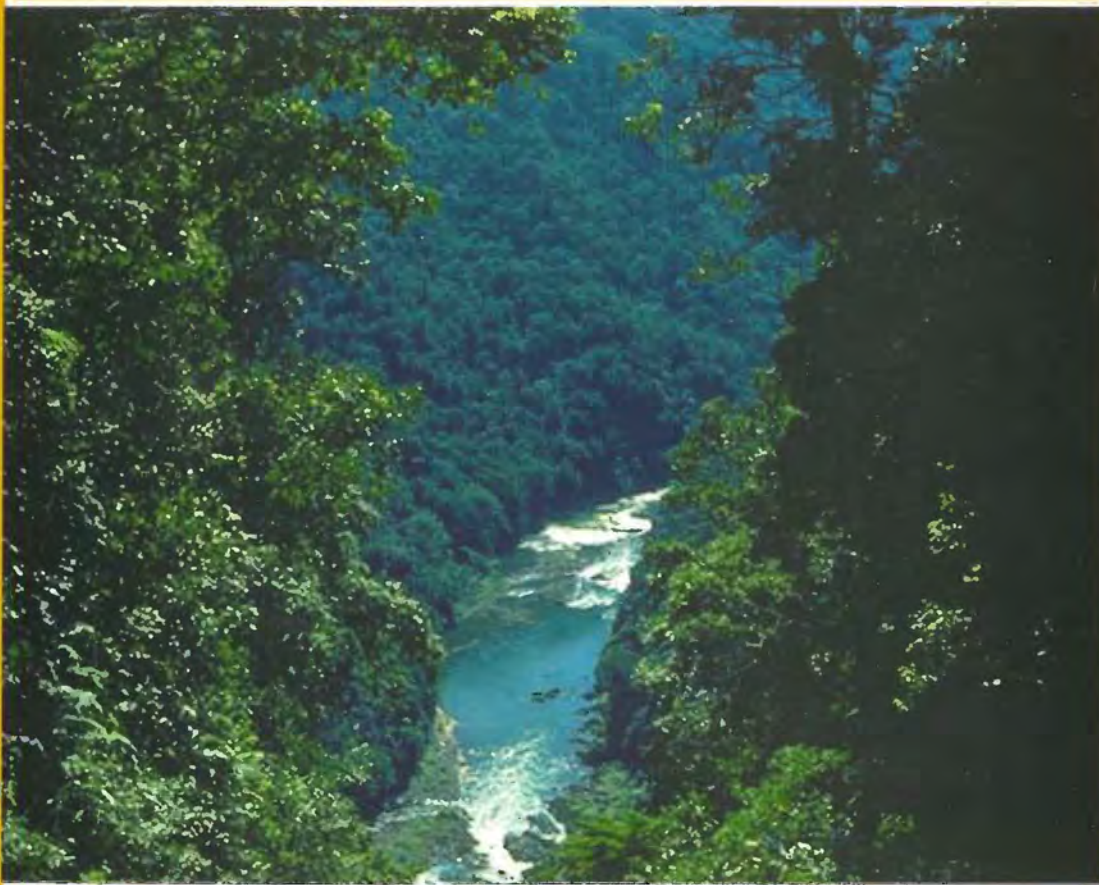


Governance principles for concessions and contracts in public forests



Food
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Governance principles for concessions and contracts in public forests

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Foreword

In managing public forests, governments use various types of agreements, often referred to as contracts, permits or concessions, to establish the rights and responsibilities of both the forest user and the government. These contracts can be with private businesses, communities, individuals or public enterprises. Important social, environmental and economic goals can be advanced through the judicious use of well-crafted contracts (or concessions). Poorly prepared contracts can have the opposite effect and, at times, yield regrettable results.

This report thoroughly reviews the diverse types of contracts used in the management of public forests. Agreements for forest utilization are analyzed as well as contracts for the acquisition of goods and services. Secondly, the critical importance of an effective institutional and legal framework is underscored. Thirdly, the study details important elements to consider in awarding contracts, in their valuation and administration and in ensuring the fulfilment of the terms of the contract. Special attention is given to establishing transparency in the awarding and administration of contracts in public forests.

The intended audience is broad but it will be of special interest to those concerned with designing and administering forest utilization or procurement contracts. Communities, business and individuals will gain new insights into how the contracting mechanism can be used to broaden the benefits of forest management.

Overall, this publication examines factors considered critical in balancing and safeguarding the public and private interest in forest management. New approaches are identified for contractual arrangements in the provision of goods and services from public forests. Finally, a clear link is made between policies to advance sustainable forest management and the effective administration of contracts that contribute to transparency and accountability in the forest sector.



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PART I

The role of contract arrangements in the governance of public forests

1

Introduction

1.1 Purpose

The purpose of this publication is to provide guidance to those involved in the design of contractual arrangements for the management of public forests and public forest lands; guidance in the process and procedures for awarding forest contracts, whether by auction, negotiation or other means; and guidance on the administration of forest contracts, monitoring, supervision, inspection and enforcement of contracts. It covers contractual arrangements both for the utilization of public forest lands (for timber and non-timber products, non-consumptive uses and preservation) and for the provision of goods and services in managing public forests and the protection of public forest lands.

Considerable knowledge and experience has been gained in the design, implementation and administration of forest contractual arrangements in many countries around the world, both developed and developing. Some of the experience with forest contracts has been successful, but much of it has been disappointing. However, important lessons can be learned from these failures, as well as from the successes. The failures highlight what to avoid, and underline the importance of well planned contract design, proper procedures for awarding contracts, and proper contract monitoring, supervision and enforcement. This publication seeks to provide a guidebook to forest contract design, implementation, monitoring, supervision and enforcement that draws on this knowledge and experience.

1.2 The challenges in managing public forests and public forest lands

The management of public forest lands is becoming more and more challenging as the pressures on such lands increase. The world's forests are shrinking, yet many countries still have significant areas where public forest resources exist. As the world's forests become scarcer, forests are becoming increasingly more valuable and worth managing.

Public forests in these countries serve many functions to many interests, people and communities. It is the role of governments to ensure that these functions be sustained and all forest users served. Governments in many countries look towards their forests as a basis for stimulating economic and community development through the exploitation of both timber and non-timber resources. Governments also recognize the importance of forests in providing essential goods and services such as watershed management, flood and erosion control, foods, medicines, wildlife, maintaining environmental quality and biodiversity. These diverse uses of public forests often generate conflicts between economic development and conservation objectives. It is the responsibility of governments to find the strategies for achieving an appropriate balance among these, and other, objectives.

Economic development and conservation objectives can both involve the use of contractual arrangements in management of public forest lands. Two things are critically important for successful contracts. The first is the ability to properly design and negotiate contractual arrangements. The second is the capacity to administer, monitor and enforce the contracts. These then are the subject of the present study.

1.3 Scope of the study

The study deals with the use of forest contracts, both forest utilization contracts and procurement contracts, in the management of public forests and public forest lands. The study focuses on the management of public forest land, which includes lands owned and administered by federal, state or provincial, municipal governments, or other levels of government, government organizations and agencies. Forest management of private forest lands, common property and communal forest lands are not considered, although the contract arrangements discussed here could equally be applied by communities in the management of community forest lands.

The scope of the study is intended to be comprehensive. It covers all aspects of public forest contractual arrangements. Major topics covered include the legal system and public policy background to contractual arrangements, how the legal system relates to the design and administration of specific contractual arrangements, and the role forest contractu-

al agreements play in public policy and forestry policy. The study also addresses the design and modification of institutional structures and organizations and how they affect the capacity of governments to successfully administer contracts. Organizational arrangements to manage and administer contracts or to contract out some of these functions are considered. A full range of options for awarding or granting contracts is also reviewed. The study devotes a full chapter to the design of individual contract agreements. Another chapter is devoted to the process of awarding forest contracts. The study then reviews government responsibilities associated with both monitoring and supervising contracts and forest impacts, and the inspection and enforcement of legal, financial and environmental contract provisions.

1.4 Organization and structure

The study is structured in three sections. Part I consists of this chapter and Chapter 2. Together they introduce the role of contractual arrangements in the management, development and conservation of public forests.

Part II, which consists of Chapters 3, 4 and 5, provides a review of the institutional framework and managerial conditions required for the design, awarding and administration of contractual arrangements. It is important that the institutional framework provide a solid foundation for contractual arrangements if forest contracts are to function successfully. Chapter 3 surveys the forestry policy framework, Chapter 4 the legal framework, and Chapter 5 the institutional framework for contract design and administration.

Part III, which consists of Chapters 6 to 10, discusses in detail how to design, develop, implement and enforce forest utilization and procurement contracts. Chapter 6 surveys the various types of forest contract, property rights, tenure and use rights. Chapter 7 discusses the design of contracts and contract administration systems. Chapter 8 reviews forest pricing issues, forest fees and revenue collection. Chapter 9 discusses the process of awarding forest contracts, bidding and negotiation. Chapter 10 discusses contract administration and enforcement.

Each chapter follows a similar structure. At the beginning of the chapter the reader is presented with an overview of "what the chapter covers", a listing of key topics. Following sec-

tions and subsections cover these topics. A summary of key points is presented at the end of the chapter, along with chapter references.

1.5 Audience

The intended audience is broad. The study should be of interest to individuals at several levels involved in managing public forests, and especially to those involved in designing and administering forest utilization or procurement contracts. The study should also be of interest to senior policy makers and legislators involved in forestry policy and legislation, and to those in contract enforcement. Those in environmental organizations, non-government forestry organizations, forest community and indigenous forestry organizations interested, or involved, in forest management and forestry policy will find the study useful in understanding issues, problems and potentials of forest contracts. Finally, the study will be of interest to those in the private sector involved, or interested, in forest utilization or procurement contracts.

2

Contractual arrangements in the management of public forest lands – an overview

What this chapter covers:

- Definition and type of contractual arrangements for the use and management of public forests; resource utilization contracts governing rights to forest outputs; and procurement contracts to provide goods and services for the management or administration of public forests.
- The scope and type of contractual agreements, what rights are included, with whom contracts are negotiated, the duration of the contracts, location and size. Contracts may be for harvesting of timber or non-timber forest products, recreation, water supply, ecotourism, outputs of other forest services, or for a bundle of forest outputs. Procurement contracts may be for the supply by the private sector to the government of a variety of goods and services for forest management.
- The evolution of tenure and resource contracts under changing forest values and increasing scarcity. Contractual arrangements within a country's forestry policy and within overall government policies and priorities.
- Past experiences with forestry contractual agreements, problems and lessons from these experiences.
- The changing role of contractual arrangements and the increasing dependence on contracts for forest utilization, and in management, monitoring, supervision and administration.

2.1 Introduction

This overview chapter discusses some important issues associated with contractual arrangements in the utilization and management of public forests. It begins with a brief definition and a classification of the various types of contractual arrangements. This is followed by discussion of the scope of contractual arrangements, including the kinds of organizations eligible as contractors and the different number and type of rights assigned. The chapter then reviews the historic role contractual arrangements have played in forestry and forest management. Contractual arrangements are described as key instruments of government policy. The importance of building flexibility into contractual arrangements is stressed. This is followed by discussion of common problems in the use of contracts for the management and administration of public forest lands. The changing and increasingly important role of contractual arrangements

in forest management and administration is discussed, along with the required changes in the design and functioning of contracts. The chapter concludes with a brief summary of the important points raised, and a list of references.

2.2 Definitions of contractual arrangements

Contractual arrangements are written mutual agreements, enforceable by law, between two or more parties that something shall be done by one or both. There are two major classes of contract which governments use in the management and administration of public forest lands. The first types of contract are **resource utilization** contracts. In various countries they are called forest tenure arrangements, forest concessions, forest management agreements, etc. They involve governments granting harvesting or use rights to parties to utilize or

exploit forest resources for timber, other forest products, gathering of non-timber forest products, or use of the forest for other purposes such as hunting, watershed use, recreation or ecotourism. Resource utilization contracts govern the rights of owners, users and others over forest land, timber and/or other assets by defining the way forests are held and utilized. They define the rights, duties and responsibilities of the two parties to the contract: the owners of the resource (the government in the case of public forest lands) and the user, the contractor. The rights, duties and responsibilities can vary widely under different forms of contract. For example, timber concessions can provide long-term rights to the current forest, rights to other forest land uses, and rights to the next harvest. A fuelwood contract may only provide rights to gather firewood for one year.

The second types of contract are **procurement contracts**, or **goods and services contracts**. In these contracts, governments enter into agreements with other parties to provide goods or services for the management and administration of public forests; for example, for forest inventories, forest management activities, forest certification, tree planting, fire protection, etc.

Often forest contractual arrangements can involve both types of contract, granting the party harvesting or use rights - but also requiring them to undertake forest management activities - reforestation, environmental protection, etc. The type of forest management agreements found in many countries are of this nature, granting harvesting rights but requiring forest management.

2.3 The scope of contractual arrangements

In many countries there can be several forms of contractual arrangements. The legal systems and the contract laws can allow for many types of contract. Each contractual form will have implications for the incentives for contract holders and thus affect the way the forests are managed.

Four dimensions of contract may be recognized:

1. What rights are included, the suite of rights governments include in a given contract.
2. Who (organizations or individuals) is eligible for consideration as a contractor.

3. The length (duration) of the contract.
4. Spatial dimensions, the location, and area (size) of the contract.

On public forest lands, governments may allocate a wide variety of rights to the resources, "bundling" them in different contractual arrangements. Timber companies are often granted permits, leases, licences, concessions or other contracts to utilize industrial timber and sometimes to manage the forests. Grazing rights are issued to livestock farmers. Others are granted rights to water, wildlife, fish and other resources. Sometimes these rights are exclusive, sometimes they are held in common with others. The variety of attributes of forests to which rights are assigned, and the variety of legal instruments used to grant these rights, is almost endless. Chapter 6 discusses property rights issues and the different forms of contractual arrangements.

Governments also have broad scope regarding the types of organization with which they enter into agreements. Commonly, the agreements are with private sector, for-profit companies interested in exploiting forest resources for their market value under a licence or short-term timber harvesting contract, or permits with individuals for fuelwood or charcoal production, harvesting rattan, or other non-timber forest products.

Governments may also negotiate and sign contracts with communities or non-profit organizations for timber harvesting, management of community forests, or to provide services such as development and operation of recreational facilities in national forests. Another type of agreement is between governments and aboriginal communities in which rights and responsibilities to resources are defined based on traditional use.

A less common contractual arrangement is between two agencies within the government or different levels of government, for instance the federal government contracting with a municipality or state government for maintaining roads, or for policing a federally-owned forest within the local jurisdiction. Finally, governments may negotiate and sign contracts with international organizations. The Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES) agreement is an example.

2.4 The evolution of tenure arrangements and resource contracts

Where demands on a resource are low or the availability (supply) is large, the value of the resource will be low, and resource users' rights are likely to be simple. However, as demand rises or availability (supply) shrinks, the value of the resource rises, and thus the potential gain from better, more efficient tenure and allocation arrangements increases. More sophisticated systems of property rights and contractual arrangements may be expected to emerge.

With population growth and economic development, natural resources such as forests, grazing lands, water, wildlife and fish become scarce. As pressures on each develop, its value increases, and it becomes increasingly important to develop means of allocating these resources more efficiently among competing users and uses. Rights in the form of leases, licences, permits and other contractual arrangements may be expected to be developed and introduced to allocate these resources as they become scarce and valuable. As development progresses and natural resources become scarcer, new forms of tenure rights and contractual arrangements for public resources will need to be developed. Even in developed countries, new forms of rights are being developed for fisheries, pollution, forests and recreational resources. Thus, the system of tenure rights and contractual arrangements for public resources is evolving over time. Chapter 4 discusses the legal framework for the management and administration of public forest lands.

2.5 Contractual arrangements: key instruments of government policy

An important rule in designing a system of contractual arrangements for public forests is that they should be developed with careful reference to the government's forestry policy objectives. Forestry policy objectives can vary among countries. Some countries have policies of converting forested land for agricultural development, others have policies of preserving forests for biodiversity or ecotourism. Other countries encourage forestry as an adjunct to agriculture through agroforestry. Some countries have policies of using their forests to encourage economic and industrial development, others have

forest policies that emphasize environmental, recreational, or tourist benefits of forests.

Most countries pursue several forestry policy objectives. The following are some common ones:

- to manage and use public forests in ways that are sustainable and will maintain the biodiversity of forest ecosystems;
- to allocate forest lands to a diversity of uses;
- to preserve representative tracts of forest in their natural state;
- to promote the development of a healthy private-sector forest industry;
- to encourage forest-related employment;
- to ensure that timber and other commercial forest products are produced and utilized in ways that will generate the maximum possible economic values;
- to generate public revenue from public forests;
- to earn foreign exchange from forest product exports;
- to earn foreign exchange from forest-based ecotourism;
- to use forests to promote regional or rural development within the country;
- to support and maintain forest-dependent communities.

This is just a sampling of possible forestry policy objectives. Each government will have its own set of objectives, and its own priorities among them. The important point is that in designing a system of contractual arrangements for a particular jurisdiction, it is essential to begin with a clear understanding of the government's forestry policy objectives, so that forest contracts may be designed to advance those objectives, and complement other policy instruments.

Three important points on forestry policy objectives are warranted. First, forestry policy objectives can often conflict with each other. Concern for environmental protection may conflict with an objective of increasing government revenues, or maintaining industrial employment. When designing contractual arrangements it is, therefore, important to also appreciate the trade-offs among the policy objectives, and the importance or weight attached to each.

Second, forestry policy is not independent of other public policies. For example, a forestry policy that governs how logging is conducted is likely to affect the habitat of fish and hence

also affects fisheries management and fisheries policy. Similarly, forestry policy will also affect, and be affected by, water policy, agricultural policy, transportation policy, environmental policy and so on. Land tenure policies that require the clearing of land to prove ownership will be in conflict with policies of sustainable forestry. This has been a major factor in deforestation within the Amazon basin, and elsewhere, as well as in the early settlement of the mid-western United States. If policies are not to counteract each other, their interdependence must be kept in mind in designing and selecting policy instruments, such as contractual arrangements.

Conflicting policies between federal, state or provincial, and municipal governments may further complicate policy design. Sometimes the policy initiatives of one government are in response to the policies of another level of government. These inter-jurisdictional conflicts are often extremely difficult to deal with and overcome.

Third, forestry policy objectives, as well as most other policy objectives, are rarely articulated clearly or precisely. Coherent statements of government forestry policy objectives and their relative priority are hard to find. Governments and politicians are often reluctant to be specific about their preferences. Often, policies and objectives have to be inferred from the legislation, regulations, speeches and statements of politicians and from past decisions. These difficulties are aggravated because policies are evolving over time.

In spite of the difficulties in identifying forestry policy objectives, they are a necessary and important starting point in the design of a system of contractual arrangements. Ultimately, the suite of selected options will be judged on its success in achieving policy objectives. Chapter 3 discusses forestry policy issues, objectives and policy instruments, such as various contractual arrangements.

2.6 Historic problems with contractual arrangements

Countries have experienced many common problems in using both resource utilization contracts and goods and services procurement contracts in the administration and management of public forest lands. One key deficiency in resource utilization contracts has been the

failure of governments to capture or collect an appropriate or "fair share" of the value of the forest resource (the economic rent). These failures have resulted from a number of factors: inaccurate appraisal of resource values prior to contract signing, low forest fees, poorly designed forest revenue systems, haphazard collection of resource levies due to negligence, or bribery and corruption of government officials. Resource appraisal, forest revenue systems and the collection of levies are discussed in Chapter 8.

A second common problem with resource utilization contracts results from conflicts over unresolved forest ownership rights. Throughout the world, the rights of aboriginal or first nation peoples and their traditional use of forest resources and forest lands have not been adequately recognized in forest utilization contracts. Failure of governments to identify prior claims and overlapping claims to resource rights, and to resolve these conflicts prior to the granting of resource utilization contracts, has led to conflicts and to difficulties in the administration of the contracts. Recognition and resolution of land claims and resource use rights is a key first step in planning resource development.

A third common problem experienced with resource utilization contracts and goods and services procurement contracts is non-compliance with contract terms, often the result of inadequate monitoring and weak or non-existent enforcement. Governments frequently fail to allocate sufficient financial and human resources to monitoring, control and enforcement activities. As a result contract holders can operate unchecked. In addition, contract holders often lack the expertise required for planning and executing the forest management practices specified in the contract terms because of insufficient staffing or trained personnel. Contract violations can lead to severe degradation of the residual forest, irreversible environmental impacts (e.g. from poorly planned logging operations and poor road construction), loss of biodiversity, and loss of forest revenues. Contract administration and enforcement are discussed in Chapter 10.

Most problems with forest utilization and goods and services contracts can be prevented or minimized by careful design of the contracts, proper planning, and effective monitoring and enforcement. However, this requires a

commitment on the part of governments at all levels, allocation of adequate financial resources, and well-trained and dedicated personnel.

2.7 The changing roles of contractual arrangements

The trend worldwide is towards more effective and cost efficient governments. There is increasing interest in the use of contracts with the private sector as an instrument for provision of public sector goods and services and public sector management for a full range of public sector activities. This "privatization" trend began in the early 1980s (Moe, 1996; Morell and Paveri, 1994). The trend spread to the agriculture and forestry sectors in many developing countries during the mid 1980s (Morell and Paveri, 1994). In many countries, privatization has been driven by the structural adjustment programmes of international lending institutions, such as the World Bank and the International Monetary Fund (IMF).

In some countries, other factors provided additional impetus for more widespread use of contracts. In some cases it was the result of government budget crises. In other countries, the shortage of qualified staff prevented government organizations charged with resource management, development, or supervisor responsibilities from functioning.

How does the shift towards greater reliance on the private sector and the use of contractual arrangements change the role of government in the management and administration of public forest lands through contractual arrangements? It is possible to identify four institutional roles for the production and delivery of specific goods or services: **funder, producer, consumer, and regulator**. For countries which have recently changed to mixed economies, as well as for those with continuing mixed economies, government involvement has shifted from formerly playing three out of these four roles (as funder, producer and regulator) towards playing only two roles (as funder and regulator), or only the role of regulator.

With the change in government roles, the government's requirements for financing, staffing levels and qualifications of staff have also changed. In some countries, a major task of government employees has become the negotiation and supervision of contracts.

Finally, it is important to note that the

design of forest contractual arrangements rarely starts from scratch. Tenure rights to timber and other forest resources already exist, and their allocation and administration is already established. Government organizations and administrative procedures are in place, individuals and private companies have adapted to them, and existing rights and undertakings must be respected. Usually, new contracts will be built on what is already in place, modifying the existing contractual arrangements to enable the introduction of new ones in line with the emerging policy objectives.

Thus, the development of contracts for public forests and public lands, as well as the institutional arrangements for forest administration, is an evolving process. Existing arrangements are modified and new contractual arrangements added to reflect the changing circumstances and policy objectives. However, as many of the historic problems with forest contracts persist, there is an urgency to seriously revise the way in which contracts are designed and administered and to introduce updated contractual arrangements that satisfy current forestry policy and social needs.

2.8 Chapter summary

- Forest contracts – Contractual arrangements are written mutual agreements, enforceable by law, between two or more parties that something shall be done by one or both. They govern the rights of owners and users over forest land, timber or other assets, defining the way forests are held, managed and utilized.
- Types of contract – There are two major types of contract: resource utilization contracts, granting harvesting or forest use rights to public forest lands; and/or goods and services procurement contracts for forest management services, environmental management services, or other goods and services on public forest lands.
- Combining rights and obligations in contracts - Specific sets of rights and obligations may be combined in one contract. Resource utilization contracts and goods and services procurement contracts may be combined to form unique contractual arrangements.
- Various types of contractor - Contractual arrangements for public forest lands may be negotiated with private "for-profit" companies, non-profit organizations, communities or aboriginal groups, or with other governmental agencies.
- Contractual arrangements and forestry policy - Contractual arrangements should be developed within a clear understanding of the government's forestry policy objectives and the trade-offs among them. Contractual arrangements should also be consistent with other public policies and with broader social issues.
- Forestry policy conflicts - Forestry policy objectives can often conflict with one another. For this reason, it is important for governments to have a clear understanding of the forestry policy objectives in designing and awarding forest contracts.
- Constraints on contracts - The range of choice among contractual arrangements may be constrained by environmental concerns, the rights and claims of aboriginal peoples, and the capabilities to administer and enforce contractual arrangements of forests.
- Common contract problems - Common problems in forest contracts, including failure to collect governments' fair share of the value of the forest resource (the economic rent), non-compliance with contract terms, and conflicts over ownership of land, harvesting and use rights to the forest resources.
- Changing roles of government - The role of governments around the world is changing, with greater reliance on the private sector. This has altered the role of government agencies in administering public forests, including their responsibilities, organizational structure, financing, and staffing. As a result governments are depending more and more on contracts in the utilization and management of public forests and forest lands.

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PART II

Conditionalities for concessions and contracts in public forests

3

Forestry policy framework for contract design and administration

What this chapter covers:

- This chapter and the next two (Chapters 4 and 5) review the forestry policy, legal and institutional conditions a country needs to have in place to design and effectively implement forest contracts.
- This chapter discusses development of a forestry policy framework, consisting of: strategic objectives, policy principles, policy goals and action programmes.
- Cross-sectoral linkages and potential impacts on forestry from a number of other sectors are considered. Other policy sectors affecting forestry include: conservation and the environment, agriculture, macroeconomic monetary, fiscal and trade policies, energy, tourism, and population growth.
- A process for forestry policy formation is described. It involves a sequence of steps for the development of new forest policies, or the revision of existing policies. A clear policy formation process can improve transparency, peoples' participation, decision-making and economic efficiency.

3.1 Introduction

Chapters 1 and 2 provided an introduction to the study and an overview of contractual arrangements as important instruments of forestry policy. This chapter, together with the next two (Chapters 4 and 5), discusses the conditions that a country should put in place to design and implement forest contracts that secure social and economic objectives and resource sustainability, and enable the country to effectively supervise and manage forest contracts. Conditions for designing and effectively administering forest contracts are discussed under three areas of country capacity: the policy framework (in this chapter), the legal framework (Chapter 4) and the institutional framework (Chapter 5).

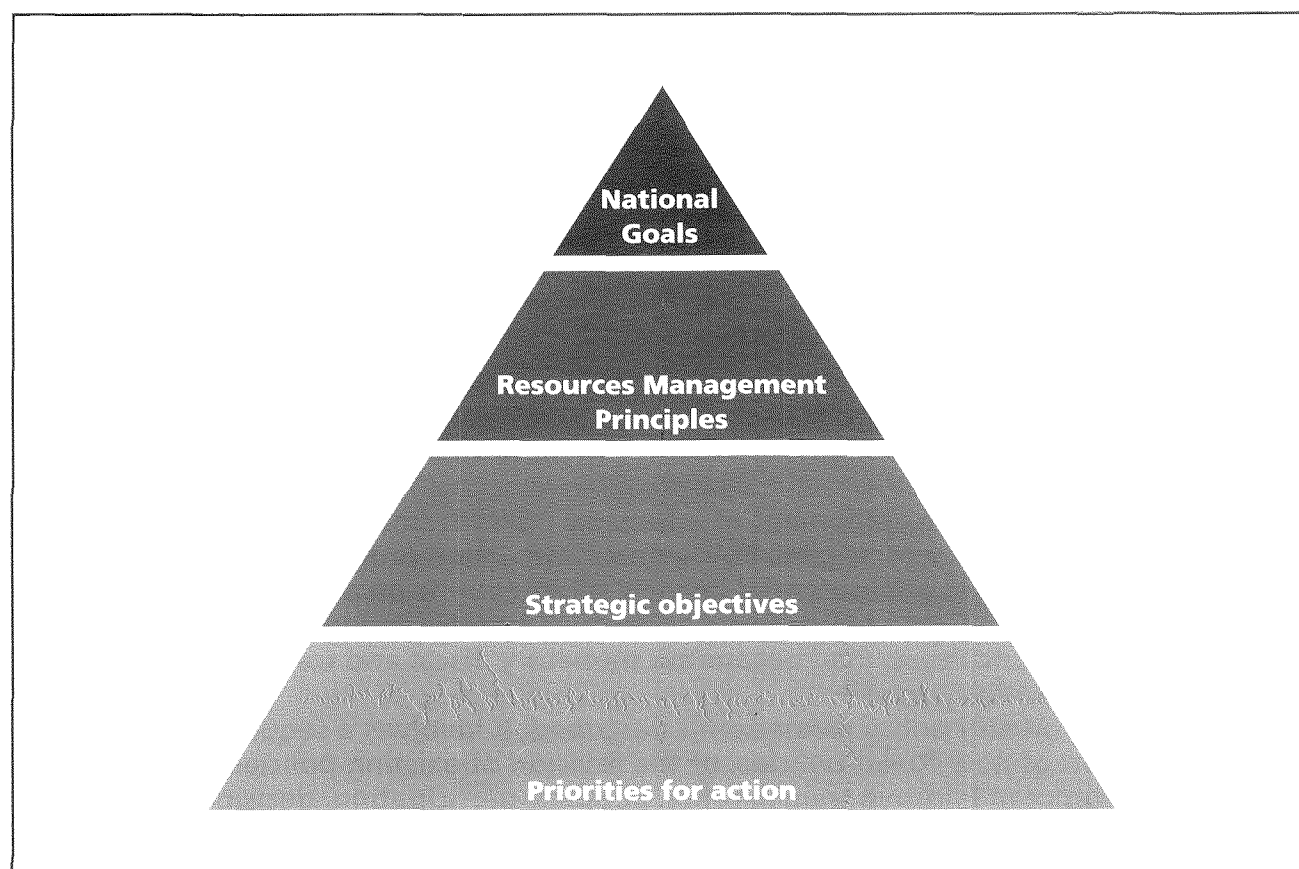
3.2 Forestry policy framework: national goals, resources management principles, priorities for action

A sound policy framework has clear objectives and goals that will guide forest management into the future. Firstly it should respond to

public interests/demands. This ensures that contracts and the process of contracting out embrace the value system of the country with respect to use of public forest lands. A sound policy framework should exist in writing and make explicit its purposes and how benefits are to be distributed among actors and the public. A clearly written policy should be in line with written contracts in that the latter provide both the proof of agreement among actors and a clear record for future reference. A sound policy framework also establishes the rights and responsibilities of actors and fair mechanisms for dealing with conflict. It also creates confidence and security in investors, other economic actors, both government and non-government constituencies, and local communities. Finally, a sound policy framework enables fairness and stability of the conditions required for business operations in the medium and long term.

Figure 3.1 shows the elements of a comprehensive forestry policy framework and the hierarchy of policy goals, principles, objectives and action priorities.

Figure 3.1: The main elements of a forestry policy framework (after Ellefson 1992)



3.2.1 National forest goals

This component of the forestry policy framework establishes the broad national goals that the government has agreed to pursue in order to secure the public's interest and the sustainability of forest resources. The national goals must be shaped from the demands and needs of the citizens and the underlying concern for the sustainability of the environment (Ontario Forest Policy Panel, 1993). Governments ought to conduct extensive consultations with the public and forest users to clearly articulate the relevant forestry goals of society. This would ensure attainment of good governance principles of protection of the public interest, transparency and equity.

The national goals should at least embrace the following three ideas which are central to sustainable forest management. First, guarantee present and future material and social needs for society. Second, be linked to the country's strategic objectives for development. And third, ensure the long-term health of the nation's forest ecosystems.

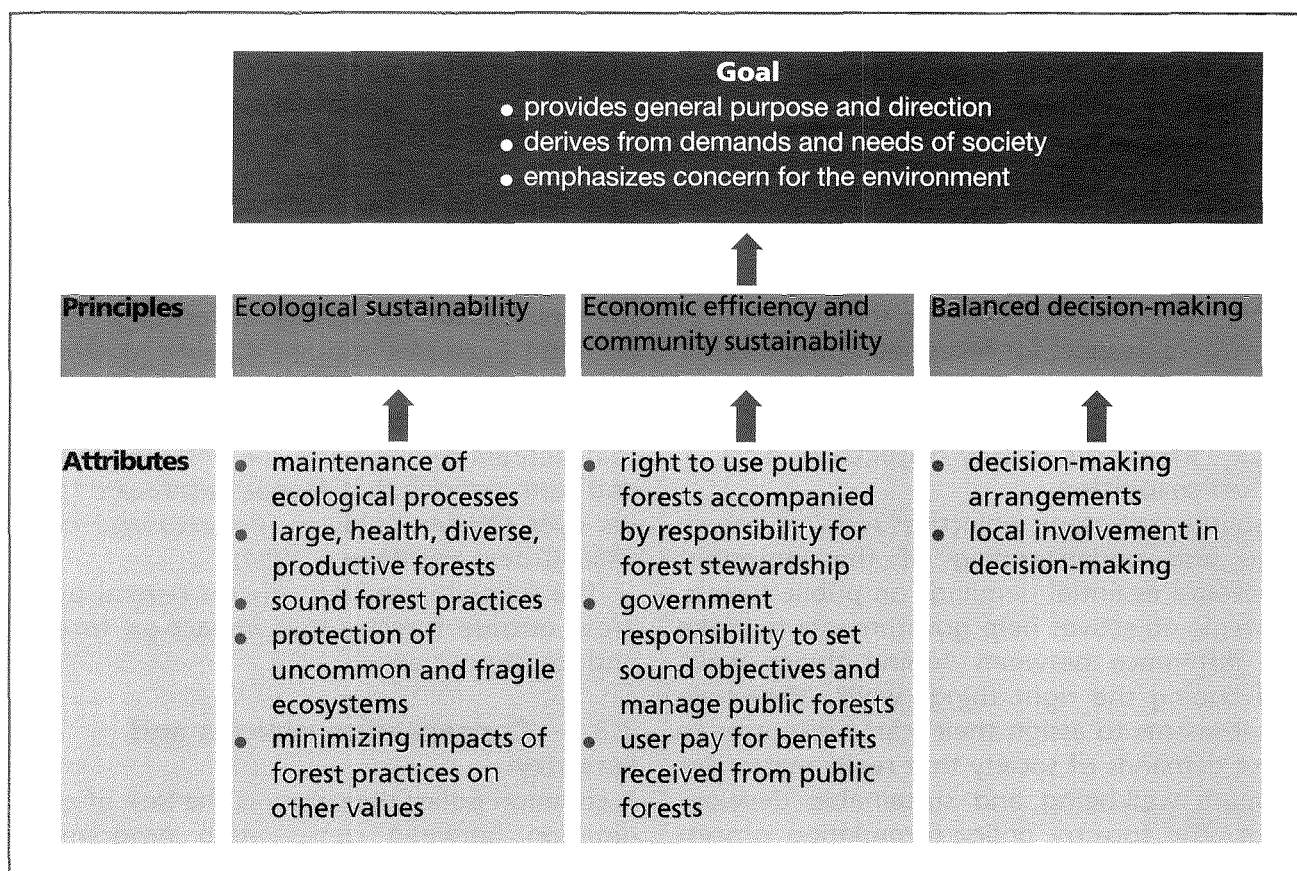
3.2.2 Principles of forest resources management

The **principles of forest resources management** are the cornerstone of the policy framework which support and facilitate goal setting. The general principles discussed here include those intended to ensure the long-term health of forest ecosystems, promote economic efficiency and encourage informed decision-making. They are shown in Figure 3.2.

3.2.2.1 The policy principle of ecosystem sustainability

Sustainable development is based on maintaining forest ecosystems as forests and maintaining them in a viable condition. Forestry policy planners and forest managers, in consultation with forest users and the public, will need to define what "viable conditions" mean. Policy planners and managers then need to identify and implement actions to maintain or achieve sustainable forestry. Where ecosystems are especially fragile, it may be necessary to restrict or prohibit human activities in order to stay within the physical and biological capabilities

**Figure 3.2: Forestry policy principles:
key components of forestry policy**



of the ecosystems (Kaufmann et al., 1994). Special actions may also be required to restore degraded forest lands.

3.2.2.2 The policy principle of economic efficiency and community sustainability

In administering the forestry sector, governments must always endeavour to ensure that goods and services of any type be produced at a minimum cost, that resources be used for the production of society's required goods, that people negatively affected by policy implementation are compensated, and that care be taken of the needs of less benefited groups. In Chapter 9, the concept of economic efficiency is addressed in more detail. Frequently, forest policies inhibit efficient use of the forest through complex or conflicting regulations, or through the non-enforcement of other regulations.

The sustainability of benefits to forest communities or regions is another major responsibility in the governance of the forestry sector. Without the community, sustainability of resources, profits and benefits will all be com-

promised. An essential element of both community and resource sustainability is employment which is included in the full meaning of sustainable development.

3.2.2.3 The policy principle of balanced decision-making

The policy principle of balanced decision-making presents three challenges for decision-makers. The first is to identify how to meet competing demands on the forest, while maintaining ecosystem sustainability. The second is to identify the trade-offs among the competing demands and forest uses, how one forest use affects another. The third is how to make compromises among competing demands on the forest when the forests cannot sustain all the demands people would make on them.

The decision-making framework must define how forest decision-makers and all those who advise them can work together to achieve balanced decision-making. Forest managers need to inform the public of the links among forest ecosystems, forestry policy objectives and forest management tools. The follow-

ing criteria identify some of the key preconditions for better decision-making for public forests:

- sound science, public involvement and local involvement, local knowledge and careful inventory will work together to produce effective decisions;
- the use of consensus-building methods in forest decision-making;
- accountability of decision-makers for their actions and decisions;
- decisions made as close to the situation as possible, respect for local needs and desires, and consistency with national direction.

3.2.3 Strategic policy objectives and action priorities

Establishing strategic objectives requires knowledge and understanding of the important issues and essential demands on public forests. Strategic objectives help governments to make the difference between "doing things well" and "doing the right things well". They help governments to assign their scarce resources to those demands of society that really matter for people's well-being and sustainable development. The forestry policy formulation process should allow for an objective way of identifying society's demands. The process also allows for an objective selection of those demands that need to be addressed based on government resources and the expected future evolution of the country's situation. Without a process for strategic planning, many governments end up implementing programmes irrelevant to society's demand and values.

Action priorities are essential in making things happen. They mark the difference between rhetorical declarations and making things happen. They deal with the practical actions required for timing, funding and implementing policies.

3.3 Coordination and compatibility of forestry policy with other government policies

Up to here we have discussed forestry policy independent of other government policies. However, policies in other sectors of the economy can significantly affect the forest sector and distort forest policies (de Montalembert, 1995). In many countries, policies in other sectors have caused greater forest destruction than misdirected and misapplied forestry policies have.

These include agricultural settlement and land clearing programmes for cash crops, such as rubber, oil palm, tea or cacao, cattle ranching (Repetto and Gillis, 1988) and energy policies that ignore rural areas and increase dependency on fuelwood. Other examples include land tenure and settlement policies that assign property rights over forested lands on condition that such lands are cleared and "developed" or "improved". Finally, some economic policies may appear to have little effect on forestry, but can be significant causes of deforestation. Examples include subsidized agricultural loans, highway programmes to open up areas to settlement, development strategies that depress the demand for unskilled labour, and farm policies that favour large-scale farmers over smaller holdings (Repetto and Gillis, 1988; Brown and Pearce, 1994).

The following sections discuss several policy areas outside forestry that impact on forestry and forest policies.

