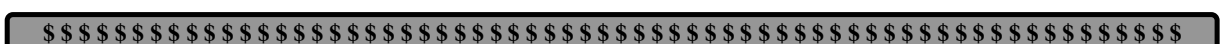




FOREST FINANCE



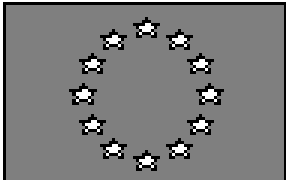
The forest revenue system and government expenditure on forestry in Kenya

A paper prepared for the FAO work-programme component on financing sustainable forest management

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THE FOREST REVENUE SYSTEM AND GOVERNMENT EXPENDITURE ON FORESTRY IN KENYA

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INFORMATION NOTE ON THE FAO PROGRAMME ON FOREST FINANCE

It is generally accepted that financial considerations represent one of the most important factors that can have an impact on the implementation of sustainable forest management. With this in mind, the FAO Forestry Department has implemented a programme of work on forest finance, to examine how government policies (in forestry and other sectors) affect financing in the forestry sector and the consequences of such policies for sustainable forest management.

One of the most important ways in which governments can have an impact on financing in the forestry sector is through the fiscal policies that they implement within the sector. Where forests are owned or managed by the state, the way in which charges for the use of forest resources are determined and implemented can have a major impact on the scale and types of investment in the sector. A vast literature has developed over the last 30 years examining this topic. Other fiscal policies, such as taxes and subsidies both within and outside the sector, can also have a significant impact on the forestry sector.

The purpose of this work will be to review the impact of current fiscal policies on sustainable forest management, along with other related policies, such as land tenure, which have an impact on forest financing. However, the work will attempt to go beyond simple financial analyses of current policies (which have largely been done before) to examine the broader social, institutional and political aspects of policy reform. It is hoped that this work will assist forestry administrations to identify practical ways in which they can revise their fiscal policies, so that they can more easily pursue the goal of sustainable forest management.

This work has been funded through the FAO Regular Programme and the EC Tropical Forestry Budget Line (FAO-EC Partnership Project on Sustainable Forest Management in African ACP Countries). A large part of the work has been produced by national consultants and institutions, with the supervision and assistance of FAO.

Working papers are being produced and issued as they arrive. Some effort at uniformity of presentation is being attempted, but the contents are only minimally edited for style or clarity. FAO welcomes from readers any information that they feel would be useful for this work. Such material can be mailed to the contacts given below, from whom further copies of these working papers, as well as more information about this programme of work, can be obtained:

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LIST OF ACRONYMS AND ABBREVIATIONS

AIA	Appropriation In Aid
cm	centimetre(s)
FD	Forestry Department
FDGO	Forest Department General Order
GTZ	German Agency for Technical Cooperation
ha	hectare(s)
KEFRI	Kenya Forestry Research Institute
KFMP	Kenya Forestry Masterplan
Kg	Kilogramme(s)
Ksh	Kenyan Shilling(s)
m ³	cubic metres
MTEF	Medium Term Expenditure Framework
PPM	Pan African Paper Mills
spp	species
VAT	Value Added Tax
USD	United States Dollars

ABSTRACT

The Forestry Department in Kenya is the government forestry administration and manager of state-owned forests. Forest revenue is mostly obtained from the production of major forest products (especially roundwood from forest plantations), plus some small amounts from licence fees and the production of minor forest products. In addition, a number of other taxes and fees are also collected from the sector by other parts of government.

Forest charges are supposed to cover forest management costs. The systems used to set charges, assess and collect revenue have improved, but total revenue collection is still not sufficient to cover all costs. Most forest revenue is credited to the Treasury who, in return, finance the budget of the Forestry Department. In addition, donors provide most funding for the development budget of the Forestry Department.

The total budget of the Forestry Department is inadequate, resulting in significant under-investment in forest management and other activities. This report presents a number of recommendations about how revenue could be increased and the efficiency of the Forestry Department improved.

EXECUTIVE SUMMARY

Kenya's closed canopy forest currently covers some 2.35 million ha and is divided into two categories: gazetted forest (1.57 million ha) and ungazetted forest (0.78 million ha). In addition, there is approximately 2.10 million ha of other woodlands, 24.80 million ha of bushland and 10.70 million ha of wooded grassland. A further 9.54 million ha of woody vegetation is also found on farmland and in settled areas

The Forestry Department (FD) manages all gazetted forests and, through agreed arrangements, an additional 180,000 ha of ungazetted trust land forest that belongs to local authorities. Within this total, the FD manages forest plantations that cover about 170,000 ha and which are managed specifically for industrial roundwood production.

Most forest revenue comes from charges (royalties) on the production of major forest products (i.e. roundwood), especially from production in forest plantations. All of this revenue is submitted to the Treasury. In addition, a small amount of revenue is raised from operating licence fees and charges on minor forest products (non-wood forest products and services), which is credited directly to the Ministry's budget. There are also a number of other taxes and charges paid by the sector to other parts of central and local government.

For roundwood production in forest plantations, forest charges are determined using the replacement cost method. This calculates the charges that would be necessary to recover all forest management costs. These charges should be paid by all producers, but the pulp and paper mill has been allowed to pay less in order to compete with imported products. In the natural forest, high levels of charges have been set to discourage the use of the resource and allow time for regeneration.

The FD is the only institution that assesses and collects forest charges. The total amount of charges that should be paid is based on an assessment of standing volume and a detailed procedure is used to calculate this. In addition, ground scaling (assessment of felled volume) and weight are also occasionally used to assess charges. In general, there have been some problems with the under-reporting of assessed volumes and charges.

Total revenue collection has been less than expected, due to the low charges paid and under-assessment of charges. In addition, there have also been some problems with arrears of charges. Total revenue collection has fallen from Ksh 216 million in 1993-94 to Ksh 128 million in 1999-00, due to the problems noted above and a decline in harvesting. The decline in harvesting has been due to a ban on production from the natural forest and the FD restricting production in forest plantations (due to a lack of funding for reforestation).

