource utilization, employment, environmental quality, transportation, housing, finance, and international trade, all of which directly and indirectly affect the forest products industry. Nationally, the Forest and Rangeland Renewable Resources Planning Act (R PA) of 1974 (Public Law 93-378) and its amendment, the National Forest Management Act (NFmA) of 1976 (Public Law 94-585), now address timber management objectives in a broad multiresource framework. RPA and NFMA, however, concentrate on land management—as Congress intended—and deal mainly with the U.S. Department of Agriculture's (USDA) Forest Service programs and responsibilities. As a result, the broader role of forest products in the Nation's economy and in its industrial base continues to receive attention in a piecemeal, incidental, and uncoordinated manner.

Possible Congressional Strategies

Two excellent positions—the favorable outlook for domestic timber supplies and the U.S. 'S strong potential for increased world trade in wood—together give Congress a range of legislative alternatives for revising forest policies, Congress may choose from among four general strategies to:

1. Relinquish responsibility for national timber supplies and industry development to the private sector to meet domestic demands so that little government involvement and no special incentives are needed. It is assumed that timber supplies are adequate and probably will remain so. This strategy would require modification of portions of RPA that authorize projections of timber supply and demand, reductions in Forest Service program levels, and no special Federal emphasis on increasing forest products exports. Timber management on Federal lands would revert to its status before the enactment of the NFMA, and the market would determine private investments in timber management and plant expansion,
2. Maintain the status quo, accepting current limitations and uncertainties concerning

information in RPA, and make no special effort to induce expansion of the forest products industry beyond present program levels. Under this strategy, ongoing efforts for timber management on Federal and private lands would continue, possibly with incremental changes, but would not be broadened or significantly changed.

3. Continue to rely on the planning process established by RPA as the general guide for Federal policy, but upgrade the information base, forest inventory, and timber inventory to support the development of a wider range of program alternatives and program plans.
4. Identify national goals for developing forest resources to take advantage of future international markets by:
   - improving RPA as indicated in Strategy #3 above,
   - providing aggressive Federal support to the forest products industry in its efforts to expand its role in world markets, and
   - expanding U.S. timber supplies through increased support of research and technical assistance to private forestry and through intensified management of Federal lands.

The degree of congressional action and Federal involvement increases from Strategy #1, which would dismantle the current Forest Service planning system and return to the former decentralized management system, to Strategy #4, which would require more positive Federal support and commitment to expanding U.S. timber potential and increasing international trade in forest products.

The magnitude of the economic and social impacts of a national strategy to strengthen and expand the U.S. role in world trade of forest products is difficult to forecast accurately, but the direction of such changes can be anticipated, Significant expansion of forest production, improved wood utilization, and modernization of old mills and construction of new efficient plants probably would bring increased prices for forest products in the short run. In the long run, however, higher prices could stimulate more investment in efficient manufacturing, forest management, and research than would be undertaken under the existing price structure. As producers shift to more efficient production facilities and more intensive management and harvesting practices, forest product prices could be forced downward. The effects of price increases on consumers is often slight. Wood products in general account for less than 15 percent of the price of the average home, with structural lumber and panels in particular accounting for only 7 percent.[1] The same is true for many other consumer goods—wood is often only a small portion of the price.

The forest products industry currently employs about 1.7 percent of the full-time labor force. Expanding production to meet world demand for forest Products could increase employment in the industry. The increase maybe modest, however, because modern mills are becoming less labor-intensive as the industry moves toward mechanized technologies. Also, employment in the solid wood (lumber and panel) products sector is subject to wide swings, since production depends on the cyclical homebuilding industry. Increased participation in world markets possibly could cushion this oscillation somewhat, but, as international economies become more closely linked through commerce and banking, so have worldwide economic trends. An expanded U.S. forest products industry role in world trade may not significantly buffer its employees from the shocks of recurring recession. Increased international trade could result in better price stability for forest products prices, which often dramatically increase as production attempts to meet pent up demand during economic recoveries.

Expanded production could have environmental effects, too. Some observers say that expanded export markets could result in "exporting" the Nation's soil, fisheries, and wildlife as well as forest products if good forest practices are not adhered to. If not conducted properly, timber harvesting and intensive forest

[1] U.S. Congress, Congressional Budget Office, "Forest Timber Sales: Their Effect on Wood Product Prices," background paper, May 1980.

management often may change wildlife habitats, affect the availability of forage for livestock, cause erosion, and decrease water quality. Shorter rotations and greater utilization of forest residue may deplete soil nutrients over an extended period of time that could possibly affect future productivity of forest sites, Some timber management practices are incompatible with some forms of outdoor recreation. While severe environmental damage can be avoided in increased management intensity and residue utilization, some negative effects probably are inevitable.

In summary, a program to increase the role of U.S. forest products in international trade may:

- increase the supply of timber available to U.S. producers as well as international markets,
- result in slightly higher employment in the forest products industry,
- increase the U.S. role as an exporter of forest products, thus improving the balance of trade,
- slightly increase the price of housing and other consumer products whose production depends on forest products, and
- cause some deterioration in the environmental quality of U.S. forests.

Policy Issues

Discussed below are six policy issues. Under each are presented key findings, a brief summary of current policy status, and selected legislative options for congressional consideration.

Policy Issue A
Establishing Goals for the Management and Use of the Nation's Forest Resources

There are no clearly stated long-term national goals to guide Federal and State Governments and the private sector in long-range planning for the use and management of the Nation's forests.

Findings

- RPA, as amended in 1976 (NFMA), does not set forth general long-range national goals for timber production; it does not require the executive branch to develop specific national goals, except for the National Forest System.
- In the absence of specific national goals, the RPA planning process lacks a reference point for program revision (required by the act every 5 years) and fails to measure success in improving the use of the Nation's forest resources.
- In addition to the U.S. Department of Agriculture, (USDA) numerous Federal departments and agencies and State and private institutions play important roles in national programs to improve the management and use of the Nation's forests. Among these agencies and institutions are those that deal with finance, housing, environmental quality, international trade, and resource management. Clear national goals are needed to guide these institutions in providing support for USDA.

