Tenure and Joint Resources Management Systems on Public Forest Lands: Issues and Trends

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1. INTRODUCTION: POLICY RESEARCH ON FOREST TENURE SYSTEMS

Forest tenure in the present context is a term which characterizes the bundle of rights of ownership and uses adherent to a given area of forests as well as the responsibilities and obligations which result from contractual timber harvesting and management rights. Experiences in utilizing and managing public forest lands are constantly evolving. We know more than we did 20 years ago on the underlying rational of the prevailing tenurial patterns as they exist in some of the important timber producing countries and find some dynamic changes in their respective legislation. And we become gradually more aware and attentive of the leading social, economical and political factors which determine forest resources management and conservation. The judgment on tenure policies and public timber allocation systems is influenced by a changing vision in society on the importance of forests as a renewable resource of considerable economic value and as a significant part of man’s environment; by changes in public attitudes demanding a more equitable distribution of benefits among social groups; by competitive economic conditions with a narrowing margin between costs and returns in managing forest resources; by new political actors which claim their stake in shaping policy decisions; and by an increasing interest of the public in forest protection and forestry practices.

The results of tenure policies and public timber allocation systems, as they have been designed in the past, do not always look so satisfying as one had expected when they had been introduced. Some reasons derive from inappropriate policy development and lack of adequate legislation. Other reasons result from weaknesses in implementation and control of management regulations by public land owners and the competent forest authorities. It is necessary to examine more openly the conditions and results of different forest tenure systems on public land, to engage a regular and unbiased exchange of experiences at national and regional levels, and to take a more systematic approach in evaluating findings and value judgements. The increasingly critical attitude of public opinion and policy makers with regard to the social and environmental impact of forest management and timber allocation procedures is a strong plea to the profession. More policy research and more comparative international analysis are needed.

The IUFRO Conference on economic and legal aspects of forest management presents major policy issues related to alternative utilization arrangements on public forest land in Russia. At the same time it offers an opportunity to review institutional experiences with public resources ownership and private utilization in countries of the temperate and boreal forest zones. The Conference presents - as far as I see it for the first time - an occasion, to compare different forest tenure systems and the specific conditions in which they have developed. This paper provides a framework on issues related to forest tenure and timber allocation systems on various categories of public lands. It does not analyse and compare specific country experiences which will be dealt with by other contributions.
2. DIFFERENT PATTERNS AND CATEGORIES OF FOREST OWNERSHIP

*Origin and Distribution of Forest Ownership Categories:* There are pronounced differences in origin and distribution of various categories of ownership both within countries as well as between regions of the world. In some countries forests are mainly owned by farmers, other individuals or private wood processing companies. In some countries forests are largely or exclusively under public ownership of federal and state governments. In others, communal ownership of municipalities such as villages and cities, or of local communities and associations dominates. Many countries have mixed ownership patterns with varying proportions of public and private forests. If we ask for the underlying rationale of such differences, it is much difficult to give reasons. The most probable answer is, that forest ownership distribution is the result of historical developments and a combination of particular social, economic and political circumstances.

On the whole prevailing ownership patterns appear to be fairly stable within countries and regions. Some trends are notable, however, and of interest in an overall context. One is the increase of farm forest areas due to reforestation and natural regeneration of marginal lands not used any more for agricultural production as for instance in the European and North American regions. One is the tendency to recognize local usage and ownership rights by converting state forest domain into communal forests, which takes place in certain countries of the tropics. And a third one is the restitution of formerly private or communal forest property which had been nationalized in Eastern European countries.

*Impact of Ownership on Resources Utilization:* Whether private or public ownership are appropriate forms of resources utilization and which forest tenure systems show more satisfying effects on sustainable forest development is debated usually with much passion. However, there is little empirical evidence to give unbiased and clear cut answers. If at all the findings from a world wide review, which still remains to be undertaken, would probably reveal that there are good and bad experiences under all forms of forest ownership. In fact private as well as public forests may be well managed and highly productive; but they also may be not. Private and public forest owners may practice silviculture close to nature and multipurpose management. And on the contrary forests under private or public tenure may be subject to large scale exploitation and devastation. The policy issue is not to find out the who is better and the worse, but to identify the potential of each ownership group to generate individual and collective benefits, and to determine the relevant conditions which ensure sustainable forest uses under all forms of land ownership and tenures.

*Regulatory Framework of Ownership Rights and Obligations:* The regulation of rights of appropriation is an important part of social control on land management. Different forms of appropriation have developed which decide on access to uses and on the distribution of benefits from forests. Institutionalised patterns of appropriation lead to different forest tenures, the constitutive elements of which are ownership rights, use and management rights and
restrictions on certain uses. Prevailing appropriation patterns combine individual and collective interests and lead to mixed tenurial systems.