The total budget for the FD has fallen from Ksh 1,076 million in 1993-94 to Ksh 883 million in 2000-01. Recurrent expenditure is funded by the government and has increased slightly over the period. However, development expenditure is funded largely by donors and this has declined in recent years. Currently, government funding is largely concentrated on salaries, but this is inefficient and imbalanced because staff do not have the necessary tools and equipment to implement operations. The other major government institution working in the forestry sector is the Kenya Forestry Research Institute and it has similar budget problems.

The forest revenue system in Kenya could be improved in a number of ways. First, the proper implementation of assessment and sales policies could increase revenue collection

substantially. In addition, the full amount of charges (royalties) should be collected and charges should be revised regularly to reflect the market price of products. Public auctions and competitive timber sales could help in this respect and improved data collection and information management would also assist with revenue collection.

Financial independence for the FD is proposed as one way to increase the incentive to collect all forest revenue and improve efficiency. It is recommended that the FD should be allowed to keep a proportion of the forest revenue collected, so that this can be reinvested in forest management. It is also suggested that there should be more partnership between the public sector and the private sector in forest plantation management and the development of farm forestry.

More generally, there is a need to increase the participation of other stakeholders in the sector if the goal of sustainable forest management is to be achieved. The FD is working towards this with the implementation of new and revised forestry policies and legislation.

1 INTRODUCTION

1.1 *A brief history of forestry development in Kenya*

At the beginning of the 20th Century, there was a consensus about the sustainability of wood production from indigenous forests. These forests were seen as very slow growing compared to the fast growing exotic plantations that were tested in earlier trials. Therefore, unlike in other tropical African countries, the early colonial settlers introduced an emphasis on exotic plantation development into the country.

In around 1945, Kenya started the first systematic programme of compensatory forest establishment (i.e. replacing indigenous forests with plantations of exotic species) and replanting of clear-felled industrial plantation areas. Through the *shamba* system (a form of *taungya*), workers were engaged for part of the year to cultivate food crops and work on the forest plantations. This inter-cropping of food and tree crops lasted for the first three to four years of the tree rotation, until the tree seedlings were so big that they would prevent a decent harvest of food crops.

Over the course of time, the trees in these forest plantations were well-tended at basically no cost to the Forestry Department (FD) and, under this system, the FD was able to establish a basic national network of industrial forest plantations. The main species planted were exotic conifers (cypress and pines), along with a significant area of Eucalyptus species.

In the early 1970s, in an effort to solve the problem of increased wood demand, the Government decided to seek external capital to finance a forest development programme. This programme was designed to increase the production of industrial roundwood as a raw material base for a domestic forest industry.

The World Bank was the lead financial institution that provided external financing for forest plantation development and it provided funding in four phases as follows:

1970-1974:	USD 4.0 million	1975-1980:	USD 55.0 million
1982-1989:	USD 68.2 million	1992-1997:	USD 26.3 million

With this financing, the FD was able to establish 170,000 ha of forest plantations.

From the mid-1980s, there was a steady decline in the strength of the FD as a public body responsible for the management of forest plantations. The main problems behind this were a lack of political support, inadequate budgetary allocations and changes in staff attitudes, skills and motivation. This has led to an inefficient forestry sector. At the moment, there is a large and growing backlog in the implementation of necessary planting and silvicultural operations and the standard of forest plantation establishment work is generally quite poor.

The results of these problems can be seen clearly in recent supply and demand projections for forest products. For example, according to the Kenya Forestry Master Plan (KFMP) of 1994, it is estimated that future increases in wood supply will not be able to keep pace with the projected increase in demand beyond the year 2000. Furthermore, the total national deficit in wood products is projected to rise to 997,000 m³ by 2005 and 6,841,000 m³ by 2020.

1.2 Current status of the forestry sector in Kenya

Kenya's closed canopy forest currently covers some 2.35 million ha and is divided into two categories: gazetted forest (1.57 million ha) and ungazetted forest (0.78 million ha). In addition, there is approximately 2.10 million ha of other woodlands, 24.80 million ha of bushland and 10.70 million ha of wooded grassland. A further 9.54 million ha of woody vegetation is also found on farmland and in settled areas (Wass, 1995).

The Kenyan forestry sector has developed into an important national programme that contributes to the growth of the national economy. For example, the estimated value of the production of forest products is Ksh 2.0 billion per annum, which is equal to about 10 percent of the country's agricultural Gross Domestic Product (KEFRI, 1999).

The FD manages all gazetted forests and, through agreed arrangements, an additional 180,000 ha of ungazetted trust land forest that belongs to local authorities. Within this total, the FD manages forest plantations that cover about 170,000 ha and which are managed specifically for industrial roundwood production. Historically, the FD has been the main producer of roundwood and the FD is both the national forestry authority and the manager of the state-owned forest resource. The FD is financed mainly from external funding, plus some local funding (used mainly for personal emoluments and a small proportion of the operations and maintenance budget).

Forest revenue is derived from the forest areas under FD management. In particular, forest plantations represent the single most important source of revenue collected by the FD. In addition, the FD also collects revenue from forest charges on harvesting in the natural forest and non-wood forest products (minor forest products). The FD does not collect revenue from the production of roundwood or other forest products from the vast areas of bushland and wooded grassland. These areas are under communal land ownership and are generally used by nomadic pastoralists.

2 DESCRIPTION OF THE FOREST REVENUE SYSTEM

2.1 Charges for roundwood production

Forest charges are levied on the production of roundwood from forest plantations and the natural forest.

2.1.1 Charges for roundwood harvesting in forest plantations

The FD markets the following industrial roundwood products from forest plantations:

- cypress sawlogs from clear-felling;
- pine sawlogs from clear-felling;
- cypress sawlogs from thinning;
- pine sawlogs from thinning;
- transmission poles;
- pulpwood; and
- fuelwood.

The royalty charges for these roundwood products are based on the average replacement cost principle (see Section 3.1.2) and are shown in Table 1 below. However, it should be noted that the FD does not always collect the full amount of these royalties (e.g. see Table 5 on page 16).