Current Policy Status

The framework for national long-range forest resources planning is based on two statutes, RPA of 1974 and a 1976 amendment to RPA, NFMA.

RPA directs the Secretary of Agriculture to prepare a comprehensive assessment of renewable resources through 2030, including timber, range, water, fish, wildlife, outdoor recreation, and wilderness, and to update it every 10 years. The Secretary also is directed to formulate a program based on the assessment recommending levels of Forest Service activities and to update it every 5 years. The assessment and program serve as guides for Forest Service plan-

ning and aid in the development of annual budget proposals. Once accepted by Congress, the program becomes the basis for Forest Service annual reports that accompany the President's budget submissions to Congress. Each annual report includes a quantitative and qualitative appraisal of how the administration's proposed budget meets the needs of the program. If the budget does not support the policy objectives or activity levels that the program prescribes, the President is directed to specify the reasons for proposing different policies or cutting programs, NFMA establishes an elaborate planning process for the National Forest System.

In sum, RPA as amended directs the Secretary of Agriculture to make an assessment of the present and future state of the Nation's forest resources and to formulate a program accordingly. However, Congress has not provided specific goals to be used in carrying out this directive. The original RPA contained neither a statement of policy nor congressional findings, Findings set forth by NFMA and more recent policies stated in the Forest Service's 1982 Annual Report are very broad and fail to provide clear direction for implementation of RPA's mandate.

In the absence of congressional guidance, the Forest Service has interpreted RPA program requirements narrowly by focusing on National Forest System planning and Forest Service programs. This emphasis has obscured the potential role of other Government agencies and of non-Federal lands, which comprise about 80 percent of the Nation's commercial forest, in meeting future U.S. economic and social needs, In addition, little attention is given to public policies that may affect the private sector's ability to compete in world markets, obtain capital to develop timber resources, and develop more efficient forest management and wood production techniques,

In short, the business of increasing the Nation's ability to maximize benefits from its immense endowment of timber resources transcends the Forest Service, yet the responsibility for assessing and planning for these resources is assigned largely to that agency. If the Forest Service is to take the lead in advancing U.S. timber production, it must go beyond Federal resource management activities and concern itself with the broader economic issues facing the forest products industry, as well as with social issues that could arise.

As a result of RPA, the Forest Service has both an extensive forest resource data base and the capacity to project future timber needs, The next logical step is to use this information to formulate a national strategy for maximizing potential domestic and world trade benefits afforded by the U.S. economic position and forest resource endowment.

A variety of organizations have proposed goal-setting to foster increased timber production from U.S. forests. In 1980, the Forest Industries Council recommended establishment of "a national timber productivity goal" aimed at reducing consumer costs and building a trade surplus in wood products. Similarly, a recent conference sponsored by the American Forestry Association and 23 other organizations proposed a "national goal for timber," including numerical goals for fiber production to be set through the RPA process.

Congressional Options

Several options are available to Congress should it determine that national timber production goals are desirable to promote domestic economic, social, and international trade development,.It could:

1, Create a commission to recommend goals for adoption by Congress as U.S. policy for the management, use, and economic contribution of the Nation's forests,
2. Formulate clear congressional goals for incorporation into RPA.
3. Direct the administration to formulate specific long-range goals for the Nation's forests, including a comprehensive approach to link the resources of government and the private sector.

Policy Issue B
Encouraging Research, Development, and Transfer of Forestry-Related Technology

Improved harvesting systems could increase the amount of timber recovered from the Nation's forests.

Findings

- Research and development (R&D) in harvesting systems offer great potential for immediately increasing the amount of wood available to the forest products industry.
- Nearly 100 percent of the wood brought into modern mills is utilized, either for products or energy, but many old mills currently do not achieve optimal use of materials. As existing mills are replaced with technologically advanced facilities, further improvements in product yields and energy efficiency are probable, even though overall utilization of raw materials cannot increase appreciably.
- Expanded research in the utilization of hardwoods and defective timber could further extend U.S. wood supplies.
- Additional basic research in wood chemistry, structure, and mechanical and engineering properties could increase wood's long-term competitive position relative to other materials.
- Prior research in silviculture, forest management, and wood utilization has provided an abundance of on-the-shelf technologies, but many have not been applied extensively in practice. Economic factors, resistance to change, and capital limitations are some of the barriers that limit commercialization of new technologies. The technology transfer system for forestry research is not well developed when compared to agriculture, although a basic framework to achieve this was established by Congress in 1978.
- The forest products industry lags behind other basic industries when its R&D funding is compared to sales volume and output value.
- Inadequate consideration has been given to recent significant increases in the use of wood fuel and their impacts on traditional wood products, existing timber stands, and future silvicultural practices.

Current Policy Status

Responsibility for forestry and wood products R&D is shared by Federal and State Governments, academia, and the private sector. Lines of responsibility are often blurred, however, and one sector's role is not separated from another. Public agencies and academia generally undertake basic and applied research, although industry does a considerable amount of basic research as well. Public agencies venture into developmental areas where broad social gains may be realized and the development is long term, high risk, and unlikely to attract private research investment, Sometimes public agencies undertake applied R&D when the commercial sector consists of small enterprises without technical and funding capacity or when R&D will benefit "public goods" such as wildlife or recreation,

A major barrier to improved R&D cooperation among companies are antitrust statutes. While antitrust laws permit joint research ventures that are approved and monitored by the Department of Justice, many firms are wary of working with competitors for fear of subsequently being judged in restraint of trade, The pulp and paper sector is particularly hesitant to join research ventures because of the spate of antitrust suits brought against some major producers in the past. While firms in some industries—such as electronics—have joined successfully in research consortia, uncertainties about Justice Department interpretation continue to dampen industries' enthusiasm for cooperative R&D.

