

GAO

April 1987

TIMBER PROGRAM

A Cost Accounting System Design for Timber Sales in National Forests



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United States
General Accounting Office
Washington, D.C. 20548

**Accounting and Financial
Management Division**

B-226580

April 21, 1987

The Honorable Sidney R. Yates
Chairman,
The Honorable Ralph Regula
Ranking Minority Member,
Subcommittee on Interior
and Related Agencies
Committee on Appropriations
House of Representatives

In your letter of May 21, 1986, and through subsequent discussions with your staff, you asked us to provide an example of a basic design for a timber program cost accounting system that will meet the needs of the Congress and the Forest Service. We believe the proposal outlined in this report will provide that cost and revenue information necessary for the Congress and the Forest Service to effectively monitor and manage the Forest Service timber program.

We are sending copies of this report to the Director of the Office of Management and Budget, various congressional committees, the Secretary of the Department of Agriculture, and other interested parties.

A handwritten signature in black ink, appearing to read 'Frederick D. Wolf'. The signature is written in a cursive style with a long, sweeping tail on the 'f'.

Frederick D. Wolf
Director

- Establishing clear definitions of terms and costs and standard procedures for operating the system.
- Developing useful formats for reporting financial results.

The basic design was tested at four national forests with the assistance of the Forest Service. The Forest Service agrees that the proposed system will be useful and has begun work to implement it.

Principal Findings

A well-designed cost accounting system should provide information on a program's costs and revenues at the same level managers are held accountable for planning and managing the program.

National forests vary greatly in the amount of timber they produce. The differences in timber production affect the way in which a forest's timber program is planned and managed. If a forest has only a small timber sale program, staff at the forest level may have to become very actively involved in assisting individual ranger districts. By contrast, districts in heavy timber-producing forests have this technical support available at the district level.

Establishing Timber Management Cost Centers

The timber sale cost accounting system needs to be flexible enough to be operated at a variety of management levels, with the level selected for any given forest based on how the program is actually administered there. In the proposed system, these areas are called "timber management cost centers." (See chapter 2.)

Establishing Timber Sale Categories

Timber sales vary greatly in purpose and size. Some are held primarily to supply the large amounts of wood needed for the nation's timber-related products, while others are held primarily for other objectives such as improving wildlife habitat. To provide a useful analysis of this range of timber sales, a set of sale categories is needed. Using such categories will also provide the Congress with needed oversight information. (See chapter 2.)

Using Cost Pools for Multiyear Costs

Because the cycle of growing, harvesting, and replanting timber takes so many years, a means must be developed to provide an adequate matching of multiyear costs with the annual revenue generated by these sales. Some multiyear costs can be directly attributed to sales because

-
- Hold line officers accountable for meeting the system's objectives. One way to achieve this is by incorporating responsibility for the system into the same process used to hold line officers accountable for other responsibilities. (See chapter 3.)
 - Make decisions about some of the estimates and procedures that will be adopted as part of the system. (See chapter 3.)

Recommendations

GAO is not making recommendations in this report.

Agency Comments

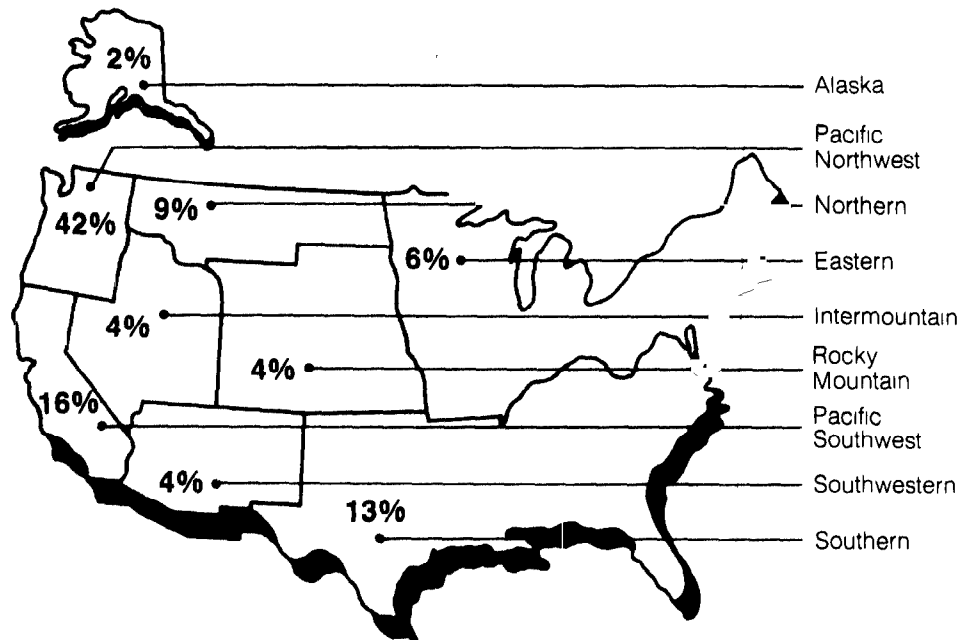
In commenting on a draft of this report, the Forest Service said the concepts presented for a cost accounting system would provide a positive framework for greater and more effective use of cost accounting information that will serve management as well as the Congress. (See agency comments sections in chapters 2 and 3. Comments from the Department of Agriculture are included in appendix II.)

Figure 2.2: Allocation of Road Costs	21
Figure 2.3: Determining Costs to Be Matched Against Revenues	25
Figure 2.4: Sample Reports on Timber Sale Revenues and Expenses	27
Figure 2.5: Sample Consolidated Timber Sales Reports	29

as amended by the National Forest Management Act of 1976, requires the Secretary of Agriculture to develop an integrated land and resource management plan for each administrative unit of the national forest system. These forest plans describe in detail the management alternatives available for the forest and show the preferred alternative to be implemented. As part of this process, the Forest Service has evaluated much of its land and has classified large tracts on the basis of their ability to produce timber.

National forest regions vary considerably in timber production. Figure 1.1 shows the distribution of timber volume harvested, by region, in fiscal year 1986. As the figure shows, the majority of the timber harvested in national forests was in the Pacific Northwest and Pacific Southwest regions. These regions contain a high portion of the national forest system's most productive timberlands, where stands of timber per acre are heavier and where the timber is likely to be of higher value. As a result, timber from such land can be expected to provide more revenue per acre harvested than will timber from lower productivity timberlands.

Figure 1.1: Distribution of Harvested Timber by Region—Fiscal Year 1986



Federal law—most recently, the National Forest Management Act of 1976—requires the Forest Service to sell the timber at “not less than appraised value.” This requirement was designed to ensure that fair market value for the timber is obtained. Two main methods are used for computing appraised value:

- In the Pacific Northwest, the Forest Service computes the appraised value by estimating the market price for finished lumber at the mill, subtracting the purchaser’s estimated logging and milling costs, and factoring in the purchaser’s risk and profit. This “residual value” method is based on the purchaser’s costs and is designed to help ensure that a purchaser of average efficiency will make a profit from the timber produced. Except for roads, costs incurred by the Forest Service are not considered in making the appraisal.
- In the Southeast, the appraised value is an average of actual market value experience for the past few years.

The contract to harvest the timber is awarded to the highest bidder under competitive bidding procedures. Contract terms often call for the timber to be cut in 3 to 5 years, but cutting time can range from 1 to 2 months for small sales to 10 years for large ones. The purchaser generally builds any roads needed to harvest the timber, and the Forest Service monitors the purchaser to ensure that the roads are built correctly, that only designated trees are cut and that they are cut according to contract specifications, that damage to the soil or streams is minimized, and that other contractual requirements are complied with.

When harvesting is completed, reforestation activities begin. The land is prepared so that new trees can be planted or naturally regenerated. The new stand of timber is then allowed to grow for several years before reforestation is certified as successful.

Request for a Cost Accounting System for Timber Sales

In 1984, we issued a report on the cost of timber sales.³ In more recent years, the Subcommittee on Interior and Related Agencies of the House Appropriations Committee has asked the Forest Service for more detailed information about the costs and revenues associated with timber sales. The Forest Service has responded that its accounting system was not set up in such a way that it could provide the detailed information the Subcommittee was seeking. In its fiscal year 1985

³Congress Needs Better Information on Forest Service’s Below-Cost Timber Sales, (GAO/RCED-84-96, June 28, 1984)

Included as part of this objective was ensuring that the proposed system would be compatible within the present accounting operations of the Forest Service.

By "basic design" of the system, we mean those elements that will ensure that Forest Service management and congressional oversight needs are met and that generally accepted accounting principles have been taken into account. These elements include such items as the following:

- the management level to serve as a cost center for developing and reporting the system's information,
- the basic cost accounting concepts that will allow for a meaningful comparison of costs and revenues, and
- the standard procedures and definitions needed to ensure that costs and revenues are treated uniformly and consistently.

We did not attempt to develop a cost accounting system in complete detail because the Forest Service needs the flexibility to adapt a basic design to its operating structure and procedures and to determine how the design might best be implemented and utilized within the agency. Thus, we focused our work on ensuring that the basic design is workable, meets standards and requirements, and provides both the Forest Service and the Congress with the information they need.