Table 1 Royalty charges for roundwood harvesting in forest plantations

Product	Price (in Ksh)
Cypress clear-felling	1,058 per m ³
Cypress thinning	945 per m ³
Pine clear-felling	963 per m ³
Pine thinning	832 per m ³
Pulpwood	945 per m ³
Fuelwood	198 per m ³
Transmission poles	
5-10cm. diameter(hardwood)	4 per running metre
10-15cm diameter(hardwood)	6 per running metre
5-10cm diameter (softwood)	3 per running metre
10-15cm diameter(softwood)	6 per running metre

Note: transmission poles are defined as logs with a butt diameter of up to 15 cm. Logs of a larger diameter are charged at the full royalty rate for logs from thinning and clear-felling.

2.1.2 Charges for roundwood harvesting in natural forests

The royalty rates for harvesting roundwood in the natural forest are shown in Table 2 below. These royalty rates have been deliberately fixed at quite a high level, to discourage harvesting in the natural forest so that it will have time to recover from previous over-exploitation.

Table 2 Royalty charges for roundwood harvesting in the natural forest in 2000-01

Tree species (botanical name)	Common usage of the wood	Royalty (in Ksh/m ³)
<i>Acacia melanoxylon</i>	Flooring and wood carving	3,605
<i>Azelia quanzensis</i>	Wood carving and flooring	4,681
<i>Albizzia gummifera</i>	Timber and veneer	2,969
<i>Aningeria altissima</i>	Timber and plywood	1,982
<i>Antiaris toxicaria</i>	Timber and furniture	2,430
<i>Araucaria spp</i>	Timber	280
<i>Avicenia marina</i>	Timber and poles	233
<i>Bosquiea phoberos</i>	Veneer and furniture	2,969
<i>Brachylaena huillensis</i>	Wood carving and flooring	4,053
<i>Brachystegia specifformis</i>	Timber	1,982
<i>Bruguiera gymnorhiza</i>	Wood carving, timber and poles	233
<i>Casuarina equisetifolia</i>	Timber and poles	262
<i>Chlorophora excelsa</i>	Furniture and flooring	4,681
<i>Chrysophyllum albida</i>	Timber and plywood	2,430
<i>Combretum schumanii</i>	Wood carving and flooring	2,969
<i>Cordia spp</i>	Furniture	4,053
<i>Croton macrostachys</i>	Construction timber and plywood	2,430
<i>Croton megalocarpus</i>	Construction timber and plywood	2,430
<i>Cynometra webberi</i>	Carving	2,969
<i>Dalbergia melanoxylon</i>	Carving	4,681
<i>Dombeya goetzenii</i>	Joinery	2,969
<i>Erythrophleum guinensis</i>		2,969
<i>Euphorbia spp</i>	Plywood	2,430
<i>Fagara macrophylla</i>	Furniture	2,969
<i>Ficus spp</i>	Plywood	2,430
<i>Funtumia africana</i>	Construction timber and plywood	2,430
<i>Hagenia abyssinica</i>	Joinery and flooring	4,681
<i>Juniperus procera</i>	Joinery, furniture and flooring	5,400
<i>Maesopsis eminii</i>	Joinery, furniture and flooring	2,969
<i>Manilkara butugi</i>	Timber and furniture	2,969
<i>Manilkara zanzibarensis</i>	Boat building, furniture and joinery	3,889
<i>Nesogordonia parvifolia</i>		2,969
<i>Nesogordonia spp</i>		2,969
<i>Newtonia buchananii</i>	Timber and furniture	2,969
<i>Newtonia paucijuga</i>	Timber	2,969
<i>Ocotea usambarensis</i>	Joinery and furniture	9,363
<i>Olea africana</i>	Flooring and wood carving	4,681
<i>Olea hochestetteri</i>	Flooring, wood carving and furniture	4,681
<i>Olea welwitschii</i>	Flooring, wood carving and furniture	6,133
<i>Podocarpus africana</i>	Timber and furniture	3,609
<i>Polyscias kikuyuensis</i>	Plywood	2,969
<i>Prunus africana</i>	Lorries and bridges and flooring	4,681
<i>Terminalia catappa</i>	Timber and poles	2,969
<i>Terminalia kilimandischarica</i>	Wood carving	2,969
<i>Trachylobium verrucosum</i>	Boat building, furniture and timber	2,969
<i>Trichilia roka</i>	Furniture and veneer	2,969
<i>Vitex doniana</i>	Timber and furniture	2,969
<i>Vitex keniensis</i>	Furniture and veneer	4,681
<i>All other species</i>		352

2.2 *Charges for production of non-wood forest products and services*

In Kenya, the major non-wood forest products and services are as follows:

- gums and resins;
- hotels and lodges;
- non-resident cultivation;
- grazing;
- soil and murrum;
- asparagus fern;
- honey;
- quarrying;
- grass;
- water; and
- medicinal herbs.

The FD manages and regulates the extraction of all non-wood forest products (which are known locally as minor forest products). Production of most of these products is regulated through a licensing system that is based on the availability of materials and is reviewed each year. The specific charges on minor products are as indicated below.

2.2.1 **Cultivation and grazing**

Forest plantation development in Kenya is implemented using the non-resident cultivation method (which is a type of *taungya*). Under this system, crops are cultivated for a period of three years, after which the trees dominate the sites and cultivation is no longer possible. After three years, farmers are given new areas of land to cultivate.

Within available areas in each forest management unit, land is allocated to farmers for cultivation and grazing upon payment of a nominal fee of Ksh 330 per hectare per year. For grazing, an additional grazing fee of Ksh 33 per head of cattle and Ksh 11 per sheep is also charged each month. These payments are for cultivation and grazing only and it should be noted that this system does not allow the building of structures in the forest.

The forester in charge of a station is required to determine the current capacity of the area available for cultivation and grazing and to allocate the area equitably amongst eligible applicants. As there are usually gates at the entrance to a station, the receipts issued to applicants are used to determine whether they are eligible to graze their animals in the forest and the number of animals allowed to graze there.

2.2.2 **Gums and resins**

Gums and resin extraction is subject to the following charges levied by the FD:

- **Annual license application fee:** removal of the above products is controlled by annual licensing and the FD charges a licence application fee of Ksh 1,000.
- **Operating license fee:** once applications are approved, successful applicants are also required to pay an annual operating license fee to the FD of Ksh 8,000 each year.

- **Volume charges:** the licensee then pays charges based on the volume of gum and resin extracted. Currently, the FD charges Ksh 3 per kilogramme for gum and resin extraction.