The 1980 RPA assessment proposed $196 million for R&D planning for the fiscal year 1984 Forest Service budget. Forty-four percent of the funding would be directed toward growing and protecting timber, 27 percent toward

inventory and economic research, 14 percent toward forest products utilization, and less than 3 percent toward harvesting and engineering. The remaining 12 percent would be distributed among recreation, fish and wildlife, watershed management, and surface environment. While appropriations for Forest Service R&D have been much lower than the RPA target, funding apportionment has followed RPA recommendations closely. In recent years, Forest Service research budgets have declined from $112 million in fiscal year 1982 to $105 million in fiscal year 1983. A budget of $101 million is requested for fiscal year 1984.

The Forest Service research budget clearly emphasizes growing, protecting, and inventorying trees (7 I percent of the proposed RPA R&D budget). While silviculture, management, and forest protection are important means to increase timber production, improved harvesting systems may provide the greatest immediate payoff in extending the Nation's timber supply. The RPA assessment seems to underestimate the potential gains from harvesting and engineering R&D and recommends that it comprise only 2,8 percent of the Forest Service research budget.

In 1976, an estimated 1.4 billion cubic feet (ft^3) of usable wood residues were left in the forest after logging, plus an additional 3 billion to 6 billion ft^3 of tops, branches, and defective timber. These unused residues constitute approximately one-fourth to one-half of the volume harvested, Wood on other sites remains unused because the land is too environmentally sensitive to harvest with existing technology and must be discounted from the national timber base, Approximately 185,000 acres of the National Forest System in the Pacific Northwest are in this category. Additional acreage may be excluded because it is not economically feasible to harvest,

Improved harvesting systems could facilitate the economical harvest of small tracts and the removal of small logs. Manufacturing technologies continue to advance, and previously unusable wood materials and tree species now can be turned into products or used for energy.

Historically, harvest system development in the United States has been isolated from R&D efforts aimed at growing timber and processing forest products and has not been adequately supported by either private or public funding. In contrast, Western European and Scandinavian countries have developed innovative harvesting technology as a result of well-funded efforts coordinated among the public and private sectors.

In the absence of a comprehensive R&D program, the United States has focused largely on individual machines rather than on integrated harvesting systems designed to fit the timber resource, harvesting requirements, and manufacturing processes. Private sector efforts primarily have taken place by trial and error, in small job shops, and by adaptation of agricultural equipment. Increased research on the environmental impacts of harvesting can help guide the future development of machinery and harvesting systems. Research on wildlife impacts and possible effects on soil nutrient levels may be especially critical in the design of systems that remove most woody biomass from sites.

Technology transfer is an important but often overlooked component of public R&D programs. Transfer of forestry technology has received less attention than it has in agriculture where new innovations are implemented rapidly by farmers through the information, education, and demonstration programs of the Cooperative Extension Service. The extension system also is used to disseminate forestry research findings, but with comparatively little funding.

In 1978, Congress strengthened the framework for forestry technology transfer by enacting three laws to further the general policies and direction set by RPA—the Cooperative Forestry Assistance Act (Public Law 95-313), the Forest and Rangeland Renewable Resources Research Act (Public Law 95-307), and the Renewable Resources Extension Act (Public Law 95-306),

These statutes were intended to give technology transfer and forestry extension higher

priority within USDA structure and among State and local agencies involved with forestry and agriculture. The laws emphasize rapid communication of forestry research and technological information through USDA channels and through upgrading of Federal assistance to State and county extension agencies. Funding has been at a low level, however. The Renewable Resources Extension Program, for example, was authorized at $15 million annually, but initial funding of $2 million was not provided to the Cooperative Extension Service until fiscal year 1982 and it has been cut from the administration's proposed fiscal year 1984 budget, A small amount of general-purpose cooperative extension funds is used for forestry activities.

Congressional Options

Should Congress determine that further action to encourage R&D and transfer of forestry technology is desirable, various options are available. Congress could:

1. Amend either the Forest and Rangeland Renewable Resources Research Act or RPA to require periodic assessment of the Forest Service R&D program for congressional review.
2. Direct the administration to issue regulations and guidelines to expressly permit joint research efforts among firms without interference from antitrust restrictions.
3. Direct the Secretary of Agriculture to place greater emphasis on forestry technology transfer under the framework provided by the Forest and Rangeland Renewable Resources Research Act, the Renewable Resources Extension Act, and the Cooperative Forestry Assistance Act.
4. Establish two or three national research centers of excellence aimed at improved utilization of wood and wood materials. The laboratories could be located at universities with strong supporting departments and could emphasize collaborative research among academia, industry, and government.
5. Allocate more funds to the examination of the effects of intensified forest management (including harvesting technology) on the environment, soil nutrient levels, wildlife, and other resources.

Policy Issue C
Enhancing the Role of the United States in International Trade of Wood Products

The United States has an opportunity to expand its exports of solid wood and paper products, but a number of trade barriers must be eliminated or eased if the U.S. wood products industry is to successfully increase its share of world trade.

Findings

- Rapidly growing global demand and the comparative advantage of U.S. producers give the United States a unique opportunity to expand its role as a supplier of forest products to world markets. The U.S. advantage is particularly great in pulp and paper.
- The character of world trade is changing, and many of the changes place U.S. producers of all goods and services at a disadvantage. The growing use by many countries of nontariff trade barriers and foreign government assistance to exporters are detrimental to U.S. exporters of pulp and paper and solid wood products. Although their use has declined over the past three decades, many traditional quotas and tariffs remain, and these also hinder U.S. exporters.
- World economic conditions also have eroded the advantages of U.S. products. In particular, the recent global recession and the strength of the dollar relative to other currencies have adversely affected U.S. exports.
- Many importing nations see the U.S. solid wood sector of the forest products industry as an unreliable supplier because of its tendency to lose interest in foreign markets when domestic recessions abate.
- Foreign perception of the United States as an unreliable trading partner is reinforced by the U.S. Government's use of trade sanctions and embargoes as a foreign policy weapon.