We worked closely and cooperatively with the Forest Service. At each main stage of the process, from conceptual development of the basic design to field-testing its feasibility, the Forest Service was directly involved. The discussion of our methodology, which follows this section, describes the specific kinds of actions we took in this regard.

The proposed cost accounting system focuses on the timber management aspect of Forest Service operations. Under its multiuse mandate, the Forest Service manages national forests for recreation, fish and wildlife, watershed, and rangeland purposes as well as for timber production. We did not attempt to apply this system to these other uses except as timber sales relate directly to them. We did not, for example, extend the system to account for all costs and revenues associated with maintaining facilities and operations for public camping, hunting, and fishing. In developing the basic design of the system, however, we did so with an eye toward the Forest Service eventually applying the same kind of system to these other forest uses as well.

generated. The papers were distributed to Forest Service officials, whose comments were considered in further refining the basic workings of the system. Also, we met with subcommittee staff on several occasions to inform them of our progress and provide an opportunity for them to comment.

To accomplish the third task, we field-tested the system concepts at four national forests: Mt. Hood, Kootenai, Routt (in Colorado), and Coconino (in Arizona). Because the Forest Service has a decentralized management structure that leaves considerable discretion to forest supervisors as to the kinds of financial information collected, no specific location can be fully representative of the Forest Service as a whole. We selected these locations upon the recommendation of the Forest Service as providing a cross section of the various types of approaches used across the country.

At each of our four field-test locations, we determined whether the basic system concepts were workable—that is, whether the information called for could be readily generated, whether the results would be complete, accurate, and useful, and whether the proposed system made the most efficient use of processes and procedures already in place. At two of the forests (Routt and Coconino), the team field-testing the system was composed of both GAO and Forest Service personnel. The jointly conducted field tests served as a way to ensure usefulness of the system design to Forest Service personnel and to resolve difficulties or uncertainties with regard to how the basic design of the system could be implemented.

Our fieldwork was performed between June 1986 and March 1987. We involved officials of the Forest Service in our work throughout this time.

plan and supplementary guidance to district rangers. If a forest has only a small timber program, staff at the forest level may become very actively involved in assisting districts with the program. This was the case at the Routt National Forest, where forest-level staff assisted those districts with programs that were too small to support all of the necessary technical staff. By contrast, Mt. Hood's heavier timber production meant that timber sales could support the necessary staff at the district level. For example, the district we visited at Mt. Hood had a full-time equivalent staff of 53 and authority to approve sales of up to 2 million board feet, while the district we visited at Routt had a full-time equivalent staff of 24 and authority to approve sales of up to 1,000 board feet, or \$2,000.

These differences can also affect the level at which information about costs and revenues should be collected and reported. A well-designed cost accounting system should provide information on a program's costs and revenues at the same organizational level held accountable for planning and managing the program. Because this level may vary from location to location, the basic design of the system must be flexible enough to allow the level selected for any given forest to be based on how the program is actually administered there. We have chosen to call these levels "timber management cost centers." (Private industry uses a similar concept for matching costs and revenues. For example, timber firms group their timber stands into large blocks, such as tree farms or similar management units.)

Forest Service officials told us this approach would be useful. They have proposed that, as a first step, the forest level be used as the timber management cost center throughout the Forest Service. They said that as experience is gained with the system and forest plans are approved, they would exercise the option of shifting the timber management cost center below the forest level as appropriate.

We agree with the Forest Service's decision to implement the proposed system initially by designating each administrative unit or national forest as a timber management cost center. Our field tests show that timber programs at many national forests are too small to justify establishing timber management cost centers below the forest level. In these cases, forest-level data by sales category will adequately provide the cost control information needed by the Forest Service and the oversight information needed by the Congress. For a more useful match of timber sale costs and revenues at forests with larger programs, however, establishment of timber management cost centers at the subforest level (such

extensive planning and preparation, cutting of trees, or reforestation of the land.

Recording Multiyear and Single-Year Costs

The cycle of growing, harvesting, and replanting timber takes many years. Growing a new stand of timber may take 85 years or more, and the time involved in planning the sale, harvesting the timber, and reforesting the land may be a decade or more. A cost accounting system needs a mechanism for recording costs so that they can be matched against the revenues that result.

Multiyear Cost Pools

Multiyear costs associated with timber sales fall into two categories:

- Some multiyear costs can be readily charged to actual sales because they occur after the sale boundaries have been identified. As we pointed out in chapter 1, timber sale boundaries are not specifically identified until a few years before the sale. At that time, specific planning and administrative activities begin. These activities continue through harvesting of the timber and reforestation of the area, and they conclude when the new timber stand is certified as successful.
- Some other multiyear costs are incurred while the timber is in its growth stage and is not part of any identified timber sale. Examples of these kinds of costs include fertilization and treatment, precommercial thinning, pest control, and fire control. These activities are usually focused within the timber management cost center without consideration of potential sale boundaries. When sale boundaries are established, they may not match the boundaries of the area treated. These costs can be charged to the timber management cost center but not to actual sales.

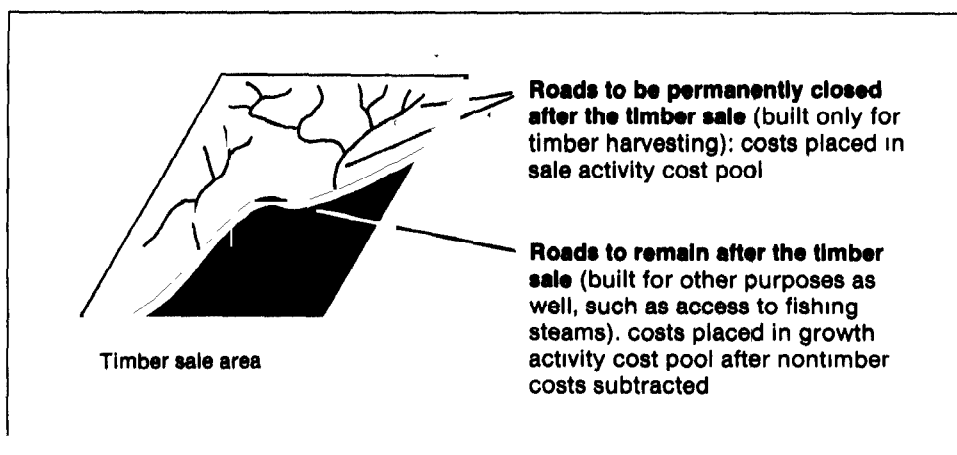
The Forest Service does not currently use any method to accumulate such multiyear costs for matching against related revenue. Annual timber sale costs are recorded under various activity accounts, such as "timber sale preparation," "timber harvest administration," and "reforestation." These accounts are closed at the end of each year. The Forest Service agrees with our view that a system using cost pools to match multiyear costs against revenues generated by those costs would provide a better alternative to these practices. A Forest Service contracted study reported that a number of large private timber companies use the same approach to accumulate such multiyear costs for subsequent matching against revenue.

have uses that extend beyond the timber sale. In timber sales, roads need to be built to move equipment in and out of the logging site and to transport harvested logs. In some cases, the roads are built to higher standards so that they can also be used for other purposes beside timber harvesting—for example, for access to hiking trails, to lakes or rivers, or to hunting grounds. Not all roads are built as part of a timber sale. Some roads may be built that have no relationship at all to a sale, but are intended exclusively for these other kinds of purposes.

To provide a thorough treatment of road costs, a cost accounting system needs to be able to assign costs over the period for which the road is used, and to take the different purposes for which the road was built into account. Our proposal, as shown in figure 2.2, calls for dealing with road costs in two ways:

- Roads that will be permanently closed after the harvest (roads that will not become part of the Forest Service's transportation system) will be expensed over the period in which timber is removed from the specific sale. To do this, the road's cost will be placed in the sale activity pool—the pool covering costs that can be attributed to identified sale areas.
- Roads that will remain after the harvest (roads that will become part of the transportation system) will be placed directly in the growth activity pool—the pool covering costs that can be traced to a timber management cost center but not to a specific sale.

Figure 2.2: Allocation of Road Costs



We also believe that it is appropriate to write off a portion of the cost of these roads, as well as any similar capital-type costs, against nontimber

center, the Forest Service and the Congress can obtain a reasonably accurate and useful measure of the revenues and costs associated with the timber sale program.