Forest ownership rights are somewhat special rights in as much, as the owner's use and management decisions affect complex and long term interests of local groups, governments and increasingly, too, of the international community. Forest ownership is subject to public regulation which goes beyond restrictions on other property. Such regulation is supported by constitutional principles of social responsibility and equity. To determine a reasonable balance between two fundamental concepts i.e. the rights of owners to use forest land as they see fit, and restriction of some uses in the public interest, is the salient point in shaping forest tenure policy. Such a balance is subject to social changes, it may take many forms, and its rationale must be in line with constitutional principles and fundamental social values. Legislation which enables appropriate and reliable tenurial systems, is an important institutional prerequisite for sustainable forest management. Land tenure and forest laws determine the categories and nature of ownership; the rights and obligations of forest owners; the nature of usage rights and the extend to which they may be practiced; the land-use status e.g. production and protection forests or special forest reserves; and alternative methods of timber allocation.

With regard to conservation and sustainable utilization of forests under different tenurial arrangements legislation provides different types of regulation (Figure 1). Protection regulation refers to measures on environment and biodiversity, nature and landscape protection, access of local groups and rights of indigenous people to land and forests, and restrictions associated with cultural and spiritual values. Land use regulation includes zoning of forest land, control of forest clearing, protection of the permanent forest estate, and the creation of new forest through afforestation. Utilization and management regulation determines responsibilities of forest owners with regard to sustainable production of wood and non-wood products, the protection of soil and water resources as well as public access to forests and recreational uses.

Use of Trees and Forests as Common Property Resources: A widespread and probably the basic form of using forests as local surroundings is collective tenure of common property resources. It occurs in agricultural and pastoral societies in which forest and trees are important to the community for subsistence and survival. Collective forest tenure does not mean an indiscriminate access to resources. It is based on elaborated tenurial arrangements carefully regulated by customs and rules. It provides different benefits to different groups of people, but even if restrictions for some groups are severe, they do not exclude anyone completely from forest use. This is important in times of scarcity and natural disasters when trees and forests are a resort for subsistence to peasants and herders.
Collective tenure systems of common property resources have found an increasing attention both from an economic and from an institutional point of view. Within the political and economic context which they have developed, they offer a reasonable arrangement for resource management. A combination of restrictions and obligations protects trees and forests to varying degrees and allows for some form of continuing use. However, collective tenure is slow in adapting to change, and may lose its regulatory force and provoke exploitative uses, if confronted with new forms of resource appropriation. In developing countries the appropriation of land through a process of acquiring private ownership rights as part of agricultural expansion, and the claim of forests as a domain of the state are major reasons for the discrimination of local uses, for the disappearance of collective tenure and for the clearing of forests.

The emphasis on the importance of forests for commercial production has had important consequences with regard to the role of communities in land management. In several countries it has been a deliberate and forcefully implemented policy to restrict existing collective uses. Usufructuary rights were abolished in areas classified as state forest domain and collective tenurial arrangements were transformed into clearly defined categories of forest ownership. In some cases this has favored the constitution of communal forest ownership whereas in others it has increased the state forest domain. Part of the forests used in common have been
distributed among the users and became privately owned. Often a combination of tenures has
developed. The present ownership pattern in European forests is to a large extent the result of
such a transformation process which took place during the 19th century.

*Protection of Customary Usage Rights*: Social and political changes towards private property
and market economies tend to reduce the importance of local management and to initiate a
process of destabilisation of traditional tenures. Large scale plantation schemes and industrial
forest development projects diminish the area of common property land and curtail traditional
customary uses. Such developments have negative effects for rural communities, especially for
the poorest part of the population. Even if forest laws acknowledge usage rights as a matter of
principle, many of them appear deficient in as much as they lack provisions, which allow to
practice such rights in a sustainable manner and in determined forest areas. Management
regulations, in fact, frequently disregard usage rights and to provoke their abolition. Due to the
lack of legal protection of their rights people renounce from considerations of long-term
utilization and move to short term and exploitative uses. New legislation is needed which
combines the principle of sustainability with a firm legal commitment to maintain and develop
customary rights, and to facilitate their practice.