- Tariffs, quotas, and nontariff barriers inhibit the increased export of pulp and paper and solid wood products, but nontariff barriers probably are the most damaging.

Current Policy Status

The United Nations Food and Agriculture Organization (FAO) projects that world demand for industrial forest products could be 50-percent higher by the end of the century. The United States is one of only a few nations that is well positioned to satisfy this demand, but its ability to do so is hampered by a number of factors, ranging from monetary and foreign policies of the Federal Government to product standards, While the commitment to expand international markets for U.S. wood products must come primarily from the forest products industry, there are a number of ways the Government may assist the private sector.

The forest products industry is one of few basic industries with a sustainable competitive advantantage over foreign producers. While the domestic steel and automotive industries have lost their edge in international markets to Western European and Japanese producers, U.S. wood and paper products are becoming more competitive. There are several reasons for this:

- U.S. producers can tap abundant renewable sources of wood that are cheaper than those of most other nations;
- the U.S. wood products industry enjoys lower production costs than most foreign firms due to lower energy costs, available skilled labor, and advances in energy efficiency; and
- U.S. manufacturing capacity and access to forests are well developed, in contrast to many competitors with remote forests.

However, the ability of the U.S. forest products industry to exploit this advantage is limited by world economic conditions, domestic government policies, past industry behavior, and trade barriers, including tariffs, quotas, and nontariff impediments. The most severe and least controllable limitations are worldwide recessions and the strength of the dollar relative to foreign currencies. The U.S. Government's past use of trade sanctions and embargoes as instruments of foreign policy also has tended to undermine world confidence in the United States as a reliable dealer. Few of these factors affect forest products any more than they do other exports, but in some cases tariffs, quotas, and nontariff barriers specifically reduce the competitiveness of the forest industry.

The U.S. solid wood products sector is considered a rather fickle trader by many foreign customers. Historically, U.S. suppliers have tended to lose interest in foreign buyers when domestic demand for lumber and panels increases. While the sector is becoming more aggressive in developing foreign markets for solid wood products, the strength of its commitment during a sustained economic recovery remains untested.

The removal or reduction of tariffs, quotas, and nontariff barriers could provide a long-term stimulus for U.S. forest products exports, Although tariffs and traditional quotas have been reduced since the formation of the General Agreement on Tariffs and Trade (GATT), many barriers remain. Nearly every major country that imports U.S. wood products levies tariffs or quotas, but these almost always affect processed products more than raw materials, Without tariff and quota reductions, the United States can expand exports of logs, woodpulp, and rough lumber, but similar expansion of finished lumber, panel products, and paper exports may be more limited.

Negotiation of tariffs and quotas is dealt with in GATT by the U.S. Trade Representative. Increasingly, GATT negotiations have focused on nontariff barriers, too, but GATT codes on these barriers are often vague and difficult to enforce. Nontariff barriers, however, may be a more potent deterrent to increased U.S. wood products exports than tariffs and quotas. Reduction of nontariff barriers probably can be handled best through bilateral negotiations with specific nations or trading associations and will require both government and industry involvement. The National Forest Products Association recently began a cooperative effort with the USDA Foreign Agricultural Service

(FAS) to improve market acceptance and reduce trade barriers for U.S. lumber and panel products. There is no comparable program for pulp and paper products, although both FAS and the Department of Commerce's Foreign Commercial Service are permitted to provide this assistance.

The formation of export trading companies, authorized by the Export Trading Company Act of *1982* (Public Law *97-290),* may improve the competitive position of the U.S. forest products industry in international markets. The act allows certain exemptions from antitrust law to permit American firms, including banks, to band together to export overseas. Some west coast forest products firms have expressed interest in forming export trading companies, but whether U.S. producers will be able to duplicate the success of the Japanese is unknown.

Congressional Options

Several options are available to Congress should it determine that expansion of U.S. wood products exports is in the national interest. It could:

1. Clearly establish authority, responsibility, and capacity within FAS or the Foreign Commercial Service to assist the private sector in market development and reduction of nontariff barriers to trade in pulp and paper products.
2. Direct the U.S. Trade Representative to give high priority to identifying and negotiating reductions in tariffs and quotas that most severely limit increased U.S. exports of wood products.
3. Direct the FAS, Foreign Commercial Service, Forest Service, or other agency to maintain current information on tariffs, quotas, and nontariff barriers affecting trade in wood products.
4. Direct the Forest Service, FAS, Foreign Commercial Service, or other agency to monitor the effect of regulations under the Export Trading Company Act and to identify legislative changes needed to make U.S. wood products export trading companies competitive in world markets.

Policy Issue D
Improving RPA Information for Formulating Forest Policy

The formulation of forest policy requires up-to-date national level information about forest acreage, inventories, and growth trends and realistic assumptions about future demands. Improvement in the current system for projecting timber supply and demand is needed if decisionmakers are to have adequate information for the design and funding of timber management programs and assistance to private landowners.