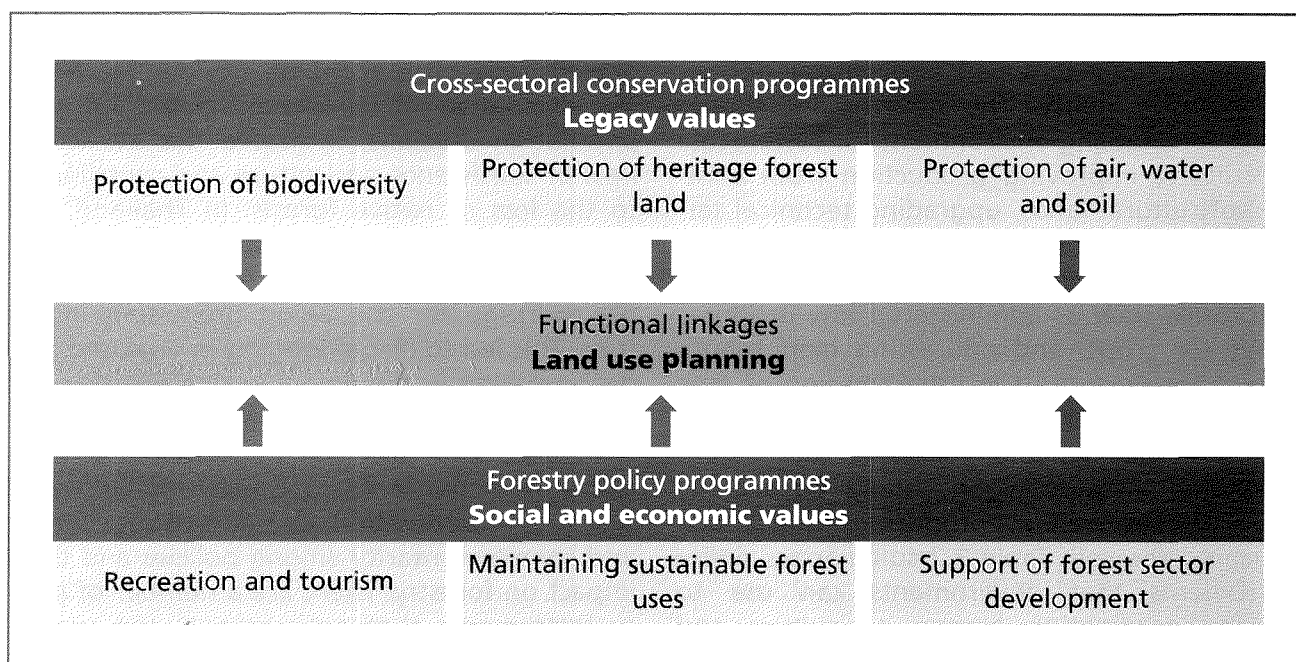
3.3.1 Conservation policies and forestry

A common policy deficiency is the lack of coordination between conservation programmes and forest programmes and forestry policy (Schmithüsen, 1995). There are important linkages between forest policies and conservation policies. These are illustrated in Figure 3.3.

Land use planning is an important process for the coordination of forest policies and programmes, conservation policies and programmes, and other policies and programmes in agriculture, mining, transportation, etc. One of the important tools in land use planning for reconciling conflicts is zoning. Zoning ensures separation between compatible and incompatible land uses, while maintaining functional linkages between them. Table 3.1 provides a summary of policy instruments that governments can use to ensure linkages among conservation and forest development policies. It also gives examples of cross-sectoral linkages arising from such policy instruments.

3.3.2 Agricultural policies and forestry

Agriculture has perhaps had the greatest impacts on forestry. Agricultural policies have been a major cause of deforestation in many countries. In addition, landlessness and shifting cultivation have been significant causes of deforestation. In Sub-Saharan Africa, it has

Figure 3.3: Functional linkages between cross-sectoral conservation and forest programmes**Table 3.1: Possible impacts of conservation policies on forest development**

Policy instrument	Cross-sectoral linkages arising from policy instruments	Impacts on sustainability of forest development
National environmental plans; soil conservation strategies; plans to combat desertification, air and water pollution	Harmonized strategies encompassing all land use sectors; soil and water conservation improvements.	National action plans for the conservation of natural resources; impacts on the sustainability of forests
Adherence to international agreements and conventions	Reduction or elimination of environmental pollution	Health improvement of forests; restoration of damaged forests
Legal establishment of protected areas and natural heritage forest lands	Maintenance of biodiversity; protection of endangered species	Possibility of wood harvesting in protected areas; lower wood availability; stricter environmental control on forest operations

Source: Adapted from de Montalembert, 1995.

been estimated that encroachment of extensive agriculture into forest areas is about 0.6 million hectares annually (Sharma et al., 1994).

It is the government's responsibility to secure harmony between agricultural policies and forestry policy. The government should create an enabling environment for sustainable agriculture, improving production from existing agricultural lands, upgrading technical services, developing rural infrastructure, developing appropriate technologies, removing policy distortions such as administered low producer prices for crops, and addressing land tenure issues. Agroforestry, the intercropping of tree and agricultural crops, for example, can both decrease the demand for new agricultural lands and increase wood supply, particularly fuelwood, as well as producing fodder and enriching the soil. Table 3.2 summarizes policy instruments that governments can use to ensure coordination among agriculture and forest development policies and shows examples of resultant linkages.

3.3.3 Macroeconomic policies and forestry

Trade, fiscal, exchange rate, privatization, public expenditure and pricing policies in various sectors can all distort forest policies if they are

not well planned and coordinated. A World Bank review of Argentina's forest sector (World Bank, 1993) revealed how inefficient macroeconomic policies resulted in negative economic growth rates. This economic decline, by reducing alternative job opportunities for the rural population dwellers, increased the attractiveness of subsistence agriculture and contributed to the loss of native forests. In Thailand, the logging ban and the suspension of all forest concessions in 1989 caused a serious wood supply shortage for the wood processing industries. This led to illegal logging in Thailand and deforestation in the neighbouring countries of Laos, Cambodia and Myanmar.

Finance and planning ministries, and ministries responsible for macroeconomic policy and their coordination, can ensure consistency and complementarity among policies and their impact on forestry. There are a number of policy instruments that governments can use to achieve cross sectoral linkages between macroeconomic policies and forestry. Table 3.3 summarizes those macro-economic policy instruments and identifies their impacts on the sustainability of forestry.

3.3.4 Population and forestry

With increasing population comes increased

Table 3.2: Possible impacts of agricultural policies on forest development

Policy instrument	Cross-sectoral linkages arising from policy instruments	Impacts on sustainability of forest development
<i>Incentives, subsidies and support</i> either: 1) to expand food and agricultural production; or 2) to assist activities and services other than food production and set aside schemes for agricultural land.	1) Agricultural pricing versus wood pricing; subsidized mechanization; fiscal support to agriculture. 2) Abandonment of marginal agricultural lands; support for alternative land use; assistance to farmers in disadvantaged regions.	National action plans for the conservation of natural resources; impacts on the sustainability of forests. Natural regeneration; reforestation for social, environmental and economic purposes on abandoned agricultural lands.
<i>Legislation and fiscal measures</i>	Encouragement of economically and environmentally sustainable practices.	Increase in agroforestry practices; increased availability of agricultural land for alternative uses; reforestation.

Source: Adapted from de Montalembert, 1995.

demand for land for agriculture and other forms of subsistence. Actions are needed to reduce population pressures contributing to poverty and environmental degradation in

many tropical countries. Table 3.4 summarizes policy instruments that governments may use to promote cross-sectoral linkages between population and forest development policies.

Table 3.3: Possible impacts of macroeconomic policies on forest development

Macroeconomic policies	Policy instruments and cross-sectoral linkages	Impacts on sustainability of forest development
Economic integration	Concerted policies and investment programmes	Greater national and international flow of investment in forest development; increased competition and trade in forest products
Greater emphasis on quality of life	Development of life indicators (health, environment, education, culture)	Increased demand for forest conservation, recreation and community forestry
Monetary and credit policies	Credit allocation and subsidies, interest rates	Discount rates, subsidies, investment capacities determine the competitiveness of investment in forest development as compared to competing activities
Trade policies	Exchange rates, import controls, promotion of further processing and exports	Potential for modernization of forest operations and efficiency of processing, impact on raw material requirements
Fiscal policies	Tax levels, royalties	Capturing economic rents, influencing the fiscal regime of the forestry sector and behaviour in forest management and harvesting
Privatization and changing role of the public sector	Legal framework, reduction in public sector's role and expenditures	Expansion of private sector's role, reform of public institutions including forest agencies, impact on social and environmental functions of forests

Source: Adapted from de Montalembert, 1995.

Table 3.4: Possible impacts of population policies on forest development

Policy instrument	Cross-sectoral linkages arising from policy instruments	Impacts on sustainability of forest development
Incentives to increase job creation	Investment in small industries and new activities/training development	Better use of resources and capacities
Reallocation of public funds to social welfare	More funds for rural development in remote and poor areas in which forestry may be an important development opportunity	Increased investment in forest management, reforestation, wood production; development of job creation through processing and marketing
Population expansion and new settlements	Infrastructure development, modification of land uses and opening of new areas of economic activities	Degree of effective planning and government enforcement of incorporating forests and related activities

Source: Adapted from de Montalembert, 1995.

Table 3.5: Possible impacts of energy policies on forest development

Policy instrument	Cross-sectoral linkages arising from policy instruments	Impacts on sustainability of forest development
Pricing and distribution	Availability and prices of fuels for domestic and small-scale industries; and of petrol for mechanization and transport	Harvesting and increased commercialization of wood for fuel in forests; urban and rural demand for woodfuels; expansion of agriculture through forest clearing and marginal land cultivation
Energy self-reliance; research development of alternative fuels	Increased reforestation; harvesting; use of urban waste or industrial residues; integration of electricity systems	Better management of forests; improved forest industrial development

Source: Adapted from de Montalembert, 1995.

3.3.5 Energy and forestry

The majority of energy in most tropical countries comes from forests or on-farm wood biomass. Fuelwood cutting is the second major cause of deforestation in many countries. Table 3.5 summarizes policy instruments that governments can use to ensure linkages between energy and forest development policies and shows examples of linkages that could arise.

3.3.6 Tourism and forestry

Many tourism activities are forest-based. These include various ecotourism activities, wildlife viewing, camping and hiking. As a result there is a potential for conflicts without cross-sectoral planning. *Tourism can impact on forestry in unusual ways.* For example, the 220,000 tourists who visited Nepal in 1986 contributed to increased fuelwood consumption, added to the fuelwood shortage and contributed to increased forest degradation (FAO, 1993). Table 3.6 summarizes policy instruments that governments may use to manage the linkages between tourism and forest development policies and shows examples arising from the linkages.

In addition to the policies discussed here, there are other policies and institutions that impact on forestry policy. These include the legal system, discussed in Chapter 4, the institutional framework, discussed in Chapter 5, and the structure of property and tenure rights, discussed in Chapter 6. The next section discusses

the policy process and the steps in formulating new policies or revising existing ones.

3.4 A policy process for forestry

A clearly defined process is required for sound decision-making and good policy implementation. It also serves to guide the formulation of new, and the revision of, existing forestry policies. Having a clear, well-defined policy process will improve the transparency and efficiency of government policy making, and facilitate people's participation in the process.

Many models of public policy process exist. The policy process is often described as a problem-solving process. Several texts describe problem-solving processes that match policy processes (e.g. Koberg and Bagnall, 1983; Hanks et al., 1977).

The policy model and process described in this chapter involves six steps: 1. Problem identification and definition; 2. Policy agenda; 3. Policy formulation; 4. Policy adoption; 5. Policy implementation; and 6. Policy evaluation.

3.4.1 Problem identification and definition

The first step in policy development involves identification of a problem. What are the problems that demand public policy attention? Which groups of individuals seek changes in the current policy (status quo) and why? Possible participants in problem identification and definition may include senior policy-makers

Table 3.6: Possible impacts of tourism policies on forest development

Policy instrument	Cross-sectoral linkages arising from policy instruments	Impacts on sustainability of forest development
Investment in rural jobs, infrastructure and other activities	Ecotourism investment; slow down of internal migration	Reforestation; protection and conservation of natural resources; increased rural income and wood demand for infrastructure
Legislation and incentives to protect aesthetic and cultural values in rural areas	Protection of rural environment, landscape and amenities	Increased control on forestry activities; more protected areas; rural income; education in environmental issues

Source: Adapted from de Montalembert, 1995.

ers in ministries or planning bureaux, politicians, government bureaucrats and professionals, non-governmental organizations, state enterprises, industrial forestry companies, forest communities, indigenous peoples, the media, or academic institutions.

For changes in existing policies, problem identification starts with a review of experience and problems with the existing policy; what has worked well, what has not met the objectives, what has been learned from implementation of the existing policy.

3.4.2 Development of a policy analysis agenda

Not all problems identified in the first stage will merit further policy analysis. Many will be minor, or reflect only narrow interests rather than broad public interest. In this second stage, the need to address the problem has to be recognized. In development of the policy agenda, government will be the major player, and resources will be assigned to deal with the problem and develop the policy analysis agenda. At this stage, it is important to review related policies and determine the nature of their relationships to either the new or old policy. This will ensure that the cross-sectoral linkages are complementary, not conflicting, and avoid policy distortions. For forest contractual arrangements, it is particularly important to ensure that one contract does not jeopardize the realization of other strategic objectives.

3.4.3 Policy formulation

Once the policy agenda has been developed, policy formulation begins. At this stage, acceptable and alternative courses of action are identified and developed to deal with the problem issues. The array of technically feasible courses of action may be large, but many may be rejected as inconsistent with the policy principles identified earlier in the chapter. It is important at this stage to include all the possible, but feasible, policy alternatives taking into account the policy principles of ecological sustainability, economic efficiency and community sustainability, and balanced decision-making.

3.4.4 Policy adoption

The range of technically feasible approaches is narrowed to a smaller set of economically and administratively feasible alternatives. The final choice is influenced by concern to avoid politi-

cal, environmental and economic risks, to minimize administrative costs and to improve administrative procedures. Policy adoption implies that the government intends to follow the new course of action. Adoption also implies that the funds, organization and personnel must be made available to implement the new or revised policy.

3.4.5 Policy implementation

It remains to choose among various ways of implementing the policy decision. There are alternative policy instruments from which to choose, and various ways of organizing implementation activities. For example, implementation activities may be carried out by the government directly or under contract with private parties. They may be implemented under forest regulations, under performance requirements, or by means of performance incentives. Measures to implement contractual arrangements through regulations, performance requirements, or incentives will occupy much of the discussions in the following chapters.

Administrative agencies are the most important actors in implementing new or revised policies, but the legislature or the courts may also be involved. Legislatures may circumscribe administrative discretion through legislation, or by selectively funding individual items in agency budgets. Although courts do not enact legislation, they are often asked to interpret legislation, regulations, or administrative procedures.

3.4.6 Policy evaluation

The policy framework traces a policy from the problem formation stage to its evaluation stage. Adding evaluation to the process introduces a feedback process and makes policy-formulation or revision an iterative process. Policy evaluation makes it easier to adapt or modify forest policies to accommodate changing situations, or newly emerging realities. For example, forest utilization contracts designed one or two decades ago may need modification or revision because of changing forest situations, altered economic situations, or changing societal preferences among forest uses or forest preservation. A formal process of evaluation should be established. Critical review leads to re-evaluation of objectives and means and, if necessary, policy change. In revising existing policy, it is important to identify conflicts between the existing policy or proposed changes, and relat-

ed policies, and to resolve these conflicts.

Governments continually receive informal evaluation and criticism of their policies from lobby groups, non-governmental organizations, commissions of inquiry, political debate and a variety of other channels. Informal feedback or formal evaluation of the policy may produce minor or major changes in policy, legislation, regulations, or administrative procedures.

In the real world, policy-making is often a

less orderly process than the policy-making sequence presented here, often with confusing and shifting mixtures of players and interest groups, bureaucratic manoeuvring, lobbying and political influence. Policy initiatives are frequently undertaken in response to crises, with policies designed hastily to meet the urgency of a particular time, and without much thought of conflicts with existing policies.

3.5 Chapter summary

- The major elements of a forestry policy framework are: national goals, resources management principles, strategic objectives, and action priorities.
- National forest goals should be consistent with the country's overall policy goals and ensure sustainability of the environment. They should also reflect three major features of sustainable management of the country's forests: ensure long-term health of the forest ecosystems; benefit local, regional, national and global environments; and ensure material and social needs of current and future generations.
- Forestry policy principles of ecosystem sustainability, economic efficiency in the use of the forest, sustainability of communities, and balanced decision-making are key components of the forestry policy framework in the management of public forest lands.
- Strategic policy objectives and action priorities define the plans for implementing forestry policy.
- Policy in other sectors of the economy can affect forestry policy and cause significant forest destruction. Thus forestry policy must consider the cross-sectoral linkages with other sectors and potential impacts on forestry.
- The forestry policy process describes the important steps and sequence of steps in the policy process. The steps proceed from problem identification through review of related policies, establishment of a policy agenda, policy formation, policy adoption, implementation, to policy evaluation. Policy-making is often crisis driven and consequently narrowly focused and hasty, ignoring impacts on other policies. A policy process and sequence helps to structure policy making.

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4

The legal framework for contract design and administration

What this chapter covers:

- The chapter provides an overview of the legal system as it affects forestry and the design and administration of forest contracts.
- Six components of the legal system are discussed: the legislative bodies, the executive (president or prime minister and cabinet of ministers), ministries or departments, enforcement agencies, the judicial system, and the legal instruments (statutes, decrees, regulations, etc.).
- The hierarchy of legal instruments is discussed in relation to forest administration and the design of forest contracts. These legal instruments include: international law and agreements (treaties, conventions, international and regional agreements); the country's constitution, statutory law, criminal law, contract law, investment law, forest law, environmental law, presidential and ministerial decrees, forest regulations, policies and procedures, contracts and management agreements, and enforcement policies and procedures.
- The importance of monitoring and enforcement, including "on-the-ground" monitoring and inspection to ensure compliance, is emphasized.

4.1 Introduction

Successful design and use of resource utilization and goods and services procurement contracts depend on the existence of both coherent forestry policy and an effective and efficient legal system, including laws and regulations which define clearly the responsibilities and authority of government agencies. This chapter discusses the role of these legal instruments in the management and administration of public forest lands, including the design and use both of resource utilization and of goods and services procurement contracts.

The chapter begins with a discussion of the framework of legal systems. This is followed by an analysis of the individual components of the legal system and the role of governments in the promulgation, application, enforcement and revision of statutes, laws, regulations and other legal instruments.

4.2 Legal systems

In most countries, legal systems are made up of six components which must function together for the successful execution of public policy.

These six components are:

- Legislative bodies, legislative committees and sub-committees.
- The Executive: the President or Prime Minister, the Cabinet and Ministers.
- Ministries, departments and other government agencies that create legal instruments, regulations and administrative procedures.
- Enforcement agencies.
- The judiciary system, courts and tribunals.
- The legal instruments themselves; the statutes and laws, local by-laws, presidential and ministerial decrees, regulations, and the administrative procedures for implementing these legal instruments.

Legislative bodies comprise the elected and appointed bodies of representatives at the federal, state or provincial and local levels. These legislative bodies propose, debate and create laws relating to a wide range of public policy issues. This includes laws that define the responsibilities and authority of government agencies in writing, negotiating, signing, supervising and enforcing contracts. These laws

may result from a formal policy development process, such as that described in the preceding chapter, or may come directly from the policy agenda of the cabinet, ministers, ministries, individual legislators, or from special interest groups.

The executive comprising the president, or prime minister, the cabinet, and ministers of ministries or departments will often initiate legislation to be debated, voted on and passed by the legislature. The executive may also legislate directly by means of presidential or ministerial decrees.

Ministries, departments and other government agencies may initiate legislation following a policy process, such as described in the previous chapter. Sometimes they may bypass the policy process, perhaps in response to an urgent need for action.

Government ministries, departments or agencies are normally charged with writing regulations for laws passed by legislative bodies, presidential and ministerial decrees. Regulations usually have the full force of the law.

Enforcement procedures and the agencies involved will vary widely among countries. Enforcement procedures and agencies may include a wide range of organizations and personnel depending on the type of law and penalties for non-compliance. Enforcement may be carried out by staff of government administrative agencies (e.g. the forest service, forestry department or forest directorate), forest inspectors, resource officers, environment conservation officers, the police, military, or by private companies under government contract. They may undertake a variety of activities to encourage compliance, apprehend and/or sanction violators, and collaborate with the courts in prosecution. Enforcement procedures are discussed in detail in Chapter 10, including issues of contract compliance and the contracting out of enforcement services.

The judicial system includes appointed court officials such as judges, government lawyers, clerks, bailiffs, juries and associated staff involved in the prosecution of accused offenders, and the sentencing of those found guilty in *criminal law cases*, or the settling of claims in *civil law cases*.

The courts play two important roles. First, they decide on the constitutionality of new laws, acting as a check on legislative bodies. This constitutional role indirectly affects the

design and application of contracts by defining government responsibilities and authority to grant contracts. Second, the courts interpret laws and regulations by hearing specific cases and through their decisions establish precedents that define the limits of applicability of the laws and regulations. They also establish the level of deterrence and penalties by means of fines, prison terms and other sentences. The second role has a more direct effect on the design and use of contracts by establishing the effectiveness of contract penalty provisions as deterrents to breaches of contract.

An efficient and effective legal system depends on each of these components operating effectively and in coordination. Legislative bodies and government agencies when drafting laws, regulations, contracts and other legal instruments must be cognizant of the monitoring and enforcement procedures required, the conditions for successful prosecution of offenders, and the penalty provisions required to encourage compliance. Enforcement agencies must understand the intent of the laws, regulations and other instruments, and the desired behaviour intended. They will also need the skills and knowledge required for enforcement and, when necessary, *successful prosecution* (see Chapter 10). Similarly, the courts must understand the intent of the law for successful prosecution, the setting of fines and other penalties, and for prosecution to serve as a deterrent. Finally, the laws and regulations themselves must be unambiguous, comprehensive and clear if they are to provide the proper incentives for performance and contract compliance.

4.3 Legal framework

The various legal instruments that apply to forestry and conservation are categorized into six levels and discussed below, along with examples of each. In the sections that follow, each of the six levels is discussed in turn. The implications of each for the design of contractual arrangements, resource utilization contracts and procurement contracts are discussed.

4.3.1 International law, treaties, conventions and other agreements

The activities of countries are to a certain extent constrained by international law, by international bodies such as the World Trade Organization (WTO), and by international and

regional agreements among countries which function as laws. WTO, the successor to the General Agreement on Tariffs and Trade (GATT), is the legal and institutional foundation of the multilateral trading system among countries. It regulates international trade relations between countries, as well as influencing and constraining domestic investment policies and internal trade policies.

The Convention on Biological Diversity established at the 1992 Rio "Earth Summit", commits those signing countries to conserve biological diversity within their jurisdiction. Under this agreement, many countries are developing national strategies, plans and programmes for the conservation and sustainable use of biological diversity.

Other examples of international agreements include the International Tropical Timber Agreement (ITTA), and the Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES). Under the CITES agreement, for example, countries have had to develop policies to control and manage the harvesting of mahogany. Examples of regional agreements among countries include the treaty for Amazonian cooperation, the ASEAN agreement on the conservation of nature and natural resources, and the convention on the conservation of nature in the South Pacific.

4.3.2 The country's constitution

The constitution is the highest and most formal level of a country's legal system. The constitution prescribes the role of the different levels of government and their powers; central, regional and local governments, the relationships between them, and assigns responsibilities to each level. The constitution establishes and enumerates specific powers of the legislature, the executive and cabinet, and the judiciary.

The constitution establishes the basis for policies that directly or indirectly affect the management and use of forests on public lands. In Indonesia, *Pancasila*, the five philosophical principles of the 1945 Constitution, guide state policy and establish the basis for each five-year National Development Plan. In many countries, the constitution defines the ownership and legislative authority over natural resources, and therefore impacts directly on the design and application of resource utilization contracts. For instance, the Mexican Constitution states that, regardless of their

land tenure, all forests belong to the nation (Castilleja, 1993). Other countries have similar legislation. Therefore, it is important that the national constitution establish an enabling environment for the sustainable use and management of public forest lands (Schmithüsen, 1995).

4.3.3 Statutory law

Statutory laws include statutes passed by national legislatures and in federal countries by state or provincial legislatures, and ordinances or by-laws passed by local governments (cities, towns, municipalities, etc.). In many countries, local governments are created by the national state or provincial governments. As a result, their ordinances or by-laws have to conform to the legislation of the higher governments.

Statutory legislation can address the full range of issues relating to public forest land, including how government contractual arrangements can transfer resource rights to private parties. Statutory legislation also establishes the responsibilities of ministries, departments and governmental officials in management of public forests. It also establishes the basic fiscal and managerial arrangements for forest management and administration, criminal acts relating to public lands, taxation and incentive programmes. Forest legislation should clearly define the forest management and administration arrangements in integrated rural development, multiple-use forest management, community and village forestry, etc. (Schmithüsen, 1986).

4.3.3.1 Criminal law

Criminal laws deal with crimes against the state and against individuals. Criminal laws are often enacted by the federal/national parliament or legislature and contained in a criminal code. These laws are designed both to denounce and punish wrongful behaviour and to deter people from committing crimes or engaging in behaviour that presents a serious risk of harm to individuals, the public, public property or institutions. Forestry examples include illegal cutting of timber, non-payment of fees or royalties, illegal timber marking (considered theft) and setting incendiary fires (arson). Punishment for criminal offences is usually imprisonment, fines, or both.

Criminal codes contain many crimes, but they constitute only a small number of all

forestry offences. Most forestry offences are regulatory offences under legislation enacted by the national (federal) parliament, states or provinces and local governments. Regulatory offences in forestry include failure to comply with a management plan, environmentally damaging road construction or logging operations, cutting timber outside licence boundaries, transportation of timber without a permit, and non-compliance with health and safety regulations. The punishment for regulatory offences is usually a fine, but may, in some cases, include imprisonment. The accused is frequently a corporation, which may only be fined but not imprisoned. In criminal offences, senior executives may be held criminally responsible and imprisoned.

4.3.3.2 Contract law

A contract is an agreement between two or more legal entities (individuals, partnerships, corporations or organizations) to undertake or engage in a lawful activity. The agreement usually, but not necessarily, involves a financial transaction or payment for a monetary consideration or value. As mentioned in Chapter 2, there are two general types of contract employed by governments in the management and administration of public forest lands: **resource utilization contracts**, contracts for the outputs of public forests (timber and non-timber forest products and diverse services); and **procurement contracts**, contracts for the supply of goods and services for the management and administration of public forests. Resource utilization contracts exist within the general framework of the national legal system, and thus are subject to other acts and regulations (Schmithüsen, 1977). The same applies to the granting of procurement contracts for goods and services. In general, contract law applies to any "sale or purchase of goods", and thus would include, sales or purchases such as the sale of timber rights, logs, rights to non-timber forest products, ecotourism use rights in public forests, and carbon sequestering rights, the purchase of monitoring and inspection services, contracting for forest inventories, purchase of fire protection services, and the export and import of forest products.

4.3.3.3 Investment law

Investment laws govern both foreign and domestic investment. They provide benefits

and incentives for investment, or place restrictions and conditions on investments. Investment incentives may include such things as tax holidays, or tax reductions on income taxes or excise taxes, duty-free import of equipment and supplies, duty-free export of products, waiver of exchange control restrictions, ability to repatriate capital and profits, and guarantees against expropriation or nationalization. Restrictions and conditions on investments may include requirements to provide employment opportunities for the local population, requirements to provide training programmes, or requirements to provide local infrastructure such as roads, hospitals or clinics.

To implement investment programmes in the forestry or other sectors, the government must be able to evaluate the investment in terms of its effect on that sector and on the national economy, and to evaluate the potential response of the company.

4.3.3.4 Forest law

Forest laws govern the management and utilization of forest lands and forests. They stipulate methods of allocating rights to forest resources on public lands, general forest tenure provisions and the contractual arrangements for allocating forest rights. Forest laws govern forest fees and royalties for public timber and other forest products and services, the methods of payment, etc. They cover the silvicultural requirements for harvesting and reforestation, forest protection provisions, offences, penalties and appeal procedures. Like other legislation, forest law must be written in clear terms to ensure comprehension and facilitate compliance. Forest regulations spell out in detail the legal, administrative, technical and financial requirements for the various types of forest contract.

Forest legislation should incorporate the following elements:

- provisions that clearly define the categories and the nature of forest ownership, the rights and obligations of forest users;
- clear definitions of the responsibilities and authority of government agencies involved in the management and administration of public forest lands;
- sustainable forest management requirements for forest outputs, including timber and non-timber products, maintenance of forest cover, provision for forest and envi-

ronmental protection on forest lands, protection of biodiversity, and provision of recreational and other forest services (de Montalembert and Schmithüsen, 1993);

- arrangements to promote sustainable management of public forest lands, forest management and silvicultural procedures;
- public participation processes in decisions pertaining to management and utilization of public forest lands;
- establishment of mechanisms for monitoring and assessing forest management impacts and feedback mechanisms to foster sustainable management through new information.

4.3.3.5 Environmental law

Environmental laws are intended to promote ecological responsibility and sustainability in the use and management of the natural environment. Environmental legislation based on "command and control" of private sector activities and liability for damage to the environment is no longer sufficient. Environmental legislation, regulations and operational procedures need to also include performance incentives, economic instruments, prices and taxes.

4.3.3.6 Other legislation

The above list of the types of legislation is not exhaustive. There are other laws important to forestry, what de Montalembert and Schmithüsen (1993) referred to as "functional forest laws". These include a wide range of laws and regulations that have an indirect impact on forest conservation and development, and on the design and implementation of forest contracts. Such laws may include legislation in the areas of taxation, agriculture, water protection and management, parks and protected areas, rural development, land use planning, fisheries, range management and animal husbandry, and labour legislation.

4.3.4 Presidential and ministerial decrees

Presidential or Royal Decrees, as well as ministerial decrees, are directives from the head of government or cabinet ministers on how forests are to be managed and utilized. Such decrees carry the full force of law and are the key legal instruments of forestry policy in many countries. For example, in Indonesia many key components of forestry policy and legislation,

both on forest management and on forest concessions, are contained in presidential decrees and decrees of the Minister of Forests.

In Thailand, a Royal Decree was issued in 1992 suspending all logging concessions (Chaiyapechara, 1993, in FAO 1993). This suspension of logging was intended to preserve Thailand's forest from deforestation, but encouraged illegal logging in Thailand, and led to deforestation in the neighbouring countries of Laos, Cambodia and Myanmar and the smuggling of logs.

4.3.5 Forest regulations

Forest regulations provide the administrative means for implementation of the Forest Act. They provide the legislated administrative rules, procedures and requirements for administration and management of forests. Regulations have the full force of legislation. They prescribe how forest ministries operate and manage forests. They have a major impact on forestry policy. Regulations, like laws, define both incentives to encourage compliance with the regulations and penalties for non-performance to discourage actions that are counter-productive.

The initial set of regulations and major revisions may be passed by the legislature. Changes or amendments are normally approved and passed by Cabinet, or by the Minister of Forests. Writing or amending regulations is usually done by bureaucrats within the appropriate ministry with the assistance of the legal department. A clear separation of provisions between laws and regulations is important for effective forestry legislation, but it places special burdens on the drafting process (Cirelli, 1993). Generally, the law should set out the basic requirements to implement the established policy. The administrative rules for implementation of policy and forest management practices are likely to need frequent revisions, so procedures for revision should be included in the regulations or in ministerial orders.

4.3.6 Operative policies and procedures

Although not formal legal documents, operative policies and procedures manuals establish operational procedures for the day-to-day administration and management of public forests and forest contracts. Forest manage-

ment and silvicultural procedures and prescriptions are covered in forest management operative policies and procedures manuals. These elaborate on the forest regulations, but must be consistent with the regulations.

4.3.7 Forest contracts and management agreements

Resource utilization contracts and procurement contracts are important legal instruments that represent the means of assigning obligations and responsibilities between the government owner and the private sector. They may be used to delegate much of the development and management of public forest lands to private licensees and can have a significant effect on how forest management is carried out. Resource utilization contracts and procurement contracts are discussed in detail in Part III, and particularly in Chapters 6, 7 and 9.

In designing resource utilization contracts and procurement contracts, it is important that the contract and the specific provisions be consistent with pertinent laws and regulations. Ministries and other government agencies should develop standard contracts and resource utilization agreements. These should be developed by a team which includes legal experts and administrative and technical bureaucrats.

4.3.8 Contract enforcement and the legal system

Contract enforcement procedures involve legal instruments exercised by the forestry ministry and by the judiciary. Depending on the severity of the offence, ministerial or departmental staff may impose penalties in the form of fines for more minor offences. For serious offences, perpetrators are tried in courts. Issues related to enforcement are discussed in detail in Chapter 10, including factors that relate to the design and administration of forest contracts.

4.4 The relationship between forestry policy and legal instruments

A clearly articulated forestry policy is a prerequisite for development and promulgation of coherent legal instruments, whether they are statutory laws, regulations, presidential or ministerial decrees, resource utilization or procurement contracts, or other legal instruments. Implementation of new or revised forestry poli-

cy will undoubtedly require writing or revising one or more laws, regulations or other legal instruments.

Major review and revision of legislation and the legal policy instruments may be carried out by a specially appointed task force involving legal experts in relevant areas (international, constitutional, contract, commercial, natural resource and environmental law), policy experts, and senior officials from the forest ministry and, where appropriate, related ministries. For less significant and a more regular review and revision of legal instruments, this may be carried out by a team of legal, policy and administration experts within the forest ministry.

4.5 Chapter summary

- Legal instruments such as forest laws and regulations are important instruments of policy in the administration of public forests and contractual arrangements for their use and management.
- The six major components of the legal system in most countries are: (1) legislative bodies, (2) the Executive (President or Prime Minister and Cabinet), (3) ministries, departments and other government agencies, (4) enforcement agencies, (5) the judicial system, and (6) the legal instruments themselves (the laws, regulations, etc.).
- The legal framework consists of a hierarchy of international laws and agreements (treaties, conventions, international and regional agreements), the country's constitution, statutory law, criminal law, contract law, investment law, forest law, environmental law, presidential and ministerial decrees, forest regulations, policies and procedures, contracts and management agreements, and the legal enforcement procedures.
- International law and various international and regional agreements influence domestic forestry policy in areas such as trade, conservation, and biodiversity. Examples include WTO, ITTA and CITES.
- A country's constitution provides the legal framework for most other legislation.
- Statutory law includes statutes passed by federal, state and local governments. Primary forest legislation, such as the Forest Act and land tenure legislation, falls under this category.
- Criminal law may apply to more serious forestry infractions like illegal logging, non-payment of forest fees and royalties, and activities that are considered theft.
- Contract law applies to agreements between two or more parties (such as individuals, corporations or organizations). It also applies to forest utilization contracts and to goods and services procurement contracts.
- Investment law, which governs foreign and domestic investment, may have an important influence over forest sector investments.
- Forest laws are statutes that govern forest land use, forest management and utilization, silviculture, forest fees and royalties.
- Environmental law, intended to protect the environment and promote ecologically sound forest practices, can have an important influence over forestry activities.
- Presidential and ministerial decrees are important legal instruments of forest administration and management in a number of countries.
- Forest regulations are the administrative means for implementing legislation.
- Forest utilization contracts, forest management agreements and procurement contracts assign obligations and responsibilities between the government owner and the private sector and are influential in forest management. Forest management agreements delegate the development and management of public forest lands to private licensees.
- Monitoring and enforcement ensures compliance and is linked to regulation. "On-the-ground" monitoring and inspection is important to ensure compliance.

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5

The institutional framework for contract design and administration

What this chapter covers:

- New and different functions and capacities are required in public agencies to design, implement, administer, monitor and enforce contractual arrangements for forest utilization and for procurement of forestry goods and services.
- The chapter identifies the institutional functions required to design and implement these contractual arrangements and the organizational reforms required.
- Organizational structures and the organizational changes are identified for implementation of forest utilization contracts and for forest management and supervision services procurement contracts, or procurement contracts for other forestry goods and services.
- Changes are identified in staff and skills, administrative procedures, information systems, equipment and infrastructure, within forest agencies, along with changes required within other agencies.
- Nine steps in institutional analysis, design and reform are identified. Each is discussed in turn.

5.1 Overview

The focus of this chapter is on the institutional capacities and changes required in design of contractual arrangements for the utilization and management of public forests, and for the effective administration of forestry contracts. The chapter opens with a review of the administrative issues and institutional changes required to adapt to the changing role of government agencies and to increasing reliance on contracts in agency operations. Next, the chapter identifies the managerial capacities, structures, processes and procedures that are required in designing, granting and administering forest contracts. Following this, the chapter discusses the administrative changes and reforms required for the awarding and effective administration of contracts.

5.2 Issues in the strengthening of government forestry agencies

Evidence presented in Chapter 2 pointed to a worldwide trend in the increased use of contracts in the management and administration of public forest land. This shift in the way gov-

ernment forestry agencies operate requires the development of new organizational and operational capacities. Successful design and use of contracts depend on the ability of government agencies to adapt to new roles; as promoter of actions and as regulator responsible for equity and sustainability.

Historically, many countries have chosen public sector management, public institutions and government command and control as a means of providing public goods, remedying market failures, resolving environmental issues and influencing the distribution of income and wealth (Shirley and Nellis, 1991). The forest sector in particular has been heavily dependent on public sector management by public institutions (Ljungman, 1994).

Starting in the early 1980s conservative governments in the United States and the United Kingdom began what became a worldwide trend towards government down-sizing, reversing the policy of government production and privatizing many traditionally public sector functions. This included the increased use of contracts with the private sector. Primarily driven by struc-

tural adjustment programmes (SAP) of international lending institutions such as the World Bank and the International Monetary Fund (IMF), the trend spread to many developing countries in the mid-1980s, and to the agriculture and forestry sectors as well (Morell and Paveri, 1994). Forest concession contracts, which predated this trend, have been an instrument of forestry policy in many countries from the 1970s and even before. However, in very few cases have forest concessions achieved the objectives of sustainable forest management, economic efficiency or equity, primarily because of poor contract administration, monitoring and enforcement (Repetto and Gillis, 1988; Grut, Gray and Egli, 1991). To achieve success with forest contracts, governments must first strengthen their administrative capacities in the design, allocation, supervision and enforcement of forest contracts.

5.3 Institutional functions and capacities in the design and administration of contracts

First, we present a hierarchy of the core of functions government organizations should carry out in the design and administration of contracts. Next, we present a framework that may be used for the design of organizational reform and/or new organizations.

To be successful in design, implementation and administration of both forest utilization contracts and procurement for forest management services or other forestry services, government agencies must have ability and capacity in the following areas:

- strategic planning and policy analysis;
- forest legislation, the means of implementing the Forest Act, detailed knowledge of contract law and of other legislation in the use of public property;
- formulation and enforcement of forest regulations;
- the design of streamlined and effective administrative procedures;
- financial analysis for assessing the values and benefits involved in forest contracts, for establishing and evaluating contract terms and conditions, and for analysis and evaluation of contract bids;
- experience in the design and writing of forest contracts to avoid misunderstandings and conflicts and encourage compliance;
- the design and implementation of competitive bidding procedures, and the capacity to

- carry out the competitive bidding process;
- contract negotiation abilities;
- monitoring and control capacity, including capacity for on-the-ground monitoring of forest operations;
- enforcement capabilities.