*Communal Ownership of Forests*: Communal ownership is a modern form of regulating access
to the forest resource, both in rural and urban areas. Forests as a multifunctional resource with
a wide range of benefits are in many respects of value to local communities and user groups.
Traditional usage rights and management practices that are transformed into modern
communal tenure promote multiple-use forestry and induce new developments and
participatory processes in order to protect forest land and to provide equitable access to forest
uses. Communal ownership in many different forms has a considerable potential for
improvements in forest utilization. It satisfies the requirements of rural people for which forests
provide wood and energy, food security, shelter and survival. In many countries, particularly in
mountainous regions, communal forests are of an increasing importance as a local resource.
They facilitate land management for a wide range of uses and protection. Forest practices are
based on social rules respected by the community organization, established from long dating
experience and enforced by local customs and sanctions. To acknowledge the formal status of
forest lands as a local resource remains one of the lasting and in many regions not yet
resolved task of national forest and land use policies. Legislation should regulate:

- the recognition of communal forest ownership by land title registration and demarcation
  of forest areas;
- the definition of the rights and responsibilities of communal owners with respect to
  sustainable management practices;
- the introduction of new forms of communal forest tenure through long-term use and
  management agreements and land leases.
Opinions on communal forests ownership have been influenced by negative experiences of common property in a stage of social disintegration. It seemed that an increase in the productivity of land could better be obtained by private entrepreneurship and it was concluded, that collective utilization arrangements were outdated. In a broader meaning the problems of local resources in a situation of social and economic changes have been described as the tragedy of the commons. Today a more differentiated view on resource management and communal forest tenure is taken. The saying that "everybody's forest is nobody's forest" which has been quoted in this context may be right and wrong. It is right if one looks at traditional forms of land tenure in a stage of disintegration. It is wrong if local practices and use rights have been transformed into legally protected ownership of rural and urban public entities.

_Private Ownership of Forests:_ Private forest tenures have originated in many countries from a process of resources appropriation and land developments. The availability of additional land and the transfer of land titles have been incentives for the expansion of settlements and agriculture into forested areas. Some forests remained because they could not be used for agricultural and pasture development. In a later stage when commercial timber production becomes a viable undertaking, those areas usually provide income to farm economies. In European countries and in some regions of North America the evolution is now at its turn, since considerable areas of agricultural land are released and become available for reforestation. In the developing world appropriation of land under collective tenure through a process of deforestation in order to secure private ownership rights is, at present, still one of the main reasons for the disappearance of forests.

If we look at various categories of private forest ownership we find a considerable proportion of farm forests. They supply wood and other products for family consumption and generate income which in some cases is a substantial contribution to the revenues of farmer families. Farm forests, in particular in mountainous areas where agricultural production is in a difficult position, are an important resource base. With the release of surplus agricultural land, farm forests are expanding in Western- and Central Europe. Industrial private forest land is localized to a large extent in regions with highly productive coniferous forests such as in the United States, Chile, Argentina and New Zealand. A new feature is reprivatisation in countries in transition to a market economy of those forests which had been nationalized after World War II. On the whole private forest tenure appears to be expanding in a rather selective way as induced by changes in land use and by political circumstances.

Many countries have not yet appropriate legal arrangements for private forests. In fact legislation focusing on public ownership often provides considerable obstacles to private initiative for tree planting and private forest management. Progress in sustainable resources development calls for a review of legislation in order to:

- support through extension and incentives forest management in already existing private forests;
- abolish regulations which prevent private owners to plant part of their land with trees and to use plantations according to their own decisions;
- facilitate the use of trees in combination with agricultural crops and promote agroforestry practices;
- provide land use agreements and land leases for private forestry practices.

**State Ownership of Forest Land:** In European countries, for instance, the historical evolution presents examples of forested areas which have been appropriated as a special domain under the rights claimed by sovereigns and the nobility. If hunting has been named as a reason for such appropriation, fiscal and commercial factors related to wood processing and long range log exports have probably been more important. During the 19th century part of these areas have become the nucleus of state forests which exist today.

A process of state appropriation extending to ownership, usage rights and management control has taken place in many developing countries. Ownership of forest lands for which no land title could be produced, was claimed to belong to the state. The application of this principle, already introduced by the colonial powers and subsequently retained by many forest and land tenure legislations, created a new situation. Governments see an opportunity to obtain fiscal revenues from commercial logging operations, to promote log and wood product exports in order to improve trade balances, and to develop a forest industry sector. Since state administrations are usually not in a position to organize large-scale forest utilization, governments rely on the private and in many cases expatriate sector by granting different types of permits and licences for timber extraction.

In various European countries state ownership of forests is one of various tenurial arrangements. The forest service manages state forest land, sometimes in co-operating with communal and private forest owners. Management standards are determined by public interests and focus on multifunctional outputs and sustainable resource management. In other regions state forest tenure is a dominant or exclusive category of forest ownership. Government usually allocates timber harvesting and management rights to the private sector. Legislation provides for cutting permits and contractual arrangements such as forest concessions, timber harvesting licences, forest management agreements and land leases.