2.2.3 Recreational facilities

Recreational facilities within the forests include hotels, lodges, camping sites and guesthouses. Land used for hotels and lodges is normally leased to developers for a specific period of time at a price set administratively by the FD. The developer is subsequently supposed to pay an annual land rent based on the area occupied (currently Ksh 1,650 per hectare per year), plus 15 percent of the gross receipts from guests.

The FD also develops camping sites and guesthouses. The current charges set by the FD are: Ksh 127 per adult per night and Ksh 55 per child per night in campsites and Ksh 200 per night for the use of a guesthouse.

2.2.4 Other minor forest products

Other minor forest products are harvested in small quantities and, where there is demand for these products, permits are issued on an *ad hoc* basis outside the normal licensing mechanisms. Producers of these products pay for the amounts that they take and the charges currently levied by the FD for these products are shown in Table 3.

Table 3 Charges for other minor forest products

Item	Charge (in Ksh)
Limestone	33 per tonne
Crushed stone	55 per tonne
Sand	66 per tonne
Silica	198 per tonne
Murram	110 per tonne
Soil	66 per tonne
Grass	7 per head load
Moss	83 per head load
Asparagus	19 per kg
Bamboo tips	22 per 25 kg
Red ochre	17 per head load

In addition to the charges listed in Table 3, quarry operators are also required to pay an annual licence application fee of Ksh 1,000 and, if their application is successful, an annual operating license fee of Ksh 8,000. Quarrying in forest areas mainly involves the removal of building stone and murram and applications are grouped together for purposes of levying the annual operating license fees.

2.3 *Charges on processed product production*

The main focus of the FD is the production of roundwood, but the FD also issues licences for producers of processed forest products. All producers pay an annual licence application fee of Ksh 1,000 and, if their application is successful, they also pay the annual operating licence fees shown in Table 4. For sawmills, these fees are graduated according to the size of the sawmill and three size classes are used for this purpose.

Table 4 *Annual operating licence fees for producers of processed forest products*

Category	Licence fee (in Ksh per year)
Special licence (pulp and paper mill)	120,000
Large-scale sawmills	70,000
Medium-scale sawmills	30,000
Small-scale sawmills	15,000

2.4 *Charges on forest products trade*

The FD does not levy any charges on forest products trade. However, all exports of wood products must be graded and exporters must pay a grading charge for this service. This levy is paid to individuals who are gazetted by the government as timber graders.

2.5 *Other charges*

2.5.1 **Other charges paid to local and central government**

The charges listed above are only those charges that are paid to the FD. In addition, many individuals and companies operating in the forestry sector also have to pay a range of other charges, fees and taxes to local and central government. These include the following:

- **Value Added Tax (VAT):** companies and individuals that have a significant turnover must register for VAT purposes and charge VAT on their sales (which is then remitted to the central government).
- **Income taxes:** companies and individuals must also pay personal and/or corporate income taxes to the central government.
- **Cess charges:** these charges are paid to local authorities for developments such as roads, bridges and other welfare facilities. However, there are instances where the funds generated from these charges are used to finance projects unrelated to the activities for which they were collected (e.g. payment of salaries for local authority staff). The amounts paid vary from one local authority to another and these charges are usually collected at roadside barriers erected by the local authorities.
- **Trading licence fees:** these are paid to the central government and local authorities. The amounts charged as trading licence fees vary, depending on the size of the industry and the products traded.

- **Catering levy and service charges:** privately operated recreational establishments may also have to pay a catering levy. Local authorities may also levy other service charges on companies for a variety of services.
- **Training levy:** with a view to improving efficiency in the wood industry, the government collects a training levy to cover the expenses of training sawmill employees. This levy is collected from registered sawmills and amounts to 0.25 percent of the gross value of monthly sales. The Department of Industrial Training (under the Ministry of Public Works) collects the levy and disburses it to various designated training centres.

2.5.2 Negotiated charges and obligations

In addition to the mandatory charges listed above, individuals and operators in the forestry sector may also pay other charges or have to meet certain obligations as part of their operations. These include the following:

- **Infrastructure development:** large sawmills may have to contribute to infrastructure development (especially road maintenance) where government funding is inadequate. These charges are usually agreed between the sawmills and respective local authorities.
- **Support to afforestation programmes:** in areas that have been harvested, companies may have to support afforestation through cost sharing arrangements with the FD.
- **Support to research:** the pulp and paper mill contributes to some forest research programmes.
- **Rehabilitation of quarry sites:** after sites have been mined, companies are required (under the Mining Act) to rehabilitate these sites. Companies deposit a bond to guarantee that the rehabilitation work will be implemented, but the amounts deposited are currently so low that they would not cover the cost of such rehabilitation if the operators defaulted.

Except for the rehabilitation of the quarry sites, these charges are largely voluntary and are geared towards augmenting government efforts towards afforestation.

2.5.3 Fines and penalties

The Forest Act (Cap. 385 of the Laws of Kenya) stipulates various fines for committing forest offences, which vary depending on the nature of the offence committed. The Act also allows for compounding of offences at the forest station by a gazetted forest officer.

3 ADMINISTRATION OF THE FOREST REVENUE SYSTEM

3.1 *The process of setting forest charges*

For the purpose of setting forest charges, forest products in Kenya are classified into two groups: major forest products (industrial roundwood, poles and posts and fuelwood) and minor forest products (grass and mosses, barks, resins and gums, medicinal extracts, seedlings, soil and murrum, picnic sites and lodges and forest cultivation, etc.). For major forest products, production is the main forest management objective. For the minor forest products, forest management decisions are not specifically geared towards their production.

In determining the charges to be levied on the various products, the FD takes the following issues into consideration:

- The FD is largely monopolistic (as it owns and manages almost all forests in the country) and is, therefore, a price setter.
- Forests are public entities and, therefore, forest charges have to balance both the need for profitability and social goals. In some cases, social goals may outweigh the need for profitability.
- The need for sustainable development in all sectors of the economy.

3.1.1 Residual value method

In forests that are specifically managed for timber production (especially plantations of pines, cypress and eucalyptus) the charges levied on roundwood production can be determined on the basis of either the replacement cost method or the residual value method.