To develop the capability to carry out these functions effectively requires the development of new capacities, the strengthening of existing capacities in certain areas, and changes in the structure and operational procedures of the government forest agencies involved.

The next section surveys the range of functions involved in the management of forests, how they are carried out, and by whom, whether by the forest agency or under contract. Subsequent sections discuss options for carrying out the institutional changes, and the reallocation of functions required in administering forest contracts.

5.4 Operational functions in management of public forests

The operational functions involved in the management of public forests, their development and conservation, obviously vary among countries. However, it is possible to identify core operational functions that will be applicable in most countries. These key operational functions are described in Table 5.1. Many of these functions will also be involved in the design and administration of contracts, although their implementation may be different.

These core functions associated with the management, utilization and conservation of public forests can be assigned to one or more organizations or groups in any administrative structure (Ross, 1988). **Funders** finance or bear the cost of the other three core functions. **Producers** employ the funds for production of the good or service. **Users** utilize or consume and pay for the forest outputs, products or services. Finally, **controllers** ensure that those assigned the three other functions perform as required and meet their obligations.

Forest contracts alter these **funder, producer, user** and **controller** relationships. Forest utilization and procurement contracts alter who are the **producers** of forest outputs, forestry inputs or services. Forest management contracts contract out **producer** activities such as forest inventory, forest management planning, silviculture, reforestation, fire protection,

Table 5.1: Operational functions in the management, utilization and conservation of forests on public lands

Function	Description
Strategic planning	There are a variety of planning requirements associated with resource development and conservation which occur at different levels and are done for different reasons. In this case we refer to planning done at the higher levels, including, primarily, land use classification and allocation, economic forecasting, long-term planning, etc.
Infrastructure development	Planning, design, construction and maintenance of infrastructure works including transportation systems (roads, bridges, waterways, airstrips) communications, energy, etc.
Resource use	Planning and execution of operations associated with consumptive (e.g. timber harvesting) and non-consumptive (e.g. campground management) use of forest resources.
Resource tending	Planning and execution of operations associated with the cultivation or maintenance of forest resources.
Manufacturing	Planning and execution of operations associated with the processing of forest resources into saleable products (logs, lumber, oils, dyes, fruits, nuts, etc.).
Marketing	Development and servicing of markets for timber and non-timber forest products and services.
Protection	Planning and executing activities required for the protection of forest resources from both biotic and abiotic forces, principally fire and pests.
Research	Basic and applied research associated with any other function.
Enforcement	Planning and execution of operations associated with enforcing the laws and regulations applicable to resource development and conservation specified in any and all legal documents including auditing both office and field operations, filing citations and conducting legal proceedings.
Revenue assessment and revenue collection	Determining forest fees, assessing parties with payments due and collecting the amounts due.

etc. Forest monitoring and supervision contracts may contract out **controller** functions such as log measurement, on-the-ground logging inspections, regeneration and silvicultural inspections, environmental monitoring, forest auditing, or forest certification.

5.5 Organizational structures and organizational design

There is abundant literature on the theory and practice of institutional analysis, organizational structures and organizational design. Readers may consult the references at the end of the

chapter for further discussion. Here we review three important organizational issues, organizational design, organizational reform and decentralization.

Organizations typically have three primary structural components that Mintzberg (1979) refers to as **administrative**, **operating core** and **support** components. The administrative component is divided further into three sub-components, or levels: **strategic apex**, **middle line**, and **technostructure**. When analyzing or reforming a particular organization, it is useful to group functional units of the organization into these major categories, and then review the details of their activities.

The **strategic apex** of the **administrative component** comprises the executive of the organization, the supporting staff and advisory boards or executive committees. These personnel have overall responsibility for achievement of the mission and corresponding objectives of the organization. The **strategic apex** establishes policy and direction for the organization, provides supervision of internal operations directly or indirectly through intermediaries in the **middle line**, and manages relationships with the outside environment. Their policy decisions are communicated downward and laterally in the organization through lines of authority, and are put into practice by the **middle line** and the **operating core**. The **middle line** in the administrative component comprises so-called middle management personnel who provide the link between the strategic apex and the operating core. These staff have line authority over staff in the **operating core** and engage in direct supervision of their work. The **technostructure** consists primarily of analysts and support services which influence the work of others in the organization principally by investigating and developing means of improving effectiveness.

The **operating core** component of organizations comprises all departments and sections that put policy into practice through production of outputs or through delivery of services. Public organizations involved in management and conservation of public forest lands produce forest outputs (timber and non-timber), enforce contracts, provide information and engage in planning.

Finally, the **support** component of organizations includes departments or sections that do not engage directly in the production of

outputs or delivery of services to clients outside the organization. Instead, this component includes staff devoted to supporting the activities of both **administration** and **line** staff. They provide necessary internal services such as legal, financial, accounting, personnel, purchasing and research.

5.5.1 Decentralization

An important concept in institutional analysis and organizational design of public forestry is "decentralization". This popular term, often misused and poorly understood, is commonly proposed as a remedy for fundamental problems in the public sector. There are two aspects of decentralization, both relevant in the design of forestry organizations: geographic decentralization, and decentralization of decision-making. Organizations may be decentralized geographically by having offices and staff located in numerous and distant areas. The management of forest lands and forest resources are, by nature, geographically dispersed activities. However, although an organization may be geographically decentralized, decision-making need not be.

Decentralization of decision-making refers to the autonomy that departments, sections and individual staff have, particularly in the **line** operations of the organization, in making and implementing decisions (Mintzberg, 1979). In organizations with centralized decision-making, decisions are made and/or approved at relatively high levels. Public agencies in forestry are notorious for being highly centralized, while being geographically decentralized. Forest agencies are often characterized by overly complex, extremely time-consuming, administrative procedures that require the approval of multiple levels within the bureaucracy.

Decentralization of decision-making within organizations has both advantages and disadvantages. Highly centralized designs can enhance coordination and consistency within organizations, but they compromise flexibility and the involvement of departments, sections and staff. In larger organizations engaged in regulatory activities or in the "controlling" functions described above, centralization maintains consistency. However, centralized decision-making may discourage productivity, and the flow of paperwork and approvals of decisions can become extremely slow.

The principal advantages to organizations

with decentralized decision-making are the development of ownership in the decisions and products or services provided by the local staff. This can serve to motivate and foster innovation, and enable more appropriate response to local conditions (Mintzberg, 1979). Decentralized decision-making also facilitates the timely processing of paperwork and approvals which improves productivity. The major disadvantage of decentralization is the difficulty in maintaining coordination and consistency among units.

The size and breadth of individual organizations affects the possibility and the need to consider decentralization. Small organizations with limited product lines or service functions have little need to decentralize. Coordination and consistency of centralized decision-making becomes a distinct advantage. Large, complex organizations can reap substantial benefits from a decentralized model for the reasons discussed above.

5.5.2 Changes in staff and skills requirements

Important consequences of the greater use of contracts, increased contracting out and privatization are the changes in the staff and skill requirements of the government agencies. This is particularly so in forestry. In New Zealand, following the sale of plantation forests to the private sector, and the shift of protection forests to the Department of Conservation, problems arose with the qualifications and skills of the remaining workers in the public sector (Brown and Valentine, 1994). The significant needs for training and retraining had not been anticipated.

Moe (1996) and Halachmi (1995) have identified key staffing issues involved in the increasing use of contracts, contracting out and privatization. Public management shifts from direct production of public goods or services to supervision and control of the complex, and often subtle third-party relationships with contractors or private sector producers. The public agency's workload changes, requiring different skills of government staff. Government agencies formerly in charge of delivery of the service become responsible for writing, negotiating, enforcing and renegotiating contracts or agreements. This requires quite different skills and training than those that were needed in delivery of the service. The incentive system for

employees will change from an output- or delivery-based system to a process-based incentive system, with incentives now based on the sector's performance. Finally, governments may face difficulties attracting the qualified technical staff required for management of contracts (negotiation, supervision, evaluation, control and enforcement). These new duties are primarily administrative as opposed to "hands-on" direct delivery of public goods and services. It is therefore important that governments carry out a careful planning of the organizational reforms and staffing changes prior to introducing contracting out or privatization.

5.5.3 Changes in administrative procedures and information systems

Contracting out requires changes in administrative procedures and information systems, as well as changes in functions and staff. Both new and revised operational procedures and manuals are needed to describe the new protocols and decision-making responsibilities, and the detailed procedures each staff member must follow. The development of operations manuals follows logically from the development of detailed job descriptions for individual staff positions. Under contracting out, the new responsibilities of staff will involve primarily the evaluation of the contractor's operations and performance. This requires a shift in procedures to auditing, accounting and ensuring contract compliance. New information systems will be required that focus on contract performance.

Even activities such as monitoring of compliance in forest resource utilization contracts may be contracted out. In that case, it will then be necessary to audit the performance of the monitoring organization.

5.5.4 Equipment and infrastructure

Increased use of contracts in the management and administration of public forest lands will result in substantial changes in equipment and infrastructure requirements. Contracting arrangements will require different equipment for contract design and negotiation, and particularly for monitoring and supervision of contract performance and office equipment such as computers and software, as well as surveillance equipment, vehicles, boats, aircraft, remote sensing, etc.

Government agencies, formerly engaged in the production of goods or services will experi-

ence reductions in the need for heavy equipment and production equipment, such as logging equipment, road construction equipment, or sawmill equipment and associated buildings maintenance shops and other infrastructure.

5.5.5 Changes in institutions outside the forestry sector

Contracting arrangements within the forestry sector will also require changes in other government departments and agencies. Chapter 3 stressed the importance of considering the cross-sectoral linkages among departments in the design of new institutional structures and in institutional reforms.

Contracting out and/or privatization of forestry activities will require legal advice and guidance from the government's central legal department, assistance in drafting and interpreting legislation and regulations, and support in contract design and writing contract terms. This may require additional legal capacity to be able to proceed without delays.

Monitoring and supervision of contracts will require coordination with other resource departments such as petroleum, mining, fisheries and environment, both to benefit from their experience in monitoring and supervision and to achieve coordination and consistency in monitoring and enforcement. Enforcement may also require coordination with the central legal department to increase capacity for legal action against contract violations and in prosecution.

5.6 Steps in institutional analysis, design and reform

The process for institutional assessment and reform of forestry organizations, or for the design of new organizations, may be divided into nine steps. The process applies equally to the analysis and reform of existing organizations or to the design of new ones. The nine steps are:

1. Review the organization's mission. Set mid- and long-term goals.
2. Review the organization's role within the government's institutional structure.
3. Identify the tasks within the organization and define staff positions.
4. Create the structure for the organization.
5. Design linkages, communications and information flows within the organization.
6. Design the decision-making system.

7. Assess equipment and infrastructure requirements.
8. Estimate budgets.
9. Develop an implementation plan.

5.6.1 Review the organization's mission

The first step in the design process is to review and redefine the organization's mission. The mission statement is an important starting point in organizational reform or design. It identifies, in the broadest sense, the purpose and boundaries of operation of the organization, and its overall direction. Morell and Paveri (1994) observed that the absence of a clear mission statement in public sector forestry organizations was one of the principal reasons for poor performance. The mission statement itself may begin with a general statement about the purpose and objectives of the organization, followed by statements identifying the organization's operational and core functions. Following this the organization may establish mid- and long-term goals along with a timetable for their achievement.

5.6.2 Review the organization's role within the institutional structure

Once the mission has been defined, the next step is to review the organization's role within the government's overall institutional structure. This entails specifying the relationships with other organizations in the institutional structure. The financial aspects of these relationships should be defined, as well as the authority structure, reporting requirements, decision-making powers and any shared human and physical resources. The purpose is to identify any conflicts in mission, policy objectives, functions or programmes among other organizations.

5.6.3 Identify tasks within the organization and define staff positions

The third step is the design of tasks within the organization and the identification of tasks and individual staff positions. This entails defining specifically all of the tasks associated with successful performance of the operational functions, and deciding how these should be grouped into positions. Issues that must be addressed at this stage are horizontal and vertical job specialization. The former refers to how broad in scope each position will be, that is, how many different tasks will be the responsi-

bility of a single position. The latter corresponds to the degree of autonomy or control incumbents exercise in the performance of the job.

Once the full range of tasks and positions has been defined, the next step is the formalization of each job through the development of job specifications. This is accomplished by writing job descriptions. Included in each position description should be a statement of the qualifications and the training required, or the training needed to prepare incumbents for the job.

5.6.4 Create the structure for the organization

After tasks have been defined and job descriptions created for each position, the next step is to develop the structure for the organization. This is done by grouping the various positions into units (departments or sections) and deciding how large each unit should be. This process establishes the structural hierarchy of the organization and the system of formal authority within it (Mintzberg, 1979). The process is aided by the development of an organizational chart, which diagrams the structure of individual units and shows their relationships to each other.

Grouping of units is done for a number of reasons (Mintzberg, 1979). Grouping units creates a system of shared supervision among units and positions and identifies lines of authority. Therefore, units included in a given group which share resources and groupings become planning units for budget, equipment and other facilities. Finally, groupings normally permit the establishment of common measures of performance.

The size of groupings is an important design parameter because it dictates the shape of the organization and the components. Organizations may be either tall, with long chains of authority and generally small groups, or flat, with relatively few levels and larger unit groupings.

Determining the size of units depends on knowledge of staffing requirements by job type. Given the scale of operations, or the planned production, capacity estimates of the number of positions in each job type must be made. This requires completing a task analysis for each job, in which the time required per day, week, month and year for each job duty is estimated. This information will permit estimating the "productivity" of each employee that may then be compared to the total planned production for the unit to determine the num-

ber of workers required. In this manner, staffing totals may be generated for each unit in all components of the organization. These data are needed both to determine budgets and to assess manpower and training needs.

5.6.5 Design linkages, communications and information flows within the organization

Lateral linkages refer to the design of information flow mechanisms laterally within organizations as opposed to vertically in the hierarchy of authority. This means defining the relationship or communication mechanisms between various groups within the organization. Mintzberg (1979) defines two major classes of lateral linkages: planning and control systems, and liaison systems. Planning systems include activities such as strategic planning and capital budgeting by staff within the strategic apex and higher levels of the middle line, and production scheduling in the operating core. Control systems involve objectives or goals, budgets and work standards that apply at all levels of the organization. Liaison systems involve standing committees with members from units at the same level, and individuals with responsibility for ensuring communication among units within a given level.

5.6.6 Design the decision-making system

Mintzberg (1979) defined five steps in the decision-making process:

1. Collecting information.
2. Processing the information to give advice.
3. Making a choice.
4. Authorizing the choice.
5. Executing the decision.

The distribution of control over these five components of decision-making will be determined by the type and degree of decentralization. Two dimensions of decentralization: (a) geographic, and (b) structural decentralization of decision-making, were discussed above. Decision power may also be decentralized vertically and/or horizontally. Vertical decentralization refers to the distribution of power over the five components of decision-making down the chain of authority within the organization; in other words, how power is allocated among the various levels (strategic apex, middle line, operating core). Horizontal decentralization

describes how decision-making powers are distributed laterally within a single level of the organization.

There are advantages and disadvantages in the different kinds of decentralization in different types of organization. Those involved in design or reform of organizations will have to find the best model for the specific organization, its situation and its tasks. Designers and managers of organizations must be prepared to evaluate different models for decentralization of decision-making in searching for the best options or combination.

5.6.7 Assess equipment and infrastructure requirements

Once the tasks have been determined for all units, and staffing requirements established for all positions within the organization, the next step is to assess equipment and infrastructure needs. Equipment and infrastructure needs should evolve directly from the tasks and job descriptions and from knowledge of the production processes or services to be delivered. Lists of equipment by number and type should be drawn up by units and departments based on their specific needs. These data are needed to generate capital and operating budgets, and in the development of a procurement plan.

5.6.8 Establish budgets

This is a very important step. It determines overall costs for the organization's activities, and determines the funding requirements for the organization or the revenues that will be required to finance the operations. The long-term sustainability of the organization depends on a steady source of adequate funding. If budgets are excessive compared to sources of revenue, maintaining performance or production at the planned capacity and desired quality will not be sustainable. Public institutions that are dependent on tax revenues from the national budget are vulnerable to revenue shortfalls and budget cutbacks, especially in a climate of government down-sizing.

Budgets should be developed by units, sections or departments, and based on the staffing, equipment and infrastructure needs. Standard accounting procedures should be applied for estimating both capital and annual operating costs. Realistic assumptions concerning capital replacement needs, particularly for

items such as vehicles, boats and field equipment, must be applied, preferably based on historic data.

With respect to labour costs, in order to attract and retain well-qualified personnel, as well as to expect and reward performance, it is important to pay competitive salaries and wages whether in the public or private sector. Klitgaard (1995) mentioned inadequate salaries in the public sector of Ghana as a severe problem and a cause of poor performance by government agencies.

Once unit budgets are available, they may be aggregated to estimate the total budget for the organization. For new organizations or programmes, financial requirements may be expected to be higher in early years because of initial capital expenditures for equipment and infrastructure, training and other start-up costs. Care must be taken to plan for the effects of inflation in all budget items, and real increases in labour costs must be planned for, again to promote retention of qualified staff.

Total annual budgets for the organization must be compared to revenue sources to ensure that adequate funding exists. If costs exceed revenue, the organization must be redesigned to reduce costs, additional sources of revenue found, or some combination of the two.

5.6.9 Developing an implementation plan

The final step in institutional design or reform is the development of a plan for implementation. This step applies both to the design of new organizations and to the reform of existing ones. A phased implementation plan is recommended, with implementation planned in a series of sequential steps and tasks. Development of the implementation plan starts by decomposing the implementation process into separate tasks, and then scheduling these in a logical sequence with time lines for each task. Project management and project management software programmes can assist in the development of the implementation plan.

In the case of organizational reform, it is best to begin with simple changes in which support appears to be the greatest, so as to demonstrate early successes which will carry over to other units.

5.7 Chapter summary

- Changes in the administrative functions, structure and capacities are required of public forest agencies to design, implement, manage and enforce contractual arrangements for forest utilization contracts, and for procurement contracts for provision of forest management and other forest services.
- The institutional functions and capacities required for contractual arrangements include: new or increased capacities in financial analysis, design and writing of contracts, design and implementation of bidding procedures, negotiating abilities, monitoring and control, and enforcement capabilities.
- Contracting forest utilization and forest services activities results in changes in the core relationships of the four main parties involved: the *funders, producers, users* and *controllers* of forestry activities.
- Decentralization issues were discussed, as they are important in structuring forest agencies. Decentralization geographically and decentralization of decision-making were distinguished.
- A nine-step institutional analysis, design and reform process was identified and each step described. The first step, a review of the organization's mission, and the setting of mid- and long-term goals, establishes the purpose of the organization, and is an important first step.
- Other steps include: a review of the organization's role within the government structure; identification of tasks within the organization, defining staff positions; creating the structure of the organization; designing linkages, communications and information flows; designing the decision-making system; assessing the equipment and infrastructure requirements; estimating budgets; and, finally, developing the implementation plan.

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PART III

Administration of concessions and forest contracts

6

Types of forest contract, property rights, tenure and use rights

What this chapter covers:

- The role and significance of property rights. Their importance in the administration of forest contracts.
- Important dimensions of property rights – exclusiveness, duration, comprehensiveness, the rights to economic benefits and obligations, and transferability.
- Basic forms of contractual arrangements for forest utilization contracts: – leases, licences, and permits – the characteristics and advantages of each, and potential variations in contract terms and conditions.
- The flexibility of the different forms of contract, the diversity of contract conditions that may be included in forest contracts.
- The importance of clear and complete contract conditions.

6.1 Introduction

Forestry contractual arrangements are highly flexible. They can be designed and written to convey a diverse array of property and use rights, as well as obligations. The contract terms provide the opportunity to both design property rights and to circumscribe or constrain the rights granted. The types of property rights and contract constraints on rights are the subject of the current chapter.

Forest utilization contracts can provide a range of rights to timber, non-timber forest products, harvesting or use rights (for hunting, collecting, etc.) or use rights to other forest uses (water rights, ecotourism leases, etc.). Procurement contracts include obligations by the contractor to provide goods and services for public forests, for services such as forest inventory, road construction or maintenance, forest protection, log measurement, forest monitoring, forest auditing, etc. Both types of contract may be combined in a single contract that includes both rights and obligations. Forest management concessions, for example, combine forest utilization and goods and services procurement contracts. They provide rights to timber, but require the concessionaire to undertake a variety of forest management activities.

This chapter first reviews key characteristics and dimensions of property and use rights. The chapter then surveys some major types of contract.

6.2 The meaning of property and use rights

Property refers not to objects, but to the rights the owner of these rights has in relation to the rights of others. Property is established in a society and is often expressed in laws or customs that define the conditions under which the owner has these rights. Property therefore represents a bundle of rights. The bundle may be big or small, and may contain a variety of different rights. Forest contracts convey property rights to forest outputs or forest uses. Contracts may be written to provide a wide range and variety of rights, and may be very flexible in terms of the bundle of rights included.

The nature and extent of property rights establishes the power over a resource that the owner of the rights (a company, individual, community, or government) may exercise, but also limits or constrains these rights. A clear understanding of this concept and recognition of the limits to property rights is important for three reasons. First, even the government does

not have absolute unconstrained property rights over a resource. The government's rights and powers are limited by the constitution, by statutes, by civil and common law, and by customary laws of the country. If the government is not clear in its understanding of the extent of its own property rights it can end up granting property rights to others over which it does not have the authority. The second reason is that, in deciding what to contract and in designing contracts, a clear understanding of the dimensions of property rights is important to the successful design and implementation of forest contracts. Third, a lack of understanding of property rights can be an important source of conflict between the government and contractors and between contractors and third parties.

There are several essential dimensions to property rights: **exclusiveness** - the scope and breadth of the holder's interests or obligations; **duration** - how long the holder's interests or obligations will last; **comprehensiveness** - the nature and breadth of the benefits or obligations to which the holder is entitled; **rights to economic benefits and obligations** - the extent to which the economic benefits or obligations are circumscribed or restricted (by laws and regulations); and **transferability** - the owner's freedom to transfer those rights or obligations to others. These dimensions of property rights are described below. They are important to the successful design and implementation of forest contracts.

6.2.1 Exclusiveness

Exclusiveness refers to the extent to which the holder of the property may claim and secure sole use rights to the property, to the exclusion of others. The feasibility and power to exclude others ("third parties") is a key dimension of property rights. It has important economic implications. Exclusiveness allows the holder of the resource rights to control access and therefore to charge for use of the resource, and to sell or market the products or services. Exclusiveness therefore allows market valuation and pricing of resources. Most forms of property rights in timber - timber leases, timber concessions and licences - convey exclusive rights to the timber to a single person or company. The holders of these rights do not have to be concerned about other users competing for the same resources, or interfering with their operations. However, these exclusive

rights to the timber do not usually extend to other forest products or other forest land uses, such as rights to non-timber forest products, hunting or gathering rights, rights to the land itself, or rights of access for these other uses.

The degree of exclusiveness can vary across a spectrum. At one extreme, traditional freehold tenure usually provides the owner with a strong legal right to protect his or her interests against any intrusion by others. At the other extreme, with open access resources everyone has a right to use the resource, and no one has any right to exclude anyone else. Open access fisheries, open grazing lands, and woodlands open to fuelwood gathering are examples of open access resources.

Common property ownership refers to situations in which two or more people hold rights to the same resources. Often in common property ownership, the property rights are owned by the community, which collectively manages the resource, and allocates harvesting rights among its members. In many countries, aboriginal lands and resources are held by tribal groups under traditional and customary forms of ownership in which rights are shared by members of those groups under community established rules and traditions. In other cases, each common-property user is entitled to take a specific quantity or a share of the resource. Examples include certain types of water rights, grazing rights, and fishing rights that entitle their holders to specific quantities of the resource which is used in common with others. Timber harvesting rights can sometimes take this form, where several users are authorized to harvest volume quotas of timber in a public forest, or a share of the annual allowable cut, without exclusive rights to any defined tract.

Exclusiveness of rights is an important factor to consider in the design of contracts. The exclusiveness of users' rights can have a profound influence on the way contract owners use and manage resources. If users compete for the same resources, each is likely to exploit it inefficiently. In their effort to protect their own share or to increase their share at the expense of others, they will tend to exploit the resources too rapidly. No one will have an incentive to conserve reserves for the future, or to invest in future growth and yields, because they cannot expect to capture the benefits of their efforts. Such distortions in resource use are conspicuous in many open access fisheries and grazing lands,

and in many open access forest resources around the world exploited for fuelwood and charcoal production. However, contract conditions can often be written to create exclusive rights that will encourage efficient use of the resource and its sustainable management.

6.2.2 Duration

The duration of the rights, the length of time over which the rights extend, also has an important impact on the resource users' behaviour. Private freehold ownership of land conveys rights in perpetuity. Leases and licences normally have a shorter, finite term. The duration of property rights is important because it determines the extent to which the holder will take account of the future impact of his/her actions. If the rights over a forest extend for a long period, the holder will consider the relative economic advantage of harvesting now or in the future, as well as investment in silviculture and forest management that yields benefits over many years. But if their rights will expire after a brief period, they will disregard future benefits that they may not capture.

For plantation forestry, because forest growth and silviculture yield returns over a longer time, the duration of rights over forest land is especially important. Unless their rights extend over the full period needed to grow forest crops, those who harvest timber will lack adequate incentives for planting, reforestation and forest enhancement.

However, long-term tenure does not guarantee sustainable forestry. For uneven aged natural forests and tropical natural forests, long-tenure may not be sufficient to ensure sustainable forestry. Instead long-term secure tenure may encourage rapid depletion of the forest (Gray, 1997). Because such forests grow slowly, private investors will be more inclined to mine the forest and reinvest the profits elsewhere at higher returns. For tropical natural forests and other slow-growing forests managed under uneven-aged silviculture, shorter term tenures, renewable upon demonstration of sustainable forestry practices, may provide better incentives for forest management (Gray, 1997; Boscolo and Vincent, 1998).

6.2.3 Comprehensiveness

Comprehensiveness covers the extent that property rights give to the holders rights to the full range of benefits from the forest. For

example, when someone holds a tract of forest land under private freehold ownership, they will usually have rights to the full range of values generated by the use of the land for timber, agriculture, recreation, water, minerals, and so on. If their rights are in the form of a licence to cut timber, however, they are usually restricted to the benefits of timber harvesting alone. Each form of conveying property rights (contract) provides a particular degree of comprehensiveness, somewhere on the spectrum ranging from all the attributes of the forest to only specific and narrowly defined rights.

The extent of property rights has important implications for the way contract holders will utilize and manage a forest. When contract holders have full and comprehensive rights to the forest, they will manage it to generate the most financial values to themselves, balancing returns from one forest output against another, balancing returns from timber against the other marketable outputs such as fuelwood and other non-timber forest outputs, water rights, etc., which they can sell. They will still ignore public, collective and non-market forest outputs, which do not yield financial returns to them, even though these outputs may be highly valuable to society.

Conflicting interests can easily arise if the system of contractual arrangements allocates duplicate or overlapping rights to the same resources. When all these rights are held by one party, conflicts will not arise. The holder can choose the most financially advantageous balance of uses. When rights to different forest resources and forest uses are held by different parties, conflicting users can be reconciled if the values are marketable and can be traded freely. For example, if the holder of water rights is threatened by the interests of the holder of timber rights, and the threatened water value exceeds the benefits of logging, the holder of the water rights could buy out the timber rights, to the advantage of both and to society as a whole. As a result, the forest will be put to its highest value use. However, where some forest values are not priced, cannot be traded, or are not well defined, beneficial transfers will not be possible. In that case, conflicts will remain and governmental intervention and regulation will be required to resolve the conflicts.

Jurisdictional problems between governments can sometimes also cause problems. For

example, if provincial, state or local governments have authority over timber, and the federal government has authority over fish or wildlife habitat, serious conflicts can arise, compounding the confusion over resource rights.

6.2.4 Right to economic benefits

The extent to which the holder of forest rights is able to realize the economic benefits of these rights is another important dimension of property rights. Forest rights are often constrained by forest regulations, or other government regulations, which will influence how the forest is harvested, utilized or managed. Regulations that affect the benefits from forest contracts include restrictions on the rate at which timber may be harvested, utilization rules that require the recovery of uneconomic logs, measures to protect environmental values, log export bans, domestic processing requirements, etc.

6.2.5 Transferability

The transferability of property and use rights refers to the ability to transfer, sell or assign the rights to someone else. Transfers of forest contracts and use rights are often restricted. For example, the terms of temporary licences and forest concessions often restrict the licensees or concessionaires from transferring their rights to someone else, or require them to obtain government consent. Governments may use these controls to prevent undue concentration of holdings, or to prevent local or foreign monopolization of resource rights.

If forest rights are totally non-transferable, they will have no market value. Only the holders of the rights may benefit from them, and then only by using the rights themselves. Therefore, restrictions on the transfer of resource rights may impede the efficient use of resources. Those who can use the resources more efficiently or in more valuable uses will not be able to acquire the rights from less efficient users.

Divisibility of resource rights is a related efficiency issue. To take advantage of economies of scale, changing economic circumstances and opportunities, resource users must be able to adjust the size of their holdings of resource rights. Governments often prohibit the subdivision of resource rights such as forest leases and licences. They may require maximum and minimum size leases or licences. Although there are

many sound forest management or administrative reasons for this, these restrictions can nevertheless inhibit the efficient division or amalgamation of forest contracts.

6.2.6 Quality and security of title

A final and important characteristic of property rights is the quality of title and security of the rights, and the ability of the holders of the rights to ensure their rights are respected and protected from encroachment by others. The security of property rights is important because it affects behaviour. Insecurity of rights discourages sustainable management and conservation of forest and long-term investments.

The security of property depends on the legal form of the property rights, and on the government's institutional and legal framework. Different forms of property rights provide holders with various levels of security of those rights. Freehold property owners usually have a strong legal basis for security and the means of deterring others from interfering with their rights. Those holding rights in the form of forest licences and leases issued by governments often have lesser protection. They have security of their rights with respect to the government that issued the licence or lease, but not with respect to third parties.

Another source of interference could be the government itself in legislating changes to conditions, expropriation, changing regulations, introducing or changing taxes or tax rates. Some countries protect property rights and governments provide compensation for encroachment, but many countries provide no protection.

6.2.7 Implications and summary of property rights

The six characteristics of property rights have important implications for the way that resources are treated by those who hold the rights. Exclusiveness, duration and rights to the economic benefits obviously strongly influence the holder's incentives to conserve and manage the resources over time, and to invest in their continuing production and enhancement. Comprehensiveness influences the users' taking into account the impact of their actions on other resource values, and to search for the most valuable combination of uses. Transferability enables resources to be reallocated to those uses and users that can make

the best use of them. Holders of property rights are influenced by the quality and security of their rights, which depend on the above characteristics, as well as the legal form that the rights take.

Because these dimensions of users' property rights affect the way that forest resources are used, they also affect the value of those forest resources. Two factors affect the value of property rights to forest resources. One is the inherent physical and economic properties of the resources or goods over which the property rights extend. The other is the extent to which the property rights enable the holder to realize these values. Property rights to valuable resources will be worth little if the rights themselves are *highly restricted or truncated*. If the rights extend for only a short period, if the holder is restricted from selling the rights, or if the holder's rights allow others to share in the resource, the value of the property rights will be correspondingly lower.

Users of forest resources often hold only **usufructuary** rights, rights to use resources belonging to someone else, usually the state. Examples of **usufructuary** rights include forest concessions, leases, licences and permits issued to private users for the use of public forests. These rights normally have limited duration, are limited in rights to a specific resource or use, and are transferable only under certain conditions. These licences and permits usually do not provide exclusive use rights to other resources such as non-timber forest products, water, etc. Often they are short-term, grazing leases, hunting and fishing rights, with terms as short as one season. Many are non-transferable, and most require payments to the government.

These six characteristics of property rights (exclusivity, duration, comprehensiveness, transferability, rights to economic benefits, and quality and security of title) are not the only characteristics of property rights. They represent six important aspects of property rights to consider in the design of forest contracts. These characteristics of property rights may be combined and packaged in resource utilization contracts to yield a diverse range of contract forms. However, a few standard contract forms have developed. These are described in the next section, along with some general comments on the various forms of goods and services contract.

6.3 Common forms of contractual arrangements

The two major types of contractual arrangements used by governments in the management and administration of public forest lands – resource utilization contracts and procurement contracts for goods and services – serve very different purposes. The main focus in this chapter is on property rights and how they are embodied in resource utilization contracts. Procurement contracts for goods and services, which also play an important role in how governments execute their responsibilities and manage forests, are discussed briefly. They are covered in more detail in subsequent chapters.

6.3.1 Resource utilization contracts

The major forms of resource utilization contract and their characteristics are summarized in Table 6.1 in terms of the six dimensions of property rights discussed above. They are listed in declining order of their completeness of the property rights. The first one, freehold property rights, is included for comparison.

Contractual arrangements may be designed to fit a variety of conditions. The other three types of resource utilization contract in Table 6.1 represent the main basic types of contract. They illustrate the range of contracts that are possible. Many variations of each type of contract are possible by variation of the contract clauses included, and by variations in the wording and conditions included in those clauses. Because of this diversity in potential contract conditions, the commonly used names of these contracts in Table 6.1 are not always used consistently. The distinctions between contract types are often blurred as a result of variations in contract conditions, exclusivity, duration, etc. For example, the term "concession" is used for a variety of forms of contract, and even used sometimes to describe an outright grant of land. However, as used here, and most commonly, "concession" refers to contracts granting usufructuary rights on public lands (where public land is synonymous with government, state, or Crown land).

6.3.2 Forest leases

Traditionally **leases** or leasehold contracts convey to the lessee many of the rights of the freehold owner, the distinction being that they are conveyed for only a fixed term. However, leases today commonly incorporate a variety of

Table 6.1: Major types of resource utilization contract

Type of contractual arrangement	Exclusivity	Duration	Comprehensiveness	Transferability	Right to economic benefits	Quality of title
Freehold or fee simple	Completely exclusive	Completely unlimited	Traditionally complete, but truncated by legislation	Complete	Complete, except for taxes, and regulatory controls	High
Lease or concession	Exclusive	Limited term (usually long-term)	Varies	Some-times restricted	Subject to charges, taxes and regulatory controls	Usually high but varies
Licence or "profit a prendre"	Varies: usually exclusive	Limited term	Restricted to specified purpose	Varies: often restricted	Limited by restrictions on activities, charges and regulatory controls	Low
Permit	Varies: often not exclusive	Limited term (usually short)	Restricted to specified purpose	Usually restricted	Limited	Low

restrictions, rights and obligations on the part of the contractor; unlike weaker forms of usufructuary rights, leases always provide for exclusive possession. Forest contracts referred to as "forest concessions" are typically in the form of leases (some are closer to licences). Various forms of forest lease and concession are widely used by governments in a number of countries around the world to grant rights over public forests. Usually they carry longer terms of ten to 20 years, or more, and are sometimes renewable.

Leases can be an appropriate type of contractual arrangement for the allocation of large forested areas where long-term tenure is required to attract large-scale potential forest developments, for example when large capital investments are required to develop the resources, or desired by the government to

generate local employment. Investors may be unwilling to undertake large-scale investments in manufacturing facilities without long-term security of raw material supply. Long terms and large areas may also be required to generate interest on the part of the private sector if the resources involve large investments for development or access.

It is important to note that, as with all contracts, lease-holders must obey all laws, forest and other regulations that apply to the development project, the environment and forest resources involved. This also means government, or its designee (such as a third party forest monitoring and inspection or enforcement contractor), is responsible for supervising and enforcing the contract and applicable laws. This is perhaps obvious, but it is important to bear in mind, particularly when writing lease

agreements where compatibility with existing laws and regulations must be ensured.

6.3.3 Forest licences

Types of contract termed **licences** cover a wide range of shorter-term forest rights. Technically, a licence gives the licensee permission to do something that would otherwise constitute trespass, such as cross or occupy someone else's land. If the licence conveys a right to take products from the area, such as timber, fuelwood, non-timber forest products, game or minerals, it should more properly be called a **profit a prendre** (or "profit"). Licences that convey only a right of access to pass over the land are properly termed **easements**.

Licences convey rights only to the specific products or activities set out in the licence. Usually, licence holders do not have legal authority to enforce their rights against anyone other than the grantor of the licence. Licences can provide exclusive rights, or sometimes common-property rights.

Licences are widely used by governments to grant resource utilization rights to public forest resources, not only for timber but also for non-timber forest products, such as rattan and bamboo, resins and gums, fruits and nuts, water rights, wildlife, fisheries and a wide variety of other resources and activities. Licences are highly flexible and may be used to accommodate a wide range of users, from individual fuelwood or charcoal producers and gatherers of non-timber forest products to large forest enterprises requiring access to substantial and long-term supplies of timber. Licences may have short or long terms. Fuelwood, charcoal, hunting and gathering licences normally are for one year, whereas forest management agreements and long-term timber sales may have terms of ten years or more. Licences may apply essentially to any size of forest. The issues surrounding both the term of the contract and the area of forest to which the licence applies are the same as those discussed in connection with forest leases. Licences designed to promote resource development and/or requiring substantial capital investment with steady and high demands for raw material will usually require longer terms and apply to larger areas.

The institutional requirements for governments are greater when licences, as opposed to leases, are employed. Because licences com-

monly involve smaller areas, more users and more diverse forest uses, there will be more and different contracts to design, negotiate and administer, with more specialized provisions in the contracts. As a result, the administrative workload will be greater.

6.3.4 Forest permits

Contracts termed **permits** apply to a wide range of narrowly specified rights to forest resources. They are usually of short-term duration. These are usually simple documents giving permission to the holder for specified resources, such as special species of timber, fuelwood, specific non-timber forest products such as rattan, fruits and nuts, etc.; or for specific activities, such as hunting or charcoal production. There is no formal distinction between a licence and a permit, but permits are usually for shorter periods, involve less formal administrative procedures, and are often non-exclusive.

Permits may be used as the means of selling a specific quantity of resources within a short time-frame; for example, a permit to cut and remove certain species of timber or timber products from, say, 100 ha of forest within the next year, or a permit to cut a given number of house poles.

Permits in respect of small areas might be chosen over licences when governments wish to stimulate small-scale economic activity. An example is where governments are attempting to facilitate the development of a new resource, such as under-utilized species or some non-timber forest products.

This form of contract is the most specialized. In many cases, governments must take an active role in all aspects of contract design, negotiation, supervision, and enforcement. Because permits normally have short terms and apply to small areas, governments must expect to spend considerably more time and effort in writing and supervising resource utilization permits, even though the contract documents may be simpler.

It is not uncommon for governments to employ both licences and permits for the same forests in a hierarchy of administrative control. For instance, a company may hold a licence with a term of 25 years to manage a specific area of timberlands, but still be required to apply for permits for activities such as road building or timber harvesting on individual

areas. Moreover, permits may be required from different government agencies, again even though a licence is held which applies to the lands in question. An example of this is where a timber company must apply for a licence for pesticide application from the Ministry of Environment under the longer-term forest management agreement granted by the Ministry of Forests.