**Role of Forest Owners and Government in Forest Resources Management:** There are several factors which determine the relationship between forest owners, the private sector and government (Figure 2). In a free market economy the constitutional values of protected ownership rights and of free entrepreneurial initiative are important frame conditions. Private initiative may extend to a range of uses and show different forms of involvement in management activities. This refers in particular to:

- the right of private and communal forest owners to utilize and manage their forests according to their individual objectives;
- the rights of user groups to conclude contractual arrangements with the owners of forest land;
- the right of the private wood processing sector to enter into contractual arrangements with forest owners in order to secure raw material supply;
- and the possibility of individuals and industrial operators to acquire forest management rights by contractual arrangements with public land owners.

**Fig. 2: Institutional Framework for Utilization and Management of Forests on Public Lands**

There are various considerations to what extend public authority should get involved in forestry activities. Sustainable resources development requires interventions for protecting forest areas and forest regeneration. Efficiency considerations imply that activities which may be carried out by private operators and the industry sector should not be undertaken by public governmental agencies. Government should in fact limit its influence and support private initiative by appropriate incentive measures. Equity considerations justify governmental interventions in order to protect the interests of user groups and local communities. The role of government in forest resources management may comprise several aspects:

- Governments acts as a promoting agent of social and economic development. With regard to forest utilization this implies the establishment of public infrastructure, the provision of an institutional basis for sectoral development, and investment in the creation of new forest resources.
- It sets the frame conditions within which the private sector utilizes forests. The applicable legislation contains rules on the rights to utilize and manage the resource, and provisions which correct market failure.

- Government protects the forest resource in order to safeguard public interests. Legislation defines limits and restrictions with regard to changes in land use, utilization practices and management standards.

- It supports private initiative by incentive measures to forest owners and wood processing.

- Government provides services which cannot be supplied by private operators since a market exchange of goods and services does not exist. In the context of forestry this refers usually to the management of recreation and protection forests or to land rehabilitation and soil conservation programmes.

- It administers public assets. This refers to management activities of public administrations in countries with state forest domain.

Timber Harvesting and Forest Management Rights: There are various possible combinations of public land owner and private sector involvement in timber harvesting and forest management. Three approaches (Figure 3), with many variations in their application, may be distinguished:

- timber harvesting and forest management are carried out by forest owners;

- timber harvesting is carried out by private entrepreneurs whereas management remains at the responsibility of forest owners;

- timber harvesting and forest management are carried out by private companies and the forest owners retain planning and control of resources utilization.

Fig. 3: Forest Resources Utilization Involving Public Land Owners and Private Sector Activities
Utilization and Management by Forest Owners: Timber harvesting and forest management by land owners occur generally on communal forest land; wood is sold at road side or delivered to the processing unit. Timber harvesting operations on state forest land by forest services or state operated forest enterprises is in a world wide perspective rather the exception than the rule. It has developed for instance in Central and Eastern Europe as the result of intensive silvicultural practices and of state induced forest development policies. In other parts of the world state operated logging and management is usually restricted to forest plantations. The role of national forest services as a land management agencies is subject to review with arguments both in favor and against such a solution. The arguments in favor underline the multipurpose character of state forests and the role of technical expertise in the case of mixed public forest tenures. The arguments against concentrate on managerial flexibility and efficiency considerations. It is also argued that a clear distinction between the regulatory role of public administrations and business oriented land management activities should be made.

Sale of Standing Timber and Logging Permits: Timber harvesting by private operators and wood processing companies on public land cover is carried out under arrangements such as stumpage sales, logging permits as well as medium- and long-term utilization agreements. Stumpage sales are practiced under various forms of forest ownership, whereas logging permits and timber harvesting agreements are predominant on state forest land. Sales of standing timber, usually marked in advance and limited to annual harvesting volumes are frequent in Western and Southern Europe. For economic reasons they become more current in areas in which logging has traditionally been undertaken by forest owners. Stumpage sales with a duration of 3 to 5 years and larger volumes exist for instance on federal forest land in the United States and on provincial forest land in Canada. Logging permits for a limited number of trees, and short- and medium-term licences are common on public lands in the tropical and subtropical regions.

In the case of logging permits and licences the object of the arrangement is a harvesting right. The forest owner has little influence on utilization and difficulties to integrate logging with sustainable forest management. The sale of standing timber refers to a determined volume of wood which is negotiated between the owner and the buyer. The owner exercises a fairly high level of control with regard to management planning, logging standards and wood prices. Stumpage sales of a determined log volume through a bidding process are more compatible with improved management standards. They tend to replace logging permits and licences which are typical during the first stage of large scale forest exploitation.