Findings

- More frequent inventories are needed if timely, reliable forest information is to be provided to Congress in RPA assessments. Each State is surveyed on the average of once each 12 years, but in some important timber-producing States the survey cycle is longer, As a result, national information is based substantially on estimates rather than actual, up-to-date field data.
- Inventories and growth trends for U.S. forests may be different in reality than those shown in the *1980* RPA assessment because of outdated survey information. Past national assessments consistently have underestimated growth and inventories, both in the national aggregate and on a per-acre basis. Uncertainties surround current and projected growth trends and inventories in the *1980* RPA assessment. In some regions and for some tree species, estimates may be overstated; in others, understated.
- A major uncertainty concerns the revival and rapid increase of wood used for fuel—especially for residential home heating. The phenomenon is so recent that adequate data on consumption, sources, and trends is lacking. Recent Forest Service and Department of Energy surveys indicate that residential fuelwood use increased several times more rapidIy in the late *1970's* than was anticipated. The proportion of fuelwood that came from industrially important growing stock is not clear.
- Several trends in landownership patterns may affect future timber production. Farm-

ers own a declining proportion of the forestland base, while "miscellaneous" private owners are increasing in numbers. Less than 30 percent of the private forestland has been held by the same owner for 30 years or more. Also, about one-fifth of all private forests is in parcels that are economically less efficient to manage. Ownership data is improving, but significant gaps remain, especially in the South where much of the private forestland is located.

- Better information about the on-the-ground effectiveness of USDA private landowner assistance is needed to evaluate Government policies and assess agency programs. Several USDA programs are oriented toward farmers, who own a declining proportion of the forestland base.
- Forest Service projections of timber supply and demand may overstate the future scarcity of timber. These projections are made using survey data and extrapolations of past timber growth, landowner behavior, and the relationship of demand for wood products to general levels of economic activity and population. More complete analysis of the sensitivity of these projections to changes in key variables is needed for Congress to evaluate proposed Forest Service timber management programs and budgets.

Current Policy Status

The collection and compilation of forest resource information has been a continuing function of the Forest Service since 1928, through congressionally authorized cooperative forest surveys in all States. Information requirements have increased in recent years due to the passage of RPA.

Through the Forest and Rangeland Renewable Resources Research Act, Congress explicitly acknowledged the need to "ensure adequate data and scientific information" in the development of RPA assessments. It directed the Secretary of Agriculture to "make and keep current a comprehensive survey and analysis of the present and prospective conditions of and requirements for renewable resources of the forests and rangelands of the United States . . . ."

Provision of up-to-date national forestland statistics and identification of trends are perplexing problems for the Forest Service because of the timing of State surveys. Forest surveys are statistically reliable, but they are conducted only periodically and irregularly in many States. As a result, the 1980 RPA assessment was based in part on adjusted field data, since 22 State surveys were compiled before 1970. Scheduling of forest surveys accelerated temporarily after the 1978 Research Act, but recent budget cutbacks have again slowed the inventory schedule.

Up-to-date survey information is crucial, especially in States where non-Federal lands make an important contribution to timber supplies, particularly in the South and the East. Private forestlands comprise 72 percent of the commercial forestland base and 80 percent of timber supplies and are expected to play an increasingly important role in future forest production, Most of this land is not owned by the forest products industry, and is subject to greater fluctuation in use and ownership than are public and industrial lands. The RPA estimates that, between 1962 and 1977, private nonindustrial lands declined by 26 million acres and forest industry holdings increased by 7 million acres, The net decline in private lands was 19 million acres. In some States, State and county lands also play an important role, particularly in the North Central and Northeastern regions.

Better land ownership data could assist in formulating and evaluating the effectiveness of forest resource policy. The Forest Service obtained national and regional information about forestland owners incidentally from a 1978 USDA rural land ownership survey, but the study was not aimed at forest owners and, as a consequence, provided insufficient information on owner motives and financial capability. As a result, comprehensive ownership data is available from only 11 Northeastern and Middle Atlantic States where the Forest Service has undertaken detailed surveys, While ownership information has improved, critical

gaps remain, particularly in parts of the South where nonindustrial lands predominate,

Upgraded information about wood fuel use also is needed, since it now accounts for more than half of the wood consumed in the United States. The forest products industry burns about two-thirds, obtained primarily from manufacturing byproducts such as residues and pulping liquors. However, use of residential fuelwood has increased dramatically and now amounts annually to over 40 million oven-dry tons. Much of this tonnage probably comes from industrially inconsequential sources, although data is fragmentary. If fuelwood use continues to grow, however, consumers could compete with industrial markets in some areas, unless steps are taken to integrate wood fuel use into forest management and industrial wood systems,

Because of the overriding importance of non-Federal lands, closer coordination and greater consistency are needed between the RPA assessment process and a parallel USDA assessment and program conducted under the Soil and Water Resource Conservation Act (RCA) of *1978* (Public Law *95-192).* RCA is limited to non-Federal lands and is oriented towards agricultural activities, but private forestlands are included under both RPA and RCA. Moreover, some key elements of Federal landowner assistance programs are provided by agricultural agencies such as the Soil Conservation Service, the Agricultural Conservation and Stabilization Service, and the Cooperative Extension Service.

Because of the recent origin of the RPA and RCA processes, it is not surprising that inconsistencies in their initial assessments have occurred. The Forest Service and the Soil Conservation Service have different missions and therefore different orientations and purposes in compiling forestland information. However, estimates of non-Federal forestland provided to Congress in the 1980 RPA assessment and the initial RCA assessment differed by tens of millions of acres—a discrepancy too big to be ignored. Most of this discrepancy is attributable to different land classification systems used by the two agencies, but some of it probably reflects the timing of field surveys—all of the Soil Conservation Service data was collected during 1976-77, when only part of the Forest Service data was current. USDA plans to use common non-Federal forestland figures in future assessments, and the two agencies are working to resolve the discrepancy.