Our proposal, which is illustrated in figure 2.3, matches costs with revenues in the following manner:

- Costs in the sale activity pool (the pool for costs that can be linked directly to timber sales) would be placed in a deferred-cost⁶ asset account and matched with related sale revenues by computing an allowance to be charged each year. The allowance, which would be computed annually, would be determined by dividing the total pool costs by the volume of sales under contract in the timber management cost center and multiplying the result by the volume of timber harvested in those sales during the year. Figure 2.3 shows this formula. For example, at the Routt National Forest, the formula produced the following 1986 allowance for the cost pool:

$$\frac{\$3,445,957}{103,466,000 \text{ board feet}} \times 24,733,400 \text{ board feet} = \$823,751$$

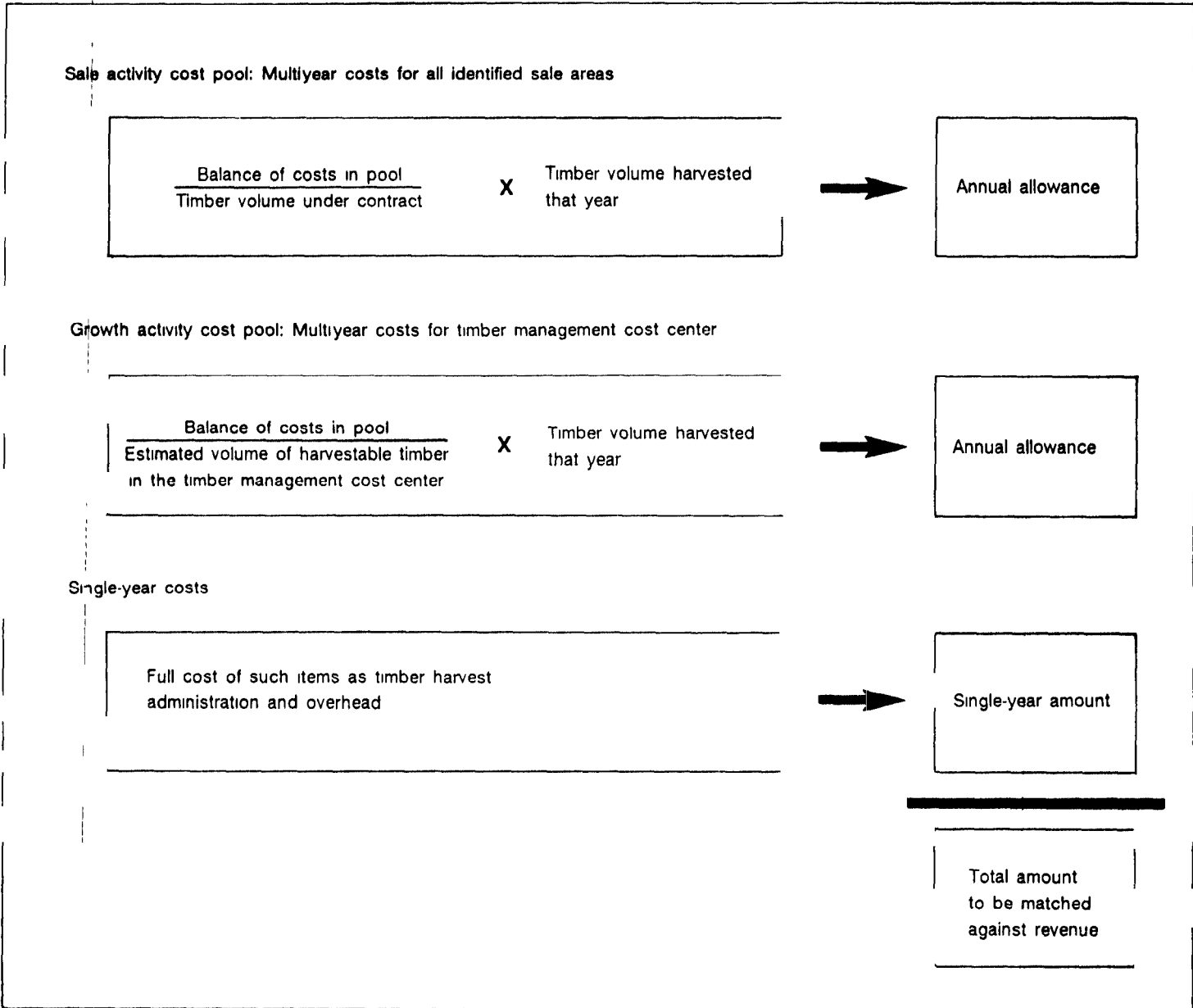
Amounts not allocated would be carried over and added to each year for matching against the timber harvested in each succeeding year under these contracts.

- Costs in the growth activity pool (the pool for costs that can be charged to the timber management cost center, but not directly to timber sales) would be placed into another account and matched against revenue generated by each year's harvest in the timber management cost center, again using an allowance. The allowance would be determined annually by dividing the total costs in the pool by the total estimated volume of harvestable timber in the timber management cost center and multiplying the result by the volume of timber harvested in the timber management cost center during the year. Figure 2.3 also shows this formula. For example, at the Coconino National Forest, the formula produced this 1986 allowance for the cost pool:

$$\frac{\$56,903,987}{13,761,000,000 \text{ board feet}} \times 126,746,000 \text{ board feet} = \$524,115$$

⁶Costs that have already been incurred and paid that represent future economic benefits that should be matched against the revenue they help generate

Figure 2.3: Determining Costs to Be Matched Against Revenues



Chapter 2
Basic Design of the Proposed System

Figure 2.4: Sample Reports on Timber Sale Revenues and Expenses

Statement of Timber Sale Revenues and Expenses
Coconino National Forest
Fiscal Year 1986

	Type of Sale					Total
	Timber resource		Commercial fuelwood	Other resource	Personal use	
	Sawtimber	Pulp (roundwood)				
Revenues						
Timber sales	\$ 7,555,522	\$ 13,086	\$ 17,368	\$ 0	\$ 174,037	\$ 7,760,013
Purchaser road credits	443,782	0	0	0	0	443,782
Associated charges	334,113	7,573	372	0	0	342,058
Interest/penalties	27,171	93	0	0	0	27,264
Total	8,360,588	20,752	17,740	0	174,037	8,573,117
Controllable expenses						
Sale activity allowance	2,892,759	7,180	6,138	0	60,217	2,966,294
Growth activity allowance	521,713	1,295	1,107	0	0	524,115
Single year costs	932,086	2,314	1,978	0	19,402	955,780
Total	4,346,558	10,789	9,223	0	79,619	4,446,189
Gain/loss before payments	\$4,014,030	\$9,963	\$8,517	\$ 0	\$94,418	\$4,126,928
Payment to states	1,811,289	4,496	3,843	0	37,705	1,857,333
Net gain/loss	\$2,202,741	\$5,467	\$4,674	\$ 0	\$56,713	\$2,269,595

Statement of Timber Sale Revenues and Expenses
Routt National Forest
Fiscal Year 1986

	Type of Sale						Total
	Timber resource	Other resource				Personal use	
		Sawtimber	Recreation	Wildlife	Range		
Revenues							
Timber sales	\$ 72,855	\$ 18,943	\$ 30,497	\$ 17,097	\$ 16,635	\$ 16,406	\$ 170,433
Purchaser road credits	84,258	19,584	35,271	19,773	19,238	0	178,134
Associated charges	23,537	5,474	9,853	5,524	5,374	0	49,762
Interest and penalties	0	0	0	0	0	0	0
Total	180,650	42,011	75,621	42,394	41,247	16,406	398,329
Controllable expenses							
Sale activity allowance	373,586	86,881	156,385	87,670	85,301	33,928	823,751
Growth activity allowance	71,959	16,735	30,122	16,887	16,430	0	152,133
Single-year costs	271,099	63,046	113,483	83,619	61,900	24,821	597,768
Total	716,644	166,662	299,990	168,176	163,631	58,549	1,573,652
Gain/loss before payments	(\$535,994)	(\$124,651)	(\$224,369)	(\$125,782)	(\$122,384)	(\$42,143)	(\$1,175,323)
Payment to states	48,529	11,286	20,314	11,388	11,081	4,407	107,005
Net gain/loss	(\$584,523)	(\$135,937)	(\$244,683)	(\$137,170)	(\$133,465)	(\$46,550)	(\$1,282,328)

GAO and the Forest Service jointly developed these statements to illustrate the proposed concept. The data is unaudited, and the columns may not add due to rounding.

Chapter 2
Basic Design of the Proposed System

Figure 2.5: Sample Consolidated Timber Sales Reports

Statement of Timber Sale Revenues and Expenses
National Forest Service Total
Fiscal Year 1986

	Region				Total
	Name	Name	Name	Name	
Revenues					
Timber sales	\$ 000	\$ 000	\$ 000	\$ 000	\$ 0000
Purchaser road credits	000	000	000	000	0000
Associated charges	000	000	000	000	0000
Interest and penalties	000	000	000	000	0000
Total	0000	0000	0000	0000	00000
Controllable expenses					
Sale activity allowance	000	000	000	000	0000
Growth activity allowance	000	000	000	000	0000

Statement of Timber Sale Revenues and Expenses
Southwestern Region
Fiscal Year 1986

	Forest			Total	Total
	Name	Name	Name		
Revenues					
Timber sales	\$ 000	\$ 000	\$ 000	\$ 000000	\$ 000000
Purchaser road credits	000	000	000	000000	000000
Associated charges	000	000	000	000000	000000
Interest and penalties	000	000	000	000000	000000
Total	0000	0000	0000	000000	000000
Controllable expenses					
Sale activity allowance	000	000	000	000000	000000
Growth activity allowance	000	000	000	000000	000000
Single year costs	000	000	000	000000	000000

Statement of Timber Sale Revenues and Expenses
Coconino National Forest
Fiscal Year 1986