6.4 Choice of the form of resource utilization contract

There are several concerns which governments may have in designing contractual arrangements, terms and conditions for utilization of public forests.

Common concerns for many countries include the following:

- **Concern to capture increases in value.** Many governments have been reluctant to allocate rights to resources that allow recipients to benefit from appreciation of the value of public forest resources. Governments have designed contracts with limited terms, with provisions for the adjustment of payments to reflect changing resource values in the belief that forest values will appreciate, but also to maintain flexibility in allocation of resources. However, this strategy has not always been successful in generating higher returns or capturing increases in values, often because of poor pricing policies or poor revenue system design. Forest valuation and pricing issues are discussed in Chapter 8.
- **Concern to encourage economic development.** Governments have frequently used their authority to grant rights to natural resources to encourage economic, industrial and regional development. Contracts have been designed which attach conditions about the scheduling of resource utilization, specify investments in manufacturing, location and type of operations, and so on. However, often the resulting economic development has been disappointing, and less than promised. This is primarily because of imprecise contract conditions and commitments, and insufficient follow-up, supervision, monitoring and enforcement of contract conditions.
- **Concern to prevent monopolization and concentration of resource ownership.** Governments are often concerned about

maintaining a competitive industrial structure or, more specifically, preventing monopolization or concentration of resource rights. Contract conditions often restrict the transferability of utilization rights. Contracts usually permit periodic withdrawal or reallocation of areas to give governments the opportunity to control the pattern of industrial development.

- **Concern for protection of non-timber values.** Governments have become increasingly concerned with environmental and other non-timber and non-market values. Circumscribed forms of timber rights give greater scope for governmental controls to protect these other values. Although protective regulations can be invoked through legislation on any form of property rights, governments have greater flexibility in intervening to manage non-timber, non-market values under more limited forms of property rights for timber and by means of contract conditions.

Thus, the diversity of resource conditions, policy objectives and economic and social needs often calls for a variety of resource rights and contract conditions among countries and situations.

6.5 Goods and services procurement contracts

The second major class of contract employed by governments is that used for the procurement of goods and services for forest management. Governments are finding it increasingly advantageous to contract with the private sector for the delivery of a wide range of forestry services in connection with the management and administration of public forest lands. Some examples of services procured through contracts include: management of protected areas, mapping of forest lands, forest inventories, operation of forest nurseries and seedling production, direct purchase of seedlings, tree planting, fire fighting, check-scaling of logs, forest monitoring, enforcement of resource utilization contracts, road building and maintenance. Typically these types of contract are narrow in scope, that is, they relate to the delivery or production of a very specific service or product. They are often of shorter duration (less than one year), or of longer term if investment, start-up costs and experience are required.

Variation in the forms of contractual

arrangements used for procurement of goods and/or services centre around contract conditions, performance incentives, monitoring and enforcement of the contract, pricing and payment scheduling. Contract conditions, pricing methods and payment conditions within con-

tracts affect the distribution of risk between the signing parties, and have a dramatic effect on the ultimate cost of goods and services to government, as well as the government's ability to attract potential suppliers. Pricing and payment issues are discussed in Chapter 8.

6.6 Chapter summary

- Property refers not to objects but to the set of rights the owner has. Property rights represent a bundle of use rights.
- Contractual arrangements may be written to convey a wide variety of different bundles of use rights.
- The nature and extent of property rights may be described in several dimensions: *exclusiveness* - the scope and breadth of the holder's interests or obligations; *duration* - how long the holder's interests or obligations will last; *comprehensiveness* - the nature and breadth of the benefits or obligations to which the holder is entitled; *rights to economic benefits and obligations* - the extent to which the economic benefits or obligations are circumscribed or restricted (by laws and regulations); and *transferability* - the holder's freedom to transfer those rights or obligations to others. These dimensions of property rights are key factors in the successful design and implementation of forest contracts.
- Contractual arrangements may be flexible, so that contracts may be designed to fit a variety of conditions. A wide variety of contracts is therefore possible. Common basic forms of contractual arrangements include leases, concessions, licences and permits.
- Leases convey many of the rights of a freehold owner, but only for a fixed term.
- Forest concessions are often in the form of leases. They are often used to support industrial forestry operations. Concessions usually carry longer terms, and may be renewable.
- Licences apply to a wide range of temporary rights. They usually convey rights to specific forest products or activities.
- Permits give permission to the holder to specific rights to forest products or activities. They are usually less formal than licences. They are often not exclusive, and are usually for short terms.

6.7 References

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7

The design of contracts and contract administration systems

What this chapter covers:

- The design of forest contracts, focusing on forest utilization contracts and procurement service contracts to undertake forest management.
- The design of forest utilization contracts, focusing on the six key requirements: the technical, development, administrative, legal, risk and financial, and interpretative; along with the objectives and components within each.
- The major steps and decisions involved in the design and execution of forest utilization contracts are enumerated and described.

7.1 Introduction

This chapter addresses the design of forest contracts in detail. It also discusses issues of contract administration. Subsequent chapters will deal with forest pricing and revenue collection, the process of awarding contracts, contract monitoring and supervision, and contract compliance and enforcement.

The primary focus in this chapter is on forest utilization contracts, contracts in which governments sell rights to forest resource extraction and utilization. The terms and conditions of forest utilization contracts are important and complex; they can have significant impact on how forests are used and managed. The focus of the chapter also includes forest utilization contracts that involve forest management obligations. However, much of the discussion of contract design and administration will also apply to goods and services procurement contracts, under which the government buys forest management and forest administration goods and services. Many forest management, forest administration supervision and monitoring services can be contracted out.

The chapter begins with land use planning. Land use planning is seen as an important first step in allocating public forest areas among timber production, non-timber production, preservation, biodiversity and other forest uses. Next, the six key requirements of contractual

arrangements are introduced: technical, development, administrative, legal, risk and financial, and interpretative requirements. The process of designing forest utilization contracts is discussed in some detail, including contract components and the steps in contract design and development.

7.2 Land use planning and allocation

Not many countries, either developed or developing, implement land use planning of their forest lands. It is technically challenging and often politically difficult, but it is an important prerequisite in development of contractual arrangements.

Before establishing forest contracts, it is important to define boundaries of the permanent forest areas, including areas to be managed for production forests (for timber and non-timber forest products), protection forests, watershed management, recreation and ecotourism, biodiversity and the diversity of other forest uses. The areas to which the contracts will apply must be defined explicitly within the contracts and the locations and planned forest uses should be consistent with a forest land use plan, and with other forest uses. The contract area must not be encumbered by other land ownership or land use restrictions. The area must not conflict with other land uses, ecologi-

cal reserves, protection areas, parks or park reserves. If forest contractual arrangements are to work and are to achieve sustainable forest management, land ownership uncertainties must be settled. The area must be free of any private land ownership claims, and aboriginal or other land claims must be resolved.

Without a forest land use plan, land ownership uncertainties will remain, and conflicts among competing users and uses will arise. Poor land use decisions in land use allocation can lead to damage or destruction of unique and critical forest resources, ecosystems and human cultures.

7.3 Key requirements of forest contracts

To ensure that the structure and design of forest contracts are comprehensive, it is useful to identify key sets of requirements for a complete contract. These are:

1. Technical.
2. Development.
3. Administrative.
4. Legal.
5. Risk and financial, and
6. Interpretative.

The first five key requirements involve both field and office activities along with associated review, reporting and submission duties or obligations. The sixth requirement defines and interprets the terms and conditions included in the contracts, and the procedures for establishing a common understanding between the parties of the meaning and intentions of the contract. These six requirements apply equally to forest utilization contracts and to goods and services procurement contracts. However, in the present discussion the focus is on forest utilization contracts, and on forest management contracts that grant utilization rights, but require provision of forest management services. A summary of these six requirements and their major components is presented in Table 7.1.

7.3.1 Technical requirements

Contracts contain a set of technical specifications that detail the conditions, performance requirements, indicators and standards that make up the obligations and responsibilities of each party. This applies to both forest utilization contracts and goods and services procurement contracts. In procurement contracts for,

say, forest inventory, the contract will specify the area, mapping requirements and specifications, survey methods and intensity, species and other characteristics to be measured, sampling intensity, data analysis required, the form for presentation of results, and maps and other outputs to be delivered. Examples of technical specifications in a forest utilization contract might include: pre-contract exploration requirements, management plan requirements, resource supply planning, development plans, annual work plans, protection plans and procedures and monitoring activities. In forest management agreements involving both forest utilization and the provision of forest management services, similar technical specifications for the methods to be used and the desired inputs and outputs from the process would be stated.

7.3.2 Economic development components

This section provides a statement of the contractor's obligations with respect to the rights of people living in or near the forest contract area including aboriginal people and their rights. It also specifies the legal context regarding employment and investment in the country.

This section of the contract would also include sub-sections describing the rights and commitments to establish and operate a wood processing facility, requirements to continue operating processing facilities, and provisions for the establishment or expansion of wood conversion facilities.

The contract may include requirements for the licensee to employ personnel with professional and technical knowledge in forest management and in other aspects of the organization.

7.3.3 Administrative requirements

The administrative requirements and clauses outline the authority of the government and contractor's personnel, the standards of conduct of the contractor, the technical, financial and environmental inspection and auditing procedures, the format and schedule of reporting procedures, the procedures for making changes to contract terms and conditions, dispute settlement procedures, as well as conditions and procedures for terminating the contract. These clauses provide the basis for contract monitoring and supervision, and inspec-

Table 7.1: The six key requirements of forest contracts, and the objectives and components within each

Key requirements	Objective of each	Components within each
Technical requirements	Outline the methods to be used and the desired inputs and outputs required	Pre-contract exploration Management plan Resource supply planning Development plan Annual work-plans Protection Monitoring
Development requirements	Stipulation of economic development investment employment and sustainability conditions associated with the forest contract	Investment requirements Employment requirements Financing local operations Sustainability, environmental and social impact assessment
Administrative requirements	Obligations and details of the process for review of plans Procedures for reporting Procedures for supervision, monitoring, enforcement and auditing	Obtaining approval for technical plans Guidelines for feedback and instruction from government Rights of inspection Annual report requirements
Legal requirements	Legal provisions which govern and make the contract legitimate, binding settlement of disputes, changes in laws and regulations, subcontracting, <i>force majeure</i> , termination	Boundaries of the concession Property rights granted Detailed map Grants of rights and terms Liability and indemnity Termination and surrender Notice section
Risk and financial requirements	Deposit requirements and financial obligations of parties	Contract prices and fees Deposit requirements Warranty and liability Damage deposits Forest levies and special fees Stumpage and other forest fees Taxes
Interpretative requirements	Definitions to aid in the interpretation of a contract	Glossary of terms and procedures for interpretation notice section

tion and enforcement of the contract's terms and conditions. They establish the requirements for the working relationships between the government and the contractor. The con-

tract may also specify the appointment of persons to act as representatives of the contractor and the government.

7.3.4 Legal requirements

A variety of strictly legal provisions must be included in any contract to ensure that the contract and associated documents have legitimate legal standing. These include the obvious basic information, such as the legal name, status and addresses of both the contractor and the government minister or representatives. The exact location of the boundaries of the area in question must be specified using standard reference points. A detailed map of the area should also be referred to and attached. Other legal requirements in the contract include the relevant legislation affecting the contract, the granting of rights and other terms and conditions, including time deadlines, liability and indemnity issues, termination conditions, surrender and notification requirements.

7.3.5 Risk and financial aspects

This major heading includes requirements for security deposits to ensure the performance and obligations under the agreement. Also contained in this section are surety bonds to hold the contract, special damage deposits, special fees or charges for a range of operations, including forest protection, reforestation and contracting procedures, and any other fees and performance requirements.

The deposit requirements often demand the contractor to maintain performance deposits with the government, as security for the contractor's performance of their obligations under the contract. These deposits may be required either in cash or in negotiable securities. If the licensee fails to pay money owing to the government, or fails to perform his/her obligations under the contract, and after notice has been given, the government may take from the deposit an amount equal to the money that the contractor failed to pay, or an amount sufficient to cover costs incurred in remedying the contractor's failure to perform their obligations. There may also be surety bond requirements, specifying the bonding requirements of the grantee.

A clause in the contract may also require a special deposit if operations under the contract are likely to cause damage to third party persons or property. If damage or injury results and the contractor fails to pay damages, the government may use the special deposit to indemnify such persons or property.

Clauses specifying stumpage charges on for-

est products, area fees, other fees and levies detail the fees to be paid, how they should be paid, and the remedies for the government if the contractor fails to pay the charges owing. Clauses in this section will also specify how fees are adjusted over time, the conditions under which they are changed or reassessed, and when they are adjusted, changed or reassessed. Forest fees are discussed in more detail in Chapter 8.

7.3.6 Interpretative requirements

Many controversies and contract performance failures result from misinterpretations and disagreements over the written words of the contract, their meaning and interpretation. Thus, it is important to establish clear definitions and interpretations of words, clauses and conditions in the contract, and to use these consistently throughout the contract. Clarity of definition, and consistency in use of terms avoids problems associated with interpretation of the contract by either party (government or contractor).

7.4 The process of designing forest contracts: major components and stages

The process of designing forest utilization and forest management contracts incorporates the six dimensions discussed above into a number of key components. Some of the more important components include forest management, environmental management, social and development plans. The following sections outline these plans and other key components of the contract development process and of the final contract.

7.4.1 Exploration and scoping studies

The first technical requirement for any contract is the development of sufficient information on the potential contract area, the forest, non-forest and environmental resources, the human communities, existing uses and users, as well as other social, legal, physical and administrative data. This background information is needed for development of a comprehensive management plan and other associated planning documents, and to ensure financial, environmental and social viability of the proposed development as well as the contract.

In some cases this information may be available from existing records of various government agencies. In other cases, independent

studies will need to be conducted to collect the required data. The carrying out of scoping studies provides information for use in contract design. It will also provide basic information for interested potential bidders, and feasibility studies by the interested companies. Availability of this information will encourage more bidders, and reduce uncertainty among them, leading to higher bids on forest utilization contracts, or to lower prices on goods and services procurement contracts.

If government has sufficient financial and human resources, it may undertake the studies itself. If the forest agency does not have the capacity to do the scoping studies - a common problem in many developing countries - the government may tender separate contracts for the scoping studies. Alternatively, the exploration process may be included as part of the contract itself and left up to the successful contractor. However, this is not recommended, as it puts the government at a great disadvantage when it comes to contract appraisal, establishing forest fees, evaluating bids and negotiating contracts. However, if this alternative is chosen, the government should require that all information collected by the contractor be made available to the government agency. Verification of the quality of the data collected by the contractor will be essential.

The following list of general information and scoping data to be collected is neither detailed nor exhaustive. Data and informational requirements will vary among countries, and among different forests. Where data or information are lacking, the scoping studies should identify deficiencies and provide for subsequent data collection.

1. **Responsible legal and administrative authorities:** List applicable laws and regulations that affect the contract area and summarize principal provisions guiding management.

2. **Land ownership, uses and interested parties:** Describe the ownership of the forest land as well as the rights of parties adjacent to the area. Identify forest uses (timber and non-timber uses) and users, other land uses such as mineral development, agriculture, fishing or hunting. Identify parties (stakeholders) with interests in the area and the nature of their interests. Identify opportunities for coordinated development, such as access for timber har-

vesting, non-timber forest products production, traditional uses, recreation, etc.

3. **Commercial resource(s):** Estimate the area of productive land for the resources of interest within the planning area, broken down by factors affecting inventory or productive potential. Describe the value of the resource in terms of potential uses. For example, in the case of timber, are the species and quality of wood suitable for lumber, veneer, pulp or other uses? Describe what is known about the management of the forest types and species involved. What management systems can be used? What are the potential problems with forest regeneration? What has been the experience in managing the same resource on similar forest types in another part of the country or elsewhere in the region?

4. **Other commercial and non-commercial resources with development potential:** Describe the other commercial and non-commercial resources within the planning area that are not the focus of the proposed forest contract (minerals, agriculture, recreation, hunting, fishing, cultural and archaeological features). Characterize the quality of the other resources identified, and their potential for development.

5. **Accessibility and utilization:** Describe the accessibility of the area for forest management activities and the movement of products to market. Are there existing roads or water access? How far is the area from existing utilization centres, or from established transportation systems? What will be required to develop access? Within this section describe the needs for processing facilities for the types of forest products that appear feasible. What will be required to develop such facilities?

6. **Environmental resources:** Identify environmental resources and concerns regarding environmental impacts that the forest contract operations may have on wildlife or fisheries, soils, biodiversity, slope or land stability, downstream water quality for fisheries, agriculture or drinking water. It is also important to include all interested parties in the definition of their concerns and document them for future planning. Provide a preliminary appraisal of the potential environmental impacts of the proposed contract operations

7. Social and economic resources:

Describe the existing uses of the area and how these uses may be affected by development, how local people will be affected by development of the area, and evaluate how development will affect the planning area and the region economically. Describe past and current conflicts and the main social issues related to the potential contract area.

8. Sources of information and data:

Identify sources of information and data, as well as organizations and individuals with information relevant to the area. Identify the availability of maps, aerial photographs, satellite imagery and the expertise to utilize such resources.

Once the scoping studies are complete, the scoping report provides the basis for planning subsequent inventory and data collection needed for the development of the management plans, and a prospectus for the design of a detailed contract. The scoping report also identifies the types of expertise needed for additional and subsequent data collection and analysis.

7.4.2 Management plans

The management plan is a self-contained separate but integral part of the contract. It is included usually as an attachment, technical annex or schedule. The contract document should stipulate how government will review the management plan, the duration of the management plan, and when the revision and review process will take place.

The management plan section of the contract document should indicate what is required of the contractor for an acceptable forest management plan. This specific section of the contract should include the following:

1. Requirements to submit a management plan for the area covered by the contract and identify management options regarding the utilization of resources, including harvesting methods and utilization standards suitable for the resources specified in the heading "Grant of rights and terms".
2. Methods to review and approve the management plan and a statement of what are the review periods.
3. Requirements for public participation in the review of the initial and any revised management plans, including how to advertise the opportunity for review and the need to

make copies of the plan readily available to interested persons.

4. Conservation of both non-timber and non-market resource values including tree species, non-timber forest resources, biodiversity, water, recreation, cultural heritage, range land, and wildlife and fish habitats.
5. Integration of resource utilization within the area by other parties with rights such as aboriginal people and other forest users.
6. Other issues identified by government, or the contractor that are deemed appropriate by the government.

Once the information is collected, the management plan will describe how, where, when, and in what volume forest harvesting will take place, what steps are taken to ensure that other forest values are protected, and what management methods will be used to ensure that sustainable forest practices are employed.

Ideally the management plan should be completed before the contract is signed, so that a contract may be properly designed to implement the plan. But normally, in practice, it is developed and approved after the contract is signed, but before harvesting is allowed to start.

Either the government or the contractor may be given responsibility for the development of the management plan. This depends on government's philosophy about the sharing of management duties. Normally, on large-scale, long-term contracts, the contractor is assigned responsibility for this task. Annual workplans (discussed below) are not approved until government has approved an acceptable management plan.

7.4.2.1 The components of a management plan

Some of the major components within a typical management plan are outlined in the following sub-sections, but described in greater detail in a number of publications, such as FAO Forestry Paper 135 *Guidelines for the management of tropical forests* (Armitage, 1998). The list is neither detailed nor exhaustive, as the items will vary from country to country and with the types of forest. A summary checklist may be found in Appendix A, at the end of the chapter.

1. Forest inventory of timber resources

Inventory information on the commercial timber resources is required in order to deter-

mine what management systems can be used, what harvest levels are sustainable, and to assess the economic feasibility of managing the resource. Normally, minimum levels of inventory intensity and/or precision are specified in the contract document under the management plan heading.

Forest inventory design and implementation is beyond the scope of this publication. Inventory design and implementation is covered extensively in a variety of books, texts and manuals. Examples include the *FAO Manual of forestry inventory* (FAO, 1981) (a few others are mentioned in the references at the end of this chapter).

Inventories of timber resources not covered in the contract, and of non-timber forest products, should also be completed. These need not be of the same level of precision as for the target timber resources. However, a basic idea of their potential should be obtainable and documented. Potential conflicts with access and extraction of the timber resources covered by the contract should also be identified.

2. Non-timber and environmental resource inventories

Non-timber and environmental resources should also be catalogued and inventoried. These include fruits, nuts, other foods, medicinal plants, wildlife, archaeological sites, amenity values (nature, scenery), environmental quality values (air, water, soil), ecological values (biodiversity, endangered species) and public use values (recreation, ecotourism and other tourism).

Inventory information on these resources is important in order to determine the management systems to be used, sustainable harvest levels, and to assess the economic feasibility of managing the resources. Ideally, baseline data for the size and distribution of plant and animal populations, especially endangered or species at risk, should be collected. However, this can be a large and time-consuming task. Some balance of priorities will have to be made and specified in the contract.

In cases where other contract holders are operating in the area, the management plan should specify measures that the contractor will employ to identify and consult with those other users. Such uses may pertain to non-timber forest products, traditional use by aboriginal or other forest communities, outdoor recre-

ation and ecotourism, heritage, cultural and sacred sites, etc. Detailed maps showing locations of such uses may be necessary.

These non-timber and environmental values are important because together they expand the total value of the forest and the range of choices to consider in making decisions about the protection, use and management of public forest lands. These values may be catalogued through properly designed user surveys. Many of them may be quantified using methodologies developed in a number of studies. For a survey of methods applicable to forests and forestry valuation case studies, see Bishop (1999).

3. Transportation systems

The management plan should also provide details of all transportation systems that will be constructed and used. In most cases the primary transportation network will consist of roads of varying standards, although it may include rivers and waterways. The transportation plan should identify existing roads, those to be constructed, those needed exclusively for forest access, those that will become part of the public road system, those which are needed for long-term management of the forests, and those which are for protection.

Sections of the management plan will outline construction and maintenance schedules. They will also cover how the contractor will build and maintain drainage systems, including culverts and ditches, minimize surface erosion and ensure roads are safe for harvesting or other industrial purposes. Roads should meet environmental standards to avoid erosion and siltation of streams, and be kept at minimum distances from streams. Bridges and stream crossings should meet environmental standards to avoid stream damage, sediment and other pollution. In areas of public use, details of a traffic control plan should be provided. A road deactivation plan should also be included, and must specify operations required to stabilize the roads and restore and maintain the natural drainage at each location. Finally, ownership of road infrastructure such as bridges and culverts and other improvements should be specified.

4. Other infrastructure

Construction and maintenance of other infrastructure required for access, transport and storage of raw materials and/or processed

goods should be explained. These may include camps, garages and maintenance facilities, fuel storage tanks, docks, storage yards, loading facilities, power generation, power and pipelines, and airstrips. Maps showing the location of all facilities should accompany the plan. Clear justification should be provided for each installation. These should be located away from streams, waterways and wetlands and meet environmental requirements. Risks to safety or the environment from facilities or materials used or stored should be documented, and protection and clean-up procedures specified. As with roads and bridges, ownership should be established and documented. Finally, provisions for disassembly and site restoration should be specified.

5. Forest management objectives and silviculture systems

The management plan should also contain a statement of management objectives and the silviculture systems to be applied. Forest management objectives may cover a wide range of issues including short- and long-term sustainable harvest rates, maintenance and enhancement of forest productivity, renewal of harvested areas, forest protection and public participation procedures. A statement of objectives should also pertain to employment of people living in or near the contract area, including local communities.

The management plans should contain a set of detailed silvicultural prescriptions to be followed to achieve the stated forest management objectives. Prescriptions should be written in simple terms, and in easy-to-follow formats, to ensure comprehension and effective execution.

Fire prevention and suppression requirements are spelled out under these provisions. These include the requirement for a fire protection plan and the contractor's obligations under such an approved plan. An efficient fire prevention and suppression plan will require the necessary infrastructure, equipment, manpower and training. The plan should include the following measures:

1. Construction of fire protection roads and trails to provide access to all parts of the contract licence area, including isolated parts.
2. Construction of necessary fire breaks throughout the licence area, around and within operating areas.

3. An adequate maintenance schedule for constructed fire-breaks.
4. Trained manpower for fire patrols, detection and fire fighting.
5. Establishment of fire control towers, aircraft patrols or other patrols, with effective radio communications to ground staff.
6. Preparation of landing strips for light aircraft and/or helipads for helicopter landing to facilitate rapid movement of fire fighting crews and equipment.
7. A fire educational strategy to reduce lighting of forest fires by local populations for such things as agricultural or pasture land.

Details of how the forest resources will be managed should be provided, with additional details in the annual work-plans. Details on the forest types and conditions under which each silvicultural system will be applied should be described. Methods for regeneration should be stated.

The main activities required for resource management should also be described. This should include at a minimum: harvesting methods (for details see *Model code of forest harvesting practice*, Dykstra and Heinrich, FAO, 1996), road construction methods, tending of immature stands or populations, vegetation control, and control of pests. Any intended use of chemicals (herbicides, pesticides, etc.) should be explained, including health and environmental safety provisions. Additional details on these topics will be included in annual work plans.

7.4.3 Resource supply analysis

Whether the forest contract is area based or quantity based, the contract document must specify the volumes and species (and perhaps also sizes and qualities) to be harvested. For simple permits with short terms (such as annual firewood cutting permit) the permit would state the total quantity to be removed. For other, longer-term contracts, when the contract spans a number of years, the allowable annual or seasonal harvest must be stated.

These quantities should be based on a resource supply analysis. Ideally the analysis should be done prior to signing the contract, and based on the forest inventory data collected and compiled during the exploration stage. However, this information is usually not available at the signing of the contract. In such cases, provisions may be made in the contract

for completion of the supply study within a stated period of time, and for establishment of the harvest volumes under the contract.

Completion of the supply analysis study must be carried out by one or other of the parties. If the contractor does the supply analysis, the contract must specify the methods to be employed in the analysis and provisions made for the independent audit of the methods and results. Davis and Johnson (1987) as well as FAO Forestry Paper 135 (Armitage, 1998) review methods for the analysis of long-term timber supply.

7.4.4 Forest development plan

This plan details the proposed location and scheduling of development activities within the contract area. This would include the location and scheduling of resource harvesting and road construction and deactivation activities. Like the management plan, the development plan is a self-contained and integral part of the contract itself, but it is prepared as an attached annex or a schedule. The contract document should stipulate the content and duration of the development plan, as well as how it is to be reviewed and approved by government. Development plans are usually the responsibility of the contractor. The development plan should include the following items:

1. **Access** - What are the access requirements in the area and how are the various options going to be developed and when? With respect to road development: what is the extent of the proposed road network within the area, and how are road construction and road deactivation going to be phased?
2. **Environmentally valuable and/or sensitive areas** - How will the contractor preserve or minimize impacts on areas of environmental value and concern within the contract area? These would include (where applicable): critical wildlife habitat areas, protected areas, recreation areas, important watersheds, fish spawning and rearing areas, wildlife habitats, etc.
3. **Processing facilities** - What technologies will be used for the proposed processing facilities? Technical and financial feasibility. Where are the facilities going to be located and what is the construction schedule? What are the water and other input requirements? What are the expected environmental impacts of waste materials, water and air pollution, and how will these be handled?

4. **Staffing** - What types and qualifications of professional and technical staff, skilled and general labour, are required in the operations? Where will the labour come from? Where will they be housed?
5. **Methods for review and approval of development plans** - What methods are to be used to review and approve development plans? What is the timing of the review process?
6. **Requirements for public participation** - What mechanism will be used for public participation in the review of the initial and revised development plans? How will public participation be ensured?

Ideally, the development plan should be completed before the contract is signed, so that the contract may be properly designed to implement the plan. Alternatively, completion of the development plan may be required in the contract, to be completed later by a specified date and incorporated into the contract as an attachment or an annex.

7.4.5 Annual work-plans and cutting permits

Annual work-plans must conform to the terms of the overall utilization agreement and conditions of the contract, as well as laws and regulations governing timber and non-timber harvesting, environmental management, health and safety, etc. Annual work-plans require the contractor to provide a greater level of detail for the harvesting area. Following approval of the annual work-plan, cutting permits are issued for those areas authorized for harvesting. A cutting permit or cutting plan authorizes the harvesting of timber in accordance with the provisions of the cutting permit from cutting blocks located within the contract area (see, for example, Armitage, 1998, 182 pp., 190 pp., Annex 6).

Under the utilization agreement heading within the contract, the cutting permit requirements and the details required are specified. Common requirements include:

1. Cutting permits define the area authorized for harvesting, the timing of harvesting operations, the kinds of harvesting methods to be employed, and any operational restrictions.
2. The contractor is required to mark the boundaries of the areas authorized for harvesting under a cutting permit on the ground.

3. Cutting permits must prescribe locations of the roads to be built (or deactivated) for the area covered by the cutting permit, with the specifications and standards to be followed. In some cases, separate road permits may be required.
4. A Stand Management (or silvicultural) Prescription (SMP) describing how the stands in the area authorized for cutting will be managed.
5. Cutting permits define measures for environmental protection, protection of cultural or archaeological sites on or near the authorized harvesting area, and conservation of biodiversity including protected areas, buffer zones, and special management zones with added restrictions on harvesting methods.
6. Cutting permits must also prescribe timber utilization standards.
7. If stumpage fees or other levies are assessed based on the quantity of timber cut and removed, cutting permits will also set out procedures for assessing the volumes of timber removed, and the volumes wasted or damaged by the contractor. It will also specify the charges and other applicable levies.

7.4.6 Annual reporting

An annual report from the contractor provides a summary of the contractor's activities over the previous year, covering management of the contract area and fulfilment of the obligations under the contract. It describes the contractor's accomplishment of the stipulations and conditions of the contract, the annual work-plan and the cutting permits over the reporting period (usually the year). It also reports the contractor's achievements in meeting the forest management objectives, including objectives for employment, financial performance, timber utilization, silvicultural management, environmental protection, etc.

This annual report should also highlight the major initiatives planned for the following year, and be available to all interested groups and individuals. It will also serve as the starting point for supervision and inspection, and for monitoring and/or auditing of contract performance (discussed in Chapter 10) (See also Armitage, 1998, 224 pp., Annex 14).

7.5 Forest utilization contracts: terms and conditions

In the previous sections the major components

that form the technical annexes of the forest utilization contract have been outlined (the management plan, the development plan, and the annual work-plan). The next stage in the design of forest utilization contracts is to systematically identify and organize the terms of contract in a logical structure. The terms and conditions to be included are determined by three main criteria:

1. Ensuring that the government's forestry policy and other objectives will be achieved.
2. Minimizing the potential for future conflict between the government and the contractor.
3. Facilitating and ensuring maximum compliance with the terms and conditions of the contract.

A checklist of the components within each of the pre-contract plans and the forest utilization contract itself is found in Appendix A, at the end of this chapter.

7.5.1 Introductory legal provisions

Introductory legal information at the beginning of the contract includes name, legal status and full addresses of both the government representative and the contractor, the exact location and legal description of the contract area and boundaries, relevant legislation, the Grants of Rights, and the terms and conditions of the contract. A detailed map of the area should also be attached showing the boundaries and using standard reference points.

1. Relevant legislation

This often includes a list of laws, decrees and regulations in accordance with which the licence is granted.

2. Grant of rights and obligations, terms and conditions

This section of the contract document grants explicit rights of use to the contractor for specific uses, rights to enter and use the designated forest area, and imposes explicit obligations on the contractor to manage the area. This section provides clear descriptions and details of the resources that may be harvested and removed (species, sizes, locations, etc.).

Other types of rights and requirements included under this heading are the rights of use by others in the contract area. Other users of the forest may include aboriginal peoples, local communities, and other resource users

with licences for other resources (fuelwood, charcoal, wildlife, game, fish, fruits, nuts and other foods, etc.).

The section also provides right of access to the grantor - the government forest agency and contract administrator - to inspect all activities of the contractor (and sub-contractors) to ensure that activities are being carried out in accordance with the contract, applicable laws and regulations. The section should also provide access to records and documents of the contractor (and sub-contractors) and to timber production records and all other information regarding forest operations.

Immediately following "Rights granted" is a section on "Rights withheld" which specifies restrictions of exploitation within the granted area. Such restrictions may pertain to certain species, particular qualities (such as sawlogs or veneer logs), customary rights, particular environmentally sensitive areas and protected areas.

7.5.2 Forest management plan

The terms and conditions required of the management plan are specified in this section of the contract. This section should state the amount of resources that may be removed in total, over a period as well as annually, along with any restrictions that apply to variations in the amount harvested. This protects government from speculation by forest contractors holding timber without intending to utilize it. Normally the contract document itself will only summarize the forest management conditions and refer to the technical annex for the specific detailed management plan's terms and conditions.

7.5.3 Forest protection

An important forest management activity in public forest lands is protection. This refers to various forest protection requirements including fire, environmental, protected areas, insects and other pathogens, etc.

1. Environmental protection

This includes guidelines for protecting environmental features such as water quality, wetlands, biodiversity, soils, stream banks, fish and wildlife habitat, other plant communities, and environmentally sensitive areas. Some of these issues may also be dealt with in the Stand Management Prescriptions (SMP) devel-

oped by the contractor, as well as in the cutting permits.

2. Protected areas

This section includes lists of cultural, ecological, scientific or archaeological features in the contract area that are considered to be significant and to be protected from resource utilization impacts. The contractor is obliged to submit a plan to protect areas adjacent to or within the contract area.

Policies to protect environmentally sensitive areas can involve local populations from the area and surrounding areas in the management of the protected areas. Therefore, a statement on how local communities are to be involved in management of protected areas should be included in any overall government protection strategy and in the contract documents.

7.5.4 Forest development plan

Employment and investment issues are key aspects of the development plan. A checklist containing elements within the development plan is found in Appendix A.

1. Employment

This section covers employment and economic opportunities for people living in or near the contract area. These may also be specified in investment legislation of the country as conditions that investors must fulfil for investment approval.

Employment provisions may include conditions on employment of nationals in technical, non-technical, professional and managerial positions.

This section should also specify the technical forest administration that the contractor will utilize, including employment of both professional and technical forestry staff.

2. Investment requirements

This section specifies minimum investment levels in infrastructure, roads, processing plants, etc. that are required under the contract. The section would include a detailed investment schedule, or grantees to submit an investment plan within a specified time.

7.5.5 Contract supervision, monitoring and enforcement

This section includes provisions for supervision, monitoring and enforcement of the contract,

and of the contractor's performance according to the stated management objectives, options and prescriptions within the management and development plans.

The section also specifies the role of both the government and contractor, as well as any third parties in supervision, monitoring and enforcement. This will include important on-the-ground inspections to monitor performance. Once operations begin, the annual reports provide one of the starting points for on-the-ground supervision, monitoring and evaluating of performance.

7.5.6 Financial conditions and deposits

This section lays out the fees to be paid for timber and other fees, along with details of the warranty requirements. Forest fees may be specified in a separate schedule. Methods for adjustment of fees for inflation and/or changing resource values must be specified, along with the conditions and procedures for, and timing of, the reassessment of fees.

Most agreements require the contractor to maintain on deposit with the government a prescribed amount in cash or negotiable securities as security for the contractor's performance and obligations under the contract, for payment of fees on timber cut and forest management performance. If the contractor fails to pay money owing to the government, or fails to perform the obligations under the contract, the government may take an amount equal to the money the contractor failed to pay, or an amount sufficient to cover costs of remedying the contractor's failure.

The contract may also specify surety bond requirements. This provision specifies the bonding requirements of the grantee. The contract may specify a special deposit if any operation carried out by the contractor is likely to cause damage to persons or property from the licensee. Then if damage or injury results, and the contractor licensee fails to pay damages, the government can use the special deposit to cover the damage.

7.5.7 Review procedures

The review section of the contract sets out procedures for review of the management plan and other documents. It describes the procedures and steps for approval of the plans, and the steps to be taken if the plans are not approved and require revision.

7.5.8 Technical auditing and information disclosure procedures

This section of the contract outlines the rights of inspection by the government agency, or its agent, and procedures that the contractor must observe. For example, the section may specify that the contractor will:

1. Provide log production records and all other pertinent information regarding forest operations to the government agency or authorized representatives.
2. Provide the government, or its authorized agent, access to or copies of all records and information pertaining to wood processing for the purposes of assessment and revision of stumpage fees, other levies and fees.
3. Provide access to records for inspection by the government, its agent, or an independent auditor, as well as access to accounting records of the contractor and sub-contractors to review costs and sales (for stumpage appraisal or other purposes).

7.5.9 Liability and indemnity

This section outlines the contractor's responsibilities for their activities and transactions. It specifies that the government will accept no liability towards third parties for actions of the contractor, the contractor's representatives, employees and labour force. It also specifies that the contractor will indemnify the government against all claims, demands, suits, actions, costs and expenses suffered by the government as a result of the contractor's omissions or those of their representatives.

The section also specifies the contractor's responsibility for maintenance of roads, bridges, buildings, logging camps, etc.

7.5.10 Termination and surrender

In this section the conditions under which the contract may be cancelled or surrendered are specified. Contracts may be cancelled for a major breach, such as failure to start operations within a specified period of time, failure to construct the required manufacturing facilities, failure to perform forest management, or other failures to comply with contract terms. The language in this clause must provide precise details on the acts, lack of reporting or submission, or other contract violations that would be sufficient cause for termination.

The section also specifies the conditions under which the contract is surrendered, the

liabilities for surrender, and the procedures for surrender.

7.5.11 Notice

Notice refers to the way in which the two parties inform each other about reporting schedules, payment of fees and other levies, payment of penalties, notice of breach, or cancellation of contract. This section also provides information on the way in which either signatory responds when notice is given.

7.5.12 Miscellaneous

This section provides specific items, not covered in the previous sections, which either party may wish to have included in the contract. Examples might include:

1. That the agreement is subject to the laws of the country, state or province, and to any legislation governing forests, investment, labour safety, the environment, pollution, etc.
2. That the licence may or may not be transferred to third parties, or that it may not be passed on to heirs, executors or successors.

7.5.13 Glossary

A glossary of terms is included for clarification of the meaning of terms. This may be placed either at the beginning or end of the contract.

7.6 Contract conditions for short- and long-term contracts

When the duration of the forest utilization contract is longer than ten years, additional clauses and requirements will be needed to ensure long-term planning and sustainable development and management of forest resources. First, a long-term forest management plan and long-term timber supply plan will be required to plan the operations, forest management and forest renewal for the entire contract area. Second, the contract will need to include provisions for modification of the contract as a result of changing conditions, or conditions that could not be anticipated at the initial signing of the contract. Provisions and procedures for a reappraisal and necessary modifications to bring the contract up to date with current resource and environmental standards will need to be added. Provisions for modification of the area, revision of boundaries, or withdrawal of parts of the area for other uses, should all be included in the contract. Provision for modifying the method by which stumpage

fees, area fees and other levies are determined, or revised, should be included.

Renewal provisions and procedures for renewal will need to be included. Renewal should be subject to a forest management and environmental management review, perhaps including an independent audit.

Resource utilization contracts with short terms may be simpler. For example, for a one-year timber sale of a specific tract of timber, or a short-term sale covering one or two hundred hectares, a forest management plan will not be required in most cases. Annual reporting is unnecessary. However, a road construction permit and a work-plan may still be required.