Forest Service planning and budget requests for timber management programs on public and private lands are affected by projections of future need for wood. The most recent Forest Service projection made in the late 1970's shows increasing scarcity of timber in the next 50 years. This forecast is based partly on outdated (or adjusted] survey information, extrapolations of past trends in landowner behavior and timber management, and a wide range of assumptions regarding future economic conditions that are subject to significant change, particularly over the long time periods used in the forecast. Some analysts argue that these projections overestimate demand largely as a result of assumed high demand for housing and an overstatement of the gross national product growth, Timber growth trends are uncertain. Budget requests based on these projections may, as a result, place undue emphasis on timber management. Because it is difficult to forecast future demand and supply with any accuracy, projections based on a single set of assumptions are of limited value,

Congressional Options

Several options are available to the Congress if it decides that improrved information is needed for policy formulation. It could:

1. Direct the Secretary of Agriculture to schedule State forest surveys to ensure that current information is available in key forestry States (those with a predominance of timber and changing conditions) for RPA assessments. Direct the responsible USDA agencies to identify options and costs for updating information on forestland conditions prior to production of an RPA assessment.
2. Direct the Secretary of Agriculture to identify and evaluate options for coordinating

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and improving consistency of RCA and RPA assessments and programs affecting non-Federal forestland.

3. Direct USDA to expand its efforts to monitor fuelwood use and landownership patterns at regional and national levels to improve the reliability of RPA data.
4. Direct the Forest Service to provide alternative projections of future timber supply and demand and to identify the effects of changes in key variables on projected timber demand, supply, and prices.

Policy Issue E
Identifying Timber Management Needs

U.S. timber supplies can meet probable demand for forest products through 2030 if current management trends continue. Application of existing management technologies could increase timber growth far beyond current levels, but institutional, technical, and financial barriers must be overcome first.

Findings

- Timber harvest levels 50 percent greater than those of the high-demand period of the 1970's can be sustained for several decades without major changes in existing management technologies for growing, harvesting, and processing wood according to Forest Service base-level supply projections.
- While timber growth presently is increasing at a steady rate, other factors could significantly alter the future supply situation. One factor is wood fuel consumption, which recently has risen dramatically, although current data is inadequate to assess the implications for industrial timber supplies. Another factor is forestland conversion to nontimber uses. Most acreage losses have been on private lands as a result of shifts to agricultural and urban uses, USDA statistics vary significantly as to the exact magnitude of the shift. Wilderness set-asides on Federal lands have contributed somewhat to the decline in commercially available timberland, but wilderness areas generally consist of less productive, inaccessible sites, so that economically exploitable timber volumes are small in relation to the acreage removed from production.
- Timber management practices applied today will not have an appreciable effect on timber supplies until after 2010. Management proposals to reduce projected scarcities will require capital investments in the range of $10 billion to $15 billion over a 50-year period, mostly for softwood reforestation on private nonindustrial lands.
- In the absence of production goals for U.S. forestry, the need for investments of this magnitude is not well established, Forest Service models of long-range timber demand and supply predict increasing timber scarcities, particularly for softwoods, but the models use liberal demand assumptions and conservative supply assumptions, Uncertainty about future wood demand is a major constraint to private investment and casts doubt, too, on the need for public expenditure.
- Management programs to increase softwood supplies may need to be reevaluated so that less costly alternatives (e.g., improved management of existing hardwoods) receive more consideration for private nonindustrial forest (PNIF) lands.

Current Policy Status

Increasing the productivity of U.S. forests has been the major purpose of forest policy for nearly 80 years. Fears of possible timber famine have not panned out, in part because of the success of public programs and private initiatives to conserve supplies, reduce the hazards of fire, insects, and disease, and improve the utilization and management of forestland. U.S. forestland today provides more wood for industrial use than that of any other nation, even though the United States ranks third in exploitable growing stock.

The domestic timber supply situation has improved dramatically over time, It probably will continue to improve, affording opportunities to expand the contribution of U.S. forests to the economy. Growth trends are highly favorable for greater production, even assuming the continuation of present management practices, Increased timber harvests over the current

level of about 13 billion ft^3 per year are biologically possible on a sustained basis. Net annual roundwood growth, now over 20 billion ft^3 has been increasing since 1952, although this is expected to taper off in the decades to come unless appropriate management practices intervene. Standing inventories are increasing rapidly, from 600 billion ft^3 in 1952 to 711 billion ft^3 in 1976, and are expected to continue to increase. Supplies of preferred species, especially high-quality softwoods, are tighter, however, and there are important regional differences.

Technological advances also favor increased production and have contributed to the improved timber supply situation. More efficient manufacturing processes have broadened the range of usable materials to include less valuable and underutilized species such as low-grade hardwoods and habe enhanced the prospects for use of "nongrowing stock materials" [timber not counted in the standing inventories cited above). I n addition, developments in harvesting technology' have improved recovery of materials previously' left on harvest sites, although comparatively low levels of R&D) have hindered progress toward integrated harvesting systems.

Although timber supply prospects are on the whole optimistic, there are some important caveats, For example, residential fuelwood consumption skyrocketed during the 1970's. Most fuelwood is thought to come from sources that are not important to the industry, but high levels of fuelwood removal for a protracted period could tighten industrial supplies if appropriate management strategies are not adopted. Commercial forest acreage has declined recently, mainly because of the conversion of forestland to agriculture and developmental uses; continued decline is anticipated. Moreover, PNIF land, on which the industry increasingly depends for supplies, typically is not owned primarily for timber production, and some of this land is in parcels too small to benefit from "economies of scale" in management and harvest.

Management technologies applied to U.S. forests could greatly increase growth, but this is a long-term proposition because of the long growing cycle of trees. Most of the 482 million acres of commercial forestland in the United States is not managed primarily for timber growth; intensive timber management (application of planned treatments to forestland to increase production of industrial roundwood) is increasing but it is not widely applied.

Because tree crops take at least 30 years to grow, investment decisions must be made several decades before harvest amid uncertainty about future timber markets and the future state of technology. Intensive timber management opportunities currently identified by the Forest Service were sought in response to projections of increased timber scarcity (primarily softwoods) over the next 50 years.