	Type of Sale					Total
	Timber resource		Commercial fuelwood	Other resource	Personal use	
	Sawtimber	Pulp (roundwood)				
Revenues						
Timber sales	\$ 7,555,522	\$ 13,086	\$ 17,368	\$ 0	\$ 174,037	\$ 7,759,913
Purchaser road credits	443,782	0	0	0	0	443,782
Associated charges	334,113	7,573	372	0	0	342,058
Interest/penalties	27,171	83	0	0	0	27,254
Total	8,360,588	20,752	17,740	0	174,037	8,573,117
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Growth activity allowance	521,713	1,295	1,107	0	0	524,115
Single-year costs	832,086	2,314	1,978	0	19,402	855,780
Total	4,346,558	10,789	9,223	0	79,619	4,446,189
Gain/loss before payments	\$4,014,030	\$9,963	\$8,517	\$ 0	\$94,418	\$4,126,928
Payment to states	1,811,289	4,496	3,843	0	37,705	1,857,333
Net gain/loss	\$2,202,741	\$5,467	\$4,674	\$ 0	\$56,713	\$2,269,595

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Executive Summary

Purpose

This report responds to a congressional request for a timber sale cost accounting system for federal forests. The Forest Service, which plans and administers these timber sales, does not have an accounting system that can provide an accurate comparison of the costs and revenues associated with growing and selling timber in specific locations. The Subcommittee on Interior and Related Agencies, House Appropriations Committee, asked GAO to develop the basic design of a cost accounting system that would provide cost and revenue information for Forest Service managers and for congressional oversight.

Background

The Forest Service manages about 191 million acres of land. In fiscal year 1986, it initiated about 350,000 sales of timber on these lands. These sales totaled \$757 million.

The National Forest System is divided into nine geographic regions. Each region consists of several forests, and each forest is divided into a number of ranger districts. For management purposes, the forests combine into 122 administrative units, each containing one forest or one forest plus at least a section of another forest.

In 1984, the Congress requested development of a timber cost accounting system. The Forest Service presented a proposal in March 1986. GAO examined this proposal at the Subcommittee's request and found that it would not produce the cost accounting information the Congress wanted. This finding led to the Subcommittee's request for development of a cost accounting system.

Results in Brief

The basic design proposed by GAO for a timber cost accounting system includes provisions for making the system flexible enough to be adaptable to all forests, yet standardized enough to generate comparable information that should meet both Forest Service and congressional information needs. Main features of the design include requirements for the following:

- Establishing "timber management cost centers" for matching costs and revenues. The level at which these cost centers are established—initially the forest—ultimately may vary from forest to forest, depending on the size of the timber sale program.
- Establishing a set of categories for sorting out the great variety of timber sales.
- Using "cost pools" to capture and apportion multiyear costs.

they are incurred after the sale areas have been identified. Other multi-year costs, however, are incurred before these areas are identified and must be assigned in some other way. The basic design of the system calls for placing multiyear costs into two pools—one for costs directly attributable to known timber sales, and one for costs not directly attributable to specific sales but traceable to the timber management cost center. Yearly costs from each pool would be allotted on the basis of specific formulas. Single-year costs, such as for harvest administration, would be expensed annually. (See chapter 2.)

Developing Standard Terms and Procedures

Consistent terminology and procedures are needed if the cost and revenue information generated by the system is to be reliable, useful, and comparable. The basic design calls for a comprehensive set of definitions for costs and other terms and standard operating procedures for all units. (See chapter 2.)

Developing Useful Report Formats

The information produced needs to be presented in reports that allow it to be analyzed and compared in meaningful and useful ways. The basic design calls for developing report formats that provide such information and that allow the information to be consolidated with information from other locations. These reports will show consistent, standard information, useful to both the Congress and the Forest Service. (See chapter 2.)

Further Development of the System

GAO developed the basic design of the system with input from the Forest Service and determined that the design was workable through tests at national forests in Oregon, Montana, Colorado, and Arizona. (See chapter 3.)

The Forest Service has agreed with the basic system design and has started on more detailed development of the system. GAO thinks the Forest Service should continue its current efforts and proceed with its plans. As the Service proceeds to implement its system, it needs to address several issues:

- Clarify its understanding about the level at which it should manage specific fund balances. The Forest Service believes its management arrangements with congressional committees require adherence to specific fund balances at the level of individual districts. The Forest Service wants to maintain fund control accountability at the forest level. (See chapter 3.)

Contents

Executive Summary		2
<hr/>		
Chapter 1		8
Introduction	Timber Production in the National Forest System	8
	Request for a Cost Accounting System for Timber Sales	11
	Objective and Scope of Our Work	12
	Methodology Used in Our Work	14
<hr/>		
Chapter 2		16
Basic Design of the Proposed System	Establishing Timber Management Cost Centers for Matching Costs and Revenues	16
	Establishing Useful Categories of Timber Sales	18
	Recording Multiyear and Single-Year Costs	19
	Matching Costs and Revenues	22
	Establishing Standard Definitions of Data and Standard Operating Procedures	26
	Developing Useful Formats for Reporting Financial Results	26
	Advantages of the System for the Forest Service	30
	Agency Comments and Our Evaluation	32
<hr/>		
Chapter 3		34
Testing and Implementing the System	Testing and Evaluation Within the National Forest System	34
	Forest Service Proposals for Developing and Implementing the System	35
	Conclusions	38
	Agency Comments and Our Evaluation	39
<hr/>		
Appendixes	Appendix I: Request Letter	40
	Appendix II: Comments From the Department of Agriculture	42
<hr/>		
Figures	Figure 1.1: Distribution of Harvested Timber by Region—Fiscal Year 1986	9
	Figure 1.2: Timber Management Cycle in National Forests	10
	Figure 2.1: Relationship of Cost Pools to Timber Management Cycle	20

Introduction

This report describes the basic design of a proposed cost accounting system for timber sales in federal forests. The system design was developed at the request of the Subcommittee on Interior and Related Agencies, House Appropriations Committee. This chapter explains the background of the assignment and describes how we went about our work.

Timber Production in the National Forest System

The Forest Service, an agency of the Department of Agriculture, manages about 191 million acres of national forests and grasslands. Each year, the Forest Service sells billions of board feet of timber from its forested land.¹ It sold 10.8 billion board feet of timber for a total price of \$558.2 million in fiscal year 1985 and 11 billion board feet for a total price of \$757 million in fiscal year 1986.

The national forest system is divided into nine geographic regions. Each region consists of several forests, and each forest is divided into a number of ranger districts. For management purposes, the forests are combined into 122 administrative units, each containing one forest or one forest plus at least a section of another forest.

The Forest Service sells timber by designating areas to be harvested and soliciting bids for the timber. In fiscal year 1985, it initiated 366,874 such sales. In fiscal year 1986, the number of new sales stood at 349,977.²

Timber production is only one of several uses for national forest land. Under the Multiple-Use Sustained-Yield Act of 1960, the Forest Service manages its lands for five main uses:

- timber production,
- outdoor recreation,
- rangeland grazing and feeding,
- preservation of watershed, and
- habitat for fish and wildlife.

Federal law makes planning for these multiple uses a formal process. The Forest and Rangeland Renewable Resources Planning Act of 1974,

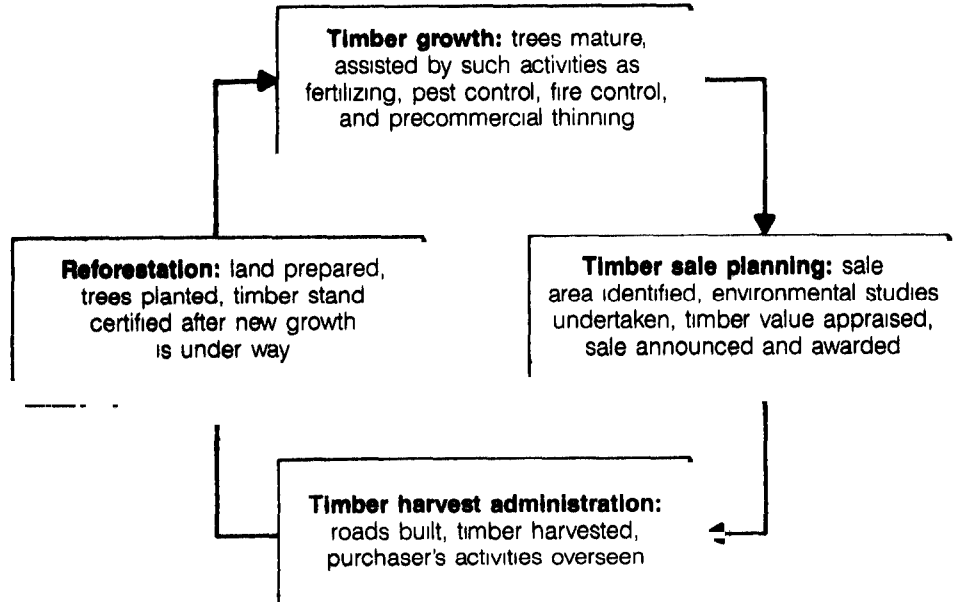
¹A board foot is the equivalent of a piece of wood 1 inch thick, 1 foot wide, and 1 foot long

²These figures do not include sales of "nonconvertibles," such as Christmas trees, cones, burls, and the like. These sales do not involve extensive cutting of trees or reforestation of the land. In fiscal year 1985, there were 225,493 such sales, in fiscal year 1986, there were 205,132

The Timber Management Cycle

Timber is a renewable resource. Figure 1.2 shows the basic steps in the cycle of growing, harvesting, and replanting it. The length of time involved in completing the cycle varies with the species of tree. For the Douglas fir of Pacific Northwest forests, for example, the cycle takes about 80 years; for the Southern pines grown in forests in the South, it takes about 40 years. Regardless of the total length of time, most of the cycle is spent in growing the timber to maturity. Most timber sale activity, including planning and administering the sale and reforesting the area, takes place during a relatively small part of the cycle.