3. FOREST UTILIZATION CONTRACTS ON PUBLIC LANDS

Contractual Arrangements between Public Land Owners and the Private Sector: This type of tenure combines public ownership of forests and utilization for timber production by private industrial enterprises. While the specific content and the legal character differ by countries, general features of such arrangements can be identified:

- The state or public entity has the right to use and manage the forests. No individual or enterprise has a prior legal claim to forests utilization.
- The contract covers rights to extract timber and to use land for forestry purposes but ownership remains with the state or public entity.

- The operator pays fees which acknowledge the contractual character of the arrangement, and forest revenues which correspond to the resource rent for the harvested material.

- The operator receives usually an exclusive right to work in a determined area. He is in charge of operational planning, construction of forest roads, and of felling and skidding timber.

- In some cases, the operator is in charge of silvicultural operations and has long-term land management rights.

- The resource managing agency sets the conditions which govern private sector activities and supervises operations in the allocated area.

Classification of Contracts according to Rights of Private Operators: Typical contracts which exist at present are:

- **Forest exploration contracts** in order to assess the potential of a given forest area. Exploration contracts are short-term agreements, usually for one year. They are used if little information on the resources to be allocated is available. However, many governments now insist on regional forest inventories and feasibility studies prior to the negotiation of a contract for a given area. As a consequence exploration contracts have less importance than in the past.

- **Timber harvesting contracts** transfer logging rights to a private logging operator or a wood-processing industry. In an early stage of forestry, the timber allocation on public land is largely based on harvesting contracts, which leave considerable freedom to private operators. In a more advanced stage, annual logging volumes are specified by group of species and log grades, and annual cutting areas are marked prior to felling. Monitoring of operational activities by the public resource managing agency becomes more technically qualified.

- **Forest management contracts** transfer timber harvesting as well as land management rights for developing long-term resource potentials. The industrial operator is in charge of inventory work, preparation and periodic revision of management plans, silvicultural treatment in natural forest, and reforestation measures. The company employs its own qualified forestry staff. The resource managing agency monitors technical and managerial information and evaluates work performance. Management contracts are of a long-term nature, and negotiated with large wood processing industrial groups. They provide a basis for integrated resources utilization and forest industry development. Forest management contracts have developed in countries in which state or other public forest ownership is dominant. Long-term management agreements have probably been introduced for the first time in the Canadian province of British Columbia on crown land after World War II. They have been modified over the years and show an interesting variety of approaches. Long-term utilization agreements exist in Alaska and
as forest management units on communal forest land in Mexico. Forest utilization contracts have been introduced in many countries of the tropical forest belt. Countries in which this type of tenure is significant are for instance Indonesia, Malaysia and the Philippines.

Utilization contracts as a resource allocation system: The negotiation of timber utilization contracts is an important governmental decision with linkages between public policy objectives, institutional arrangements, and forest management and industrial development (Figure 4). Improvements of timber allocation policies require that all of these aspects are analyzed and taken into consideration. In policy formulation it is essential:

- to evaluate the potential of the forest sector for economic growth;
- to determine the rate of annual timber harvesting as consistent with the long-term production potential of forests;
- to develop mechanisms which ensure public participation and control in sustainable forest management;
- to evaluate the impact of opening up primary forest on changes in land-use, and to assess the consequences with regard to environmental protection and nature- and landscape conservation;
- to evaluate replacement costs for maintaining investments and for developing the long-term forest resource base.

An appropriate institutional framework requires analysis whether the legal and organizational machinery to manage land under this type of tenure is adequate. This refers in particular to:

- revision of forest legislation;
- preparation of model contracts containing provisions to be agreed upon in all undertakings;
- determination of specific contract clauses, depending on local requirements;
- determination of application, selection and negotiation procedures;
- determination of organization and responsibilities of public agencies at central and regional levels, involved in preparing and monitoring utilization agreements.

Considerations on resources management and industrial development refer in particular to:

- forest land-use planning, constitution of permanent forest areas and forest demarcation;
- national and regional inventories;
- forest management and utilization plans;
- feasibility studies for new wood-processing units and for expansion of existing ones.

With regard to policy implementation it is important to analyze procedures and structures for:

- selection of areas to be offered for contracts and collection of resources information;
- evaluation of proposals and negotiation of contracts;
- supervision and control of the work of operators;
- evaluation and monitoring of the company's performance and of impacts;
- feedback for policy changes in timber allocation and land management.