To reduce the projected scarcity, "economic opportunities for management intensification, " or lands where investments would yield 4 to 10 percent or more in constant 1977 dollars, have been identified on 30 to 35 percent of the commercial forestland base. These opportunities will be expensive to take advantage of because they would require a total investment of $10 billion to $15 billion over a 30- to 50-year period, but they could increase growth significantly on treated lands 30 to 50 years from now. Nearly all of the identified opportunities involve reforestation or conversion of hardwood timber stands to softwood, mostly on PNIF lands.

Shifts of land between agriculture and forestry are important but difficult to assess in terms of acreage available for timber management. During the 1970's, agricultural land requirements grew so quickly that USDA conducted a study identifying "potential cropland''–land not used for crops that could be economically brought into crop production, including about 31 million acres of private forestland thought to have a high or medium potential for crop use. A similar assessment of marginal or highly erosive cropland that could

be more suitably used for timber growing than crop production has not been undertaken on a comprehensive basis, but it could help determine long-term priorities for agriculture conservation programs if current grain surpluses and cropland set-aside programs continue. In addition, some marginal agricultural land reverts naturally to forestland each year but is usually poorly stocked with commercial species for quite some time, Because tree planting on agricultural land usually is cheaper than on harvested sites, determining the extent of such acreage and its management opportunities would be useful.

Management needs are difficult to establish without clarifying the role that wood can, could, or should play in the domestic and international economy. Economic models, such as those the Forest Service uses to project future supply and demand for wood, may be more useful for identifying alternative strategies for achieving goals once goals are set, than for establishing the goals themselves. The Forest Service demand projections, for example, have been criticized for overstating likely future demand for wood and for understating likely supply—and therefore may not provide a sufficiently accurate basis for formulating policies for timber management programs and for budgeting public or private expenditures.

Congressional Options

If more refined information about timber management needs is considered an important objective, Congress could:

1. Direct the Forest Service to supplement its previous assessment of "economic opportunities" for timber management with a separately conducted analysis of hardwood management opportunities to gain incremental improvement in timber quantity and quality without the need for expensive stand conversion and planting of softwood species.
2. Direct USDA to undertake a "potential forestland" management study to determine the extent of marginal or erosive agricultural land that may be better suited for timber production than crop or other agriculture uses.

Policy Issue F
Establishing Public and Private Management Priorities

Timber growth and harvest can be increased on all forest land ownerships. However, the potential for increased output and the means for stimulating production differ among the three major ownership groups.

Findings

- Government incentives for increased timber production on PNIF lands are modest and their results are complicated by diverse landowner attitudes, financial capabilities, and objectives. Greater emphasis on small-scale forestry research, technical assistance, education, and information programs probably would provide a broader stimulus to productivity than increased financial assistance, given the limited Federal funds available.
- The private sector will play the key role in funding timber management on its land, although government incentives may continue to supplement private efforts. The forest products industry contributes significantly to encouraging PNIF management through technical assistance programs and leasing arrangements; industry efforts of this sort could accelerate if Federal funding remains low, Several financial institutions now offer timberland investment programs that may channel additional capital into forest management,
- To help ensure adequate future wood supplies, the forest products industry could intensify management on its own lands, which generally are located near mills and are highly productive, Existing tax laws allowing capital gains treatment of timber income seem to have encouraged the industry to undertake more intensive management of its lands, although a conclusive cause-effect relationship between this tax incentive and management intensity has not been estab-

lished. Many nonwood-based corporations have substantial forest holdings that also afford added management opportunities.

- Timber production on Federal lands could be increased in the long run through more intensive management of lands allocated to this purpose, The RPA program endorsed by Congress proposed upgraded management on productive national forest land by 2030, but its implementation will depend on whether adequate Federal funds are appropriated.

Current Policy Status

U.S. timber inventories have been increasing for several decades and will probably continue to do so under current levels of management. Supplies could be increased more rapidly, however, through greater implementation of existing intensive management technologies. Opportunities for achieving more intensive management vary among the three major ownership groups—private nonindustrial, forest products industry and Federal–because of differing ownership objectives, financial resources, and land characteristics such as potential productivity, tract size, and location,

PNIF lands comprise 58 percent of the commercial timberland in the United States and contribute nearly half of the raw material used by the forest products industry. In the East, where 90 percent of the PNIF lands are located, they contribute an even larger portion of timber supplies,

Prospects are good for increased production from PNIF lands, Growth on these lands is increasing more rapidly than on other ownerships, and PNIFs generally can be expected to enlarge their contribution to timber supplies under current levels of management, Substantially greater timber supplies from PNIFs could be achieved in the long term through more intensive management, "Economic opportunities for management intensification" have been identified on 79 million to 124 million acres of PNIF lands, but these opportunities would be expensive ($6 billion to $9 billion) to implement. In addition, impediments such as market uncertainties, diverse landowner objectives, lack of awareness about investment opportunities, and small tract size may inhibit management investment.

Federal assistance to PNIF landowners includes research, education, technical assistance, and direct financial assistance through tax incentives and cost-sharing programs. Several USDA agencies in addition to the Forest Service provide service—i.e., the Agricultural Stabilization and Conservation Service, the Soil Conservation Service, the Cooperative Extension Service, and the Farmers Home Administration, Some programs channel aid to private owners through State forestry agencies. An interagency agreement on forestry defines individual agency responsibilities and coordination of forestry-related assistance.

"The three 1978 laws that placed increased emphasis on State and private forestry were the Cooperative Forestry Assistance Act, the Forest and Rangeland Renewable Resources Research Act, and the Renewable Resources Extension Act. Still, the executive branch has given State and private forestry a low priority, proposing a 60-percent budget reduction for fiscal year 1984 in Forest Service support for State and private activities.