These examples illustrate a few of the variations in contract terms required to suit differing lengths of tenure and other conditions. The government agencies involved in drafting the contract will need to design contracts of varying duration to fit the circumstances.

7.7 Steps in the development and implementation of resource utilization contracts

This section brings together the issues, ideas and points developed in the previous sections in a sequence of steps to follow in designing and implementing forest utilization contracts. The section covers the major steps and identifies key decision points in the process. A checklist of contract design components and requirements is given in Appendix A, at the end of the chapter.

Step 1: *Ensure that the contract area is consistent with overall land use plans and land uses, and that the area is not encumbered by other land ownership conflicts or land claims*

A key first step is to ensure that the proposed forest utilization contract is consistent with an overall land use plan. It is important to ensure that the proposed forest contract area is not encumbered by other land ownership, land uses or land claims.

Although not many countries have comprehensive land use plans in place before making forest allocation decisions, a land use plan and land use planning can help to make better land use decisions and avoid future problems. Developing land use plans is a large undertaking. It is challenging to balance the different land uses and interests, many of them politically

charged. Ideally, at least a preliminary land use plan should be developed, and be in place before proceeding with forest utilization contracts for the area. Once land ownership issues are settled, and a land use plan is developed, the areas available for contractual arrangements can then be decided, and the types of contractual arrangements for each specific area agreed.

Decision 1: What areas will be included and what kind of contractual arrangements will be used for the proposed area?

Step 2: Conduct preliminary scoping studies of the area

A preliminary evaluation of the potential forest contract area is necessary to determine the forest resources, environmental resources, other resources, and characteristics of the area. These preliminary scoping studies provide enough information to evaluate at minimum cost the feasibility of the proposed forest contract and potential contract bidder interest.

Step 3: Determine the interest of contractors and bidders in the area

Once the scoping studies of the area have been completed, the government agency can assess the market interest of contractors in the proposed contract area. This step may save further costly work if there is no interest. It also helps in determining the extent of interest, and how contract negotiations or bidding should be conducted. Market interest can be assessed through an informal survey of prospective bidders, through formal national or international advertising, by contacting forest sector groups, etc. A request for preliminary letters of interest provides a concrete indication of interest.

Decision 2: Is there enough interest to justify additional exploration and appraisal?

Has any interest been shown in the area? How many potential and serious contractors might bid for the contract? If there is not enough interest, no additional further costs need be incurred in further studies or analyses. If there is much interest, evidenced by letters of interest from reputable parties, government may continue the contracting process.

Decision 3: Who will conduct the more detailed appraisal and scoping studies?

If there is enough interest to justify continuing, more detailed appraisals and scoping studies will need to be conducted. The components of scoping studies are found in Appendix A, at the end of the chapter. A decision must be made on who will conduct the scoping studies. Is government able to conduct these internally? Does government have the capacity to undertake the scoping studies? Will it contract them out to third parties through procurement contracts? Issues of cost, time and expertise need to be considered. The detailed scoping studies may be included in the contract itself, but this is not preferred. However, this leaves the government in a very weak bargaining position with potential contractors.

Step 4: Obtain a market value appraisal of the contract area

The market value appraisal is another important step in the process of awarding a contract. For negotiation or bidding, more information available to the government and to prospective contractors will increase the number of interested parties, decrease the risk in bidding, and therefore increase the amount bidders are willing to pay. Government must also determine its minimum or reserve price, the price below which it is unwilling to sign. Determining the market value will assist in setting the government's minimum or reserve price.

Decision 4: What forest fees and levies will be charged? How will fees or levies be collected?

Before any contract is negotiated or offered for sale, the structure and type of forest fee must be decided. What other forest fees and levies will be charged? Are forest fees to be charged on the volumes of timber cut, on the area of the contract, or on both? How will the level of fees be determined? Will bidding for the contracts be on the level of fees? Will bidding be based on bonus bids? How will fees be adjusted or revised? How will fees or levies be collected? This information will have to be included in any requests for bids, or in negotiations with potential contractors, so that bidders may evaluate the costs involved in the contract. Issues related to forest fees and other forest

levies are discussed in Chapter 8.

Step 5: *Assess the capacity of government to administer and manage the contracts. Consider contracting out studies where government does not have the capacity*

Which elements of the contract development process can the government do? Which aspects of the contract administration, review, enforcement and monitoring operations are required once a particular form of contract is signed? What current and planned human resource and administrative requirements are needed to administer a contract properly? What are the costs of administering and managing the contract? Is the government able to carry out these roles? If not, who will be responsible for doing so? This capacity assessment should be carried out before resource contracts can be tendered or negotiated.

Decision 5: What supervision, monitoring and enforcement activities can government do? What activities can be contracted out?

Once a capacity assessment is conducted, the government must determine the contract administration, supervision, monitoring and enforcement requirements that it will conduct and which requirements need to be contracted out.

Step 6: *Solicit proposals, enter into negotiations, or solicit bids*

This step will depend on which form of contract letting is selected. Proposals may be solicited from interested parties. If competitive bidding is chosen, bidding procedures will need to be designed and then bids solicited from interested parties. Negotiation and bidding procedures are discussed in Chapter 9.

Decision 6: How will the contract be awarded?

Will contracts be awarded through sole-sourcing, competitive negotiation or competitive bidding? These issues are discussed in Chapter 9. If there are very few interested parties, competitive negotiation may be preferred to competitive bidding. The expressions of interest and the market value analysis will help in assessing the numbers of potential bidders and deciding on the method of sale. The choice

of contract letting should be based on which form will achieve the best price.

Step 7: *Evaluate submitted bids or proposals*

Under competitive bidding, the bids will be evaluated based on criteria available to the bidders prior to submission of their bids. If the proposal or bid exceeds the government's minimum or reserve price, the contract is awarded to the highest bidder, based on price and other criteria established beforehand and known to bidders. If the bids are too low, below the minimum price, the government should reject the bids and consider re-offering the contract.

Decision 7: Make an award or reject all offers?

The award of the contract is announced to all parties and made public.

Step 8: *Contract is drafted and signed*

The elements of the contract described throughout this chapter should form the basis of the final contract.

Decision 8: Will management and development plans be required before or after contract is signed?

The management and development plans are required and become legal parts of the forest utilization contract. They may be required to be completed before the contract is signed, or may be permitted to be completed following signature, but by a specified deadline date. The amount of work required to develop these plans is significant. If they are required before awarding the contract, this might deter potential bidders. If the management and development plans are deferred until after a contract is signed, then a deadline must be set for their completion and submission. The plans are then reviewed by government and approved, or sent back for revisions. Once the plans are reviewed and approved, and the work-plans completed and approved, then the contractor may proceed with harvesting.

Step 9: *All details of contract are carried out by both parties*

Supervision, monitoring, review and enforcement will be carried out as stipulated in the terms of agreement of the contract. These are discussed in detail in Chapter 10.

7.8 Chapter summary

- It is important that the proposed contract areas be unencumbered by land ownership or claim conflicts.
- Ideally, before forest utilization contracts are proposed, land use plans of the forest areas should be completed to avoid conflicts with competing land use and users and to make efficient decisions on forest land uses.
- Forest contracts involve six major requirements: technical, development, administrative, legal, risk and financial, and interpretative.
- Table 7.1 provides an overview and summary of the technical requirements, along with the objectives and components within each.
- Initial exploration and scoping studies gather information on the proposed area, the resources, communities, and other social, legal and physical data. Information collected in scoping studies includes: land ownership and uses, forest resource data, non-forest, environmental, social and economic resources, access, etc.
- If the government has the capacity to collect this information it may undertake the scoping studies. If it does not have the capacity or staff, the government may contract out the scoping studies, or they may be left as the responsibility of potential contractors.
- The management plan is a separate document, but it is an integral part of the forest contract.
- The components required in developing management plans include an inventory of the forest resources, inventories of non-wood forest products and environmental resources, plans for transportation and other infrastructure, design of harvesting and silvicultural systems, resource supply analysis and the forest development strategy.
- Once the contract is granted, annual work-plans are required. These specify harvesting and silvicultural methods and the areas and volumes to be harvested. Once they are approved, cutting permits are issued.
- Inventory data on the forest resources are necessary in deciding on management systems to be used, sustainable harvest levels, and the economic feasibility of managing the resource.
- Other resources should also be inventoried. These include non-timber forest resources, environmental resources, and other values. These values add to the value of the forest and expand the range of options for the protection, use and management of public forest lands.
- The management plan includes a forest protection plan covering fire protection, environmental protection, protected areas, and protection from insects and other pathogens.
- Within the management plan, a transportation plan identifies roads required for access, long-term management of forests, forest protection and public use.
- The contract document will specify the amount and details of the resource that may be harvested annually and over the contract periods. These harvest figures require an independent analysis of resource supply over time, preferably done prior to signing the contract.
- The development plan describes the overall strategy for the proposed area and provides information on the proposed location and scheduling of development activities within the contract area. It identifies environmentally sensitive, well as protected, areas. It identifies processing facilities, staffing, review methods and requirements for public participation.
- Administrative requirements cover procedures for the review of plans and documents, technical auditing procedures and reporting. These define the working relationship between the government and the contractor.
- An annual report required from the contractor summarizes activities and performance in relation to obligations under the contract. It also highlights activities for the following year.

- The legal provisions of the contract include, among other things, the legal name and address of the contractor, designation of the government agency or representative and legal description of the contract area boundaries, including a detailed map of the area.
- The section "Grants of rights and terms" documents the rights granted to the contractor, as well as obligations, the right to harvest, and the obligations to manage and protect the forest area.
- Other legal provisions of the contract include termination or surrender of the contract, and requirements to remedy provisions that are not fulfilled by either party.
- Financial and deposit requirements specify the forest fees to be paid and the deposits required. The deposit requirements specify the nature and size of the deposits that the contractor must maintain as security for performance of obligations under the licence.
- The financial requirements describe the fees payable to the government. They detail what fees are charged, how they are paid, and what remedies are available if they are not paid.
- For contracts longer than ten years, additional clauses and requirements are needed. Long-term forest management plans and long-term timber supply plans are required. The contract should include provisions for modifications of the area, revision of boundaries, withdrawal of parts of the area for other uses, changed conditions, or unanticipated situations and updated resource and environmental conditions.
- Resource utilization contracts with short terms may be simpler. Forest management and timber supply plans will likely not be required, and annual reporting is unnecessary. Road construction permits and working plans may still be required.
- The major steps involved in execution of a resource utilization contract include:
 1. Ensuring that the contact area is consistent with overall land use plans and land uses, and that the area is not encumbered by other land ownership conflicts or land claims.
 2. Conducting preliminary scoping studies of the area.
 3. Determining bidders and contractor interest in the area.
 4. Obtaining a market value appraisal for the contract area.
 5. Assessing the capacity of government to administer and manage the contracts. Considering contracting out studies where government does not have the capacity.
 6. Soliciting proposals, entering into negotiations, or soliciting bids.
 7. Evaluating submitted bids or proposals.
 8. The contract is drafted and signed.
 9. The contract is carried out. All the terms and conditions of the contract are complied with by each party.
 10. Contract performance is monitored and inspected. Contract compliance is enforced and may also be independently audited (Chapter 10).

7.9 References

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Appendix A: Contract design checklist

1. Scoping document

Legal and administrative authorities

- Applicable laws and regulations affecting the contract area.
- Identify applicable international treaties or conventions.
- Principal provisions guiding management.
- Who owns the land?
- What are the owners' rights to the area?

Commercial resource uses

- Identify other potential uses of the land in question (hunting, fishing, mineral development).
- Estimated area of productive land for the resource of interest.
- Identify opportunities for coordinated development (i.e. timber harvesting and recreation).
- List factors affecting inventory of the resource.
- Estimate the value of the resource.
- What are the management requirements for the resource?
- List any problems foreseen in forest regeneration.
- Experiences elsewhere but with a similar resource base.
- List any other commercial resources in the area that are not the focus of the contract.
- What is the quality of these other resources?
- Could they be developed?

Accessibility

- What is the planning area's accessibility?
- Is the area close to relevant markets?
- Are there existing roads or water access?
- What will be required to develop access?
- What are the processing facility needs which could be developed?
- What investment is necessary to develop these facilities?

Social and environmental concerns

- Environmental impacts of developing the area?
- Identify interested parties and their concerns.
- What are the current uses of the area?
- How will local peoples be affected?
- How will development of the planning area affect the development of the region?

Information sources

- Are maps, aerial photographs, satellite imagery available for the area?
- Are there other sources of relevant information on the planning area?

2. Management plan

Commercial resource inventory

- Inventory information on resource in question is collected.
- Resources not covered in contract are collected though not with the same preciseness.

Non-commercial resource inventories

- Baseline data for the size and distribution of plant and animal populations.
- Inventory of nature, scenery, environmental quality and public use values.
- Inventory of biodiversity in the area.

Transportation system

- Outline all the transportation systems to be constructed and used.
- Which roads are needed exclusively for access to resources?
- Which roads will become part of the public road system?
- Which roads are needed for long-term management of forests?
- Traffic control plans where applicable in heavy traffic areas.
- Maintenance of drainage systems.
- Ownership of road infrastructure such as bridges and other improvements.
- Provisions for any other infrastructure required for access, transport and storage.
- Provisions for disassembly and site restoration.

Resource management

- Range of silviculture systems which will be applied.
- Methods for regenerating forests.
- Activities required for resource management should be described.
- Harvesting methods.
- Road construction methods.
- Tending of immature stands.
- Vegetation control methods.
- Control of pests.
- Fertilization methods.

Other components

- Statement of management objectives.
- Objectives of employment of people living near the area.
- Methods of consultation with others.
- Detailed maps showing uses.
- Detailed set of management prescriptions to be followed.

3. Resource supply analysis

- Amount of resource which may be removed over time.
- Annual allowable harvest is stated.
- Responsibility for completion of the study is stated.
- Methods employed in the study are outlined.
- Frequency of revision is stated.
- An independent third party should conduct the study.

4. Development plan

- Location and scheduling of resource harvesting and road construction and deactivation.
- Duration of the development plan.
- Government will review the development plan.
- Requirements of public participation in the review of initial and revised development plans.

Access

- What are the access requirements in the area?
- How and when will options be developed for the planning area?
- What is the extent of road network in the area?
- How are road construction and road deactivation going to be phased in?

Sensitive areas

- How will the contract holder minimize impacts to:
 - community watersheds,

- fish spawning,
- fish rearing,
- fish migration areas,
- critical wildlife habitat areas,
- protected areas,
- recreation areas?

Processing facilities

- What are the proposed processing facilities?
- What are the capital and operational requirements for the proposed facilities?
- Where will the facilities be located?
- What is the construction schedule for the proposed facilities?

Staffing

- What are the types and qualifications of all professional and technical staff?
- Are there special training requirements?
- Assessment of employment creation.

5. Annual work-plan

- Requirements of a cutting permit.
- Identification of areas scheduled for harvesting within a given year.
- Level of detail required for the granting of a cutting permit.
- Cutting permits describing locations of the roads to be built.
- Cutting permits describing locations of roads to be deactivated.
- Specifications and standards for these procedures which must be followed.
- *Prescribe utilization standards and forestry practices to be followed in timber harvesting.*
- Procedures for assessing volumes of timber damaged by licensee.
- Requirements to define boundaries on the ground for authorized harvesting.

6. Forest utilization contract

Introductory legal provisions

- Name, legal status and full addresses of government representative and contractor.
- Exact location of the boundaries of the area in question.

Relevant legislation

- List of laws, decrees and regulations in accordance with the licence granted.

Grants of rights and terms

- Rights are granted to the contractor.
- What specific resources may be harvested.
- Size of resource to be harvested.
- Rights of use by others in the contract area.
- Grantor's right to inspect all activities of grantee.
- Requirement of grantee to submit all records and documents.
- List of rights withheld.

Resource management

- Amount of resource which may be removed over time.
- Stipulating that the management plan will be a legal document to which the contract may refer.

Protection

- Fire
 - Developing fire prevention and suppression requirements.
 - Requiring necessary fire prevention infrastructure.
- Environmental
 - Guidelines for protecting environmental features.
 - Ensure resource values (biodiversity, soils, water quality) are identified and protected.
 - Ensure stand management activities are planned to maintain productivity of the site.
- Protected areas
 - List of cultural, ecological and scientific features of the licence area that are protected.
 - How will local communities be involved with management of protected areas?
- Insects and other pathogens
 - Strategy to evaluate forest health issues.
 - Licensee's obligation to report incidents of pest problems.

Development

- Development plan is referred to and made a legal part of the contract.
- Requirements for road planning construction and deactivation.

Employment

- Employment that will accrue to people living in or near the licence area.
- Requirement of organized training for jobs.

Investment levels

- Minimum investment levels required of grantee.
- Total amount of investment in forest operations over a specified time.
- Total amount invested in wood conversion over a specified time.

Monitoring

- Provisions for monitoring the licensee's performance.
- Defining the roles of grantor and grantee in terms of monitoring.
- Specifying ground checks.

Financial and deposits

- Maintenance of deposit to grantor as security.
- Surety bond requirements.
- Special deposits.
- Circumstances for fees and levies.
- Financial requirements of both parties.

Review strategy

- Set of guidelines to indicate how the management plan and other documents will be verified.
- Process for obtaining approval of plans.
- Steps to be taken if approval of plans is not obtained.
- All plans should be made available to all interested groups in an accessible manner.

Technical auditing procedures

- Rights of inspection of the grantor.
- Log production records.
- All records pertaining to wood processing.
- Provide all books for inspection by the grantor or independent auditor.

Liability and indemnity

- Identifies contractor's responsibilities for his/her actions and transactions and that government will accept no liability towards third parties.
- Contractor is responsible for the maintenance of buildings, private roads, bridges, logging camps, etc.
- *Contractor will indemnify the government against all claims, demands, suits, actions, costs and expenses suffered by the contractor as a result of the licensee's omission.*

Termination and surrender

- Conditions under which the contract may be cancelled by either party.
- What constitutes a major breach in the contract.
- Specific details on the acts, lack of reporting or submission or other contract violations which would give sufficient cause for termination.

Notice

- Way in which two parties inform each other about reporting schedules, fees, royalties, payment of penalties, notice of breach or cancellation of contract.
- Methods to respond to any instances where notice is given.

Glossary

- List of terms used in the contract which require definition for better understanding.

7. Annual report

- Provides a summary of the licensee's performance over the previous calendar year.
- Outlines management objective successes.
- Outlines shortfalls in performance.
- Highlights goals and major initiatives for the next calendar year.

8

Valuing and pricing forests, forest fees and revenue collection

What this chapter covers:

- The methods for value appraisal of forest tangible and intangible, market and non-market goods and services.
- Forest levy types, advantages and disadvantages.
- The design of a forest revenue system for timber concessions and procurement contracts.

8.1 Introduction

Government officers in charge of deciding contracts with entities of the private sector have the responsibility of ensuring that the implementation of those contracts will lead to a chain of events that would produce the most beneficial results for the nation. Thus, the Public Forest Administration granting forest concessions to a private corporation must make sure that the operation of that concession will produce the maximum possible benefits for the country. Therefore, the questions the decision-maker must answer in the event of a decision are: Do the benefits to the nation justify changing the use of the forest? Or should the present use remain instead?

The analysis required to make this decision is carried out by measuring and valuing all changes expected to arise from modification of the use of forest resources, a timber concession for example. Thus, the responsible government officer must have an account of the positive and negative quantitative impacts of granting a forest concession as well as a way to translate all those impacts into a common measure for comparison. The most convenient measure for that comparison is the monetary value of impacts. The study of the balance of advantages and disadvantages for society in the terms described is dubbed "economic efficiency" analysis.

Since the government contract in all probability will be with a private party, the government decision-maker will also need to estimate the commercial value of that contract, i.e. how

much is the forest concession worth in commercial terms? This is essentially the same type of analysis that private concessionaires interested in the contract will carry out. This type of analysis is normally called the "financial" analysis and is concerned with monetary flows resulting from the change in use. Because the financial analysis provides a profile of monetary flows resulting from the contract, it is a key factor in negotiating the agreement between the government and the private party. Another reason why the government decision-maker will also require a financial analysis is because there will be a need to determine what the impact of the change in use will be in terms of money flowing to or leaving the treasury. Financial analyses always have to be done from the point of view of an interested party – the government forestry administration, private corporations, etc. In contrast, in the "economic analysis" only the perspective of society counts.

There are two other fundamental differences between financial and economic analyses and these relate to, first, what costs or benefits (or positive and negative impacts) are included in the analysis and, second, how those costs and benefits (impacts) are valued.

There is a host of impacts from forests that have no market value and in consequence do not affect private contractors' natural interests in maximizing commercial profitability. These impacts are, however, of interest to society as a whole. Thus, for example, forests are a repository of biodiversity wealth. They also con-

tribute to conserving water and soil resources and sequester carbon. These are all forest services of local, national, or even global, importance but, since they do not have established markets and prices, they are of little or no financial interest to private entrepreneurs and do not enter into their financial analyses. However, they are of importance in the analysis of "economic" impacts and worth of forests.¹

Furthermore, even in those cases in which market prices do exist, they may be flawed, in the sense that they may not reflect the true value of goods and services to society. Monopolies and other market imperfections make this possible. Policy interventions such as taxes or prohibitions to export also affect the economic value of resources, inputs or outputs. Society is interested in the "real" value of resources while commercial enterprises focus on existing market prices, independently of the fact that these may be affected by market imperfections or policy interventions.

Another dimension of value differences between these two types of analysis derives from the fact that impacts – benefits and costs – occur at different points in time. Since costs and benefits have to be reduced to a common denominator, impacts happening at different points in time must be "weighed" in different ways. A dollar today is not the same as a dollar will be ten years from now. The technique to render these values homogeneous is called "discounting". The future is relatively less important than the present and therefore a dollar ten years from now (be it cost or benefit) is "discounted" as compared with a dollar today. Society must provide for future generations and therefore it should discount the future less drastically than commercial entities, such as concessionaires, who have a shorter time horizon. In other words, the economic analysis should value the future more than the private operators' financial analyses.

8.2 Basic concepts for appraisal of forest goods and services: appraisal steps

The process described below may be used to answer the questions related to the value to society of a change in forest land use as well as the commercial or financial impacts of such decision. In the following discussion, it is

assumed that the change in the use of forest resources will be a forest concession but the same method may be applied to any other change in the use of forest resources. The appraisal steps in a financial or economic analysis are essentially four (see summary box 8.1)

Step 1. Identifying and quantifying physical inputs and outputs associated with the forest concession. Here the analyst attempts to measure all physical changes that will occur over time as a consequence of the change in use arising from the initiation of operations of the forest concession. In performing the financial analysis, only those inputs and outputs that have market prices will be included (i.e. those effects that generate financial outlays and revenues). In contrast, the analysis of the economic impact of the concession will also identify and quantify all non-market inputs and outputs.

The economic impacts of the contract are defined by the difference between two situations: with the contract and without the contract. The estimated variation between these two situations can be legitimately attributed to the contract. The "with and without" scenarios are basic to the economic appraisal and should not be confused with the "before and after" the contract situations. This is because certain changes are bound to occur even if the contract were not implemented and, therefore, those changes cannot be attributed to the contract. Only changes arising from the contract must enter the appraisal. For example, let us assume that a certain forest is suffering from pressure from illegal logging and that it is estimated that over the next 20 years, and despite efforts by the government, 20 percent of all valuable woods will be illegally logged. Now, the analyst in charge of appraising the costs and benefits of a prospective 20-year concession contract estimates that "with" the concession 100 percent of the volume of valuable timber will be exploited. However, in the economic appraisal of the concession contract, the analyst must attribute only 80 percent of all valuable woods as an impact of the contract. Twenty percent would be lost anyway, with

¹ Normally the nation is taken as the unit of society. But it could just as well be a smaller geographical or administrative unit such as a province. Or, the larger global society.

Box 8.1: Appraisal steps in financial and economic analysis

Financial and economic analysis	
Financial analysis	Economic analysis
1. Identifying and quantifying physical inputs and outputs	
Direct inputs and outputs with market prices are included	Indirect effects are included with no market price also included
2. Valuing inputs and outputs	
Market prices are used	Consumers' willingness to pay is used as the basic measure of value. In cases where market prices adequately represent willingness to pay, such prices are used. In other cases "shadow prices" must be estimated
Transfer payment such as taxes are added as costs and subsidies as revenues	Transfer payments are not treated separately but included as part of the economic costs and benefits
3. Comparing costs and benefits	
Calculate commercial profitability	Calculate economic worth
4. Dealing with uncertainty	
Carry out sensitivity analysis	Carry out sensitivity analysis

or without the timber concession. Were the analyst to compare the before and after situation in the economic analysis he would be attributing 100 percent of the loss of valuable timber species to the contract. This would be wrong because the logging of 20 percent would take place even if the concession contract were never signed.

Step 2. Valuing inputs and outputs. The next step is to develop unit values for inputs and outputs with due consideration to the probable evolution of these values over time. In the case of the financial analysis,

market prices will be used. Market prices arise because of the coincidence between consumers' willingness to pay for a given input or output and the producers' willingness to sell that input or output. Thus, in perfect markets, the market price could be used in both financial and economic analyses. However, this coincidence may be altered by imperfections in the market, by the lack of markets altogether or by policy interventions. In the economic analysis, inputs and outputs are valued in terms of the consumers' true willingness to pay for them. When market prices do not adequate-

ly reflect a willingness to pay, *shadow prices* must be developed for use in the economic analysis. Furthermore, taxes and subsidies are treated differently in both types of analysis. In the economic analysis taxes are not entered as costs or subsidies as benefits whereas the private operator's financial analysis would. The reason for this differential treatment is explained later in the text.

Step 3. Comparing costs and benefits. This is a necessary step to derive a total value of the change in use. This step aims at answering the basic questions raised above. Does the change in use of forest resources represent on balance the best possible use for society as a whole? What would be the commercial implications and the impacts on the government budget? What is a "fair" price the government may charge for the concession? This step implies comparing costs and benefits occurring at different points in time and therefore these costs and benefits must be adjusted or discounted to a common point in time, usually the present, in order to have a common measure of value.

Step 4. Dealing with uncertainty. The three steps above provide most, but not all, of the elements for deciding whether the change in use - the forest concession contract - is the best way to proceed with the management of resources and what may be a reasonable price of a contract with a private sector entity. There is still another and final dimension of the analysis of the worth of the concession contract and a dimension that is very relevant to its negotiation. This is the value of uncertainty associated with the calculations carried out during the three steps above. Since the financial and economic analyses look into the future, identifying impacts and future values accurately and precisely is always a problem. For this reason a major task in the assessment of the concession contract is now a test of the sensitivity of results to possible variations in some of the key assessment variables.

These steps are discussed below. The whole process is complex and faces various obstacles and special situations. Thus, the description below is only a synthesis of the main concepts. For an in-depth treatment of the subject it is highly recommended that the interested reader consult the following FAO publications:

Gregersen and Contreras, 1992; Gregersen et al., 1993 and Gregersen et al., 1995.

8.3 Appraisal methods

8.3.1 Identifying and quantifying inputs and outputs

A change in forest use such as that derived from the implementation of a forest concession contract produces a number of varied outputs and requires several inputs.

There are many analytical ways to classify inputs and outputs. A popular one is to differentiate them into direct and indirect. Direct effects are those that would enter into the financial analysis, while indirect ones do not. These classifications do not matter much except to remind the analyst to look beyond the financial analysis in the estimates of the economic value of changes in use.

For the purpose of economic analysis, any effect that results in an increase in desired goods and services is an output while the opposite is an input regardless of whether outputs or inputs are traded or not. Circumstances vary. For example, fuelwood may be traded in a market while in another it may be produced and distributed free. In the former case, fuelwood is relevant to the financial analysis but not in the latter. However, since fuelwood is a good that has value to society, the economic analysis will consider it even if it is not traded in markets and its market price is zero. The important point to remember is that almost any of the products produced by forests may or may not be traded in a specific situation. Thus, ideally, the analysis of the value of forest use must be carried out in the context of each particular case.

Consumable goods and services produced by forests that normally have a market price include timber products, fuelwood and other biomass fuels, fruits, nuts, leaves, medicinal products, fodder, genetic materials, animals from the forest, skins and so on. Other goods are not necessarily consumed but may have a market value. These include scenery and recreational uses of forests, and soil and water protection services. In some cases, the economic activity associated with the forest concession contract involves training of labour and increases in its productivity. This is clearly an effect of interest to society although it is difficult to quantify and value it. Finally, other ser-

vices so far are not paid for through market transactions, such as protection of biodiversity resources, gas exchange and carbon storage.

It needs to be emphasized that inputs and outputs are sides of the same coin. For example, reduced water siltation resulting from the existence of forest cover reduces the loss of storage capacity of dams, which in turn results in reducing downstream losses which may be caused by the decreasing water availability from the reservoir. If the forest concession contract reduces these benefits of the forest, because of the reduction of forest cover, this is clearly a cost to society.

Besides direct inputs accounted for in the financial analysis, there are various other inputs associated with the forest concession that are not directly traded in markets. For example, the operation of logging machinery and portable sawmills may pollute water and reduce air quality. Heavy machinery can cause substantial damage to soils and remaining vegetation and fauna. Roads can create opportunities for illegal penetration and subsequent deterioration of the remaining forest. All these effects represent negative occurrences for society as a whole but generally the private contractor does not have to pay for the damage caused because these effects are not traded in markets. Thus, while they are of importance for the economic analysis, they are negligible in the case of the financial analysis.

Finally, some analysts argue that some outputs of forests that today may not be very important may become of great importance in the future. For example, a new drug derived from a forest plant could be discovered to cure cancer. If current forests are converted to other uses, such plant may be irremediably lost. The option of keeping these potential but currently unknown benefits should somehow be included in the economic analysis, because obviously they are of importance to society. Individuals may be willing to pay to preserve these unknown options. In other cases, the mere existence of a forest is a service that many people appreciate.

From the above, it is clear that, although many of the goods and services produced by forests may be very real, often they are difficult to quantify in order to arrive at an estimate of whether a change in use is the most desirable thing for society to do.

This often represents a challenge for the analyst. The relief is that in most cases there is

no need to have a detailed and complete list of inputs and outputs and how they occur over time to arrive at a meaningful decision about whether granting a forest concession is socially desirable or not.

8.3.2 Valuing inputs and outputs

8.3.2.1 Using market prices

In financial analyses, the procedure is relatively straightforward and will not be treated here in detail, as there are many excellent guides on the subject. In financial analyses only inputs and outputs that have market prices count. Market prices are useful because they are observable and objective, no matter how esoteric their use. So long as there is a well functioning market, prices define economic value and thus the financial analysis may serve as the foundation for performing the economic analysis. However, a few considerations are in order.

As already mentioned, rarely do market prices adequately reflect the true economic value of forest goods and services. This is due to several market failures such as imperfect information, the dominance of a large concessionaire, monopolies, "externalities" and so on. Furthermore, it has also been mentioned that market prices are influenced by government policies such as taxes, trade regulations, etc. For the private contractor, a subsidy increases revenues and taxes increase costs. However, these transfer payments from and to the government do not represent a change in society's value of the input or output. In the case of a subsidy, the government simply shares part of the cost of production, and this in itself clearly does not diminish the real cost to society. In the case of a tax, the government takes a proportion of the value of the outputs produced but this does not change the value of those outputs. Simply, their value is shared between the entrepreneur and the government. This is the reason why, in the economic analysis, taxes are not computed as additional costs and subsidies are not part of additional benefits. Government may also introduce other policies that affect prices, such as price controls, log export prohibitions or subsidies in other sectors such as agriculture that distort forest prices in many direct and indirect ways.

Besides the complications introduced by market failures and policy intervention, there is

another aspect of using market prices in the economic analysis that requires clarification. Since the impacts of the forest concession will occur in the future it will be necessary to predict their future changes. It is recommendable to operate with prices *free of inflation* unless changes in *relative* prices may be expected. For example, the price of a scarce precious wood extracted from the concession may change in the future relative to other prices because of growing scarcity. The procedure for calculating these relative changes over long periods of time is a specialized task and involves so many imponderables such as future trends in consumers' preferences and technological change that some argue that results often lack credibility. Thus, this specialized task will not be discussed here. Moreover, all prices are expected to change at the same speed in the long run, and thus, unless there is compelling reason to the contrary, it is advisable to use current prices in the economic analysis.

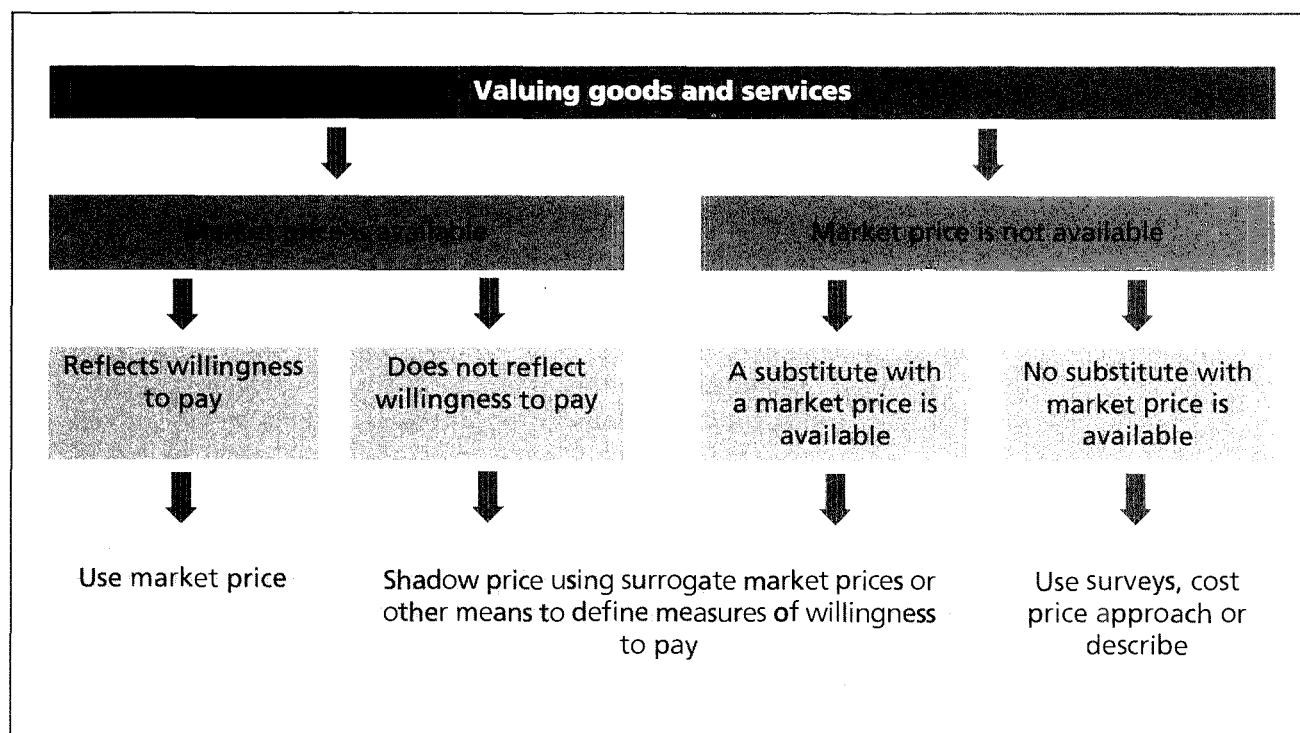
Market prices may be used in the economic analysis to the extent that they reflect economic values. This will happen if markets are efficient, with many buyers and sellers all operating with adequate levels of information. No buyer or seller is large enough to be able to control information or to influence the

market price. Since international markets tend to represent the options for society as a whole, some analysts prefer to utilize border prices for all those goods that can be traded. Border prices cannot be used in the case of non-tradeables, i.e. all those goods that have a domestic price that is lower than the import price (cif) but higher than the price on the international market (fob). Fuelwood often falls into this category.

In all cases where a market price is inadequate or non-existent, some indirect ways need to be used to determine consumers' willingness to pay, which is the source of economic value. In the case of inputs, the term *opportunity cost* is often used. This is because using an input in the forest concession diverts that input from other uses and this represents a sacrifice or cost in the economic analysis. However, that value, being foregone in the unrealised alternative use, is also measured in terms of willingness to pay and therefore, in the end, willingness to pay is the basis for measuring both benefits (outputs) and costs (inputs).

While this is an adequate conceptual definition of economic value, it is necessary to be more specific with regard to the various procedures that may be used to apply the concept in practice.

Figure 8.1: Overview of valuation approaches used in economic analysis



The figure 8.1 provides a general overview of valuation approaches used in the economic analysis.

8.3.2.2 Using indirect market prices techniques

Ideal and perfect markets seldom exist. But frequently it is possible to use market prices for one good or service to infer the economic value of another good or service. On this theme a word of caution is in order. Techniques for calculating economic values are sometimes utilized in arbitrary ways that seem to be geared to intellectual window dressing to justify a particular decision rather than objective analysis. Second, the assumptions and data required behind some of the techniques are such that they are of dubious application particularly in developing countries where basic information is weak. These problems will become apparent in the following paragraphs when the difficulties of utilizing indirect pricing techniques are described. For this reason, the following text does not present an exhaustive inventory of the many techniques that are available.

a. *Residual or derived prices.* This is probably one of the most popular techniques for deriving the price of one good or service based on estimates of values of goods and services established later in the production-to-consumption chain. The value of wood is calculated by starting with the price in the most competitive market. This could be the export price of wood, for example. Then all costs of treatment, transportation and harvest are deducted to arrive at the residual price for standing timber at the forest. This price is then applied to the volume to be extracted from the forest concession. The procedure is not free from obstacles. Valuation must take into account the variations between species and qualities, and residual values obviously change with location and topography as well as over time as availability and technology change. Furthermore, the calculation of the price of standing wood in concessions must also take into account the indirect costs stemming from, for example, logging damage to the remaining forests and to soil and water resources.

Moreover, there may be a sequence of multiple market exchanges as the wood moves from the forest to consumers. Thus, loggers may sell their harvested wood to a

local merchant who in turn may have to contract a transporter to take the wood to a lumber yard near the market. There the wood may change hands when, for example, it is sold to a sawmilling firm. The output of the sawmill may go to a furniture maker before it finally reaches the final consumer. This procedure may work well if all intermediates and the final market for the wood are free from important distortions. If this is not so, a great deal of effort may be spent in assessing the adequacy of the various markets and correcting for market failures or policy distortions. Furthermore, prices and costs at the different stages assume that efficient operators are undertaking these tasks. This is not always the case and therefore adjustments may be needed to correct these avoidable inefficiencies as well.