The residual value method requires a readily available market price for the final product, from which the residual value or stumpage price can be derived. With this method, all processing costs, profits and risk margins are deducted from the market price of the final products to leave the residual price (which is the maximum that sawmills are willing to pay for the logs).

In recent years, there has been oversupply in the market with very cheap material from farms and other areas. This has resulted in low prices that would push the royalty rates below the cost of production if the residual value method of royalty calculation was used. Therefore, the replacement cost method is currently preferred by the FD for setting roundwood royalties for cypress and pines.

3.1.2 Replacement cost method

The replacement cost method has the following advantages over other methods of setting forest charges:

- It has rationality, in that any producer of goods and services should recover their production costs and, therefore, need to know the break-even cost.

- The approach has the flexibility to adjust royalty rates to reflect marketing and management objectives (such as raising the royalty for wood produced from clear-felling and lowering the royalties on thinnings).
- It is possible to identify weak cost centres and, therefore, institute measures for improved productivity and cost reduction.
- The method has the advantage of passing on the benefits of any improvement in management efficiency (i.e. lower production costs) to consumers.

The replacement cost methodology uses an average cost of production to arrive at an average price per unit of sale. This is summarised in the general formula:

$$Y \times P = C$$

Where: Y = Yield
 P = Price (royalty)
 C = Replacement cost

In this calculation, the yield used is an average of volumes assessed by the FD Inventory Section in each year and the cost is the weighted average of production costs calculated by analysing costs from several sample forest stations. This method guarantees roundwood production cost recovery and also guarantees the producer a pre-determined profit (under the assumption that the producer is efficient).

In practice, the price calculated by the above formula is adjusted according to the management objectives that the price is supposed to achieve within the various timber assortments (e.g. cypress clear-felling, cypress thinning, pine clear-felling and pine thinning, etc). A profit margin and the prevailing rate of inflation are also included in the calculation to arrive at the charges to be levied.

3.1.3 Charges set administratively

The Government has deliberately restricted access to indigenous timber by imposing temporary harvesting bans and by setting high royalty rates. This has been done to ensure the recovery of indigenous forests after years of overexploitation and also to enhance their more important roles of environmental protection and biodiversity conservation. The current royalty rates for roundwood harvesting in indigenous forests are shown in Table 2 on page 4.

Minor forest products are usually harvested by communities living near the forest and with whom the FD would wish to establish close linkages. The prices of these products have been set at a low level to make them affordable by the poorer members of communities. By doing this, it is expected that such people would be more inclined to support efforts towards conservation of their neighbouring forests.

3.1.4 Revision of forest charges

Forest charges are revised annually and the charges are communicated to field officers and consumers through a Forest Departmental General Order (FDGO). The charges that are set administratively are adjusted every year for inflation. In order to make the exercise as

inclusive as possible, there is consultation between the FD and senior government officers, but there is little consultation with wood users about the revision of forest charges.

While the responsibility for setting charges rests with the Chief Conservator of Forests, the system allows for arbitration by the Minister responsible for forests (should there be any disputes). Once revised charges have been agreed, enforcement is administered through the Forest Act (Cap. 385 of the Laws of Kenya).

Finally, it should be noted that the forestry sector has an obligation to support other sectors of the economy. In recent years, generally poor economic performance has led to a lowering of purchasing power with the result that the FD has been forced to lower charges on forest products and services. For example, the liberalisation of the economy has led to cheap imports of paper products from abroad and the only pulp and paper mill in the country has had to seek intervention measures to prevent closure. This has led to a reduction in the prices charged for pulpwood production.

3.2 Assessment of charges

Depending on the product to be sold, the FD employs several methods to assess the total value of charges that should be collected. For example, assessment of roundwood charges is based on three main methods.

- Standing volume assessment (mainly used for forest plantations).
- Ground scaling method (indigenous species and materials salvaged from plantations).
- Weighbridge method (mainly used for pulpwood).

3.2.1 Standing volume assessment method

In 1985, the FD stopped selling felled logs and started to sell roundwood using a standing volume (stumpage) assessment method. This is used to sell standing crops in forest plantations (e.g. *Cupressus lusitanica*, *Juniperus procera*, *Vitex keniensis*, *Grevillia robusta*, *Pinus patula* and *Pinus radiata*) and the assessment procedure is outlined below.

Standing volume assessments are implemented by 13 Inventory Units that are strategically located to cover each plantation area in the country. These units have a forester in charge, an assistant and two or three enumerators. In each area where harvesting will occur, the Inventory Units collect information about the diameter at breast height and the height of trees, either through complete enumeration or systematic sampling. Based on this information, the volume of each tree is then calculated using different formulae for different species. After this assessment in the field, the data is then sent to FD Headquarters, where the Inventory Section applies regression models to determine the total volume of trees enumerated or sampled. This information is then used to calculate the total volume that will be harvested and the charges that should be paid.

The main reason for introducing this methodology was to improve revenue collection by the FD and to improve the efficiency of the wood processing industry. However, inaccurate data collection could lead to errors in computing standing volumes and charges. Possible sources

of error include: the use of faulty instruments; a lack of appropriate training of the measuring crews; underestimation or overestimation of horizontal distances; and deliberate manipulation of the data. Any of the above will result in inaccuracies in the expected volume, which could lead to low revenue collection.

For sales to sawmills, roundwood volumes are assessed on the basis of a complete (i.e. 100 percent) enumeration. In the case of sales to the pulp and paper mill (pines and cypress), systematic sampling is used to establish the roundwood volume. This is because of the large areas allocated for harvesting. For systematic sampling, the size of the plot is determined by the condition of the stand, but it ranges from 0.07 ha to 0.10 ha. This plot size is used to ensure that a sampling error of less than 10 percent is achieved with a sampling intensity of 10 percent.

A team based at FD Headquarters monitors the performance of the Inventory Units by cross checking data from the field. If significant differences are found, the team implements quality controls in the field.

3.2.2 Ground scaling method

Where there are very steep slopes, species without volume equations or serious defects in the trees, volume is assessed using the ground scaling method. For this method, trees are felled and cross-cut into logs and then classified into log classes. The logs are then measured and recorded in timber statements that are used to calculate total roundwood volume. The forester in charge of a station measures and grades the logs and the District Forest Officer is usually supposed to cross check this work. This method is used mainly for indigenous species that are difficult to measure standing due to the nature of their growth (i.e. they are mostly crooked and bent).