Figure 1.2: Timber Management Cycle in National Forests



For a large commercial sale, planning activities generally take place more than 5 years before the sale award: Approximate sale boundaries are identified, general conditions of the area are surveyed, and a brief logging and transportation plan is prepared. Generally about 5 years before the award, a description of the sale, including location and approximate sales volume, is published. During the next 5 years, other activities are undertaken to prepare for the sale, including assessing the environmental impacts of harvesting the timber, estimating the timber volume more accurately, and appraising its value.

appropriation, the Forest Service was requested to develop a cost accounting system. The conference report on the appropriation described the tasks and objectives of the system as follows:

"In developing the expanded timber cost accounting system, in line with concerns expressed in the House and Senate report, the Forest Service should develop proposals for a reasonable but complete system and should work with . . . GAO in developing the system. At a minimum, the system should allow for identification of the costs of the timber sale program by component, and allow for a comparison of actual costs and benefits. The system should also allow for identifying other aspects of the timber program, such as firewood and nonconvertible products."⁴

The Forest Service responded by organizing a special Timber Sale Program Accounting Task Force. In March 1986, the task force issued a draft of a proposed reporting system. At the Subcommittee's request, we analyzed the proposed system and concluded that it would not be fully responsive to the directive for a cost accounting system because the Forest Service had placed its emphasis on formatting a new external report called "Report One—The Financial Account," which we believed would be of limited use to the Congress and itself in managing the timber sale program.⁵ The Subcommittee subsequently requested that we develop an example of a system which would meet the necessary requirements for such cost accounting systems and which would provide information useful to the Subcommittee and the Forest Service. The letter requesting this work is in appendix I.

Objective and Scope of Our Work

Our objective in this study was to develop the basic design of a cost accounting system that would provide consistent, complete, and accurate information for the Forest Service to use in the following:

- timber sales planning and budgeting,
- timber sales management,
- forest plan monitoring, and
- "stewardship" reporting to the Congress and the public in terms of annual financial results of the timber sales program.

⁴H Rept 98-1159, Public Law 98-473

⁵Timber Sale Accounting: Analysis of Forest Service's Proposed Timber Program Information Reporting System (GAO/AFMD-86-42, April 4, 1986) and Timber Sale Accounting Analysis of Kootenai National Forest (GAO/AFMD-86-62BR, June 6, 1986)

We developed the basic design of the system in such a way that it will conform to the requirements of title 2 of the GAO Policies and Procedures Manual for Guidance of Federal Agencies. Federal law charges us with establishing accounting principles, standards, and related requirements that executive agencies are to follow. Title 2, which was first issued in 1978 and revised in 1984, contains the direction to the agencies in this regard.

Methodology Used in Our Work

Our work was divided into three main parts:

- identifying all the costs and revenues that enter into the growing and selling of timber to the public so as to establish a “baseline” of information requested by the Subcommittee,
- developing the basic design of the accounting system, and
- testing and evaluating the practicality and usefulness of the system’s basic design.

To accomplish the first task, we interviewed officials and analyzed documents at Forest Service headquarters in Washington, D.C., and at district offices in three national forests: Mt. Hood in Oregon, Mt. Baker/Snoqualmie in Washington, and Kootenai in Montana. At the districts and forests, we examined individual sales to determine the activities involved in planning and administering a sale. This included not only those activities that related specifically to such sale actions as selecting the sale area, preparing for competitive bids, and administering awarded sale contracts, but also to activities such as pest control, fire prevention, erosion control, road maintenance, and reforestation that also needed to be identified as being related to the growing and selling of timber. We confirmed our understanding of the system with Forest Service officials, with other officials at the Department of Agriculture, and with others having expertise in the area of timber accounting.

To accomplish the second task, we used the information we gathered to develop a set of “concept papers” describing key features of a system that we believe would meet congressional needs for information and also meet requirements for executive agency accounting systems as set forth in title 2. These concept papers covered the topics of developing appropriate system objectives, establishing cost pools, matching costs and revenues, treating road costs, and establishing the proper organizational level at which to collect and report information. Also included were examples of cost definitions that would be needed, sale categories that would be most useful to focus on, and financial reports that could be

Basic Design of the Proposed System

The Forest Service needs a timber sales cost accounting system that can be adapted to a variety of management environments and generate consistent information. The basic design we have developed for the system takes both of these needs into account. It includes the following:

- Flexibility in selecting the management level at which costs and revenues will be matched. Timber management is the responsibility of forest- and district-level line officers (managers), but the size of the timber sales program determines the degree to which each level is involved. During the system's initial implementation, all national forests will match costs and revenues at the forest level. Once the system is in place and forest plans are approved for implementation, forests will have the flexibility to adjust their matching of costs and revenues to other subforest levels (such as district, vegetation area, etc.) if such an adjustment is determined to be more useful.
- Consistent information in all locations through the use of standard categories of timber sales, "cost pools" for capturing and apportioning multi-year costs, clear definitions of terms, uniform procedures for operating the system, and useful formats for reporting financial results.

Establishing Timber Management Cost Centers for Matching Costs and Revenues

As stated in chapter 1, national forests vary greatly in the amount of timber they produce. At the Routt National Forest, one of the four forests at which we tested our design, timber sales offered in fiscal year 1986 totaled 51 million board feet. By contrast, at the Mt. Hood National Forest, three of the forest's seven districts offered timber sales higher than that amount.

These differences are found throughout the national forest system. During fiscal year 1986, the Forest Service's 122 administrative units offered for sale about 11 billion board feet. About two-thirds of the administrative units offered less than 100 million board feet of timber for sale, while a few offered more than 400 million board feet. Amounts ranged from a low of 100,000 board feet offered by the Coronado Administrative Unit to a high of 849.8 million board feet offered by the Willamette Administrative Unit. Two administrative units did not offer any timber for sale in 1986.

Differences in timber production affect the way in which a forest's timber program is managed. Under the Forest Service's decentralized management system, regional and forest-level officials have a great deal of flexibility in deciding how to organize, plan, and manage timber sales. Each forest specifies its approach in its land and resources management

as the district or vegetation area) will need to be carefully examined after experience is gained with the system and all forest plans are finally approved for implementation.

Establishing Useful Categories of Timber Sales

Timber sales range greatly in their purpose. Some are primarily held to supply the large amounts of wood needed for the nation's timber-related products, while others are held primarily for other objectives, such as thinning a stand of timber or removing unwanted or diseased trees for improved wildlife habitat. They also range greatly in size, from as small as personal use sales for Christmas trees to as large as 5 million board feet or more of standing timber.

To provide a useful analysis of this range of timber sales, a set of categories needs to be developed. Categorizing the sales will allow a comparison of the net revenue or net cost of the various types of sales. Using such categories will also provide the Congress with needed oversight information. (For example, see figure 2.4.)

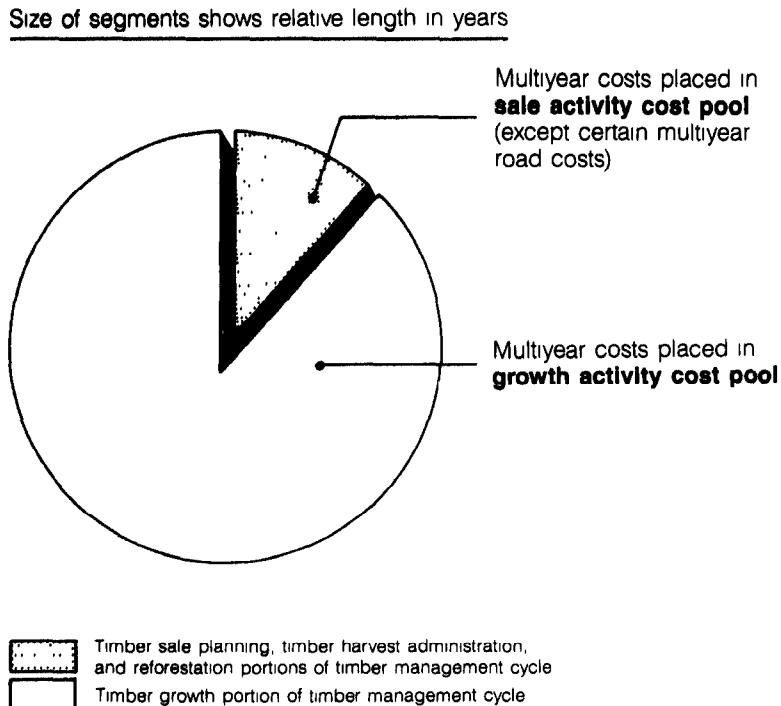
In the proposed cost accounting system, the same categories must be applied at all locations. If different sets of categories are developed for different timber management cost centers, the information generated by the system will not be comparable from place to place. In our work in the national forests and our discussions with Forest Service line officers and other officials, we examined several possible sets of categories that might be used. Ultimately, the responsibility for determining what categories of reporting are needed for management purposes rests with the Forest Service. Forest Service line officers told us that their management needs would be best served by the following set of standard categories that could be further subdivided as deemed useful for line officer accountability purposes.