Likewise, some markets are very thin (very few participants selling and buying) and have large seasonal variations. Particularly in the case of non-timber products, markets largely escape formal recording so that data on prices and quantities are not readily available. Observable market prices may reflect a very narrow situation that can hardly be extrapolated to larger areas. Thus, the success and accuracy of this procedure depends on the quality of the estimates along the chain of various transactions. Despite all these various limitations, this methodology is one of the most commonly used, simply because there are few easier and more accurate alternatives.

b. *Surrogate prices.* This procedure estimates the value of wood or other forest products from the known value of a substitute or comparable good or service. It assumes that the price of a similar product enjoying a reasonably competitive market can approximate the price of the good without a satisfactory market price. Thus, the value of non-market fuelwood in a certain location could be estimated using the price of fuelwood in other locations where an active market does exist. Or, alternatively, it could be approximated to the value of alternative fuels that have an established and relatively well-functioning market, such as charcoal and kerosene. This latter approach, however, assumes that if there were an absence of fuelwood other fuels such as

kerosene would in fact be used, which is not always the case. If goods are perfect substitutes, then the price of one may be used as a proxy for the other. But as the possibility of substitution decreases (kerosene instead of fuelwood, for example), other procedures may have to be employed.

c. *Travel cost method.* The value of a forest good or service is equated to the value of effort consumers invest in arriving at the location where the forest good or service is. The reasoning is that if the individual is willing to pay for the travel the forest experience must be at least as valuable as the expenses incurred in the trip. For example, a recreational experience may entail substantial time and effort to obtain it. Surveys of travel costs have been employed frequently to estimate the recreational value of forests. Surveys are employed to calculate all expenses to get to the particular site, including transportation costs, lodging and so on, as well as data on the visitors, such as income levels. With this information, it is possible to produce a demand curve for the site and therefore calculate the consumers' willingness to pay for recreational services.

d. *Hedonic methods.* These methods estimate values from known values of other goods that are technically related or have a sub-set of similar characteristics. This technique has been used to estimate the value of air and noise pollution based on how pollution affects real estate values. If various houses are similar but located at different distances from an airport, for example, their differences in value may be attributed to noise pollution. For example, the aggregate value of these differences then represents the cost of noise pollution associated with the existence of the airport. The procedure assumes competitive land prices and a large set of data to statistically eliminate other factors that may also be affecting residential values. Because of these requirements, the technique has not been applied to forests in developing countries.

e. *Replacement cost or cost avoided.* This technique is based on the concept that a certain hectare of forest cannot have a higher value than similar services provided in an alternative way. Thus, the value of carbon sequestration of a forest cannot be higher

than the cost of fixing a similar amount of carbon in some other way. Therefore, the cheaper alternative to fixing carbon may be used as an estimate of the carbon sequestration value of forests.

f. *Value of production increases.* The value of production taking place in activities related to forests, such as the increase in agricultural production downstream, may be used to estimate the value of that particular function of upstream forests. The procedure requires good information about input-output relationships (how a hectare of forest affects runoff and how this in turn affects agricultural productivity, for example) and the value of these linked effects. Strictly, it must also integrate the effect of possible market failures and policy distortions. The method is relatively easy to apply when it relates to estimates of a single function of forests, such as their effect on water regime, but it becomes more complex when several functions are involved, where the possibility of double counting arises, for example if the water is used also for feeding an industrial installation or hydropower plant and for supplying water for household consumption (Bishop, 1999).

g. *Opportunity cost method.* This method estimates the value of opportunities foregone by using forests. It assumes that the value of the forest is at least equal to the value of opportunities foregone. For example, if forests are on agricultural land, then the value of keeping the land under forests must be at least as great as the value of the agricultural products that could have been produced on that land. Or if dung is used as a fuel, the opportunity cost could be the value of the increases in crop yields foregone by not using that dung as a means of conditioning soils. The approach is valid if effectively people would have converted forests to agriculture or used dung into the soil if they had not burned it. This may or may not be the case.

8.3.2.3 Using non-market price techniques

All methods discussed so far rely directly or indirectly on market prices or using related market prices to obtain estimates of willingness to pay. An alternative procedure is simply to ask consumers to state their preferences assuming theoretical markets and the amount of

money they would be willing to pay for some services or goods.

Contingent valuation. The procedure estimates the consumers' willingness to pay for a specified good or service or to accept compensation for receiving an unwanted good or service (this could be losing an area of forest, for example). The method assumes that the amount the person has stated as being willing to pay for the service would in fact be paid if that situation were to arise. The procedure is useful in all those cases where there is little possibility for estimating non-use values employing other methods such as those that depend on substitutes or surrogate goods. For example, the procedure has been used to estimate how much people would be willing to pay or contribute for conserving biodiversity in the tropics. Critics point out the possibility of bias in the preparation of questionnaires or in interviews as well as the fact that respondents may not be completely honest in stating their preferences and willingness to pay. This is because respondents know that the situation described in the survey is only a theoretical one and that in reality they will not have to pay the values they stated they would be willing to pay (for a discussion of variations of this method, see Bishop, 1999).

8.3.3 Comparing costs and benefits

Once inputs and outputs resulting from the forest concession have been established, and their physical flows over time and values estimated, it is now possible to begin conducting the comparison of benefits and costs with the purpose of determining the net result of the proposed use change (the concession in this case).

And as previously mentioned, the further into the future a given forest use will occur, the less the value of that use when compared with the same use in today's terms. This is the concept of the "time value" in economics. Thus, establishing the net economic or financial result of the change in use is carried out in three steps:

- Construct value flows
- Discount benefits and costs
- Compute the worth of the use change

8.3.3.1 Construct value flows

This procedure consists of combining physical input and output information with their value (market prices or shadow prices) to construct tables describing values taking place over time.

If a financial analysis is being conducted, this is the *cash flow* table and it will include only inputs and outputs with market prices and their respective prices. In the case of the economic analysis, the term is value flow table. This table includes market and non-market inputs and outputs and shadow prices.

As previously mentioned, the cash flow and the *value flow* tables differ in the sense that the cash flow treats some transfer payments such as taxes, subsidies and loan payments in different ways. Other considerations apply. In the financial analysis, costs occur when payments are made and this may be at some time other than when the inputs are used. For example, an input may be used today but paid in instalments over the next three years in the *cash flow* table. Each one of these payments in those three years is entered as a cost in the respective year. In the *value flow* table, it is the actual use of the input that matters, not when payment takes place. Thus, if the input is used today, that is the cost to the economy. A parallel reasoning is valid in the case of outputs that materialize today but the value of which is paid by purchasers over a period of time.

8.3.3.2 Discounting benefits and costs

If all impacts were to occur at the same time, then the analyst could just add up benefits and costs and derive the balance without further work. However, a forest concession typically spans several years and costs and benefits occur over a long period. As mentioned, values occurring at different times cannot be directly compared. This is because value is associated with time. Impacts occurring in different years must be "homogenised" to a common denominator. An adjustment factor must be introduced. This is the *discount rate* and thus the process of adjustment is called *discounting*².

In the financial analysis, the prevailing market discount rate is utilized. This rate is supposed to represent what resources could generate in the best possible alternative at the margin, the opportunity cost of capital. In reality, this rate varies from situation to situation. In

2 For a description of discounting techniques and measures of economic and financial worth, see Gregersen and Contreras, 1992.

imperfect markets, for example those facing a smallholder, it may be very high. If the contractor participating in a timber concession has good credit, the rate may be considerably lower. Thus, in most cases, an average bank-lending rate may be appropriate. There is no single formula to determine a unique rate. Since the financial analysis is performed from the point of view of a specific party, for example a potential forest concessionaire, the discount rate to be used is the one that that concessionaire will face in the market. If the financial analysis is being carried out from the point of view of the government treasury, then the prevailing rate for treasury bonds may be used, and so on.

The situation is even more complicated in the case of the economic analysis, because in this case the rate to be used should be the value that society as a whole attaches to time. Most people prefer to receive benefits as soon as possible and to postpone costs. The intensity of this desire depends on society's preferences for present consumption as opposed to postponing consumption to the future. But it is widely believed that society's discounting of the future is lower than that of private entrepreneurs, partly because society (and government) must provide for generations yet unborn.

There is no easy solution to this problem. Certainly, it is no solution to let different analysts, examining various economic options, use different rates of discount. For this reason, planning offices normally apply one standard rate for all economic analyses. Thus, the analyst should obtain the appropriate discount rate from the central planning unit. Should that rate not be available from the planning office, the analyst can pick up a rate, say 8 or 10 percent, and use it in the main analysis and then test the sensitivity of results to alternative rates, 7 or 11 percent for example, and determine whether these alternative rates will substantially change the conclusions of the analysis. This is the subject of the next section.

8.3.3.3 Risk and uncertainty

At this stage the analyst can provide the decision-maker with most of the information needed to decide whether the idea of entering into a forest concession contract with a private party is a good one for society as a whole. The analyst can provide a measure of the net economic value of the timber concession proposal and, if

a financial analysis has been carried out from the point of view of potential contractors, information on how much the concession's market price may be, i.e. how much potential contractors may be willing to pay for the contract. Finally, if a financial analysis has also been carried out to examine the implications for government, the analyst could provide information about the government revenue effects of the contract.

However, there is still a set of considerations that may affect the bargaining position of the parties involved and the desirability of the forest concession. As is now obvious, all the calculations above refer to events that will occur in the future and thus are uncertain. In the case of a forest concession contract, uncertainty may be high because uncertainty increases rapidly as the planning horizon expands. Concession contracts may well reach 30 or 40 years and many of the effects generally go beyond that period of time.

If there are abundant observations of similar past events, of past estimates and trends, the analyst may have enough information to be able to estimate probabilities of some events actually occurring in the future. For example, a range of variation of future prices of certain species of wood could be calculated within certain probable limits. This is referred to as risk. When there is little or no basis for deriving probabilities, there is a situation of uncertainty. In most cases situations fall in between and analysts can resort to sensitivity analysis to test the robustness of their conclusions. If such analysis reveals some parameters that change drastically the results of the analysis, then more analytical work on those parameters is advisable. Consequently, the sensitivity analysis provides useful information about priorities for further research on those aspects of the analysis that may be the weakest and the most critical.

In summary, establishing the value of forests and the consequences of a change in use are not simple tasks. They require long-term and uncertain projecting with and without the change scenarios (as opposed to before and after), and identification and quantification of a number of goods and services, inputs and outputs, many of which have no markets or imperfect markets. A serious error is to attempt to value everything in economic terms, particularly when the basis for deriving values is shaky. It is advisable to start by measuring and esti-

mating the easier-to-measure impacts. After all, values are only needed to make decisions. If enough information can be collected, based only on the most important impacts to make a sound decision, no further work may be required. The cost in time and scarce human resources needed to reach a detailed analysis needs to be taken into account. In many cases, running a sensitivity analysis for key variables will help in deciding whether further work is needed and, if so, on what aspects of the analysis.

8.4 Setting forest levies

This section covers the choice and design of forest levies and presents an overview of the alternatives available for setting levies for resource use granted under contracts. Levies on forest resources are frequently referred to as royalties, stumpage, rent, tax, revenues and user fees³.

The data obtained through the appraisal of values described in the section above are used by the government as one of the main elements to determine the levies to be raised from forest contracts in public forest lands. Other factors such as political priorities, equity considerations, poverty alleviation, regional development objectives, and so on, may also influence such decision. Thus, levies may have a variety of objectives including the sustainable management of the forest under contract, raising public revenue and guiding private action in the direction of society's other multiple objectives.

Levies normally are charged per unit of timber volume (cubic meter of wood) or per area of forest under the contract (hectares or acres), or a combination of both methods.

8.4.1 Timber volume-based levies

8.4.1.1 Volume-based stumpage fees

Standing timber in developed and most developing countries is sold based on the volume of timber (Gray, 1983; Grut, Gray and Egli, 1991). Hence the term "stumpage" fee.

They are used in almost every Canadian province, in the United States, Indonesia, Malaysia, the Philippines, in various countries of Africa and many other countries around the world.

Stumpage fees can be tailored to species and dimensions of wood and, of course, may be supplemented with other fees to refine conditions of extraction such as difficulty of terrain.

Because it is standing trees or logs which are of value to the forest industry, it is likely that levies based on stumpage volume will continue to be an important component of the forest revenue system.

Strengths and weaknesses of volume-based stumpage prices: Volume-based levies can closely reflect the value of the standing timber and roundwood sold because stumpage prices can be varied by species, quality and location, characteristics that determine the value of the timber.

Volume-based stumpage prices require log measurement, supervision, a billing system, and all the administrative costs that go with them. Varying stumpage prices to properly reflect stumpage values can add to the complexity of stumpage prices and the revenue collection system, to administrative costs, and generate evasion and avoidance problems.

For jurisdictions with a strong forest administration, volume-based stumpage prices will likely remain the major forest revenue mechanism. Stumpage prices that reflect timber values can help to support forest management. But unless stumpage fees are coupled with management restrictions they could result in "highgrading" or "creaming" of the forest if only the most valuable trees are extracted.

8.4.1.2 Per tree stumpage fees

Per tree stumpage fees have been used in only a few countries, Ghana and Nigeria, for example. Valuable hardwoods in North America, Europe and elsewhere are sometimes sold as single trees on a per tree basis, often for thousands of dollars.

Per tree stumpage fees are a uniform price for each tree sold or felled. In this form, they are a simple revenue mechanism. No scaling of logs is required and the charges can be easily verified by counting stumps. Per tree stumpage fees are usually most appropriate for timber of uniform size and quality.

Strengths and weaknesses of per tree stumpage fees: Per tree stumpage fees have advantages of simplicity. They avoid the admin-

3 A detailed discussion and analysis on this topic may be found in FAO Forestry paper 43 *Forest revenue systems in developing countries* (Gray, 1983; Pearce, 1990; Grut, Gray and Egli, 1991; and Gillis, 1992).

istrative costs, problems and complexities of log measurement. Payment may be easily verified by on-the-ground inspection and counting of stumps. But they cannot properly reflect the value of all the trees and so might not be able to generate as much revenue as a properly designed system based on stumpage volume and timber market prices. Per tree fees are most appropriate where simplicity of administration is important, and where log measurement scaling is expensive or difficult.

Per tree stumpage fees may be used to support selective cutting. Per tree stumpage prices may result in «high-grading», leaving the smaller or less valuable trees uncut.

Per tree stumpage fees may also be a useful pricing mechanism for plantation timber, both for thinning and the final cut. In plantation logging operations, trees may be counted at the roadside prior to transportation, stumps may be counted after logging, or trees may be marked and billed prior to logging.

8.4.1.3 Lump sum timber sales

With a lump sum timber sale all merchantable trees in an area, or only those trees marked for cutting, are sold for a single amount of money. Buyers then cut as many trees (or marked trees), and utilize as much of each tree, as they wish. No further payment is required. Thus, the buyer has an incentive to use as many trees, and as much of each tree, as financially merchantable. Lump sum timber sales have been used in Europe, some US states and by private forest owners for the sale of blocks of timber.

Lump sum timber sales require a detailed inventory or timber cruise of the area. The timber contained in the area is then sold as a block. If the stand is to be clear-cut, all the timber is sold. If it is to be cut under a selective silviculture system, trees to be cut are marked, and only marked trees sold.

The timber may be sold at an administratively established and appraised lump sum price. But commonly it is sold by oral auction, or sealed tender bid. In any case, a reliable timber cruise of the area is required, both to reassure the government of what it is selling and to reduce uncertainty among bidders.

Strengths and weaknesses of lump sum timber sales: Lump sum timber sales have advantages, of administrative simplicity, and they encourage greater utilization. However, if pursued under selective cutting management

schemes, they may require considerable expertise and measurement. They may be more appropriate where clear-cut silviculture systems are used, where competitive bidding can be encouraged (assuming there is a competitive bidding situation), and where reliable pre-sale timber surveys are possible.

Lump sum timber sales can be ideal for the sale of even-aged, second growth, and especially for plantation timber. Plantation timber is of uniform size, stocking is uniform, the timber is easily surveyed and the surveys will be more reliable.

8.4.1.4 Forest fees on processed forest products

Forest fees may be levied on volumes of sawnwood, plywood or other processed forest products instead of stumpage fees on the volume of input wood raw materials. They may also be levied as an ad valorem (percentage of value) charge.

Thus, in some jurisdictions, levies set for sawmills are based on lumber output rather than on log input. This is a generally inefficient method because it discourages the adequate use of timber and recovery of lumber.

Indonesia shifted the base for forest royalties from log volumes to the output of processed wood products (plywood and lumber) in 1985 (Gray and Hadi, 1990). In the Malaysian states of Sabah and Sarawak, royalties could be paid on either roundwood production or the sawnwood output (Gray, 1983). Several Canadian provinces (Manitoba, Saskatchewan and Newfoundland) have levied forest fees on lumber output rather than roundwood log input.

Strengths and weaknesses of forest fees on processed products: Forest fees on processed forest products are easier to administer than charges on the timber cut. Measurement points are fewer and more central. Avoidance and evasion problems are lessened, and policing is easier.

However, as mentioned, fees on processed forest products will not encourage efficient utilization of wood. Because fees are levied on the processed products, no fees are paid on the logs, there is no cost in wasting wood, and therefore there is no incentive for improved recovery of processed products. As a result, fees based on processed forest products might penalize firms that achieve improved utilization and higher recovery.

8.4.1.5 Export taxes on logs or processed products

Export taxes are based on the volumes of logs or wood products exported at a rate per unit specified for each species, class or grade, or as ad valorem (percentage of value) rates.

Export taxes on logs or processed wood products may be levied for revenue purposes as a substitute for other forest fees; or they may be levied for economic policy purposes, to encourage domestic processing. However, their impacts on forestry and the forest industry are often complex and unintentional results may occur.

Log export taxes

Log export taxes are used in a number of countries as a substitute for volume-based stumpage prices on timber. It is easier to measure volumes and collect revenues at export ports or borders than at remote locations in the forest. This works well if a large proportion of the harvest is exported.

Log export taxes may also be used to encourage domestic processing of wood. By reducing the export market through tax, domestic prices of logs will tend to fall, thus benefiting the forest industry (Repetto and Gillis, 1988). However, a supply of cheap logs will not encourage efficiency in raw material use, utilization or competitiveness. Instead, they may help to support and maintain inefficient, wasteful processing operations, and discourage improved utilization. Low log prices may also induce conversion of forest lands to other uses such as cattle ranching.

Export taxes on processed products

Using a similar reasoning, export taxes have been imposed on wood products with a low level of processing, such as lumber, to encourage development of industries with a higher level of processing, such as furniture. Indonesia, for example, introduced an export tax on sawnwood in 1989 to encourage further processing of lumber into more highly processed products and furniture (Gray and Hadi, 1990).

Strengths and weaknesses of export taxes: Export taxes on logs are easier for log exporting countries to administer than volume-based stumpage prices. If combined with charges on the log input of processing plants, they can substitute for volume-based stumpage prices. For some jurisdictions, lacking a well-developed

administrative system, on balance they may be better than volume-based stumpage prices.

Export taxes on logs may also serve to encourage domestic processing. However, to encourage an efficient domestic processing they need to be combined with other forest fees on logs processed domestically. A pure export log tax will tend to reduce the price of logs in the domestic market and induce further waste and the conversion of forest lands to other more profitable uses.

Export taxes on processed products (lumber, plywood or other products) have a variety of hard-to-predict distorting impacts on the forest industry, on log prices, product prices, utilization, productivity and investment. If used, they should be introduced with caution, and only following careful analysis of their incentive effects and impacts.

Log export taxes are better than log export bans or export quotas. Log export taxes can discourage roundwood exports and encourage domestic processing, and they will generate revenue from those logs which are still exported.

8.4.2 Levies based on forest area

8.4.2.1 Initial licence fees on forest contracts

Initial licence fees on forest contracts may be levied upon the award of the contract. They may be either a fixed, lump sum fee, or they may be area-based fees, based on the total area or the productive forest area of the contract. An area-based initial licence fee, based on the total area of the concession, is the simplest to administer. The total area applied for is quickly and easily calculated. An initial licence fee based on the productive forest area, or the operating area, would require completion of the forest inventory.

Initial licence fees have been used in a number of countries. In most jurisdictions, initial licence fees on long-term timber supply agreements are very modest. Côte d'Ivoire has levied an initial licence fee on new concessions, based on the total concession area. Cameroon has levied initial concession fees based on the total licence area. However, these initial concession fees generated less than 1 percent of forest revenue (Grut, Gray and Egli, 1991). Indonesia has levied an initial Forest Concession Licence Fee based on the total licence area payable on issuance of the concession (Gray and Hadi, 1990).

Strengths and weaknesses of initial licence fees on forest contracts: Initial licence fees on forest contracts are simple and easy to administer, especially if levied as a fixed charge or as a per hectare fee on the entire area. Such fees on forest contracts and other forest tenures serve three purposes: (a) to cover the administrative costs of processing the application, surveys, inventories, inspections, environmental review and administration of the approval process; (b) to reflect part of the value of the forest contract, the value of a secure timber supply; and (c) to prevent speculative applications.

There is scope for greater use of initial licence fees to reflect the value of these forest tenures, and to recover the administrative costs involved. Per hectare initial licence fees, combined with annual area-based ground rentals (discussed below) may encourage more intensive forestry, forest management and utilization.

8.4.2.2 Area fees on forest contracts

Used in many countries, area fees, levied annually, are simple forest revenue mechanisms that are easy to administer and collect. However, in most countries they represent a very small proportion of total forest revenues (less than 5 percent) and play little or no role in forest management (Grut, Gray and Egli, 1991).

Area fees may be a more significant revenue source and can complement volume-based stumpage prices.

Annual area fees may also serve to reflect the security value of the timber supply provided by the forest contract and capture a share of that value as forest revenue. When exacted annually, area fees provide incentives for using the forest under contract more efficiently, more intensive forestry land use, and for improved utilization in logging (i.e. production of more timber on a smaller area). Minimum per hectare area fees may serve to reflect the value of forest lands in other uses and thus help to support land use policies.

Strengths and weaknesses of annual area fees on forest contracts: Annual area fees have advantages that make them a useful component of a forest revenue system. They are easy to administer with less bias against long-term investments. Monitoring compliance is easier. However, they must be attached to management plans, otherwise there is an incentive to cream the forest. When this is done, they also

provide incentives for more efficient use of forest lands and economizing on forest areas. They can support and encourage more intensive forestry on forest utilization contracts. Annual per hectare area provides stronger incentives for relinquishing excess lands to other land uses. This is the next variant described below.

8.4.2.3 Annual allowable cut fees on forest contracts

An annual fee based on the allowable annual cut is an alternative to an annual area-based fee. For example, Bolivia imposes a fee in timber concessions which is equal to \$1 per hectare per year but at the same time imposes a minimum rotation period of 20 years and demands a sustainable forest management plan. Thus, in any particular year only 5 percent of the concession area can be harvested. This reduces the incentive to extract only the most valuable woods. An annual fee based on the annual allowable cut may better reflect the value of the forest contract and the security of timber supply, but is more complex.

Strengths and weaknesses of annual allowable cut fees on forest contracts: Annual allowable cut fees may better reflect the value of the concession and of the timber supply guaranteed by the forest concession tenure. However, they require a calculation of the annual allowable cut before they can be implemented. Management plans are needed and controls to ensure compliance must be in place.

8.4.3 Levies based on non-timber criteria

8.4.3.1 Property taxes on forest contracts

Property taxes and variations are applied to forests on freehold private lands in Canada, the United States and Europe. They are not normally applied to forest contracts on public lands. However, property taxes have been applied to forests on public lands in a few developing countries. For example, in Indonesia a land and improvement tax is applied to public forest lands within forest concessions (Gray and Hadi, 1990).

Strengths and weaknesses of property taxes on forest contracts: As property taxes are based on assessed values, they may reflect differing values of the forest. However, the administrative complexity, manpower requirements and

financial cost involved in assessing values make property taxation a less attractive alternative.

8.4.3.2 Minimum forest fees

Minimum area-based fees on forest contracts and minimum volume-based fees on timber set a floor level for both area fees and stumpage fees, and may prevent timber and concessions being sold "too cheaply". Minimum forest fees will ensure that timber and forest contracts are not given away with little return to the country. They may be set to reflect the value of the timber or forest areas in other uses (environmental protection, wildlife, forest foods, watershed protection, biodiversity, etc.). As suggested above, these non-timber benefits can be significant (Bishop, 1999; Kramer *et al.*, 1992).

8.5 Developing a forest revenue system for forest utilization contracts

Normally, when used singularly, none of the levy types mentioned above allows capturing the full amount of revenue and compliance that government (society) expects from a particular forest utilization contract. For this reason, it is common for a number of levy types to be used in combination forming what is known as a forest revenue system. The appropriate revenue system for a specific contract depends on the country's socio-economic conditions and on variables, such as type of forest, available information, administrative capacity, technologies of operations, etc.

A forest revenue system, fees and charges must contribute to the sustainable management of forests, efficient utilization of timber, be relatively simple to administer and achieve easy compliance for the forest industry. The forest industry has an interest in a forest revenue system that supports and encourages productive efficiency and easy compliance. A poorly designed forest revenue system can easily increase industry costs, discourage recovery and utilization, reduce competitiveness, and in the end diminish the timber values and potential revenues available.

Developing a forest revenue mechanism to meet the forestry policy objectives and fully capturing expected income involves, first, choosing individual levy types based on their individual merits, and second, combining its use in such a way that they mutually reinforce and complement each other. The structuring of

the forest revenue system is the main determining factor in the success of a forest utilization contract from society's point of view.

The forest revenue system selected will be based upon levy types chosen because:

1. As already mentioned, one levy type can complement another. For example, bonus bidding on timber sales may reflect timber values not captured by volume-based stumpage prices. Per hectare ground rentals may allow lower volume-based charges on timber cut.
2. Differing forestry situations within the country may call for different levy mechanisms. For example, lump sum timber sales or per tree stumpage charges may be suitable for plantation forests, or small blocks of timber, but not for old growth tropical timber. Bonus bidding may work in areas of tight timber supply and in many areas with forestry firms, but not where competition is lacking, or where timber is in surplus supply.
3. The forest revenue system is called upon to contribute to several forestry policy criteria. This requires several forest levy mechanisms, perhaps as many as the number of criteria. To satisfy several policy criteria or targets requires at least one mechanism, or instrument, for each criterion or target. With fewer revenue mechanisms, it will not be possible to satisfy all policy criteria. In practice, it may be desirable to choose fewer fees and charges for simplicity, and to forget satisfying all criteria.

Most forest revenues in developed or developing countries are heavily dependent on volume-based stumpage fees, accounting for 90-95 percent or more of forest revenue for most countries. Yet stumpage fees and other volume-based fees are notoriously difficult to collect and are subject to abuse and corruption (under-measurement, under-reporting, misclassification of species, illegal logging, etc.). Stumpage fees and other volume-based fees require forest departments to have the field capability to measure log volumes, or to independently check log volumes and records of logging companies. Thus, depending on the administrative capacity of government and the levels of transparency in implementing forest utilization contracts, stumpage fees and other volume-based forest fees may be supplemented with, or even replaced by, easier to collect area fees based on the area of the forest contract.

While area fees may entail some loss of potential revenue for governments, it is quite possible that, according to the specific circumstances of the contract, such loss may be lower than that deriving from systems based on volume fees that in theory may be more efficient but in practice cannot be effectively implemented.

8.5.1 Forest revenue mechanisms for non-timber forest outputs

Pricing policies and revenue mechanisms for non-timber and non-wood forest outputs, products and values are more difficult to design and to implement, for three reasons. First, non-timber products and values represent a much more diverse range of forest uses than does timber. Second, many non-timber outputs involve non-market values. These non-market outputs include goods like wilderness values and biodiversity; externality or spillover benefits and costs like watershed protection; or common property resources and outputs like wildlife and fisheries. Non-market outputs and values by their very nature are difficult to value. Third, most of the non-timber and non-wood forest outputs and products are harvested by individuals and households, or very small firms, making it extremely difficult to supervise harvesting and collect forest fees. In addition, many are subsistence forest produce, for which it may be inappropriate to levy more than token fees.

For these reasons we cannot expect to be able to establish prices for all non-timber forest outputs. Nevertheless, it is often possible to develop imaginative pricing policies and revenue mechanisms for a number of situations, and to use pricing policies as a tool of resource management. A selection of potential revenue mechanisms for non-timber forest outputs is presented in Table 8.1. It is only a partial listing, presented to indicate the potential for equal and parallel treatment of timber and non-timber forest outputs.

As shown earlier in this chapter, resource pricing systems have been developed to measure non-market resource values for a variety of resources and in a number of countries. Pricing systems have been applied in environmental management, water quality and quantity management, water pollution control, litter control and traffic congestion.

Pricing systems have been used to some extent to reflect the values of non-timber for-

est outputs and to manage the resource - in recreation management through park entrance and recreational use fees, campground fees, permits, and differential fees between residents and non-residents and between peak and off-peak use; in hunting and fishing through differential licence and tag fees by species and between residents and non-residents; and in water management by water pricing and licence fees. There is potential for refinement of pricing policies in these areas and for more extensive use of prices in resource management.

Further examples of, and experience with, revenue mechanisms for non-market outputs and values may also be found in other areas of public policy, in public finance theory and practice, in local government finance, in public utility pricing theory and practice, and in local government user charges.

However, not all non-market values can be reflected in prices and revenues. For these values to be properly taken into account in resource management, it may be helpful to develop some, admittedly crude, accounting values and prices for non-timber, non-market outputs and uses. These crude values could then be used for internal resource management and forest land use planning.

A full and comprehensive review of potential revenue mechanisms for non-timber forest outputs and values is beyond the scope of the present study. However, it is important that non-timber outputs and non-market values be recognized and accounted for.

8.5.2 Payment methods for procurement contracts

Previous sections have discussed forest fees and forest revenue systems for forest utilization contracts. This section discusses payment terms for goods and services procurement contracts. The timing of payments - whether prices are fixed ahead of time or adjusted for inflation, cost increases or other factors - the basis and method of payment must all be clearly specified in the procurement contract. The payments, method and timing of payments, adjustment procedures, etc., will all have a significant effect on the bids or prices negotiated because they affect cash-flows for the successful contractor as well as the level of risk that must be borne by the contractor and the government.

Table 8.1: Potential revenue mechanisms for non-timber forest outputs***Fuelwood and charcoal***

1. Fees on fuelwood or charcoal entering established commercial markets, or at road points leaving forest areas. Fees by volume, truckload, weight or other simple-to-measure characteristics.
2. Commercial fuelwood cutting permits, or charcoal production permit.
3. Household fuelwood permit - modest or token annual or multi-year simple permit, used basically to track fuelwood harvesting and use, and to emphasize that the forests are publicly owned.
4. Community fuelwood contract and licence for the community management of fuelwood resources in a specified public forest.

Subsistence resource use

5. Prices or fees may not be appropriate for most subsistence resource uses because of administrative complexities and for income distribution reasons.

Recreation revenue mechanisms

6. Annual and daily entrance fees for parks and recreational facilities.
7. Campground fees, picnic site fees and fees for other facilities.
8. Differential fees between facilities to encourage use of less crowded or under-used facilities.
9. Peak and off-peak fees to encourage off-peak and ration peak usage.
10. Differential fees between national residents and foreign visitors.
11. Voluntary contributions to specific uses and special funds.

Hunting and fishing

12. Licence fees, annual and daily.
13. Differential licence fees by region, location or species.
14. Pre-sold tags for each animal or fish to be caught.
15. Voluntary contributions to specific funds to finance management or enhancement.

Watershed management outputs

16. Annual water use licences based on licensed volumes of withdrawals or in situ usage.
17. Water power rentals for hydro-electricity.

Accounting prices for non-market resource outputs and values

18. A variety of accounting prices could be utilized, not as revenue sources, but as internal prices for forest management, multiple-use management, land management, departmental budgeting and planning.

Seven different payment systems are described below: (1) fixed price contract, (2) annual or periodic payments plus bonus bid contract, (3) per unit quantity contract, (4) per unit quantity plus bonus contract, (5) cost plus contract, (6) incentive contract, and (7) contingency contract.

8.5.2.1 Fixed price contract

Under a fixed price procurement contract, government pays a fixed sum of money independent of other factors (economic conditions, the

contractor's actual costs, etc.). The contract price is simply the amount of a firm's bid or the negotiated contract price. It is the simplest method and a common form of government contract in procuring goods or services (Cassidy, 1994).

This method is most appropriate for short-duration projects, or contracts involving small amounts of money. Under these procurement contracts, payment is generally made once the contract has been completed. This provides an incentive for contract compliance (quality of

product or service). The contract may also include "hold-back" provisions of a proportion of the final payment until contract performance has been verified, or the programme is operating satisfactorily. In other cases, payment may be broken down into a series of payments over the life of the contract at specified stages of completion. This will provide the contractors with a cash-flow to cover part of their costs, while spreading out payment for the government. However, to provide an incentive for the contractor to complete the project, it is important that a sufficient proportion of the payments be held until completion of the contract and that the "hold-back" be sufficient to encourage completion and performance.

There are advantages and disadvantages to this type of contract. It is a simple contract to design and award. Administration costs are generally low, and collecting payment is simple. However, as the contract price is fixed, after the contract is signed the contractor will bear all the risks associated with changes in costs, prices, interest rates and other factors that affect project finances. As a result, contractors will raise their bids and the price of goods and services to the government may be higher.

8.5.2.2 Annual or periodic payments plus bonus contract

This method is applicable to longer-term and ongoing procurement contracts. Annual or periodic payments are specified in the contract and bidding or negotiation takes place on a bonus payment over and above these. The bonus may be an initial, annual or periodic one.

This type of contract is almost as simple to administer as the fixed price contract. Administration costs are generally low. However, as with the fixed price contract, once the contract is signed the contractor bears all the risks associated with changes in costs, prices, interest rates and other factors that affect project finances.

8.5.2.3 Per unit quantity contract

Payments may be specified on a per unit output basis. Payments are made periodically (monthly or quarterly, for example), based on the amount (volume, number, etc.) of the goods or services produced. This approach is appropriate for contracts of longer duration, or

when the total contract is large. In contract administration this method requires regular and systematic measurement of the quantity and quality of the goods or services produced, and agreement between the parties on output quantity and quality. The measurement procedures and output quality of these contracts will need to be audited or checked. Measurement of project output and auditing will add to the cost of contract administration. It can also open up opportunities for bribery and corruption.

8.5.2.4 Per unit quantity plus bonus contract

This type of contract is identical to the previous one, with the addition of an initial or annual lump sum bonus. The bonus is determined by competitive bidding or negotiation.

8.5.2.5 Cost plus contract

Under this contract method, the government pays a fee to the firm plus the firm's costs in carrying out a project which could be based on lump sum or per unit production as described above. This method is used for capital projects, such as construction of roads and facilities, but it may also be used for contracts to provide services, such as forest inventory, inspections, log measurement (scaling), forest certification, etc. Governments may have to use this contract method when there is uncertainty over the time and costs associated with the contract and contractors are unwilling to bid for the contract under other contract methods. Under cost plus contracting, the government assumes the full cost of completing the project, and all risks are therefore borne by the government. A problem with this method is that the contractor has no incentive to keep down or control the costs of the project. In fact, if the contract is written in terms of costs plus a percentage of costs, the contractor will have an incentive to increase costs and therefore his profit. Cost plus contracts can easily result in large cost overruns from the initial estimates, which must all be absorbed by the government. For these reasons, cost plus contracts should be avoided wherever possible.

8.5.2.6 Incentive contract

The incentive contract combines some of the features of the cost plus and the fixed price contracts. With this method, the government's payment depends on both the firm's bid and the actual costs for completing the contract. If

the actual costs exceed the bid, then part of the cost overrun is paid by the firm and part by the government, according to a pre-arranged sharing ratio. If the costs are less than the bid, the government and the firm share the savings. Thus, both the government's payment and the contractor's profits vary with the costs actually incurred. Risk is shared proportionally between the two. The reasoning for this method is that, with the government accepting some of the project risk, contractors will be willing to accept a lower profit or rate of return and, as a result, they will submit lower bids for the contract.

The advantages to government of the incentive method are that it will attract more potential contractors because risks are shared with government and the contractor's risks are lower. Therefore, there is potential for more bidders and for lower bids. A major disadvantage of incentive contracts is that the government must have a reliable means of assessing and auditing the contractor's costs.

8.5.2.7 Contingency contract

Where information on the project or activity is well known to both government and contractors, a contingency contract may be used. Under contingency contracts, the size or level of payments depends on the specified factors of the project or activity. For example, payments under a road construction contract might be based on soil conditions, the amount of gravel available, the amount of rock requiring drilling and blasting, etc. This payment system reduces the risk and uncertainty which contractors must contend with in preparing their bids and in carrying out the contract (McAfee and McMillan, 1988). The contractor's payments vary directly with the underlying cause of unpredictable cost. In the contingency contracts, the contractors and the government must agree ahead of time on which aspects of the contract risks are to be shared.

There are two drawbacks to this method. The first is that, like the incentive contract, the two parties must agree on a method for assessing when conditions have changed in such a way that costs are higher than originally estimated. Agreement must also be reached on who is responsible for taking and interpreting the required measurements. Again, independent of who assumes this responsibility, the other party must somehow audit procedures,

so the costs of contract administration are higher. The second shortcoming is that under contingency contracts the government will absorb almost all the risk associated with cost overruns resulting from higher cost conditions.

8.6 Chapter summary

- The appraisal of values assigned to forests by society, the establishment of a forest revenue system that reflects those values in forest contracts, is one of the most important tasks in the administration of public forests. It affects not only forest revenues, but also the behaviour of forest users, bidding on forest contracts, and the utilization and management of the forest.
- The first part of the chapter deals with forest values and appraisal methods, both for timber and non-timber forest outputs and values.
- Values and prices, market and non-market values are distinguished. Forest levies, forest revenue systems, stumpage values and economic rent are defined.
- Various timber appraisal methods are explained. The advantages and problems in applying each are identified.
- Forest utilization contracts have value in addition to the timber. The factors that give rise to these values are identified. It is suggested that these values be reflected in separate forest levies on forest contracts.
- The several types of non-timber and non-market forest values are defined and described, with examples. Valuation concepts of application to the diverse set of non-timber forest outputs and values and non-market values are identified, defined and explained.
- Various valuation methodologies applicable to non-timber and non-market forest values are explained.
- The second part of the chapter deals with forest fees, the choice of fees for forest contracts, the advantages and disadvantages of the different forest fees, and the choice of forest fees in the design of a forest revenue system.
- Forest fees on timber which are reviewed include volume-based stumpage fees, per tree stumpage fees, lump sum timber sales, forest fees on processed forest products (sawnwood, veneer, plywood, etc.) and export taxes on logs and processed forest products.
- Forest fees on forest lands and tenures which are reviewed include initial licence fees and renewal fees on forest contracts, area-based fees and annual allowable cut fees on contracts, and property taxes.
- It is suggested that a forest revenue system include both fees on timber and fees on forest lands and tenures.
- Forest fees for non-timber and non-market forest uses were discussed and selected examples of potential fees suggested.
- The chapter concluded with a discussion of pricing and payment methods for procurement contracts. Seven types of procurement contract, their payment methods and their advantages and disadvantages were described.

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9

Contract award and competition

What this chapter covers:

- The goals and governance principles in contract award.
- The overall importance of competition in contract award for achieving sustainable use of forests.
- Five methods for contract award, their stages, requirements to function and use in the real world: auctions, competitive negotiation, auctions-negotiation, and direct negotiation.
- An introduction to the techniques and principles for good negotiation.

9.1 Overview

In awarding contracts, governments have an important and powerful opportunity to influence forest use and forest management, and to ensure that contract terms are complied with. The use of **competitive processes** for granting contracts will secure transparency, accountability and economic efficiency, as well as the sustainability of forest resources.