The assessment of volume and charges using this method depends entirely on the measurements made by the forester in charge of the station. According to a study by the FD Economics Section, this method of volume assessment tends to result in assessments of volume that are very low. The main problem is the common practice of allowing the industry to purchase only what it wants rather than all of the timber available in a stand. This results in significant waste and low royalty collection. The method is also open to abuse by corrupt field officers. Therefore, this method is characterised by very low recovery of forest charges.

3.2.3 Weighbridge method

This is a method where a loaded truck is weighed on platform scales at the delivery point. The net weight of the wood is then obtained by deducting the weight of the empty truck. The volumes and charges assessed by this method are calculated from the recorded weights using records of volume-to-weight relationships.

The volume-to-weight conversion factors have been tested (and shown to be unbiased) and this method is easy to apply. In particular, this method is very useful for measuring pulpwood volume. It also has the following advantages: it is safer (because a scaler does not have to climb over and around the load); judgement is not required to decide where to measure the size of a load; non-uniform lengths can be weighed to determine the total volume of the truck load; and there is no sampling error using this method.

3.2.4 Other methods of assessment

Charges for other products are based on weights and lengths (running metres) as indicated in Table 1 and Table 3.

3.3 Charge collection

Once charges have been assessed, bills are issued and revenue is collected by the station forester who uses prescribed receipt books to receive payments at the station level. Payments for major forest products are made by cheque while cash payments are usually made for minor forest products.

According to the FDGO, all payments should be made in advance and the FD should forward all payments to the local district treasuries. However, unauthorised cases of credit sales have been reported in the past, resulting in arrears of revenue.

All revenue from major forest products is subsequently sent to the Treasury to form part of the Consolidated Fund. Revenue from other sources (minor forest products and licence fees) is credited to the FD Appropriation in Aid (AIA) account. This revenue is sent to the same local district treasury, but is then submitted to the FD Accounting Officer to be used to meet part of the Ministry's expenditure.

Revenue collection is monitored through a reporting system that has been developed to capture the necessary data related to both production levels and the amount of revenue collected. There are also regular field inspections by staff from FD Headquarters and independent auditors from the Office of the Controller and Auditor General. However, the absence of precise information about plantation stand developments, the potential annual yield and cutting plans, make it practically impossible to monitor the amount of timber actually harvested and extracted from the forest each year.

3.4 Involvement of others in the forest revenue system

The revenue collected by the FD is banked by the Treasury and forms part of total government revenue. The disbursement of these funds is controlled by the central government through the Appropriation Act of Parliament and expenditure is monitored and audited by the Controller and Auditor General, who forwards the FD accounts to the Parliamentary Public Accounts Committee for scrutiny. Therefore, all of the revenue collected from the forestry sector is managed and administered by the central government.

Local communities are not involved in the collection of forest charges or the monitoring of production levels. However, cases of unsustainable utilisation have often been reported by local communities and these are followed-up by staff of the FD.

4 TOTAL REVENUE COLLECTION AND DISTRIBUTION

4.1 Historical trend of the forest revenue system in Kenya

The royalty pricing policy in Kenya has a long history dating back to the beginning of the 20th Century. Prior to the participation of the World Bank in the financing of forest plantation development in the 1970s, the aim of the pricing policy of the FD was essentially to manage the exploitation of indigenous forests. This meant that prices were generally set at a very low level to encourage the use of the resource.

When the Kenyan Government received external financing for industrial forest plantation development in the 1970s, the World Bank recommended the adoption of a pricing policy to maximise the recovery of all expenditure incurred in the production of industrial roundwood. The aim of this was to make industrial forest plantation development sustainable. However, the rate of royalty collection since the World Bank became a co-financier in industrial plantation development has not matched the expectations. Currently, the collection of royalties is now so low that forest plantation development is financially unsustainable.

The low rate of royalty collection has been blamed on the weak and inefficient forest administration and also the poor royalty assessment and collection system used in the past. To address these weaknesses, the FD adopted the standing volume assessment method for royalty determination in 1985 to replace the ground scaling system that was found to encourage wastage and was also open to abuse. Use of the weighbridge method has also been scaled down and is now only used in special cases.

Furthermore, the FD raised royalty rates to reflect the true value of wood in the international market. The schedule of revised royalty rates was prepared after a World Bank appraisal mission, which found out that the rates being charged by the FD were only 37 percent of the prevailing international market prices for the same types of wood. However, implementation of this schedule met stiff resistance from the established sawmillers (and, especially, Pan African Paper Mills), who successfully petitioned the Minister in charge of forests to reduce the royalty rates again.

The developments above together with the development and implementation of improved felling plans should substantially increase revenue collection. However, the felling plans that were in use prior to 1990 have been discontinued, with the result that the allocation of plantation materials for harvesting has been rather haphazard in recent years.

4.2 Total collection and distribution of forest based charges

The specific details of revenue collected from each of the major forest products produced in Kenya are described below.

4.2.1 Revenue from pulpwood production

Kenya has only one pulp and paper mill, which is part of the Pan African Paper Mills (PPM) group. The mill is based at Webuye town in western Kenya and is a joint venture between the Government of Kenya (33.4 percent), the Orient Paper Company of India (24 percent) and the International Finance Corporation (29 percent). The mill has an average annual capacity of

about 250,000 m³ of roundwood input, which is supplied completely by the forest plantations managed by the FD.

The pulp and paper mill uses its own machinery and workforce to harvest pulpwood from various forest stations, but the transportation of pulpwood to the mill is contracted to private companies. According to a World Bank report, the technology used in the mill is inefficient and obsolete and it is, therefore, unable to compete with other international paper producers.

The prices charged for pulpwood vary from year to year, so the total revenue generated from pulpwood sales over the last five years is indicated in Table 5 below. It should be noted that the royalty charged for pulpwood production is unrealistically low compared to the prices obtained by pulpwood producers in other countries. These rates have been set administratively outside the FD to cushion the pulp and paper mill from the impact of cheap paper imports (and they do not, therefore, match the figure calculated using the replacement cost method and shown in Table 1).