- Timber resource sales: timber sales conducted primarily for the nation's timber supply. At the Coconino National Forest, line officers wanted this group to be broken down further based on products—saw timber, pulpwood, and commercial fuel wood.
- Other resource timber sales: timber sales conducted primarily to meet goals related to range, watershed, fish and wildlife, or recreational uses of the forest. At the Routt National Forest, line officers wanted this group broken down into recreation, wildlife, range, and watershed.
- Personal use and nonconvertible sales: sales of noncommercial fuel wood, Christmas trees, cones, burls, and the like, that do not involve

The proposed design uses two cost pools to capture the different types of multiyear costs and allow them to be matched against revenues. These cost pools are illustrated in relationship to the timber rotation cycle in figure 2.1. They would capture the following types of costs:

- The first cost pool, which we are calling the “sale activity pool,” would accumulate nearly all multiyear costs in the stages of sale planning and initial reforestation. These are the stages in which specific sale areas have been identified. The only multiyear costs in these stages that will not be accumulated in this pool are for roads that will be used after the sale ends.
- The second pool, which we are calling the “growth activity pool,” would accumulate multiyear costs in the growth stage of the rotation cycle. These costs cannot be attributed directly to sales because individual sale boundaries have not yet been identified, but they can be attributed to the timber management cost center as a whole.

Figure 2.1: Relationship of Cost Pools to Timber Management Cycle



Road costs are one multiyear cost overlapping both cost pools. These costs overlap because some roads built during the timber sale process

uses when an actual dollar amount is identified at the time the road is built as having been incurred specifically for that use. In accounting terminology, such planned additional uses constitute "joint products"—that is, outputs deliberately produced simultaneously with the primary product. Because an added cost is incurred to produce a joint product, the proportional added cost can be properly charged to it. For example, if the Forest Service decides that a logging road should initially be built to a higher construction standard so that it can later be used for public access to campgrounds, lakes, or hunting areas, it would be proper to charge the additional construction cost incurred to the other uses.

Forest Service personnel said they agreed with our use of cost pools for handling multiyear costs. They also agreed that the two pools we proposed would work.

Single-Year Costs

Some timber sale program costs do not need to be treated as multiyear costs. Unlike multiyear costs, these single-year costs are directly related to the revenue generated in the year they are incurred. These single-year costs are primarily of two kinds:

- Timber harvest administration costs, such as those for overseeing the purchaser's removal of timber. These costs are incurred during the actual harvest.
- Overhead items, such as general administrative costs, that can be attributed to the timber program generally but not to a specific sale or timber management cost center. An example would be time charged to a forest's timber sale program by district rangers.

These single-year costs would not be placed in either of the multiyear cost pools. Instead, they would be maintained separately for matching against the year's revenues. Forest Service officials agreed with this approach.

Matching Costs and Revenues

Once cost pools are in place to accumulate multiyear costs, the year's revenues can be matched against the appropriate portion of the accumulated costs and against applicable single-year costs that do not carry over to subsequent years. We do not think that matching costs and revenues on a sale-by-sale basis is practical, given the number of sales and the length of time involved in bringing a stand of timber to maturity and harvest. We do think, however, that if costs and revenues for meaningful sales categories are matched for each timber management cost

Amounts not allocated would become the beginning balance of the succeeding year's pool and be matched with each succeeding year's harvests.

- Single-year costs that do not carry over from year to year would be expensed in the year incurred. Unlike the cost pool amounts, single-year costs would involve no carryover to future years.

Forest Service officials agreed with this approach for matching costs and revenues.

Establishing Standard Definitions of Data and Standard Operating Procedures

If an accounting system is to keep accurate track of costs and revenues, its components need to be defined so that all who use the system can understand them and apply them consistently. This means developing a set of definitions for all accounts and terms that are to be used and ensuring that such definitions are properly applied. Each cost pool, for example, needs to be carefully defined in terms of the kinds of costs that are to be included and the way in which cost pool allowances are to be calculated.

We believe that the Forest Service, not GAO, is the appropriate entity to identify and define all the costs and revenues generated by the growing and selling of timber. For illustrative purposes, we did develop a list showing the cost categories that could be included in the completed system. We have provided a complete list of these costs to the Forest Service under separate cover.

In addition to clear and comprehensive definitions of terms, the system would require the development of comprehensive operating procedures so that all locations would know how and when to process data. Again, we believe—and Forest Service officials agree—that the Forest Service is the appropriate entity to develop these detailed procedures. As a result, we have not done so within the scope of our work.

Developing Useful Formats for Reporting Financial Results

The information produced by this system needs to be presented in reports that allow it to be interpreted and compared in meaningful and useful ways. One possible report format is shown in figure 2.4. This report shows revenues and costs for timber sales at two national forests included in our fieldwork, Coconino and Routt.

The reports break sales into three categories: timber resource sales, other resource timber sales, and personal use and nonconvertible sales. Revenues are shown by major source classification—timber sales, credits granted to timber purchasers for building roads, associated charges such as brush disposal, and interest and penalties paid by purchasers. Costs are shown for the three sale categories discussed above and consist of the allowances from sale activity and growth activity cost pools and the amount of single-year costs. Gains or losses that result from this match of costs and revenues are shown at the bottom of the report.

Under our proposal, information presented for individual timber management cost centers could be combined into consolidated reports. Figure 2.5 shows an example of this consolidation. In the figure, the report for the Coconino National Forest is consolidated into a report for all forests in the region. (Because the Coconino was the only forest we visited in the region, the remainder of the report contains no numbers.) The regional report, in turn, can be consolidated into a report for the Forest Service as a whole.

The hypothetical reports illustrate how the cost accounting system can show the financial results of a forest's timber sale program. This relatively simple reporting is only one dimension that such a system can provide. A cost accounting system such as we are proposing provides great potential for multidimensional reporting. For example, as experience is gained with the system, careful coding of costs could provide additional management accountability reports that focus on reasons some sales cost more than others, as well as generate more revenues than others—reasons such as terrain, species, altitude, and the like.

Forest Service officials told us they planned to develop such financial reports, along with two other kinds of reports on timber sales. The other reports which will cover the economic and social benefits of the timber sales, along with the financial report, are referred to as the "Timber Sale Program Information Reporting System" by the Forest Service.

Advantages of the System for the Forest Service

Our main objective in this project was to create the basic design of a cost accounting system, well grounded in generally accepted accounting principles, that would provide Forest Service management and the Congress with the information they need to control costs and oversee operations. The system, of course, must be worth the cost and effort needed to implement it. We believe the proposed system design offers several advantages to the Forest Service that will make it worthwhile. If planned carefully and implemented successfully, the proposed system design will be consistent with generally accepted accounting principles for federal accounting systems set forth in title 2 of the GAO Policies and Procedures Manual for Guidance of Federal Agencies. As such, the system will offer the opportunity for more complete, accurate, and comparable information needed for enhanced credibility of timber sale program financial information reported to the Congress and the public than is now available. As discussed in more detail in the following section, the proposed system design can provide information that will help make timber sale planning and management more efficient, provide credible data to monitor certain long-term timber management objectives in forest plans, and provide useful reports to the Congress and the public on the annual financial results of the timber sales program.

Timber Sale Planning and Management

The Forest Service has a well-defined process for selecting and packaging timber sales 5 years into the future. The process defines certain points at which progressively more detailed sale selection and packaging decisions must be made. When making these decisions, the focus on

costs involves such things as the purchaser's logging costs. We were told that another major consideration was the cash flow question of whether or not the sale is large enough to generate the revenue needed to build all desired roads. The present management accountability process for sale selection and packaging does not consider whether or not a given sale is likely to generate more revenue than costs. The revenue and cost information available under the proposed cost accounting system when expressed in cost per board foot will allow appropriate Forest Service line officers to answer and be held accountable for the question of whether or not a contemplated sale is likely to generate more revenue than it costs.

During our field tests, we met with Forest Service officials to discuss how they could be held accountable for matching revenue and cost; and also possible sale categories that would be useful to them. During these meetings, the managers began discussing ways of increasing revenues and decreasing costs. For example, to increase revenues, more use of minimum bids was discussed. Concerning costs, it was suggested that active use of the forest supervisor's authority to alter the amount offered by a specified percentage could be used to reduce the number of sales prepared and offered for which no bids are received. It seems clear that using the proposed cost accounting system to integrate revenue and cost matching considerations into the sale selection and packaging decision process can improve the financial results of the timber program without negative impact on multiple use aspects.