Several Federal tax provisions and cost-sharing programs provide timber-related benefits to PNIF owners. Capital gains treatment of timber income is by far the biggest of these (entailing a subsidy of about $180 million to individuals in fiscal year 1983) but does not require tax savings to be reinvested in management. Other tax incentives, such as tax credits for reforestation costs, explicitly require management, but on a limited basis and at far less Federal cost ($10 million to individuals in fiscal year 1983).

Direct cost-sharing is provided by the Forestry Incentives Program (cut from the proposed fiscal year 1984 budget) and the Agricultural Conservation Program, administered by the Agricultural Stabilization and Conservation Service in conjunction with the Forest Service. A criticism of these cost-sharing programs is that they may be used by people who would

undertake timber management activities whether or not Federal funds were available.

Historically, the cost-sharing program that had the greatest impact on private nonindustrial tree planting was not a forestry program, but USDA agricultural program called the soil bank. Established by Congress in 1954, the now defunct soil bank paid farmers to keep some of their land out of production for at least 10 years and also provided cost-sharing assistance for tree planting. Although not a forestry program per se in that its key purpose was to reduce erosion and grain surpluses, PNIF land planted in trees during the high point of the soil bank era (1958-62) has never been surpassed. Soil bank plantations currently are reaching maturity in the South and are important to the region's timber supplies.

The present agricultural situation may be optimal for retiring some land from crop production for a protracted period. Grain surpluses are enormous, and erosion levels on some land are very high, especially on vulnerable cropland brought into production during the high demand years of the 1970's. In March 1983, USDA announced that farmers had enrolled 82 million acres of cropland for conservation use in its Payment-in-Kind (PIK) Program. The program is temporary, but longer term conservation programs are under consideration. Thus, there may be opportunities to meet national objectives related to farm income, soil conservation, and forestry through an extended program to encourage farmers to plant trees on highly erosive cropland better suited for timber production. Planting costs on idled cropland are less than on harvested areas where stand preparation must be conducted, but annual payments to farmers under the soil bank program were high. From a timber management perspective, a soil bank approach would not be cost efficient, but the cost may be more acceptable if other public objectives are taken into consideration. Alternative systems for cost-effective agricultural land retirement now under consideration do not necessarily entail annual payments to farmers.

The private sector may provide more assistance to PNIF owners in the future if Federal budgets stay low, Many forest products firms conduct programs to expand wood supplies in their procurement areas by providing advisory, financial, and operational services to local nonindustrial landowners. Some firms lease PNIF lands under long-term contracts that provide owners with regular income while their lands are managed for timber production.

More recently, financial institutions have begun marketing limited partnerships that could raise investment capital for timber management on private lands while providing tax shelters and future income to the investors. The effect of these limited partnerships on private forestland productivity is not yet known.

The forest products industry owns 14 percent of the Nation's commercial forestland and 44 percent of the highly productive commercial land—more than any other ownership group. Industry lands provide about one-third of the Nation's commercial harvest. Industrial lands have important potential for increasing U.S. timber production because they have high natural productivity, lie in large contiguous parcels, and tend to be located near mills. Furthermore, the large forest products firms that own the most industry land generally have access to investment capital, and timber production is the major landownership objective of these firms. Evidence suggests that industry lands are being managed more and more intensively, but a significant portion are still nominally managed or unmanaged altogether.

Capital gains treatment of timber income, which cost the Department of the Treasury $225 million in foregone corporate taxes in fiscal year 1983, may have encouraged industry investments in timber management. However, a direct cause-effect relationship is not clear since beneficiaries of the provision are not required to reinvest their tax savings in management, Other factors may have also contributed to the increase.

Federally owned lands comprise 18 percent of the Nation's total commercial forestland and provide about 15 percent of the timber harvested. Not all public lands classified as ''commercial" are managed for timber production. Some have been allocated to other uses such as recreation or wildlife habitat. In addition, wilderness set-asides have removed 10. z million acres of Federal commercial acreage from timber production, and management activities are restricted on additional acres that are being considered for wilderness. The law allows some flexibility for temporary increases in timber harvest on Federal commercial lands, but statutory changes would be needed to allocate more land to timber production under multiple use planning processes.

The Forest Service maintains that all economic opportunities for management intensification on national forest land are currently scheduled or planned, Although details have not been provided, such management would increase timber production on Federal lands in the future, but would require a significant increase in funding for planting and timber stand improvement.

Congressional Options

Numerous options are available to Congress should it determine that Federal incentives for timber management need to focus on the most cost-effective lands. Congress could:

1. Direct the Department of the Treasury, in cooperation with USDA, to report on the impact and effectiveness of current tax treatments and tax incentives in encouraging timber management and on alternative tax approaches for congressional consideration, Alternative approaches could include expanded ''intensive management investment tax credits to replace or supplement current capital gains treatment of timber income or tax incentives to encourage expansion of private sector landowner assistance programs.
2. Increase Federal PNIF assistance programs for research, education, extension, and technical assistance programs that are general in application,
3. Focus Government programs for direct Federal cost-sharing to landowners where important conservation objectives would be served by tree planting, such as on erosive or marginal cropland ill-suited for crop production, while relinquishing most cost-sharing assistance on other lands to the forest industry and financial institutions that are better able to determine cost effectiveness,
4. If general cost-sharing programs are maintained, direct USDA to establish priorities for Federal cost-sharing assistance to PNIF landowners based on factors such as tract size, potential productivity, and proximity to timber markets,
5. Direct the administration to intensify timber management on Federal lands allocated to timber production. Appropriate the funds required to implement intensified management programs,
6. Initiate hearings and other deliberations to investigate alternative timber management and timber sales procedures for Federal lands, such as a greater industry role in timber management activities in return for harvesting privileges.