Table 5 *Total revenue collected from pulpwood production*

Year	Volume harvested (in m ³)	Royalties paid (in Ksh/m ³)	Total revenue collection (in Ksh)
1995-96	246,000	311	76,506,000
1996-97	260,000	311	80,860,000
1997-98	272,000	311	84,592,000
1998-99	207,000	311	63,135,000
1999-00	250,000	321	80,250,000

Revenue from pulpwood production is collected by the FD on behalf of the government and is subsequently deposited in the Treasury. The annual licence fee collected by the FD is credited to the Ministry's AIA account.

4.2.2 Revenue from sawlog production

There are currently about 376 sawmillers operating in Kenya. The total revenue collected from sawlog production in the past has amounted to over Ksh 100 million per year on average (see Table 6). In addition to this, revenue collected from the licence application fees and operating licence fees amount to about Ksh 8 million per annum in total. After collection, the production charges are surrendered to the Treasury to form part of the Consolidated Fund, while the licence fees are credited to the Ministry's AIA.

Table 6 *Total revenue collected from sawlog production*

Year	Total revenue collection (in Ksh)
1994-95	117,357,387
1995-96	116,215,934
1996-97	94,456,158
1997-98	70,177,326
1998-99	16,686,056
1999-00	29,155,726

The decreased level of revenue collection since 1997-98 is a reflection of reduced harvesting activities brought about by the need to balance extraction of materials with the FD's capacity

for reforestation. There has also been a ban on harvesting sawlogs in forest plantations since 1999, except in areas earmarked for excision or salvage operations. This ban was imposed after realisation that a lot of plantation materials had been harvested without a corresponding programme for reforestation. The low revenue in the last few years has also been attributed to inappropriate harvesting practices in some forest areas, where the full amount of revenue from sales has not been collected due to under collection and under assessment of merchantable wood volumes.

4.2.3 Revenue from the production of poles

Poles are produced from state forests to meet the demand for building poles and transmission poles (for telephone and power lines). The FD has established about 30,000 hectares of Eucalyptus plantations to meet the demand for poles and fuelwood. Poles can also be sourced from other softwood plantations and indigenous forests. Therefore, the FD has defined poles as all roundwood with a butt diameter of between 5 cm and 15 cm. All larger sizes of roundwood are sold at the full royalty rates shown in Table 1 and Table 2.

The revenue generated from pole production is mainly determined by the availability of Eucalyptus roundwood. Revenue collected from pole production over the last five years is indicated in Table 7 below. The revenue generated from the sale of poles is surrendered to the Treasury and forms part of the Consolidated Fund.

Table 7 *Total revenue collected from pole production*

Year	Total revenue collection (in Ksh)
1993-94	3,184,276
1994-95	2,878,341
1995-96	3,271,476
1996-97	2,968,341
1997-98	2,218,972
1998-99	2,029,574
1999-00	945,257

4.2.4 Revenue from the production of fuelwood

Fuelwood is derived mainly from Eucalyptus plantations and the waste from major forest operations (especially the tops and branches left after harvesting in forest plantations). The revenue generated from the production of fuelwood is determined by the availability of these materials and the FD remains the single major source of fuelwood supply to both industrial and domestic consumers. The main consumers of fuelwood in Kenya are tea factories and the tannin extraction industry.

Table 8 *Total revenue collected from fuelwood production*

Year	Total revenue collection (in Ksh)
1994-95	5,734,762
1995-96	5,875,139
1996-97	5,327,652
1997-98	3,854,152
1998-99	5,007,885
1999-00	3,289,618

The revenue generated from fuelwood sales is collected by the FD and is put into the Consolidated Fund. Total revenue collection from fuelwood production over the last five years is shown in Table 8 above.

4.2.5 Other revenue collected by the Forest Department

Charges derived from sale of minor forest products and recreational facilities are classified as miscellaneous charges and are credited to the AIA account. These are a particular class of revenue receipts that the Treasury authorises the FD's Accounting Officer to spend in addition to the FD budget disbursed from the exchequer account. Therefore, they are not deposited into the Treasury's Consolidated Fund.

4.2.6 Total revenue collection

The total revenue collected by the FD over the last seven years is shown in Table 9. Revenue from timber includes revenue from pulpwood and sawlog production. Miscellaneous receipts refer to the charges levied on minor forest products and services and the revenue collected from licence fees.

Table 9 *Total revenue collected by the Forest Department from 1993-94 to 1999-00*

Year	Timber	Fuelwood	Poles	Miscellaneous	Total
1993-94	188,805,934	6,442,945	3,184,276	21,186,746	216,435,625
1994-95	184,706,265	6,276,894	2,878,341	19,275,146	210,258,305
1995-96	178,484,629	5,875,139	3,271,476	18,972,837	203,332,605
1996-97	175,356,158	5,327,652	2,968,341	18,829,925	199,513,735
1997-98	154,769,326	3,854,152	2,218,972	17,947,804	176,571,282
1998-99	79,821,056	5,007,885	2,029,574	18,051,604	102,880,545
1999-00	109,405,726	3,289,618	945,257	15,344,911	128,040,255

Source: Forest Department annual reports. All figures are in Ksh.

In areas that are not managed by the FD, the FD does not collect any forest revenue. However, if forest products are harvested on trust land, local authorities do collect revenue from these activities for their own use and without reference to the central government. In addition, licensees are supposed to pay cess charges to local authorities and a range of other charges to local and central government (see Section 2.5). Information is not available about the total amount of revenue collected from these other charges and taxes levied on the forestry sector.

5 GOVERNMENT EXPENDITURE ON FORESTRY

5.1 *The budget process*

Government expenditure in Kenya (including expenditure by the Forest Department) is divided into recurrent expenditure and development expenditure. The budget for recurrent expenditure mostly contains expenditure on items such as: salaries; operations and maintenance; and minor capital expenditure (such as purchase of equipment). The budget for development expenditure contains capital investment, such as construction of infrastructure, roads and buildings.

The budget process used in Kenya has recently been revised and a description of the previous and revised budget processes is given below.