The proposed cost accounting system should also prove useful in recovering costs associated with personal use/nonconvertible sales (one of the proposed sale categories in our system design). The current accounting system, however, does not disclose whether these sales recover related costs. For example, line officers at the Routt National Forest believed that these sales were profitable. The test results, however, raised a question as to whether or not costs related to these sales were actually being recovered.

Forest Plan Monitoring

Under the Forest and Rangeland Renewable Resources Planning Act of 1974 and the National Forest Management Act of 1976, the Forest Service is required to prepare a forest plan for each of its administrative units. These plans describe how the units will be managed and provide for monitoring actual costs and returns to the Treasury. We believe the proposed system can dovetail with this monitoring effort to show the actual financial results achieved from operations. With the consistency

envisioned in the system, the Forest Service should be able to aggregate financial data for periods longer than 1 year. Such data will provide a more meaningful view of long-term operations discussed in the forest plans.

Stewardship Management

The proposed system will allow the Forest Service to report thorough and accurate information on timber sale operations to the Congress and the public. The information collected in the system will allow the Forest Service to show the Congress and others how it evaluates the cost of timber sale operations at its various management levels. The Forest Service has maintained that timber sales produce more benefits than cost when they are viewed as also facilitating multiple use and economic benefits.

The system will also aid the Forest Service in identifying upcoming sales that should be evaluated from the perspective of whether timber harvesting is the most efficient means of attaining the desired goal. For example, the forest may be planning a sale which has as its objective the provision of wildlife habitat for elk. The sale should be evaluated based on its net cost or revenue and whether it is the most effective use of resources to provide the desired elk habitat.

Agency Comments and Our Evaluation

The Forest Service continues to disagree with the aspect of the proposal that charges the 25 percent of sales revenue paid to state governments to the cost of the timber sales program. This issue was raised in our April 1986 report. We agree with the Forest Service that such payments constitute transfer payments in an economic sense. However, because these payments to states are directly linked to timber sales' revenue, we believe such payments, from an accounting perspective, represent a cost to the timber sales program. (Comments from the Department of Agriculture are included in appendix II.)

Testing and Implementing the System

In testing the basic design of the proposed timber cost accounting system, we took steps to ensure that the system would be sound and reasonable. The basic design was tested at four national forests and found to be workable. Throughout the testing process, we worked directly with Forest Service officials to ensure that the system could be used and would take into account the Forest Service's management needs, as well as the oversight needs of the Congress.

While the basic design of the system has been developed and tested, much of the detailed work, such as the development of standard definitions and procedures, remains to be done. The Forest Service has already made significant progress and has developed a plan and a timetable for implementing the system. Action on several other matters can help implementation proceed smoothly.

Testing and Evaluation Within the National Forest System

The basic design of the cost accounting system was developed cooperatively with the Forest Service. In the early conceptual stages of our work, we developed a set of concept papers dealing with the basic features required in a timber cost accounting system. These concept papers covered our earliest proposals for the workings of the system described in chapter 2. We shared these concept papers with Forest Service line officers and other officials in a series of meetings, and we used their comments to help adjust our proposal in ways that would improve its operation. These discussions continued throughout the course of our work.

After the initial adjustments were made, we visited four forests to determine if such a system design could be successfully put in place. The four forests included one heavy timber-producing forest (Mt. Hood in Oregon), one medium-size timber-producing forest (Kootenai in Montana), and two forests with limited timber production (Routt in Colorado and Coconino in Arizona). The tests conducted at each forest consisted of gathering the data and making the management judgments necessary to complete the reports discussed in chapter 2.

Tests at the four forests were conducted with a variety of mixes of GAO and Forest Service personnel. At Coconino and Routt, we conducted the tests, assuming that the forest would be the timber management cost center, with Forest Service personnel from headquarters, the region, and the forest working directly with us on the fieldwork team. At Kootenai, the team had only Forest Service membership. At Mt. Hood, where we

limited our test to one district as the timber management cost center, we conducted our test with staff from the forest.

We used the results of our tests to further refine our proposals. For example, we developed the proposed categorization of timber sales into "timber resource sales," "other resource timber sales," and "personal use/nonconvertible sales" after examining several alternate sets of categories during the forest tests.

Forest Service Proposals for Developing and Implementing the System

The Forest Service has already taken several steps that we think will be valuable in bringing about a quick and smooth development of the system. By helping to test the basic design, Forest Service personnel have been able to determine how it can be turned into a fully developed system. The Forest Service has proposed, for example, that initial implementation be made by using the forest level as the timber management cost center throughout the national forest system.

Forest Service officials have also prepared an implementation plan that calls for incorporating the cost accounting system into the Timber Sale Program Information Reporting System, a broader timber sale information system currently under development. However, work remains before a new cost accounting system can be implemented. For example, all terms and concepts in the new system need to be carefully defined, procedures need to be developed for administering the system consistently from place to place, and staff need to be trained in operating the new system. The Forest Service's implementation plan calls for completing the system design by September 1987, training personnel at the forest level during fiscal year 1988, and receiving midyear reports from all forests during fiscal year 1989.

Several matters related to implementation need to be raised here. They include the Forest Service concern that it is required to practice fund control at the district level and the need to build management accountability into the system. In addition, consideration needs to be given to several implementation items that were under study at the time this report was written. These include making decisions about estimates, cost allocation, and recording of costs.

Shifting Fund Control to the Forest Level

We believe that the Forest Service needs to clarify its understanding about the level at which it should manage specific fund balances. The Forest Service believes that management of its fund reprogramming

arrangement with congressional committees requires adherence to specific fund balances at the level of individual districts within the forest. We believe that emphasis on obligation control causes managers, particularly at the district level, to concentrate primarily on the obligations to be incurred rather than on total resources used over longer periods. Further, measurement of program outputs and costs and the prices placed on goods suffer if the primary emphasis is on fund control rather than on the recognition of cost.

In a letter to us on the matter, the Chief of the Forest Service said he would like to apply fund control at the forest level and above. This issue, along with other budgetary matters, was also raised in the Service's comments on our draft report.

We agree that it is important to appropriately place responsibility for fund control accountability. We believe that raising the level of fund control accountability to the forest level is needed to implement the proposed system effectively and that such a change will provide improved management and more meaningful information for congressional and management oversight. If no adjustments are made in the level at which the funds are controlled by the Service, the accuracy of the system's cost information and congressional oversight that relies on that cost information will suffer.

Maintaining Accountability at the Line-Officer Level

Even the best cost accounting system is of little use if the information it provides does not contribute to establishing and monitoring management objectives. Line officers at the forests we visited said the usefulness of the information provided by the system will depend upon how well it is integrated with their daily management activities. They said this accountability could be established by making them responsible for the revenues and costs reported in the system in much the same way that they are currently held responsible for the annual target of timber to be offered for sale within their jurisdictions. Responsibility for meeting this target is considered a critical performance element in a line officer's performance evaluation, and line officers are evaluated annually on how well it is achieved. We agree that using this existing accountability process would be an effective way to emphasize the system, and, in doing so, to help ensure its accuracy and usefulness to managers.

Making Decisions About Estimates, Cost Allocations, and Recording of Costs

During the tests of the system's basic design, a number of questions arose as to how various estimates should be made, what approach should be used to allocate costs, and the like. Many of these questions have already been resolved, but some remain under study by the Forest Service. In some situations, for example, the Forest Service is evaluating several options for data sources and estimates that will become part of the completed system. The key matters are explained in the following sections.

Recording Costs in the Accounts

Actual costs need to be recorded in the accounts on a basis that identifies the sale category, cost pool, and type of cost involved. This needs to be the same throughout the forest service in order for the system to generate comparable costs.

Recording costs as an integral part of the accounting operations of the Service is preferable to producing information from a separate system designed only to produce data on costs and revenue of timber sales, since the former only requires input once to achieve multiple reporting objectives while the latter requires separate—sometimes redundant—input of data. Also, we believe that information which is naturally produced by such an integrated system is of higher quality because there is less opportunity for key input errors and because the data has been subjected to more rigorous edit and validation. Although we believe that existing accounts adequately reflect the types of costs, codes will need to be prescribed throughout the Forest Service to relate these costs to the proper sale categories and cost pools. Coding actual costs in the sale activity pool by the proper sale category will have the additional benefit of providing a reasonable basis upon which to allocate costs in the growth activity pool to the sale categories.

During our tests, we placed existing account totals in the appropriate cost categories. A very early system implementation task will be the issuance of standard cost coding instructions so that actual work done will be properly recorded in the accounts for the correct sale categories and cost pools.

Calculating the Growth Activity Pool Allowance

The annual growth activity pool allowance is calculated in part by dividing the balance of costs in the pool by the estimated volume of harvestable timber in the timber management cost center. The complete formula is described in figure 2.3. The Forest Service does not now know

the actual volume of harvestable timber needed as the formula's denominator. During our tests, we used several alternative estimates developed by the Forest Service to approximate the desired denominator.