In this chapter, it is argued that the main goal of governments, when granting forest contracts, should be to achieve three things - the highest price for the resources granted, that resources be used for the production of the goods and services most valued by society, and that forest sustainability be secured. It is also argued that the most effective means of achieving this goal is by bringing **competition** into the process of contract award. The chapter shows how competition contributes to increasing (1) stability of political decisions on contracts, (2) transparency in the administration of public forests, and (3) collection of revenues.

The concept of **economic efficiency** and the implications of competition on forest contracts are briefly discussed. Four methods of contract award are presented. The first one, the auctions method, due to its appropriateness for bringing competition into the process of contract award, is discussed in detail. The other methods discussed are *competitive negotiation*, *auction-negotiation hybrid allocation*, and *direct negotiation*. Considering the key role that

negotiation plays in all the processes of resource use through contracts, the principles of negotiation are discussed in the final section.

The audience for this chapter includes technical experts and government officers involved in the design and awarding of government contracts. The chapter will also be of interest to individuals, environmental and other non-governmental organizations involved in monitoring performance of forest utilization contracts in public forests or contracts for provision of goods and services, or those involved in monitoring government performance in contract administration.

9.2 Contract award: the goal of economic efficiency in forest contracts

The fundamental goal that must lead governments in contract award is to systematically grant contracts to the most efficient contractors, those that in addition to having the experience and professional ethics are also able **to produce the outputs (utilization contracts) or provide services (procurement contracts) at a minor cost. This is known as productive efficiency.** Awarding contracts to the more efficient contractors has several important implications for society's well-being and for the sustainability of forests resources. The most efficient contractor is the one able and willing to pay the highest price for a utilization contract or the one offering

services at the lowest cost under procurement contracts. That allows governments (in utilization contracts) to obtain the highest price for the forest resources. Such level of price is normally more in line with society's expectations that result in a higher stability for contractors' operations.

Awarding utilization contracts at the highest price, and procurement contracts at lowest cost, results also in a lowering of the rent gain to the contractors. A lower rent gain is an incentive that moves contractors to look for innovations and technologies that bring higher productivity. Therefore, contractors become less prone to using production methods that result in wastage of timber. At the same time, a contractor's margin for bribery and for inducing public officers into corruption is reduced.

The more efficient contractors are also more able to bear the cost of abiding to the terms of the contract and to absorb the costs derived from using the resources for the **production of the goods that are required by society: allocative efficiency**. For marketed forest products, this means that timber is used to produce the highest valued products. For example, the production of high-value sawnwood rather than low-value pulpwood, or the production of high added-value goods that result in the generation of a higher number of employment and economic activities. It also means better possibilities of using forest sustainable management practices at the same time that prices are kept competitive at national and international markets.

Additionally, by granting contracts to the most efficient contractors, governments get more financial resources with which to achieve the goal of **distributional efficiency**. **These increased financial resources may be used to compensate the sectors of society negatively affected by the use of forests and for taking care of the less benefited social groups**. They may also be used for investing in resource conservation and development programmes.

The achievement of productive, allocative and distributional efficiency is known as **economic efficiency**. In the following sections, it is argued that **competition** is an essential condition for achieving economic efficiency, and the methods to introduce competition in the process of contract award are discussed.

9.3 The principle of competition in contract award

The goal of economic efficiency guides a majority of the actions and programmes in the public sector of developed countries and its adoption has been an important factor in the economic progress experienced by many developing countries during the last decades. Its application to forest contracts should bring substantial improvement to compliance with contract terms, and therefore progress towards the sustainable use of forest resources. The question to be answered at this point is through which means can forestry officers better pursue the goal of economic efficiency in contract award? Experience has shown that introducing **competition** in the process of contract award is one of the most effective ways of achieving the goal of economic efficiency. In addition to promoting the achievement of economic efficiency, competition in the process of contract award has two other major benefits for sustainable forest management:

Reduction of uncertainty regarding the policies and terms of contracts for the use of forest resources. Competitive awarding processes reduce the uncertainty normally associated with the procedures for price determination, selection of contractors and negotiation of contract terms. The direct result is a higher participation of interested parties and the public in the formation of the terms of contract, and an increased political stability in decisions taken. In turn this results in a reduction of the perceived risks and uncertainty among potential contractors.

For forest utilization contracts, less uncertainty means an increase in the value of the contract and in the potential government revenues from the contract and the forest resources. In procurement contracts, less uncertainty reduces the cost of the contract and improves the level and quality of the goods and services provided.

Reduced uncertainty is achieved by the increased information with which prospective contractors are provided under the competitive process of contract award, and by writing contracts with clear unambiguous terms and conditions. This does not mean, for example, that the forest fees in forest utilization contracts, or the payments in contracts for procurement of goods and services, need be fixed. But it does

mean that the method for establishing or revising fees or payments must be clearly established in the contract and consistently applied. In competitive auctions, any reduction in uncertainty will raise the bidder's expected value of the contract and lead to higher bids (Smiley, 1979).

Transparency. The simple fact that competitive processes demand that government actions be developed under explicit procedures, and often with the intervention of controlling authorities, results in substantial improvement of transparency in the governance of the forestry sector. Transparency in the process of awarding forest contracts is important to reduce the potential for bribery and corruption, achieve efficiency in the award process, ensure that the resources are allocated to their most valuable use, and maximize the financial return to the government (World Bank, 1997). Generally, the use of a competitive process for contract award tends to diminish the chances of corruption. If well used it increases the probability of detecting mismanagement and lowers the level of public benefits and bargaining powers of public officers. In countries where those chances might exist, special attention has to be given to reserve prices, selection of bidders and opening of bids, and information distribution. An explicit process and planning ahead also result in less expensive administrative processes.

Governments can bring competition to contract award through various methods. **Auction**, a public sale in which each bidder offers an increase upon the price offered by the preceding bidder, the article put up being sold to the highest bidder, for valid reasons, is one of the most recommended means of bringing competition into the contract award process.

By creating competition amongst the various contractors interested in a particular contract, governments are in a better position to reap the benefits derived from working under economic efficiency. The various forms of contract award, particularly auctions, their benefits, causes of failures and remedies are discussed below.

9.4 Auctions and other methods of contract award

Four methods of contract award are discussed in this section: auctions, competitive negotia-

tion, auction-negotiation hybrid allocation, and direct negotiation. They are discussed in turn along with the advantages and disadvantages of each, and the conditions under which each may be appropriate, such as level of competition.

9.4.1 Auctions and the benefits of competition in contract award

Let us assume a hypothetical and ideal situation in which there is a known surface of forest formed by a single marketed tree specie whose price is known. In this situation, the government's officers trying to achieve the goal of economic efficiency can call all interested logging firms to participate in a public auction based on timber price. The higher the price paid by the logging firm, the better for society. Hence, the logging firm that **bids** higher wins the forest contract. This type of auction is the simplest one and is known as *first bid public auction*.

The general procedure (see details in section 9.4.1.3) that ends up in granting a contract through this auction design is made up of four stages:

First, advertisement announcing the auction.

Normally made through official government means of communication, nation-wide and, when necessary, international mass media.

Second, acceptance of participants in the auction or pre-qualification. In order to be accepted, the contractors should have the technical and economic capacity to carry out the actions set out in the contract's terms and the skills and evidence of accountability as might be required by the government unit organizing the auction.

Third, development of the auction itself. On the day and place established in the advertisement, the auction committee formed by the authorized officers and watchdog authorities meet with the bidders. Bidders bid, for example on *first bid auction*, each bidder offering a price higher than the preceding one.

Fourth, granting the contract. Through a formal act, documented for future legal purposes, the item put up or contract is granted to the highest offer.

But in the real world, government officers rarely find themselves in such ideal situations. There are a number of factors that may cause public auctions to fail or result in non-desirable

outputs. The government officers should always be alert to avoid situations in which even through auctions contract award could end up in non-optimal results. Some of the more important causes of auction failures are the **possibilities of bidder collusion, chances of government corruption, issues of quality and changing technology, hold up problems, the bidder's course case, small number of bidders, and the lack of information on the value of the resources being put up.** To confront this situation, various *auction designs* have been developed. Some of the most common types of auctions are described below with a discussion on the situations and rationality that call for their use.

9.4.1.1 Open auctions

First bid open auctions. The first bid open auction (also called open outcry auction) described in the section above as an example falls under the category of auctions known as open auctions or the open bidding process. In open bid auctions, all bidders are gathered for the auction at the same time and place (or connected electronically). Each bidder knows what his competitors are willing to pay and uses this information to make or not his own bids. The auction proceeds by bidders signalling bids to an auctioneer who calls the next bid level, until only the highest bidder remains. The highest bid wins the forest utilization contract, or the lowest bid the procurement contract.

Several different methods of bidding are possible. Ascending bid or descending bid auctions are the most common. In ascending bid auctions for forest utilization contracts, bidding starts from a minimum, or reserve, price set by the government. It may be set higher through use of an appraised price for the timber and the contract. Bidding moves up from the minimum price until no bidder is willing to bid higher than the last bid price. The forest utilization contract is awarded to the highest bidder.

Descending bid, also called Dutch auction (Milgrom, 1989), for forest utilization contracts starts from a ceiling price, set above the estimated maximum willingness-to-pay of any bidder. The auctioneer then moves the price down in increments until a bid is made. The auctioneer will not go below a minimum reserve price (set as described above), which is not known to the bidders.

Open bid auctions are one of the auctions designed and used for awarding forest utilization contracts. They are not normally used in awarding procurement contracts.

Open bid auctions are appropriate where it is easy to gather bidders in one place and where there will be a reasonable number of them to minimize collusion. Open auctions are particularly useful where several forest contracts are auctioned at the same time with a large number of bidders gathered. In open bidding auctions, if there are few bidders, collusion among them will be relatively easy, as they can meet beforehand and organize collusive bidding strategies, or watch each other during bidding (Crampes and Estache, 1997).

Klein (1998) noted "They are also convenient when part of the bidders do not have good information about the value of the concession. Open bidding gives them some better information because it reveals what others are willing to bid. If pessimistic bidders see that everybody is still bidding when they are thinking of quitting, they might continue to bid. And if bidders see that most others have started to drop out, they would revise their valuation downward".

When dealing with technically complicated matters, open auctions set a stage in which technical proposals are first made comparable and then the bidding starts in a second stage, normally bidding based on one major core parameter, like commercial timber, or a price per hectare.

Open bid auction drawbacks. This type of auction does not reveal what the winning bidder might have been willing to pay (first bidding price design), because bidding stops when the winner offers just a little more than the second-highest price, but nobody sees how much more could have been obtained. The second bid open auction was designed with the intention of avoiding this inefficiency.

9.4.1.2 Sealed bid auctions

Standard sealed auctions. In sealed bid auctions, interested private or independent contractors prepare their offers. Bids are submitted in writing and opened after the deadline for submission. Bidders will not know how much other bidders have offered unless there is collusion among them. The one who bids the highest price wins the contract.

Vickrey auctions. A variation of the standard sealed bid is the second bid open auction

known also as Vickrey (Vickrey William, *Counter speculation, auctions, and competitive sealed tenders*, Journal of Finance, March 1961, 16: 8-37). It is argued that in many sealed bid auctions, as well as in open bid/first bid auctions, bidders may offer less than the maximum amount they would be willing to pay for the resource being tendered. Under the Vickrey, or "second price" auction, this problem is addressed by awarding the resource to the highest bidder, but at the second-highest price. "The successful bidder pays the second-highest bid. In second-price auctions bidders bid what they think the contract is worth. They do not need to think about other valuations and can thus focus on valuing their own bid. This ensures that bidders are not inhibited from bidding the amount they would be willing to pay for the resource, because if they win they will pay less than that amount" (Klein, 1998). Ausubel and Cramton (1998) have demonstrated that Vickrey auctions result in higher bids than standard sealed bid auctions where subsequent transfer of the asset (contract) is possible, but not necessarily if transfer is not possible.

If there are few bidders for the concession, it is likely that there may be a large gap between the top two bids under the Vickrey auction, so that using a first-bid system is preferable (Klein, 1998).

Sealed bid auctions are used in awarding both forest utilization contracts and procurement contracts. For forest utilization contracts, the contract is awarded to the highest bidder or, in the case of a merit system, to the bidder with the highest point total. For procurement contracts, the contract is awarded to the bidder offering the lowest price or, in the case of a merit system, to the bidder with the highest point total.

In sealed bid auctions, a minimum, or reserve price, is usually established for forest utilization contracts, or a maximum price in the case of procurement contracts. This reserve price may be announced to bidders or kept secret. Secret reserve prices have been found to result in higher bids in timber auctions (Elyakime et al, 1997). This is perhaps because keeping reserve prices secret reduces opportunities for low collusive bids (Klein, 1998).

Several studies have suggested that sealed bid auctions generate a higher price for forest utilization contracts than open bid auctions

because they provide less opportunity for tacit or open collusion among bidders (Brannman, 1996).

9.4.1.3 Steps in awarding contracts by competition

The previous sections showed the advantages of introducing competition into the process for awarding forest contracts through competitive bidding. If competition is to operate successfully, it is important to design and plan the competitive contract award process with care. This section details the steps involved in awarding forest utilization contracts and procurement contracts under competitive bidding, competitive negotiation or auction-negotiation hybrid systems. The discussion emphasizes the necessary requirements for carrying out the competitive award process in a fair, transparent and equitable manner.

There are six main stages in the competitive bidding or competitive negotiation processes, or in auction-negotiation hybrid systems:

1. Invitation to tender, or request for proposal.
2. Advertise the contract and invite potential contractors.
3. Pre-qualification of bidders.
4. Submission of bids or proposals.
5. Review of bids or proposals and contractor selection.
6. Negotiation of the final contract conditions.

Invitation to tender, or request for proposal

In this first step, detailed specifications are developed for the requirements of the sale of forest rights under the forest utilization contract, or the requirements of the procurement contract. The criteria for selection of the winning contractor should be clearly outlined, and the definition of all terms and conditions of the contract clearly specified.

It is necessary here to clarify the difference between an *invitation to tender* (ITT) and a *request for proposal* (RFP). Both are documents issued to interested contractors which describe in detail the sale of forest rights or procurement needs. Both are requests for bids from interested contractors. Both specify the dates by which offers must be received, as well as the formal process for evaluation of bids and selection of the successful contractor (or rejection of all bids). The differences lie in the specification of the contract requirements. *Invitations to tender* are very specific in the requirements of

what is to be done. *Requests for proposals* are used when the detailed specification for the procurement project, or the sale or lease of forest rights, cannot be provided to the same degree as in an invitation to tender. In *requests for proposals* the government employs the expertise of the various contractors to help define alternative methods or terms and conditions for the contract. In this sense the *request for proposal* is a two-step process.

The invitation to tender or request for proposal is the "blueprint" that allows a bidder to determine accurately what is involved in both preparing a bid and carrying out the contract if they are successful. *The invitation to tender or request for proposal* should be designed and written with care as it forms the basis for the bids. For forest utilization contracts (leases, licences or short-term permits) a valuation of the resources involved in the contract should be conducted prior to the release of the ITT or RFP, and the minimum bid or "reserve bid" should be determined.

Advertise the contract and invite potential contractors

The second step is to announce and advertise the contract, and invite expressions of interest, tenders or proposals. The contract may be advertised regionally, nationally or internationally; potential contractors may be contacted direct and invited to bid, or both advertisements and invitations may be used. The choice of method will depend on the size and nature of the contract, and on the potential bidders. The objective is to achieve as much competition as possible. Therefore, as many qualified contractors as possible should be attracted, to ensure the greatest number of bidders for the contract or resources being put up under auction or competitive negotiation.

The size of the contract will influence the number of bidders. The larger the contract, the fewer the number of contractors who will be able to meet the requirements. Fewer bidders will reduce competition and thus the government's ability to capture or negotiate a fair share of the value of the resource, or to secure the lowest possible cost under procurement contracts. This is a fact that governments should take into consideration when formulating policies regarding the forestry sector.

To attract bidders, the government will need to allow enough time for contractors to evalu-

ate the contract requirements, and to put together and submit the bids or proposals. The information package and any additional information on the contract must be available and distributed to potential contractors well ahead of the auction. Where pre-qualification of bidders is carried out, the minimum pre-qualification conditions will need to be established and indicated in the announcement.

There are several steps that may be taken to limit the opportunity for collusion or bid rigging among bidders:

- The invitation to tender or request for proposals should be written with broad contract specifications to attract as large a number of interested bidders as possible, and so that potential bidders are not precluded from bidding unnecessarily because they do not have the required equipment or other resources.
- Specify the contract and bid requirement in terms of project components, or even by components of line items, rather than in a single lump sum bid. Requiring bids in terms of components or line items will assist in comparing bids and identifying where contractors' bids differ.
- Require identification of those involved in preparing and approving the bid for the contractor as well as detailed information on sub-contractors involved.
- Whenever possible expand the list of bidders participating.

Pre-qualification of bidders

It may be useful to invite potential bidders to submit information on their qualifications to ensure that they have the capability and capacity to undertake and manage the forest and to complete the contract. This may limit the number of potential bidders, but it will ensure greater uniformity of bidders, facilitate the evaluation of bids or proposals, and reduce the administrative costs in awarding contracts.

Pre-qualification of bidders may help to ensure that unreliable bidders do not take part in the auction. Pre-qualification also helps the government to gather information on the interest and "willingness-to-pay" of potential bidders (Crampes and Estache, 1997). It may also act to ensure that all bidders conform to certain required criteria (Klein, 1998). However, pre-qualification procedures may involve subjectivity in selecting qualified bidders, and

therefore it may become open to influence, favouritism, bribery and corruption (Klein, 1998).

Information submitted for pre-qualification could include company financial and ownership information, subsidiary and related companies, information on their operations in the country and in other countries, annual reports to shareholders and audited statements for the past three years, and preliminary information on their proposed operations in relation to the contract. More detailed information would be required of qualified bidders as part of their tender or proposal.

Entry fees. Competitive bidding can transfer the cost of gathering information on the forest, the contract and contract conditions to potential bidders (Gillis, 1992). However, the difficulty and costs to potential bidders in obtaining information on the forest, the timber, the contract requirements, and the costs of fulfilling the requirements can be a significant problem in auctioning forest contracts. There are high costs incurred by potential contractors in information gathering, and duplication of effort if each bidder must gather the same information. The costs along with the risk and uncertainty of inadequate information can discourage bidders and result in lower bids on forest utilization contracts or higher bids on procurement contracts for goods and services (Gillis, 1992).

One way of overcoming this difficulty is for the government to undertake or contract out the forest inventory, information gathering, and project cost analysis. The government can then make the information available to all bidders by charging potential bidders an entry fee for the bid package to cover the cost of the information gathering (French and McCormick, 1984). This can be more cost efficient than each potential bidder collecting the information independently. Charging entry fees may reduce the number of bidders, but it may mean that only seriously interested bidders participate. And it may increase bid levels, as bidders will incur fewer costs in information gathering and less risk and uncertainty about the forest (French and McCormick, 1984).

Submission of bids or proposals

The invitation to tender or the request for proposal should include a specific time, date and place where bids must be delivered. This is usu-

ally included in the contract advertisements and announcements.

When the deadline date and time have arrived, the bids are opened in public and the names of those who tendered bids are announced. The deadline for receiving bids would have to be strictly observed to avoid any appeals or legal challenges. Late submissions should not be accepted. For transparency, sealed bids should be opened in public, making corruption, bribery, wrongful award or other illegal practices more difficult to conceal (McAfee and McMillan, 1988).

Oral bid auctions are visible and transparent, but they increase the opportunity for behind the scenes collusion among bidders, tacit or implied threats to bidders, or tacit collusion among bidders. Combining sealed bids with the opportunity to improve on verbal offers at a subsequent oral auction can combine some advantages of oral bidding and sealed tenders. However, if this procedure is to be used, bidders must know ahead of time, so that they may prepare and be present at the opening of the sealed bids.

Review of bids or proposals and contractor selection

The next step is the review of all bids or proposals. A few important guidelines should be followed:

- Bids or proposals should all be evaluated by the same criteria to ensure equity, impartiality and transparency. The criteria for evaluation of the bids or proposals should be in the initial *invitation to tender or request for proposals* announced, or available before the bids or proposals are developed.
- All bids or proposals that meet the criteria to qualify should be evaluated and ranked.
- Bids and proposals that do not qualify should be rejected and not evaluated.
- Bids and proposals should be evaluated only by the criteria stated in the initial invitation to tender or request for proposals.
- If it is desirable to give preference to national companies, then the nature and extent of the preference should be stated in the initial *invitation to tender or request for proposals*.

Criteria for selection should include, as a minimum:

bids include the contractor's history and experience in similar projects or contracts (references or recommendations from previous clients), the capacity to carry out the contract (financial, manpower and organizational capacities), and the bidders' additional commitments in their proposals. The best proposal is then selected from among the qualifying submissions for negotiation of final terms and conditions.

This approach to contract award may be appropriate when government seeks independent ideas from potential contractors on how to harvest the timber, manage the forest or provide forest management goods and services.

There are some advantages to this approach to contract award. First, competitive negotiation is less formal than competitive bidding, so, once a contractor is selected, the major terms of the contract may be refined and consolidated in negotiations with the chosen contractor. Alternatives proposed by the other bidders may also be incorporated into the negotiations to improve the overall proposal and the final contract.

Negotiating skills are very important under this form of contract awarding, but the negotiating position of government is greatly improved compared to direct negotiation (sole source contracting). The government has additional information, costs and prices from the other proposals that it may use in negotiations with the chosen contractor. In addition, the increased number of competitors will raise the level of the prices and commitments for forest utilization licences, or reduce the costs bid on contracts for provision of goods and services.

Another advantage in competitive negotiation is that, in negotiations, the contractor is able to explain and justify the various elements of the bid, perhaps leading to arrangements for sharing risk. Competitive negotiation may also help to establish a more cooperative government/contractor relationship that can help in administration of the contract over its term. Finally, competitive negotiation may have administrative advantages over competitive bidding. It is more flexible and less demanding in terms of administrative process and control. For the government, competitive negotiation reduces the costs of bid preparation compared to competitive bidding (Klein, 1998).

However, there are important disadvantages to competitive negotiation. First, it will not achieve transparency. Negotiations between

the government and the chosen contractor are not open to public scrutiny. It therefore provides opportunities for collusion, bribery, corruption and political favouritism. Competitive negotiation will be administratively more costly than direct award, simply because there are more potential contractors and more bids and proposals to evaluate. However, it will likely lead to improved contracts, higher prices on forest utilization contracts, lower costs on contracts for provision of goods and services, and easier supervision and monitoring of the final negotiated contract. In choosing this option, governments must balance impartiality and transparency in the award process against the benefits of added flexibility and the potential of a better final agreement.

9.4.3 Auction-negotiation allocation systems

Achieving the competitive conditions for effective operation of the competitive bidding system may be difficult in many countries, and in many local situations within countries, especially in the forestry sector. Hybrid systems involving combinations of negotiation and competitive bidding may therefore be useful where it is difficult to achieve fully competitive bidding.

Hybrid methods have commonly been used in awarding oil and gas exploration and development contracts. For example, in Indonesia exploration contracts are awarded to companies offering the highest "signature bonus" (Gillis, 1992). Signature bonuses have been sizeable, especially for more promising tracts. Gillis suggested that signature bonuses could be useful in allocating timber rights and in forest revenue systems to capture a larger share of the value of the forest contract (economic rent) (Gillis, 1992).

When forest contracts are allocated by negotiation, conducting competitive bidding in those areas of the country where there will be competition will provide an indication of the true value of the contracts. It will then provide a basis for negotiating the value of forest contracts in other areas of the country (Grut, Gray and Egli, 1991).

9.4.4 Direct negotiation or sole source contracting

In direct negotiation of contracts, or sole source contracting, only one contractor is involved, and that contractor, along with the

officials representing government, negotiates the terms and conditions of the contract. This method is applicable when there are few potential bidders, when there are few, or only one, qualified contractors, when a monopoly situation exists, or when one contractor has the specialized skills required to fulfil the contract requirements.

If direct negotiation, or sole source contract method, is chosen, the government, in order to be in a strong bargaining position, must have as much information as possible on the forest conditions, the value of the forest, the costs of contract performance and the contractor involved. It is important for the government to specify the contract requirements in as much detail as possible. It is also important to establish the set of criteria to evaluate proposals from the contractor, so that they may be used in the negotiation process. Negotiation skills are crucial in sole source contracting. Recommendations for negotiating under a number of different situations are included in section 9.5 of this chapter.

The advantages of direct negotiation are that they allow some flexibility in negotiating major terms of the contract after the contractor is chosen. The administrative process is simpler, cheaper and quicker. Therefore this method will be appropriate when a contract must be finalized quickly, e.g. for provision of emergency forest fire fighting, salvage logging of damaged timber, or for small contracts for goods and services. In most cases, direct negotiation will not be appropriate for awarding long-term forest utilization contracts. Direct negotiation is appropriate only for short-term utilization contracts for small volumes, pockets of timber, and salvage harvesting of fire-, insect- or disease-damaged timber.

A major disadvantage of direct negotiation is that governments are usually at a significant disadvantage during negotiations, particularly with respect to price. The government usually has less information on costs and prices than the contractor, who is able to prepare and present costs and prices data to serve their own interests. This disadvantage may lead to higher costs in the purchase of goods or services, or lower revenues in selling forest rights or assets. A study of the US Department of Defence weapon procurement practices examined unit prices on major weapons systems procured on a sole-source basis compared with those pro-

cured by competitive bidding. Competitive procurement resulted in savings of 16 to 80 percent, with an average saving of 51 percent (Yuspeh, 1976).

The other major disadvantage of direct negotiation is that the process is usually highly secretive or completely confidential. Therefore, it ranks low in terms of transparency. It provides opportunities for bribery and corruption, and leaves the government open to accusations of favouritism, collusion or conflict of interest.

Direct negotiation has been the most common method of allocating forest concessions in Africa and Asia (Gillis, 1992). Prospective concessionaires apply for a concession, and are awarded concessions following negotiations with the forest administration. This has allowed considerable possibility for collusion and 'financial irregularities' to occur (Grut, Gray and Egli, 1991; Gillis, 1992). Because of this, and because it has not produced the potential benefits or forest revenues, this method is not recommended for long-term forest concessions (Grut, Gray and Egli 1991; Gillis, 1992; World Commission on Forests and Sustainable Development, 1999).

9.5 Principles and skills for improving negotiation capacity

Negotiation is an important component of most forms of contract award. In competitive and direct negotiation, or sole-source contracting, the government's capacity to negotiate is a determining factor in achieving deals that are fair to society and that secure sustainable use of forests. With competitive bidding, negotiation is not involved in awarding the contract, but negotiation is still involved in the timing of the deliverables, payments, details of performance requirements, and other minor items. In order to be effective in negotiations, governments must ensure that key people are knowledgeable in contract negotiations, and have the expertise and training in the skills of negotiation to do an effective job. Effective negotiation will take less time, cost less and produce superior results, so it is worth the effort to develop this expertise within the public sector.

There is a large amount of literature available on negotiating, methods and techniques. This section reviews negotiation techniques which are widely used, based on the principle of negotiation developed by Fisher, Ury, and Patton of the Harvard Negotiation Project (Fisher, Ury, and

Patton, 1991). The three major stages in negotiation are explained together with the special characteristics of negotiation in an international setting. This review of negotiations concludes with ways to deal with power imbalances which are a common occurrence in negotiations with large international companies.

9.5.1 Styles of negotiation

There are two main styles of negotiation: the traditional competitive approach, and the cooperative approach. In the competitive style of negotiation, the objective is to win. "Winning" is defined as doing better, or getting more (i.e. a larger share), than your negotiating adversary. Negotiation is viewed as a zero-sum game in which one side wins and the other loses. Competitive negotiation tends to be confrontational in nature, and thus it may negatively affect the relationship between the parties (Stanford, 1994). Because the emphasis of competitive negotiation is to "divide the pie", scant attention is paid to "making the pie bigger". Often opportunities for mutual benefit are lost in the adversarial nature of the discussions. Competitive negotiation involves granting concessions until an agreement is reached. This form of negotiation is often employed in single contract transactions where the parties do not anticipate an ongoing relationship with further contractual arrangements between them. However, many forest contractual arrangements involve long-term, ongoing relationships. A different approach to contract negotiations can adversely affect the ongoing working relationship between the two parties, to the detriment of the agreement itself.

The objective in cooperative negotiations is to get the most you can for yourself or your organization, while finding a way to create more value for both sides than could be obtained by competing against each other. Cooperative negotiations promote good working relationships between the parties and focus on the interests rather than the bargaining positions of each side. Thus the cooperative negotiation strategy will search for "win-win" situations (Fisher, Ury and Patton, 1991). However, it does not mean that both sides get everything they want, nor does it mean that negotiations will always be amicable.

Public policy decision-making and forest contracts lend themselves to a cooperative approach to conflict resolution. Consensus

building is particularly important when the range of potential interests in public forest lands is considered. In cooperative negotiations, finding mutually acceptable solutions will promote acceptance and support for the agreements arrived at.

9.5.2 Stages of negotiation

There are three stages in preparing for, and participating in, negotiation. Each of the stages emphasizes certain parts of the overall negotiation framework.

Data collection is the first stage in which relevant information is gathered prior to the start of negotiations; information on the issues, details of the contract being negotiated, laws, regulations or international standards involved, and information on the other party and their interests. In negotiations, information is power. The more information available to each party the less the uncertainty, and the more likely a better outcome, satisfactory to both sides, will be reached. Information on the potential contractor(s) will help to identify the interests which the other side is seeking and help in reaching a better outcome. Being prepared is one of the most important steps in the negotiating process.

The analysis stage, the next stage, involves analysis of the information to establish bargaining positions and strategies. Analysis involves creating options based on the information collected and the knowledge of the interests and concerns of the other side. At the analysis stage the negotiators or team must determine the value of the contract and alternatives to the government, and the value of the contract and alternatives to the other side. The negotiators must also determine the value or cost of a "non-agreement" alternative for the government and for the other side, and the requirements with respect to price and administrative duties which must be met for an agreement to go ahead.

Data collection and analysis must be carried out prior to face-to-face negotiations. Without the analysis, the negotiators will be unable to evaluate whether or not to accept an agreement, or whether they would be better off with the best "non-agreement" alternative. It is at this stage that the style of negotiation is decided, along with the composition of the negotiating team. Other factors to be addressed in planning negotiations include the need to obtain technical expertise during negotiations, the

composition of the other team and scheduling the place and time of the meetings.

The discussion stage occurs when face-to-face negotiations take place. In this third phase, the negotiators and the team must have control and self-discipline to focus discussion on interests rather than positions to prevent the dialogue from becoming confrontational and unproductive.

9.5.3 The cooperative approach to negotiation

The cooperative approach to negotiation involves a number of important points that are highlighted below. For a full discussion of negotiation and cooperative models the reader is referred to the references at the end of this chapter.

Focus on interests not positions

The first objective in preparing and conducting cooperative negotiations is to focus on the interests of the parties. Interests reflect the needs, wants and concerns that make parties adopt their particular negotiating positions. A key point is to anticipate and understand the issues and interests that are likely to arise in negotiations and that will need to be addressed. This does not mean that the government negotiators need to agree with the other side's views. However, knowing the other party's issues and concerns may open up opportunities for workable alternatives.

Create options

Negotiators who have a sound understanding of both their own and the other side's interests are able to find ways in which these interests might be satisfied – **options** for agreement (Stanford, 1994). There are significant benefits if options are prepared ahead of time during the analysis stage, or independently after initial face-to-face meetings. Negotiating sessions which focus on developing options of benefit to both parties can take the negotiations to a more positive level, where positions are no longer discussed, interests are addressed and new options devised.

Objective standards

Conflicting interests will undoubtedly arise in negotiations. However, in negotiations, it will benefit both sides greatly if conflicts can be avoided, circumvented or overcome. One way

to minimize or avoid conflicts is to base proposals on objective criteria which are independent of the will of the negotiators or the negotiating teams. Examples of objective criteria include recognized standards, established laws and regulations, professional standards, industry practices, or community standards of behaviour or fairness. For example, in negotiating prices, instead of negotiating based on what a seller demands as the price, or what the buyer wants to pay, work towards a price based on some standard such as market value, replacement cost, depreciated book value, competitive market or international prices.

Impact on relationships

Negotiators are often in a dilemma during negotiations. They want to succeed in the negotiation, but they do not want to do so at the expense of harming the ongoing relationship with the contractor, or damaging the operation and performance of the contract. They want to achieve an agreement that will be acceptable to the other party, an agreement with which both sides can live. It is therefore important that negotiators separate the substance of the negotiation from the relationships between the parties. Concentrate negotiation efforts on the problem, issues and conflicts in the parties' interests, not on the people conducting the negotiation.

Listen carefully

Successful negotiators are able to articulate and communicate their positions clearly and persuasively. They are also able to listen and understand the other side's position, to listen and understand, rather than listening in order to prepare a rebuttal or defence. If negotiators listen, and the other party appreciates that they have been listened to and understood, it will improve the negotiating process and facilitate the identification of problem-solving options.

Commit or walk away

Negotiations may reach the point where a decision has to be made on whether a contract can be reached that will be better than no agreement or the best alternative course of action without an agreement. In the analysis phase, in preparation for face-to-face negotiations, it is important to have assessed the "non-agreement" alternative. If an agreement cannot be reached that is better than the "non-agree-

ment" option, then it is better to "walk away". Negotiators need to be prepared to do so.

9.5.4 Negotiating with international contractors

Because forest contract negotiations often involve international companies and organizations, it is important to discuss international negotiations, including their skills and special aspects. First, in international negotiations, negotiators cannot assume that a common value system will exist in the negotiations. Culture has a profound impact on negotiating behaviour. Language, oral and written communications during negotiations, is often subject to misinterpretation (Sunshine, 1990). Foreigners may not know, understand or appreciate the social customs, shared professional expectations, or fully understand the economic, political and legal systems of the host country.

For international contractors, negotiations may be complicated as well. Several host government ministries may be involved in the negotiations, the number of interested parties may be large, and the complexity of the agreement and the negotiations can be great. In negotiating contractual arrangements for public forest lands, ministries representing economic development, trade, the environment, agriculture and forestry may all be involved. Dealing with this team of representatives, and knowing the requirements, regulations, issues and objectives of all the participants on the host country's team can be difficult.

In addition, international negotiations involve a high degree of political visibility creating pressure on the national team to achieve agreements that will be politically popular. The challenge is to also achieve an agreement that is economically sound for the government and the country.

Effective international negotiators will need to have strong cross-cultural sensitivity and communication skills. Preparing for international negotiations involves:

- reviewing cultural aspects affecting the negotiating team;
- reviewing cultural aspects affecting the foreign negotiating team;
- evaluating the potential interaction of these two cultures in negotiations;
- incorporating cross-cultural sensitivity and communication into the negotiation strategies and into the negotiations;

- strengthening internal communications within the negotiating team so as to maintain a consistent negotiating strategy.

9.5.5 Dealing with power imbalances

Power imbalances between the negotiating parties are of particular concern in negotiating with large corporations and international companies. These companies have a wealth of information at their disposal, expert knowledge on forest industry costs, market prices and timber values, and substantial technical and negotiating capacities. Government institutions will often have less power, less information and less experience. In addition, large corporations and international companies are able to gain bargaining power by talking of moving their investment to other countries offering better terms.

Government organizations can, at least partially, compensate for these power imbalances by strengthening their information data and improving their analysis capability, and by careful and thorough preparation for bargaining. Data collection and analysis stages, prior to face-to-face negotiations, are crucial. Thorough preparation is the key to success. Review the team's potential sources of negotiating strength during the analysis phase. There are advantages in hosting the negotiation as it gives control of schedules, facilities and easy access to technical support and staff. Do not assume the other side knows all your perceived weaknesses. Use options designed in the analysis and planning phase to present a negotiating package that will maximize the appeal to the other party's interests as identified in the analysis phase (Sunshine, 1990).

During face-to-face negotiations, take advantage of the previous preparations. Anticipate objections from the other party to your position and know the monetary or other quantitative alternatives likely to be discussed. Continue to negotiate on the basis of merits and not positions and support those interests with objective standards.

If the other party is still intent on exploiting its power advantage, then it is essential to be prepared in advance to walk away and adopt the "non-agreement" alternative. The "non-agreement" alternative should be the standard against which any proposed agreement should be evaluated. This comparison can prevent acceptance of terms and conditions or a contract that is unfavourable.

9.6 Chapter summary

- The awarding of forest contracts has a significant impact on how public forests are used and managed. In awarding forest utilization contracts, the government decides "who will have rights to public forest", "for what purposes and what products", "how the forests are used" and "how the public forests are managed".
- The introduction of competition in the process of contract award is a necessary condition for achieving the goals of economic efficiency and sustainable forest use in forest contracts.
- The process, procedures and methods for awarding forest contracts are basically similar in awarding forest utilization contracts, or procurement contracts for the provision of goods and services. Details of processes and procedures will differ, and some of the methods are more appropriate for one or the other type of contract.
- Four methods for awarding forest contracts are described (auctions, competitive negotiation, auction-negotiation hybrid allocation, and direct negotiation) and the advantages and disadvantages identified, along with the situations in which each may be used.
- Auctions are the preferred and recommended choice where competition for contracts is possible. It is the most transparent award method. It reduces the possibility for collusion, bribery and influence. Auctions introduce a market mechanism that will result in prices that more closely reflect resource values in utilization contracts, or costs of provision in procurement contracts.
- Competitive negotiations involve some degree of competition among proposals submitted, plus direct negotiation with the selected contractor. It is appropriate where the government wants to solicit ideas and proposals, or where technical or organizational competency of contractors is important. It is administratively easier and flexible. However, it is not transparent.
- Auction-negotiation hybrid systems can combine elements of competitive bidding and negotiation to suit particular situations and utilize the advantages of the strengths of each and minimize the disadvantages.
- Direct negotiation, or sole source contracting, is appropriate where there is little competition, and for short-term and small contracts. It is flexible and quick, but the process is not transparent. Its major disadvantage is the lack of competition. As a result, the government may not get full value for resources on utilization contracts, or may pay too much under procurement contracts.
- Negotiation is an important component of most methods of contract award, even those methods involving competition. Therefore, negotiating skills are very important in achieving efficient contracts, and fair value for the resources, or reasonable costs in procurement contracts.
- Two alternative styles of negotiation are described, competitive negotiation and cooperative negotiation. Cooperative negotiation is recommended because most forest contracts involve long-term, ongoing relationships with the contractor. Several suggestions for effective cooperative negotiations are described.

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10

Contract administration

What this chapter covers:

- How to get contractors to abide by contract terms.
- The principles for contract administration.
- Monitoring of contract implementation.
- Enforcement, prevention of contract breaches and remedial actions.
- Institutional framework for contract administration.

10.1 Introduction

After a contract has been carefully designed and granted, contract implementation must start. Contract administration embraces all relationships between government and the contractor arising from the implementation of the contract. At this stage, through contract administration, governments seek to accomplish three main goals. The first one is **compliance**. When utilizing contracts, forests are managed so that outputs are produced under the conditions called for by the terms of contract. In procurement contracts, the government should ensure that the needed work or services be carried out on time, cost effectively and at the quality level stipulated in the contract terms. The second goal of contract administration is the **early identification of problems**, thus preventing their escalation, avoiding irreversible damage being caused and taking timely remedial actions when required. The final goal of contract administration is the **protection of public interests**, especially by maintaining and ensuring a competitive system and transparency of government decisions.