**Figure 4: Major Components of Timber Allocation Policies based on Utilization Contracts**

**Formulation of Policy Objectives**
- Sectorial Development Targets
- Raw Material Flow
- National Participation and Control
- Land-use and Environmental Protection
- Maintenance of Production Potential

**Elaboration of Institutional Framework**
- Forest Legislation
- Model Contracts
- Particular Conditions of Contracts
- Application, Selection, Negotiation, and Granting Procedures
- Role and Responsibilities of the Forest Service
- Coordination with other Government Agencies

**Implications for Forest Management and Industrial Planning**
- Land-use Planning, Forest Reservation and Demarcation
- Forest Inventories
- Management and Utilization Plans
- Forest Industry Feasibility Studies

**Implementation of Policies**
- Selection of Areas to be granted
- Evaluation of Proposals and Negotiation of Contracts
- Supervision and Control of Operation
- Monitoring and Evaluation of Results
- Feedback for Improvements of Timber Allocation Policies

*Evolution of Forest Resources Allocation through Utilization Contracts:* Timber allocation systems on public land move from an exploitative stage to long-term oriented forest management practices. Improvements in forest management agreements include measures which:

- rationalize contract tenure by linking the size of allocated areas and the duration of contracts to the commitments of operators, to levels of raw material processing and volumes of industrial investment, and to the economic and social importance of the industrial projects;

- ensure sustainable resource utilization by determining an annual allowable cut instead of relying on area control only, by introducing sustainable management criteria linked to...
the long term productivity of forest ecosystems, and by providing incentives for improved utilization of harvested raw material;

- foster reinvestment in maintaining the productivity of the resource such as planting and seeding of logged areas, silvicultural improvement cutting, control of forest fires and maintenance of forest infrastructure;

- integrate measures to maintain biodiversity and to ensure nature-landscape protection in forest management planning and practices.

A critical problem is the establishment of more efficient and effective performance control systems. Control of contract performance has been based in the past largely on administrative procedures. Revised regulations and agreements take a different approach and put emphasis on:

- performance control standards and monitoring of physical land use and forest management criteria;

- responsibility of public agencies to evaluate informations submitted by the operator, to maintain independent monitoring systems, and to assess results and critical impacts;

- incentives for sustainable resources management by re-negotiation of contracts at regular intervals combined with options to extend the duration of agreements.

The legal framework: The authority to allocate timber on public land, the principal types of contracts and the conditions under which they operate are determined by forest legislation. The rights and obligations governing a contract are defined by general provisions of the forest law, implementing regulations, and by specific provisions determined in individual agreements. According to the legal system of some countries they are determined mainly in laws and regulations. In other countries, they are regulated to a large extent in standard agreements supplemented by individual clauses. The following are typical issues covered in utilization and management agreements:

- **Categories of contracts, preparation and negotiation procedures**: Minimum requirements and obligations related to different contracts; public announcement of areas to be allocated; documents and information to be submitted with application; government services and local entities concerned with selection of candidates and negotiation of contracts.

- **Parties concerned and duration of the contract**: Responsible resource managing agency issuing the contract; name, address and legal status of private operator; size of allocated area; contract duration; date from which the contract becomes valid; official registration of agreement; renewal of contracts.

- **Rights granted and rights withheld**: Exclusive or non-exclusive rights to harvest timber; right to construct and operate logging roads; right to establish and operate logging camps, office buildings and wood-processing facilities; hunting and fishing rights; rights of access; recognition and protection of customary rights.
- Establishment or expansion of local wood-processing units: Minimum volumes of raw material to be processed; type of conversion unit to be established; investment to be effected; time schedule for commencement of operations.

- Felling, wood extraction and transport: Minimum and maximum volume to be harvested annually; annual allowable cut by species or groups of species; submission of felling programmes; working of area in subsequent coupes; felling restrictions and minimum diameter for cutting.

- Road construction and improvement of infrastructure: Construction standards for forest roads; responsibility for maintenance; legal status of roads constructed by the operator; works in the public interest e.g. community roads.

- Forest management and reforestation: Preparation and revision of forest inventories, forest maps and management plans; performance standards with regard to forest protection and silviculture; annual reforestation programme; employment of technically qualified personnel.

- Forest revenues, stumpage and other fees: Categories of taxes and fees to be levied in exchange for harvesting and forest management rights; methods of assessment; collection procedures.

- Control, supervision and sanctions: Access to allocated areas and premises thereon; determination of harvested raw material; records and documents to be submitted by the operator; annual cutting permit; deposit of surety bond; penalty payments; suspension of operations; cancellation of contract.

Legislative and contractual conditions for this type of tenure have considerably evolved during the last 20 years. This refers in particular to contract duration, granted area, allowable cut regulation, utilization standards, reinvestment in forest productivity and maintaining biodiversity.