More analysis needs to be done to develop a denominator that reflects the timber to which the costs in the numerator apply. Credibility and usefulness demand that the formula's denominator be a figure that currently exists or that can be easily calculated consistently throughout the Forest Service. Everyone needs to understand what this figure includes, and it must be reevaluated and changed periodically to reflect changing conditions. At the conclusion of our tests, the Forest Service was evaluating several estimates of timber volume now used for planning purposes to see which one best meets these criteria.

Annual Review of Cost Pool Balances

We believe that, with time, the balances in the cost pools have the potential to become overstated or understated. The growth activity cost pool, for example, will accumulate costs over most of the life cycle of a timber stand. This period may be as much as 85 years or more. Furthermore, the need for adjustments to the sale activity pool will arise when timber is offered but not sold, or sold but later the contract is terminated.

Because of the potential for overstatements or understatements to develop, we believe that the cost pool balances should be reviewed annually to determine how realistically they portray what is actually happening out in the forest. Guidelines will be needed to help reviewers determine how realistic the balances are and what should be done to correct any overstatements or understatements. It is possible that certain amounts, such as unallocated growth activity costs and planning and preparation costs for sales that are offered but not sold, will have to be written off periodically. Further testing and study during implementation should result in the information necessary to issue the guidelines.

Conclusions

Based upon the work performed during our review, we believe the proposed system will provide credible and useful management information to the Service as well as for the Congress to use in performing oversight activities. The system design is compatible within the existing accounting system and will provide the opportunity to assist in monitoring the implementation of forest plans. Finally, the proposed system should be valuable in future years for determining more accurate budget needs.

The data currently exist to start the proposed system, but sound Forest Service-wide criteria need to be established so that initial implementation is uniform. Establishment of clear definitions, resolution of the appropriate level of fund control concern, and inclusion of the responsibility for the system in the Forest Service's management accountability scheme will assist smooth implementation.

In our view, the Forest Service's actions to date have been ambitious, positive, and promising. The Forest Service has been active in discussing the design of a useful cost accounting system, testing its workability in national forests, and developing plans to put a full system in place. We think the Forest Service should continue its current efforts and proceed with its timetable.

Agency Comments and Our Evaluation

In commenting on our draft report, the Service said that it cannot raise fund control responsibility from the district level to the forest level and effectively implement the proposed system without congressional agreement to several changes it proposes.

We believe raising the level at which the Forest Service manages its fund balances will assist in implementation and allow for improved program management. However, regarding the Forest Service's proposals relating to reprogramming authority, carry-over authority, and reduction of congressional budget line items, our work was not of sufficient scope to allow us to express our opinion on these proposals. (Comments from the Department of Agriculture are in appendix II.)

Request Letter

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Congress of the United States
House of Representatives
Committee on Appropriations
Washington, DC 20515

May 21, 1986

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 (202) 225-2771

Mr. Charles A. Bowsher
 Comptroller General
 U.S. General Accounting Office
 441 G Street, N. W.
 Washington, D. C. 20548

Dear Mr. Bowsher:

For several years, this Subcommittee has been interested in attempting to determine the costs and benefits of selling National forest timber. During the past year, your office has assisted us in this matter by evaluating the efforts of the U. S. Forest Service in developing a proposed Timber Program Information System, and has reported to us on these efforts (GAO/AFMD 86-42). Your work has contributed much to the analysis that the Forest Service has accomplished to date at our direction, and we would now like to further explore the issues involved in this important effort.

At this time, we would ask that your office perform an analysis that would result in providing an example of a system structure that GAO believes would meet the needs of the Forest Service and the Congress. Such a system would include a baseline of the types of costs which can be used in planning, executing and controlling the management of the timber sales program. We view this as being particularly important since we have yet to see a clear explanation of what these costs are, or how they should be treated by the Forest Service. We believe this project would greatly aid the Subcommittee, and the Congress, in their deliberations, and also aid the Forest Service in carrying out its responsibilities to manage the lands entrusted to it.

We plan to address this subject again during the appropriations hearings on the U. S. Forest Service, to be held

Appendix I
Request Letter

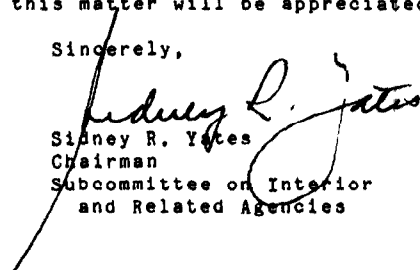
Mr. Charles A. Bowsher
May 21, 1986
Page Two

in the spring of 1987, and would appreciate having your report prior to that time. Since this is a complex and difficult matter, we would hope you would be able to use the GAO staff that has provided assistance so ably to us on this effort during the past year. Your assistance in this matter will be appreciated.



Ralph Regula
Ranking Minority Member
Subcommittee on Interior
and Related Agencies

Sincerely,



Sidney R. Yates
Chairman
Subcommittee on Interior
and Related Agencies

Comments From the Department of Agriculture



United States
Department of
Agriculture

Forest
Service

Washington
Office

12th & Independence SW
P.O. Box 96090
Washington, D.C. 20090-6090

Reply To: 1960-2

Date:

Mr. Charles A. Bowsher
U.S. Comptroller General
General Accounting Office
441 G Street, NW
Washington, DC 20548

Dear Mr. Bowsher:

The USDA Forest Service has reviewed the proposed draft report to Congress entitled, "Timber Program: A Cost Accounting System Design for Timber Sales." We believe the draft report includes concepts for a cost accounting system that would provide valuable information for congressional oversight. It also provides a positive framework for greater and more effective use of cost accounting information for managers of the National Forests' timber sale programs.

The testing and development of the financial data on the Coconino and Routt National Forests were completed jointly between the General Accounting Office (GAO) and the Forest Service. We expect they are essentially correct and accurate, although no validation of the data was done. We appreciate the assistance and cooperation from your team that worked with the Forest Service to design and test the system. They should be recognized for their achievement in the development of the proposal.

In principle, we support the work GAO has done. However, we have a concern with the narrow focus on financial statements, since they only depict the results of operating costs and revenues as defined by the generally accepted accounting principles. More information is necessary to understand the breadth of outputs from multiple-use management. Economic data, and particularly socio-economic data, add further dimensions of understanding not currently available in GAO's proposed financial statements.

We believe no single financial report can present all the financial and economic information needed to understand the costs and benefits of the timber sale program. Therefore, we propose using a Timber Sale Program Information Reporting System (TSPIRS) which would consist of three basic reports to display the timber sale program of the National Forests' administrative units. The TSPIRS reports would be as follows:

Report 1: A financial account, as presented in the GAO draft report to Congress.



FS-6200-28b (7/86)

**Appendix II
Comments From the Department
of Agriculture**

Mr. Charles A. Bowsher

2

Report 2: An economic account to display the long-range costs and benefits associated with the annual timber sale program.

Report 3: A socio-economic account to present the impacts of employment, income, and program levels on local communities.

One area where we disagree with GAO's proposal relates to the 25 percent fund. GAO believes the 25 percent fund is a cost of timber sale operations. We see the 25 percent fund as a transfer payment to counties rather than a cost of the timber sale program.

The report discusses fund control (appropriation monitoring) which is defined as managing the congressionally appropriated funds to be used for authorized purposes and not redirected without congressional approval. Your proposed report states we should place emphasis on managing fund control at the Forest level, and discuss modification of our reprogramming rules with Congress to facilitate improved cost accounting data. We agree, however, it is not possible for us to raise fund control to the Forest level unless Congress can redirect the reprogramming guidelines to output targets. Certain adjustments are needed to more effectively implement the system and collect accurate information. For example:

Reprogramming Authority - Currently fund control takes place at all levels within the Forest Service. We believe and concur with GAO that for sound cost accounting practices to be put into place, fund control needs to be lifted to higher levels along with a change in reprogramming authority.

Carry Over Authority - Unexpended funds appropriated in 1 year carried over to the next would enhance the efficient use of resources, increase program productivity, and improve public service. This would encourage financial effectiveness and enhance outputs consistent with Forest Plans. Changes in work priorities due to fire, inclement weather, or other unplanned-for events often make it difficult or impossible to close out accounts and accomplish work in an orderly fashion in the last quarter of a fiscal year.

Reduction of Congressional Budget Line Items - Our experience has shown fewer budget line items at the field level will increase productivity, efficiency, and provide more dependable cost information. Currently, the Forest Service manages numerous Congressional Budget Line Items. It would be beneficial to streamline the budget process by reducing and realigning the number of Congressional Budget Line Items.

Upon congressional acceptance of the proposed GAO system, the Forest Service will begin initial implementation this year and anticipate full implementation on all National Forests in fiscal year 1989. The source of information for the proposed GAO system is the Forest Service Central Accounting System (CAS) which is now the official Forest Service accounting system. Using information from our official accounting system as a beginning point for the proposed GAO system

Appendix II
Comments From the Department
of Agriculture

Mr. Charles A. Bowsher

3

provides a broad basis for understanding and consistency throughout the Forest Service. As opportunities to use the proposed cost accounting techniques develop, we will give appropriate consideration in dealing with other items such as indirect costs.

Thank you for the opportunity to respond to the proposed report. Your team should be commended on their efforts to develop an improved cost accounting system for our timber sale program.

Sincerely,



F. DALE ROBERTSON
Chief

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