This chapter discusses two areas of actions indispensable for reaching contract administration goals: monitoring and enforcement. It begins with a discussion of monitoring as a means of securing compliance and early problem identification and resolution. **Monitoring**, the comparison of performance against expectation, is then described and main indicators and methodologies identified. The second topic discussed in this chapter is **enforcement**, taking remedial adjustment action to bring performance into line with

expectations (terms of contract) in cases where unacceptable deviation has been proven. Enforcement is also defined as the act of compelling the party which has not performed to pay the extra cost of obtaining substitute performance (Downes, T. A., 1995). The chapter ends with a discussion of the institutions and mechanisms necessary for carrying out monitoring and enforcement.

10.2 Monitoring and inspection of forest utilization contracts

Although contract monitoring and inspection are quite specific, and may not apply to all forests, contracts or circumstances, this section provides a blueprint that may be adapted or modified to fit most forest and institutional situations.

Regular reporting by contractors is the first stage in the monitoring and inspection of forest management in forest utilization contracts. On-the-ground inspection of the contractor's operations is an essential complementary action to secure compliance with forest utilization contracts. The inspections procedures, compliance criteria, time frequency, logistics of inspection and reporting procedures and format should be defined in detail within the contract. However, regular and routine gathering of information on operations, forest management and harvesting have a cost. The government agency responsible for contract inspection and enforcement will need sufficient staff with the appropriate expertise in the full range of forest resource management activities and variables involved in the resource utilization contracts. The agency must also develop a pro-

tol and procedures for facing potential breaches of contract which are identified.

Ways must be found to fund and implement the monitoring of contracts, including on-the-ground inspections. One way may be to allocate a portion of the forest fees received in a fund for financing contract monitoring and on-the-ground inspection and supervision of forest contracts.

The distribution of the findings and results of these monitoring activities and their incorporation into changes in policy and practices is an important component of monitoring and reporting. In the design of monitoring procedures, it is important that the reporting mechanisms be designed to ensure that what is learned from experience can be used to modify and improve forest management practices, contract management and operational procedures, and improve monitoring systems.

10.2.1 Monitoring forest and environmental variables

Some of the most relevant variables used in the monitoring of forest utilization contracts are listed below and then described in the next section:

- resource management inspection:
 - mapping and forest inventory,
 - boundary marking,
 - boundary maintenance;
- forest and environment management:
 - criteria and indicators for sustainable, forest management,
 - logging plan layout and marking of trees,
 - harvesting inspection,
 - post harvesting inspection of the cutting area,
 - environmental and conservation inspection;
- engineering and road;
- other monitored variables;
- cultural.

10.2.1.1 Resource management inspection

Mapping, forest and environmental inventory

Monitoring timber resources involves essentially four components: **forest inventory** (existent population and biomass), **forest growth**, **forest removals** and **forest health**. A fifth monitoring component, **fire protection**, is normally associated with timber resources, but it is also applicable to other commercial and

non-commercial resources.

Monitoring methods for forest inventory, removals and growth are founded on the disciplines of forest biometrics, or mensuration, and statistics. Readers may wish to consult forestry textbooks on the design of timber inventories, on tree and log measurements, and on measuring and predicting growth and yield (see also FAO 1980a, FAO 1980b, FAO 1981, FAO 1997). In the design of monitoring programmes for forest health, readers will need to consult regionally specific references because forest pathogens vary widely by country and forest.

Evaluation of the accuracy of the forest and environmental inventories is important, but is not easy to do. It will require on-the-ground checks. The accuracy of forest mapping may be monitored against the maps by on-the-ground checking of randomly selected areas. The forest inventory may be checked in the same way, by spot-checks, by re-measuring randomly selected inventory sample plots, and by checking forest types from the forest inventory maps against the forest types found on the ground. The environmental inventory may be checked by selective comparison of the environmental inventory data against the environmental conditions on the ground.

However, checking mapping, forest and environmental inventories can be expensive and time-consuming. Government agencies may not have the field capacity for the on-the-ground checking of maps and inventories. It may not be in the contractor's interest to produce accurate inventories of environmental, non-timber and non-commercial forest resources, but it ought to be in the contractor's interest to have accurate maps and forest inventories. It may be better for the government to concentrate on monitoring other aspects of forest management in the contract, components such as road plans and layout, logging plans and logging activities, and silvicultural and regeneration activities.

Boundary marking and maintenance

Boundary marking is an essential first step in the administration of forest utilization contracts, and in the prevention of human and agricultural incursions into forest areas. Performance in completing boundary marking can be monitored relatively easily. Boundaries may be checked through the combined use of

Global Position System technology (GPS) and small aircraft low-level flights. Boundary marking should be completed and checked within the time limits specified in the contract and before logging operations begin.

It is important that forest utilization contract activities be maintained within the defined boundaries. Monitoring of boundary maintenance is relatively easy. It may be monitored by spot checks at pre-determined intervals (perhaps every two to five years), by ground spot checks of different sections of the boundaries, or quickly and easily by inspection from aircraft, followed up on the ground if necessary.

10.2.1.2 Forest and environmental management plans

Criteria and indicators for sustainable forest management

Forest and environmental management plans may be evaluated against the requirements and standards specified in the forest regulations and in the forest utilization contract. These would be "office" or "paper" based evaluations. However, without on-the-ground checking, there will be no guarantee that the management plans match conditions on the ground.

Box 10.1: Selected references on criteria and indicators

1. FAO. 2000. Criteria and indicators for sustainable forest management and implications for certification and trade in Africa. African Forestry and Wildlife Commission, Lusaka, Zambia, 27-30 March 2000.
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During the last few years, there has been a considerable amount of interest and work in developing national and unit-level systems of criteria and indicators for sustainable forest management. Some of them include guidelines for forest management. An important activity has also been carried out regarding the development of certification systems. Criteria and indicators, together with certification systems, can play an important role in monitoring resource management in the context of utilization contracts. Governments may decide to adopt one of the existing systems, or develop their own one, and then use them as standards in the monitoring of forest contracts.

Criteria and indicators are a fluid and evolving subject. Therefore, it is not discussed here. Instead, some of the more important references are presented in Box 10.1.

Examples of forest certification systems are the Forest Stewardship Council system and national systems developed in such countries as Brazil (CERFOR), Finland (Finish Forest Certification System - FFCS), Indonesia (Ekolabel Indonesia - LEI), Malaysia, and the umbrella Pan-European Forest Certification (PEFC). The Canadian forest certification system is an example of an environmental management-based certification system.

On-the-ground logging plan layout and marking of trees

On-the-ground layout of landings and skid roads and the marking of trees can contribute to efficient logging, minimize logging damage and regenerate the forest. On-the-ground logging plan layout can significantly reduce logging costs.

Inspection and approval of logging plan layout and tree marking may be done most easily after the roads are built, but before logging begins so that any corrections and changes may then be made. On-the-ground inspection of logging plan layout and tree marking are key factors in monitoring contractors' performance and ensuring sustainable forest management.

Resource harvesting inspections

Resource harvesting activities is a key component to be monitored because of the impact harvesting can have on forest growth, damage to the residual stand and regeneration, and the potential for environmental damages from poor logging and road construction practices.

Inspection of harvesting activities involves both field and office visits by staff, but field inspection capabilities are particularly important. Staff must have training and field experience in harvesting methods and know the procedures to follow if contract violations are identified.

Where forest fees are based on the quantity of timber harvested, monitoring of the wood measurement procedures is particularly important. Wood measurement systems are subject to abuse and staff may be open to bribery and corruption. Substantial amounts of money may be at stake and the incentives for abuse are strong.

In a few cases, wood measurement is done by the government agency in charge of forest utilization contracts. In this case, the government staff must be adequately trained and provided with proper equipment to measure the wood as cut, and without delay. The government staff must also be adequately paid, so that they will not be open to bribery by contractors.

However, most forest agencies do not have the staff or budget to adequately fund, equip and staff wood measurement operations, so that wood measurement is left to forest utilization contractors. Under these circumstances, it will still be necessary to inspect and audit the contractor's wood measurement procedures and records, in order to verify the accuracy of the contractor's measurements, volumes, species, etc. This may be carried out by government forest agency staff, or it could be contracted out to an independent organization or private company. If inspections and audits are undertaken by the government forest agency, the agency need not be large. However, it will still need to be adequately staffed and equipped with adequate transportation and field capability.

If wood measurement is contracted out to an independent agency or private company, the contract and contract terms will have to be carefully written to provide the right performance incentives, and to be sure that the wood measurement contractor is independent of, and not influenced by, forest utilization contract holders. It will also be necessary to audit the performance of the wood measurement organization or company, by random field checks and checks of their records.

There are several wood measurement systems that may be appropriate to different situations. Each has technical and staffing requirements, advantages and disadvantages. Four

common wood measurement systems are described below with brief comments on their advantages and disadvantages, and on their applicability:

- **Scaling of standing trees** - the volume of timber cut is estimated by measuring trees as they are marked for cutting in the area destined for harvesting. Payments are based on the estimated standing volume of timber, often in the form of lump sum payments. Staffing requirements for inspection are lower as these measurements are often required for forest management. Inspection of harvesting areas is needed to be sure that only trees designated (marked) for cutting are removed (counting stumps) and that the cutting is restricted to the approved cutting area.
- **Tree-length scaling** - the volumes of timber are estimated by measuring the tree-length logs at roadside or at log landings. Only butt diameter and length measurements are required. Payments are based on the estimated log volume. Inspection involves check-scaling of random sample lots at roadside, or of numbered tree-lengths later, and auditing the number of trees recorded to ensure that all tree-lengths were measured and recorded.
- **Log scaling** - logs are scaled individually after trees have been felled and bucked. Scaling may take place in the forest, at roadside, at log landings, at riverside, on trucks at strategic points, in concentration yards, at the mill yard or at export points. Staff requirements for inspection are relatively high. Scaling or check-scaling staff must be on site where and when logging is under way. Inspection requires checking the accuracy of log measurement and the reporting of logs cut and removed (i.e. that all logs are accounted for). Log scaling will be more accurate than tree scaling, provided it is done with full accounting for all logs cut.
- **Weight scaling** - logs are scaled by weight. Logs are weighed by the truck- or barge-load. Loads and weights are recorded and loads numbered and tagged for control and follow-up inspection. Payment is based on the weight, or the weight is converted to log volumes based on log measurements of sample loads. Weight scaling may be done at junction points on truck routes, at concentration yards, at riverside landings or at

mill yards. Staff requirements for inspections are lower than for log scaling because scaling is at fewer and more central points, and because individual logs are not measured. Inspection involves ensuring accurate measurement and reporting of weights and that all loads are accounted for. Weight scaling will be less accurate than log scaling.

Resource harvesting inspections will cover a number of other aspects, depending on the nature of the forest, the resources harvested and the harvesting methods employed. Some of those aspects are listed below:

- laws, regulations and contract terms pertaining to public notification of, and/or participation in, the design of the harvesting operation being observed;
- harvesting occurs only during the times specified in the contract;
- harvesting is limited to the area designated in the contract;
- harvesting is limited to the trees designated for cutting;
- the layout of roads, landings and skid roads, and the operation of equipment are in compliance with the design, conditions and methods specified in the contract;
- damage to residual trees and soil is minimized;
- conditions for protected areas or special management zones (riparian zones, critical habitat, etc.) are observed;
- conditions for cultural or archaeological sites or objects are honoured;
- conditions to avoid contamination of soil, air and water by toxic or dangerous chemicals, including fuels and lubricants, are observed;
- harvesting areas are deactivated and rehabilitated as specified in the contract.

Inspections may be both planned (scheduled) or random (surprise visits), demonstrating to contractors that activities will be inspected and that compliance is expected. Field inspections should involve inspections of key items **before, during** and **after** harvesting. Some inspection items may be inspected economically by aircraft or by remote sensing. Others will require on-the-ground inspection.

Post-harvest inspection of the cutting area

The cutting area should be inspected on the

ground, again following logging to ensure that the logging was done according to the silvicultural plan, in line with environmental requirements and with minimum damage to the residual stand, that only marked trees were cut, that logs and felled trees are not left, and that trees that should be cut are harvested. This is another important step in ensuring sustainable forest management. Where the government agency does not have the field capacity for on-the-ground inspection, post-harvest inspections may also be contracted out through a separate procurement contract.

Environmental and conservation inspections

Environmental inspections will cover a wide range of impacts. Many will be specific to the country or forest area in question. Inspection for compliance with environmental protection laws, regulations, biodiversity protection, conservation and contract terms will involve both office and site visits. As with other inspection areas, environmental inspections will require staff with the appropriate expertise. In some cases, the personnel may be the same as those involved in other aspects of resource management or environmental inspections. In other cases, conservation specialists (wildlife biologists, botanists, zoologists) will be needed. Alternatively, environmental inspections may be contracted out to consulting firms, non-governmental organizations or communities.

Typical conservation and biodiversity protection issues in resource utilization contracts include:

- physical damage to plant or animal communities or critical habitat;
- disturbing animals or disruption of their normal behaviour (for example excessive sound), illegal hunting and fishing, and theft of plants or animals.

10.2.1.3 Engineering and road planning construction

Engineering inspections

Engineering works include roads, bridges and a variety of other constructions. A list of engineering works that may require approval and inspection includes:

- roads and log landings;
- bridges, major culverts and other stream crossings;
- riverside landings and log dumps;

- storage areas (resource concentration yards or sorting grounds);
- canals or other waterways;
- dredging;
- docks;
- camps;
- maintenance buildings and facilities;
- other buildings;
- airstrips;
- power lines and pipelines;
- power generating stations.

Roads (and log landings) and bridges (and other stream crossings), along with camps and maintenance facilities, are probably the most important engineering works to inspect. They are the most likely to cause environmental damage, erosion and stream pollution, and are the most important to inspect from the point of view of avoiding these damages. Road plans, and plans for bridge and stream locations, camp and maintenance facilities may be first reviewed in the office and before construction so that locations may be shifted to avoid potential environmental, erosion or pollution problems. They should then be checked on the ground after construction to confirm their correct location and to make any changes before logging commences.

Road planning and construction

Well designed road systems and proper road construction can reduce soil erosion and stream damage, minimize the environmental impacts of logging and, in addition, reduce logging and log transport costs. Savings in logging and log transportation costs should provide forest utilization contractors with an incentive for efficient road planning and construction. In practice, however, with a very short-term horizon, contractors often put insufficient effort into road planning and construction. The result is poor road layout, expensive log transportation, and environmental damage resulting from bad road location.

Monitoring of road planning may be done relatively easily by evaluating the road plans and accompanying maps to ensure that adequate road standards are met, that roads are located away from streams, and that stream crossings, culverts and ditches meet environmental standards and minimize environmental impacts.

On-the-ground checks can quickly verify the accuracy of the plans and maps. Road location

and construction may be monitored on the ground shortly after construction and before logging begins. Monitoring should ensure that the road layout matches the layout on the road plan and maps, and that any problems are corrected before logging begins. Inspection following road construction is easy, as access will be easy. For added efficiency, road inspection may be combined with on-the-ground inspection of the logging plan and/or inspection of the tree marking. It is important that the on-the-ground inspection of road layout, the logging plan and tree marking be done and approved before logging begins.

10.2.1.4 Other monitoring and inspection criteria

Financial inspections

Government agencies responsible for the management and supervision of resource utilization contracts usually have an accounting or financial services department, or share financial services with other government organizations. The accounting or financial services department is responsible for ensuring payment of performance bonds, deposits, forest fees and other payments under resource utilization contracts. This department is responsible for notifying contract holders when payments are due (invoicing), for assessing late payments and interest penalties, for sending reminders, and any follow-up actions, if necessary. The department must understand the individual contracts, and the appropriate action when contract holders fail to remit payments. This would include providing the documentation to the legal services department for enforcement and collection action.

Where payments under resource utilization contracts are based on resource harvesting and removals, the financial services department must be in communication with forest agency employees responsible for the measurement and recording of resource use. Independent auditing of harvest volumes may be necessary to ensure accuracy and accountability.

Investment inspections

Contract compliance with investment provisions will involve both office and field investigations. Expertise will be required in specific areas. For example, where the contractor is committed to building and operating a

sawmill, expertise in sawmill construction and operation will be needed to ensure that the facilities are properly built, equipped and operated to satisfy the contract. Where the contract requires development and operation of employment training programmes, expertise with training programmes will be needed to verify that the contract provisions are met. Where monetary investments are required it may also be necessary to audit financial records. Governments may find it easier and cheaper to contract for the services of verifying investments. This may be more cost effective and has the added advantage of providing an independent assessment and avoiding disagreements with the contractor over the nature, quality or level of the investments.

Non-timber forest resources

Non-timber resources represent a source of income and subsistence goods in many countries. Non-timber forest resources include a great variety of products from fuelwood and charcoal, resins, medicinal plants, forest foods and wildlife, to recreation and ecotourism. Two types of non-timber forest resource which affect the design of monitoring systems may be differentiated. The first type is resources which are consumed in use through harvesting of some kind. These include living organisms or their parts (fuelwood, forest foods, fruits, medicinal plants, etc.) with either market or subsistence values. Methods analogous to those described for timber resources have been developed for other commercial plant species in the field of botany and its application through botanical economics (Peters, 1994; Panayotou and Ashton, 1992; and Hall and Bawa, 1993). Monitoring animal populations is covered extensively in wildlife management textbooks.

The other major types of non-timber resource are non-consumptive uses such as forest recreation, including ecotourism, wilderness hiking and camping, and wildlife photography, scenery and natural beauty. As these uses are non-consumptive, there is less risk of environmental damage associated with them. However, plant and animal populations which contribute value to activities such as forest recreation, ecotourism and wildlife photography may be at risk from other forces. Monitoring of these non-commercial forest resources is discussed below. Monitoring of

recreational resources requires that the quality of visitors' experiences be surveyed directly as well as any perceived undesirable (or desirable) changes. Methodologies were discussed in a previous chapter, in the section on valuation of non-timber forest values.

Non-marketed forest resources.

Non-marketed resources include all forest resources that are not normally sold in markets and are therefore not priced. Such resources have value, but valuation is difficult. The vast majority of living organisms in forests, as well as many tree species in tropical forests, are not utilized commercially. These resources constitute the bulk of the biodiversity contained in forests.

Non-marketed forest resources deserve special and separate attention from commercial resources for two reasons. First, forest ecosystems comprise a network of linkages among biological and physical elements so that the health and well-being of commercial resources may depend on the non-market components. This means that sustainable use of commercial resources requires sustainable management of non-market resources. Because less is known about the non-market resources, more attention must be focused on them.

Non-market biological resources.

The biggest challenge in designing monitoring systems for non-market biological resources and forest biodiversity is the wide range and diversity of these resources and the number of species involved. Current practice in biodiversity monitoring is to focus on various key indicator species which act as indicators of the health of the entire ecosystem. In addition, measuring of plant species diversity, including richness and evenness, are also used to monitor changes in biodiversity. Ashton (1996) provides a good review of issues in the translation of scientific knowledge on ecosystem function and diversity into operational methods for monitoring.

Cultural inspections

Inspections for compliance with laws, regulations and contract terms relating to the preservation of cultural sites, heritage and traditional use rights of indigenous and forest communities may be carried out by the inspection agency or contracted out. In some cases, the personnel will be the same as those involved in

other aspects of inspections. In other cases, specialists in cultural issues (sociologists, anthropologists) will be needed. Some of the cultural protection issues in resource utilization contracts will include:

- protection of archaeological and culturally important sites such as burial grounds, ruins, sacred and ceremonial grounds;
- protection of rights to traditional uses of forest products, hunting, fishing and gathering rights;
- protection of villages from disruption or intrusion by contractor's or sub-contractor's operations or employees.

Social and economic monitoring

In monitoring socio-economic components, the concern is for the distributional aspects of contract operations and their impacts on the quality of life enjoyed by the affected groups. Quality of life is associated with economic status (income and wealth), health, education and cultural stability. Criteria and indicators for measuring many of the social and economic components are often difficult to specify, quantify and evaluate (Binkley, 1996; Sikod, 1996; Colfer, 1996; Merino 1996).

Monitoring human and cultural impacts applies more specifically to individual segments of society, often at the community level. Governments are responsible for ensuring that resource development does not lead to undesirable impacts on communities or indigenous people, that all negative impacts are mitigated or compensated, and that forest utilization contracts are written to generate benefits for these communities or groups. In some cases, forest utilization or procurement contracts may contain provisions for employment and training for local residents, including indigenous groups. Monitoring of those contract elements will be required.

10.3 Monitoring and inspection of procurement contracts

Procurement contracts for goods and services may be for the provision of a wide variety of goods and services: aerial photography, mapping, forest inventories, forest management planning, inspection of logging plans, road layout and construction, silvicultural activities, log measurement, tree planting, environmental surveys, fire protection, water quality monitoring, environmental monitoring, wildlife sur-

veys, etc. It is therefore difficult to detail monitoring procedures, how monitoring should be carried out, and what items should be monitored. This will have to be defined for each type of procurement contract.

10.4 Contract enforcement

There are several important issues in the design and operation of a successful compliance and enforcement system for forest contracts. Enforcement involves a number of **components** (legislative groups, legal instruments, enforcement agencies and courts) which act independently, or are autonomously administered, yet must function together to be effective. There is also a relatively broad range of enforcement **responsibilities** involved in the administration and management of public forest lands and resource utilization contracts beyond simply ensuring contract compliance. Another important and challenging issue is the control of **bribery and corruption**. Each of these issues is discussed below.

10.4.1 Major components of enforcement systems

Enforcement systems comprise four major components (Donoghue and Paananeu, 1984):

- legislative bodies and groups;
- legal instruments;
- enforcement agencies;
- courts.

Legislative bodies and groups, which vary from country to country depending on the political system, enact and amend laws that legitimize enforcement powers. Compliance and the effectiveness of enforcement depends critically on the conditions and clarity of the legislation, and on the strength and clarity of the commandments written into these laws. Legislative bodies also pass legislation that empowers non-elected government officials to establish regulations and enforcement procedures as well as powers to enter into contracts. The regulations and the contracts will both contain clauses or provisions that require enforcement and specify penalties.

Legal instruments vary from country to country, but include statutes, decrees (presidential, ministerial, federal, state or provincial, and municipal), ordinances and by-laws of local governments, regulations and govern-

ment contracts. These various legal instruments define who has enforcement powers, and under which legal instruments. They also establish the legal basis for sanctions or charges as well as the penalty provisions, all of which are central to the enforcement system.

Enforcement agencies are organizations and persons empowered to enforce the various legal instruments. Given the extensive geographic distribution of public forests, the type and the potentially diverse nature of resource utilization contracts, a variety of organizations and persons may be involved in enforcement. These enforcement persons and organizations may include the police (local, state or provincial, federal), the military, federal and state or provincial forest officers, park officers, independent private sector security companies, community organizations, or third party non-governmental organizations. These persons or organizations represent the field level "front line" of the enforcement system. Consequently, the mandate given to these agencies, their capacity (funding, skills and experience of personnel, organizational design) and the way in which they interact (institutional structures and arrangements) will be a determining factor in the success of the enforcement system.

Courts (judges, prosecuting attorneys, clerks, bailiffs and administrative staff) are the fourth component in the enforcement system. Successful enforcement depends on the commitment of the judicial system, primarily judges and prosecutors, to aggressive prosecution of accused offenders, and to sentencing commensurate with the crimes and penalty provisions of the legislation.

Effective enforcement systems depend on all four components working together. For coordination of ongoing enforcement operations and for planning of enforcement policies and procedures, there must be mechanisms for communication, particularly among the first three components of the enforcement system.

10.4.2 Enforcement responsibilities

Enforcement may involve one or more of four different bodies of law: criminal, civil, administrative and contract law. Criminal law applies to offences against the state or society. The definitions of criminal offences vary among countries, but arson (deliberately setting fires)

and theft (of timber or other property) are two examples that are common to most countries. Civil law applies to crimes committed by one person or party against another. Administrative law applies to the administration of statutes, for example laws related to the management of public forest lands or other natural resources. Contract law relates to contracts between two parties (individuals, companies or contracts with government), for example forest utilization contracts, or contracts for the provision of goods and services for forest management.

Breach of contract is technically a civil offence (a crime by one person or party against another); however, often there are separate codes of law in countries that subdivide major classes of crime and contract law is commonly one of these.

These four legal dimensions to enforcement pose a significant challenge for the design of enforcement systems. Issues such as familiarity with each jurisprudence, training, field methods, investigation and arrest procedures, personal safety, collection and preparation of evidence, and the burden of proof, vary substantially among the different classes of crime.

10.4.3 Bribery and corruption

Bribery and corruption may take a variety of forms, involve several types and degrees of crime, and involve all four types of law and enforcement. Bribery and corruption are common in one form or another in almost all countries, and all sectors of the economy and society. For a number of reasons, however, it presents unique challenges in the forest sector and in the management of public forest lands. The extensive geographic nature of forests, which impedes supervision and control, the challenges and cost of supervision, and the generally low priority afforded by governments to the forest sector create conditions which tend to promote graft, bribery and corruption.

Corruption inflicts a variety of difficult to measure costs on society. These are categorized by Klitgaard (1988). They are summarized in Table 10.1.

Mechanisms for dealing with corruption need to be identified and incorporated into the design of enforcement systems at all levels. Klitgaard (1988) identified the agent and the client as the two parties in any corrupt action. Both should be targeted by enforcement systems. Klitgaard suggests five concrete actions to help control corruption:

Table 10.1: The costs of corruption (after Klitgaard, 1988)

Efficiency costs	Waste resources Distort resources use Create "public bads" Distort both economic and forestry policies
Distributional costs	Reallocate resources to the rich and powerful, those with military or police power, or those with monopoly power
Incentive costs	Distort energies of officials and citizens towards the socially unproductive seeking of corrupt rents. Create risks, induce unproductive preventive measures, distort investments away from areas with high corruption.
Political costs	Breed popular alienation and cynicism Create political instability

- select agents (employees) for incorruptibility as well as technical competence;
- change the rewards and penalties facing the agent and the client;
- increase the likelihood that corrupt actions will be detected and punished;
- change the organization's administrative system so that the agent's discretion is reduced;
- alter the agent's attitudes towards corruption.

It is impossible to totally eliminate corruption, but it is possible to monitor and reduce it. In many cases, it is possible to estimate the direct costs associated with corrupt activity, such as lost government revenues from illegal logging, under-reporting of volumes cut, miss-classification of species, etc. It should also be possible to estimate the costs of different levels of control and the associated magnitude of the recovered revenues. Based on these calculations, it is then possible to choose the most efficient level of control.

A final point is that anti-corruption measures must be championed within the government, and at the highest level. There must be a political commitment to tackle corruption if enforcement measures are to succeed. Without genuine commitment from government at the highest levels, any enforcement mechanisms which are tried are likely to fail.

10.5 The design of enforcement systems

Four major components in enforcement systems were identified in Section 9.4.1: legislative bodies, legal instruments, enforcement agencies, and the courts. This section focuses on the design and functioning of enforcement agencies, with emphasis on prevention and enforcement policy. The discussion then turns to the creation of institutional structures for enforcement, and a review of those organizations usually involved in enforcement.

10.5.1 Prevention

Prevention programmes involve two types of activity: education and training, and inspection (Donoghue and Paananeu, 1984). Education programmes are designed to improve compliance by informing the public about laws and regulations and the penalties associated with non-compliance. In explaining the objectives of

laws and regulations, enforcement agencies can build public support and cooperation, improve compliance and gain cooperation in enforcement. Penalties will act as deterrents only if would-be offenders are aware of the consequences of being caught, and the risks of apprehension outweigh the potential benefits of illegal behaviour. Training programmes are more focused towards groups such as forest companies, contractors, sub-contractors, forest workers or local communities to explain and demonstrate ways of improving compliance or developing skills that can assist in inspection and detection.

Education and training programmes have been used by a variety of organizations to improve enforcement and compliance. The US State of Maine Planning and Zoning Commission used education and training of logging equipment operators to improve compliance with new timber harvesting regulations (Pidot, 1982). In Canada, the British Columbia Forest Service has a silviculture training programme for practising foresters to help compliance with the Province's Forest Practices Code Act and Forest Regulations. In Sweden, the Forest Service also used education programmes as a means of improving compliance with regulations applicable to all forest operations (Eckerberg, 1986, 1988). Sangal (1984) reported the use of education programmes to inform local farmers in India of the damages associated with setting fires in nearby forests, along with training programmes to develop local capacity in fire suppression. In the United States, Kernan and Drogin (1995) demonstrated the benefits of interpretative messages to improve compliance with off-trail hiking restrictions in Mount Rainier National Park.

Vigilance is the other important prevention activity. Both regular and random patrols serve as a deterrent to potential violators because they increase the probability of detection. Patrols can take various forms. Field patrols may be by vehicles, boats, planes, on foot, by animal transport (horses, etc.), or in some cases by remote sensing. Aerial patrols are often used in fire protection activities which include the detection of human-caused fires, or to detect illegal logging, log transport or log exports. Regularly scheduled and random visits to logging operations and other forest operations can deter or detect specific violations of contract provisions. Office inspections of docu-

ments, data, financial records and other material are done by office visits to field and central offices, banks, accounting firms and other organizations or through the use of computers and telephones.

10.5.2 Enforcement policy

The choice of a balance between positive incentives and penalties (negative incentives in encouraging and achieving compliance) is an important decision to be taken. In Sweden, as in many countries, persuasion through education and training is the preferred method over sanctions, court action and penalties for non-compliance with forestry laws and regulations (Eckerberg, 1986). The benefits from compliance are stressed over enforcement and punishment. Enforcement through the courts can be extremely expensive and successful prosecution difficult.

Another enforcement policy issue is the choice between basing assessments of compliance on specific, clearly defined, measurable performance criteria, or on management practices, as opposed to measurable results, involving more general procedural criteria and a "systems approach". These two approaches have been debated intensely in the development of alternative forest management certification systems. Generally, performance-based criteria have been preferred. However, specific detailed performance criteria are often difficult to define and can be extremely costly to measure.

Discussion of enforcement policies may be summarized with a few suggestions and recommendations on how to proceed in promoting enforcement and compliance with forest utilization or procurement contracts. These suggestions and recommendations are as follows:

- in designing resource utilization or procurement contracts, ensure that deposits, refunds, penalty provisions and incentives to promote compliance are fully developed, clear and understandable;
- identify the enforcement requirements for all contracts, concentrating on the major issues covered in the sections on prevention, inspection and control;
- in evaluating any new institutional structures or changes to existing institutions pay particular attention to the role each government agency would play under each alternative structure;
- decide on the most efficient and effective institutional structure for each enforcement situation. Evaluate the institutional capacity of each of the government agencies involved. Prepare plans for reform of the agencies involved, as needed;
- design the specific contractual arrangements required under the institutional structures. Define the precise role and responsibilities of both government agencies and the signatory parties. Arrangements may include contracting out of specific enforcement duties to independent organizations.

10.5.3 Performance incentives

In addition to the direct enforcement activities discussed in previous sections, a number of incentives may be used to encourage compliance under resource utilization agreements and in procurement contracts. A common incentive is performance bonds. The performance bond is returned only after final inspections have been completed to verify that the contract provisions have been honoured. Alternatively, procurement contracts may contain a withholding clause, under which final payments are withheld until completion of the contract and contract performance has been inspected and verified. In either case, contractors have a financial incentive to comply with the contract terms. Examples of additional contract performance incentives applicable to resource utilization contracts include:

- approval of permits contingent on successful completion of, and compliance with, the terms of previous permits. For example, new harvesting permits may be denied until the contractor has complied with the previous harvesting permit, payment of fees, deactivation of roads, site rehabilitation, etc.;
- contractors may be disqualified from additional work or purchase of resource utilization rights until the terms of previously held agreements are fully met.

10.6 Institutional structures for contract monitoring and enforcement

10.6.1 Institutional structures for monitoring

The above sections addressed the questions of what, how, where and when to monitor forest activities and impacts. The final question, pri-

marily an administrative one, is - "who does the monitoring and who will be accountable for achieving contract terms?" - that is, who will be responsible for data collection, analysis, interpretation of forest monitoring and the taking of corrective measures? As with other government administrative functions, there is a range of options in allocating the administrative tasks associated with monitoring among organizations in the public and private sectors. In some cases governments will find it advantageous to contract direct with other government agencies or private sector firms for specific monitoring activities. This could include anything from the design of monitoring programmes or components to data collection, analysis and reporting. In some cases, responsibilities for some aspects of monitoring may be assigned to forest utilization contractors as part of resource utilization agreements.

Other organizations and institutions may become involved in monitoring. Local communities can play an important role in monitoring. They have knowledge regarding local conditions, the forests, plant and animal species and other resources, resource utilization and land use history. They have an interest and a stake in forest use and forest management, they live in the area and have "on-site" knowledge of activities. Monitoring can be a way of involving local communities in forest management of public forests, giving them a stake in the way the resources are utilized and also providing local employment.

Colleges, universities, forestry research and other research institutions may be involved in monitoring activities in various ways, through contracts for monitoring activities, in the provision of expert advice or in undertaking research on forest management issues. Private sector consultants and local forestry and environmental organizations with the capacity and expertise may also be involved in contract monitoring activities

Because of the specialized demands of monitoring, it may be necessary or advisable to involve international organizations or expatriate assistance. Short-term contracts with qualified international organizations can be an effective means for setting up monitoring procedures and providing training for local staff. International organizations may also be used in independent auditing of monitoring activities.

10.6.2 Institutional structures for enforcement agencies

Christensen (1983) discussed institutional options for enforcement and identified three alternatives: (1) direct hire of enforcement personnel, (2) use of local agencies such as the police, military or others, and (3) contracting with independent organizations or companies. The advantages and disadvantages of these three options are presented in Table 10.2.

In the first option, direct hire, the agency responsible for supervising contractual agreements will have to develop enforcement capacity by hiring and training its own staff in enforcement duties. This option is commonly chosen for enforcement in resource utilization, as well as forestry services procurement, contracts. The enforcement functions then become part of the duties of the existing personnel. An alternative is for a separate government organization to take on enforcement duties. In the US Forest Service, direct hire is used for enforcement duties such as investigation of criminal offences and more serious civil crimes (Donoghue and Paananeu, 1984). Forest Service staff will usually work in close cooperation with other public law enforcement agencies.

The second option, the use of existing public law enforcement agencies, depends on the knowledge of, and experience in, enforcement procedures by agencies such as the police or military. This option is commonly used where specialized enforcement skills and experience are required, and for more serious crimes where there may be danger or resistance to forestry personnel. In Zambia, Zimbabwe and Botswana, as well as other countries, the military has been used in patrolling wildlife preserves and borders to curb both domestic and cross-border illegal hunting of wildlife, mostly rhino and elephant. In Cambodia, the military have been used in controlling illegal logging.

The third option, the use of contractors, involves contracting out enforcement procedures to an independent organization. With the development of forest certification programmes and certification companies and organizations, third party auditing of forest practices (inspection) and enforcement (primarily through certification incentives) in production forests is possible. One main assumption for third party inspection is that it provides an unbiased, independent evaluation of forest

Table 10.2: Options for enforcement agencies (adapted from Christensen, 1983)

Enforcement option	Advantages	Disadvantages
1. Direct hire	- control over salaries and costs	- must obtain authority to engage in enforcement activities
	- enforcement can be directed as needed	- develops unwanted "police" image
	- control over enforcement priorities	- personnel may not be considered legitimate authority
	- personnel are familiar with the area and forest management issues	- specialized training in interdictions methods required
	- personnel may be used for other forestry activities	
2. Local agencies	- potentially less cost	- personnel may not be available when they are needed
	- personnel are clearly recognized as authority	- limited control over enforcement priorities
	- no need to obtain authorization for enforcement activities	- personnel may not be familiar with the area, or with resource management issues
	- no need for specialized training in interdiction methods	- lack of ability to control hours and areas (geographic) of work
3. Contractors	- vendor may absorb some costs if it is a public agency	- statutory authority must be established
	- some control over hours, areas of work	- personnel may not be familiar with geographic area, or resource management issues
	- enforcement "bought" as needed	
	- personnel normally recognized as authority (uniforms, vehicles)	

practices, and thus adds credibility to forest management and administration.

Contracting independent, non-governmental organizations for enforcement activities may also be possible. Private security and detective services are available in some countries, and this option may be considered if the police or military authorities are suspected of involvement in such activities as illegal logging.

A fourth option, in addition to the three in Table 10.2, involves local communities in monitoring, inspection and enforcement reporting. The advantages of involving local communities are gaining recognition. Forest communities have local experience, live, work and travel in the area. Examples include community involvement in protection of parks and natural areas and in managing adjacent buffer zones (Ghimire, 1994). Involvement of local communities in protection of parks and natural areas, conservation and ecotourism are seen as beneficial, providing both the financial benefits of employment to the community, and the protection benefits to parks and natural areas. Agrawal (1996) identified advantages of community-based management over traditional government and market-based (private sector) options in the Indian Himalayas, including enforcement activities. Sangal (1984) concluded that education and involvement of communities and their collaboration were the most effective way of obtaining compliance with forest fire laws in India. Lewis et al. (1990) and

Murindagomo (1992) described two community-based wildlife management programmes, one in Zambia and the other in Zimbabwe, both designed to curb poaching of wildlife.

10.7 Jurisprudence education and training

Jurisprudence education and training is an important component of the entire enforcement system (legislative bodies, enforcement agencies and courts). The lack of knowledge by forestry staff of the laws, regulations and other legal instruments in forest enforcement is a common and significant problem in encouraging cooperation with the courts (judges, prosecuting attorneys and other staff) to secure convictions. The deterrent effects of laws and regulations are lost if cases are dismissed or not effectively prosecuted or offenders are not convicted. This will weaken enforcement and compliance incentives. On the other hand, a lack of knowledge by public law enforcement agencies and the courts of the issues in management of public forest lands will affect the legal system's ability to deal with forest sector enforcement (Agrawal, 1996). A comprehensive programme for jurisprudence training can address these deficiencies. The programme should include modules for all players in the enforcement system, forestry enforcement staff, prosecution lawyers, court officials and judges.

10.8 Chapter summary

- Contract administration embraces all relationships between government and the contractor arising from the implementation of contracts.
- Through contract administration governments seek to accomplish three main goals: compliance, early identification of contract performance problems, and the protection of public interest.
- Monitoring and enforcement, two areas of action indispensable for reaching contract administration goals, were discussed.
- Regular reporting by contractors is the first stage in the monitoring and inspection of forest management in forest utilization contracts.
- Enforcement involves legislative groups, legal instruments, enforcement agencies and courts.
- Bribery and corruption present a unique challenge in the forest sector and in the management of public forest lands.
- Institutional structures should be reformed or created to carry out enforcement functions. In addition to direct enforcement activities, a number of incentives may be used to encourage compliance under resource utilization contracts and in procurement contracts.

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This report reviews the types of contracts used in the management of public forests. Agreements for forest utilization are analysed along with contracts for the acquisition of goods and services. The study highlights the importance of an effective institutional and legal framework. It also details the key elements to be considered when awarding contracts, in their valuation and administration and ensuring the fulfilment of the terms of the contract. Special attention is given to the critical importance of awarding contracts through a transparent and competitive process.