**Size of Allocated Areas and Contract Duration:** The size of allocated areas and the duration of contracts are related to capital investment and anticipated amortization periods. The size of the area is determined by factors such as the long-term resource potential, the accepted contract duration, annual raw material requirements of processing units, and wood volumes removed per hectare of forest land under prevailing utilization standards. An effective timber allocation policy requires probably short- and medium-term arrangements as well as long-term tenure in order to promote development in timber harvesting and processing. With regard to duration of agreements the following cases may be distinguished:

- Short contracts for a period of 1-5 years, generally for enterprises engaged in logging and operating small sawmills. The advantage of short periods is that government maintains flexibility in modifying timber allocation patterns. The principal short-coming is that this type of tenure does not encourage long-term investment in wood processing and permanent infrastructure.
- Medium-term contracts of 5-15 years duration are an incentive for the establishment of large logging units combined with sawmilling and panel production. This term allows use of heavy equipment and the construction of permanent access roads.

- There has been tendency in several countries to negotiate utilization contracts with a duration between 15 and 25 years which provided long-term raw material supply to forest industries. Long-term in contract tenure makes timber flow regulations, silvicultural measures and reforestation attractive to the industrial operators. A rapid migration of log-producing units is avoided, which is an important aspect for local communities.

A comparison of contract duration in various countries shows, that unrealistically long contracts, which have existed in the past, are disappearing. A duration around 20 years has become a standard for such contracts. The readiness of operators for improvements and new investment diminishes during the last years of contracts. If a renewal is envisaged uncertainty delays managerial decisions on possible expansions. An interesting approach to overcome this difficulty has developed in some countries. Contract renewal operates on a rolling system, which provides, for instance, a 20-year contract that can be renewed every 5 years for an additional period of 5 years, provided that the public forest owner is satisfied with past performance. This method offers an incentive for good performance and an opportunity, to renegotiate certain conditions after short periods without losing the advantage of long-term tenure.

**Resources Rent from Wood Production:** Fiscal procedures play an important role in timber allocation systems and resource rent appropriation on public forest land. Relevant points are, for instance, the actual and potential level of payments, fees and taxes for harvested timber, present and future economic benefits and losses in transferring utilization rights, and methods for evaluating the resource rent due to the public forest owner. It is necessary to consider the direct and indirect effects of such policies on land development, sustained forest management and environmental conservation. Critical questions to be raised when evaluating existing or new systems of rent appropriation are for instance:

- Are methods of rent appropriation consistent with general objectives of national forest policies and what effects do they have on land-use and environmental conservation?

- Are the combined public revenues from forest taxes commensurate with the actual or future financial requirements for the land management costs from forests which are opened to exploitation or to the substituted production from plantations?

- How do the combined public revenues from the exploitation of natural forests compare with the external costs that result from the destruction of wood that could be utilized in the future as well as with negative external effects and environmental costs?

Forest fiscal policies have important positive and negative effects on logging standards, utilization of low-grade material and utilization intensity. They influence utilization intensity, and determine the spatial distribution of forest activities by favoring or discouraging the concentration of logging. In this sense they are to be considered as management tools which
influence harvesting and management practices in contractual arrangements with private operators and industrial companies. The following questions are relevant when the impact of fiscal policies on the utilization patterns is examined:

- Do assessment methods encourage improved utilization standards, the use of lesser know species and the application of logging standards with reduced damage to the remaining stands?

- Do assessment methods for rent appropriation take into account replacement costs for the continuation of forest production in natural forests and for reforestation as well as land management costs?

- To what extend offer the existing regulations a basis for capturing an appropriate level of the resource rent and for regular adjustments to price and cost changes?

- Which are the effects of regulations on the proportion of local processing and what are the economic and social implications if lower tax rates on locally processed raw material are applied?

- Are policies effective and efficient with regard to collection procedures and institutional and administrative capabilities?

- Are the combined charges from the various tax rates per unit of raw material consistent with those levied in other countries; which adjustments are necessary for differences in transport distances and in logging and processing costs?

Shortcomings in Assessing the Resource Rent: Shortcomings of legal and contractual provisions concerning the assessment of forest revenues are usually experienced in the following respects:

- Payments are fixed at uniform rates and do not consider the economic value of the harvested raw material. This practice discourages utilization of lesser-known species or low-grade material and favors over-exploitation in areas close to the main lines of communication.

- Rates are fixed in the forest law and can only be changed with difficulty; substantial losses of revenue due to an inadequate adaptation to changing raw material prices and production cost levels may result.

- Tax rates are determined in contractual arrangements but do not include revision clauses.

These difficulties arise from misinterpreting the nature of forest revenues, which in many countries have been considered as a mere device for tax collection purposes. Forest revenues are, however, payments corresponding to raw material values - usually the value of standing trees - paid by the operator of an utilization contract in exchange for the harvesting rights. For this reason, payments of removed timber are in some countries explicitly referred to as "stumpage", meaning the value of the trees on the stump prior to the harvest that is to be paid to the forest owner. The principle that the combined charges of all forest revenues should be
related to raw material values of standing timber, and that the applicable rates should regularly
be adjusted to changes of the price and production cost level of a given specie and log quality,
has become more accepted. Provisions have been incorporated in forest legislation or
individual agreements, which determine that the assessment is to be based on stumpage
appraisal. Tax rates are determined by regulations and can be revised at regular intervals.

*Appraisal of the Value of Standing Timber:* Stumpage appraisals determine the value of the
harvested raw material (stumpage value) by subtracting wood production and processing costs
plus profit margin from the price of exported or locally processed products. The remainder
represents the resource rent or raw material value, the equivalent of which should be paid as
direct stumpage payment or as the aggregate of various forest revenues. Stumpage appraisals
may be made individually for each operating unit or may give an indication for revenue levels
that can be assessed on different commercial species and log grades and in different forest
regions. The major requirement of revenue assessment on the basis of stumpage appraisal is
accurate information on timber prices and production costs. Appropriate revenue evaluation
requires regular analysis of timber price developments and of production costs in reasonably
efficient production units. As an indicative price level, actual export prices or prices at mill site
may be used. Major cost items to be considered are:

- Wood production costs, comprising inventory and management, construction and
  maintenance of forest roads, felling and skidding, bucking and wood-handling in log
  yards, loading on trucks, and general overheads of forest operations.

- Transport costs to port or mill site.

- Port handling costs, excluding forest taxes.

- Overheads of central services.

- Costs of export and marketing services.

- Costs for forest management and silvicultural measures.

A division of responsibilities for forest revenue assessment among various government
agencies does not encourage improvements in this field. Changes in revenue collection - in
particular export duties - may be decided in the Ministry of Finance, whereas the technical
administration has little or nothing to say in this matter. A clearer understanding of the nature of
forest revenues and closer co-operation between government agencies contributes to the
design and implementation of more appropriate assessment procedures.

*Fees per Unit of Allocated Forest Area:* This type of fees comprises payments assessed on
forest land either in a lump sum or more frequently as an annual levy per unit of area. Its major
purpose is to establish a legal requirement showing that the operator has received rights of
forest utilization but not ownership. Another purpose is to discourage speculation with contract
areas by tying up large resources in order to prevent competitors from timber harvesting in
adjacent forests. The use of area fees may also be an instrument to encourage a more
intensive utilization. The fee could be assessed on the aggregate of raw material that is to be considered as harvestable under prevailing utilization standards. In the case of short-term harvesting arrangements the volume of commercial raw material and its market value can be determined with some reliability, and the assessment of area fees in relation to raw material outputs appears feasible. In the case of long-term contracts the utilization possibilities are difficult to predict and revenue assessment based largely on area fees leads to unsatisfactory results.

Auctioning of Timber as a Method to Capture Resource Rents. In countries in which utilization of forests is mainly based on the granting of cutting rights, there are no direct indications for the value of roundwood. This is different from the situation in countries with an open log market in which logs are sold by many forest owners to many buyers from the industry. Raw material values are determined by a series of sales negotiations. One way to assess the value of standing timber is to use bidding at public auction or written sealed tenders. Raw material values are determined by competition between parties interested in acquiring the timber on offer. Provided that a competitive situation exists, revenues from timber auctioning are usually higher than the proceeds from standard rates and check prices. Public bidding may include minimum price setting below which the owner will not sell. The minimum or reserve price is determined by reference to comparable sales or by a stumpage appraisal for a particular logging operation.

Timber auctioning is an alternative method for rent appropriation in countries with increasing demand for wood as industrial raw material. This refers in particular to areas which have already been opened up and can be allocated by various sales arrangements to different operators. The replacement of fixed stumpage rates through timber auctioning is possible in the case of short-term timber harvesting contracts. Auctioning as a method for determining raw material values is, however, not much promising in the case of long-term contracts. It is not in the interest of the forest owner to accept by one single auction wood values for the whole contract period. If a company has to bid for the total volume of raw material to be harvested during a long contract duration, it uses a large security margin, since it is difficult to predict changes of prices and costs over a period such as 20 years. The value of harvested timber has therefore to be reassessed at a regular intervals on the basis of the prevailing price and cost situation.

Selected References