5.1.1 The previous budget process

The previous planning and budgeting system started with the development of strategies and policies for each sector as part of the preparation of National Development Plans. This was followed by the preparation of a public investment programme and a three year rolling plan, setting out indicative resource allocation based on identified priority criteria (e.g. the National Development Plans), past expenditure trends and rate of implementation.

This was followed by the preparation of a forward budget and programme review, which set out indicative resources over a three years period. After the approval of the forward budget the Ministry then prepared the draft annual estimates, which had to fit within financial ceilings. In most cases, these ceilings were the same or lower than amounts indicated in the programme review and forward budget.

The draft annual estimates (for both development and recurrent expenditure) were then submitted by the Ministry to the Ministry of Finance. The Treasury imposed financial ceilings for total central government expenditure, based on the sum of estimated fiscal revenues, foreign grants and loans and budget deficit target. However, additional expenditures could be approved in supplementary estimates (at around the middle of each fiscal year).

Although this budgeting process was largely based on the government's strategy described in the 1986 Sessional Paper: "*Economic management for renewed growth*", achievement of sustainable economic growth remains problematic and the proportion of the population in poverty is unacceptably high and growing. The system also had several disadvantages, including the following:

- a lack of effective expenditure control;
- a failure to cost and define strategic priorities;
- inadequate provision of funds for operations and maintenance;
- a failure to link recurrent and development resource allocation; and
- dependence on the financial ceilings set by the Treasury.

It is critical for Kenya's growth and development that this trend be arrested and reversed and strong public sector support for sustained economic development should be achieved as soon as possible.

5.1.2 The revised budget process

Since 1999, the government has been implementing a public expenditure reform initiative and has adopted the Medium Term Expenditure Framework (MTEF) as a tool to improve public expenditure management. The MTEF is designed to impose discipline in the planning and management of national resources, by establishing an explicit link between the policy framework, planning and budgeting process.

In the medium term, the government also aims to create an enabling environment for enhanced private sector participation in the economy as a result of improved public sector resource management. This is expected to attract foreign and domestic investment, which will contribute to economic growth and poverty reduction.

For the preparation of future budget proposals, financial ceilings will be set for each sector and Ministries and Departments will be required to categorise their activities in each sector. They will then prepare their proposals and submit these to sectoral working groups (comprised of representatives from the relevant Ministries and Departments). These groups will then review and agree on the sectoral allocations and these allocations will be itemised in each Ministry's budget and submitted to the Treasury for financing.

5.2 *Forestry Department expenditure*

To fund the activities of the FD, the government relies on both domestic fiscal revenue and donor loans and grants. Recurrent expenditure is financed mainly through fiscal revenue, while development expenditure is financed mainly from external donor contributions. A summary of recent budget allocations and expenditure of the FD is given in Table 10.

In principal, all revenue collected from the forestry sector and credited to the revenue account is submitted to the Consolidated Fund and all withdrawals from the Consolidated Fund have to be authorised by parliament through the Appropriation Act. Therefore, the FD is not allowed to keep or retain any revenue collected under what is usually referred to as the retention scheme. But, the FD also collects revenue from the sale of minor forest products and licence fees, which is classified as miscellaneous revenue and is credited to the Ministry's AIA account. Under current financial regulations, the Accounting Officer (the Permanent Secretary of the Ministry) is allowed to retain this money and spend it without authority from the Treasury. However, since this money is already incorporated into the annual budget of the Ministry (as the difference between the gross allocation and net provisions), the Accounting Officer has first to collect the revenue credited to the AIA account before it can be spent.

Table 10 *Budget allocations and expenditure of the Forest Department from 1993-94 to 2000-01*

Financial year	Development expenditure				Recurrent expenditure			Total recurrent and development expenditure	
	Approved estimates	Actual expenditure		Total development expenditure	Approved estimates	Actual expenditure			Total recurrent expenditure
		Government of Kenya	Donor			Salaries	Operations and maintenance		
1993-94	547,165,480	51,098,840	417,073,920	468,172,760	604,257,640	594,966,400	12,589,100	607,555,500	1,075,728,260
1994-95	927,245,620	102,757,160	352,900,480	455,657,640	694,601,504	640,776,980	33,954,460	674,731,440	1,130,389,080
1995-96	683,026,780	65,311,660	392,683,980	457,995,640	709,361,640	625,591,980	54,027,420	679,619,400	1,137,615,040
1996-97	558,471,780	58,187,040	304,766,640	362,953,680	725,661,120	557,350,180	55,723,220	613,073,400	976,027,080
1997-98	252,701,900	60,306,720	165,241,140	225,547,860	689,026,000	647,744,780	46,855,580	694,600,360	920,148,220
1998-99	225,260,000	1,902,729	40,569,171	42,471,900	692,159,680	626,048,520	40,528,780	666,577,300	709,049,200
1999-00	167,212,200	693,610	15,695,890	16,389,500	909,927,940	675,527,280	257,939,060	933,466,340	949,855,840
2000-01	118,461,240	74,661,240	43,800,000	118,461,240	764,714,176	593,939,040	170,775,136	764,714,176	883,175,416

Notes: this expenditure includes expenditure of the Kenya Forestry College; all figures are in Ksh; figures for the years 1993-97 are from the Appropriation Accounts; figures for 1997-00 are from unaudited accounts; and the figures for the last year are printed estimates.

As noted earlier, the bulk of expenditure in the development budget of the FD is funded by foreign donors as either loans or grants. A study carried out by the Ministry of Environment and Natural Resources (1994) on the operations and maintenance budget indicated that during the period between 1990-91 and 1995-96, the donor contribution to the development budget was as high as 80 percent of the total. A second review of the situation between 1996-97 and 1990-00 showed that, although the amount of donor funding to the FD had declined immensely, it still accounted for over 90 percent of the total development budget.

Another critical observation is the high wage bill in the recurrent budget, compared to expenditure on operations and maintenance. This situation restricts the amount of resources available for productive work, which has resulted in the backlog of work required to implement necessary silvicultural and other management operations.

5.3 *Expenditure by other government forestry institutions*

There are a number of other government institutions involved in education, training and research related to forestry in the country. Professional training is given by universities (such as Moi and Egerton universities), while sub-professional training is given by the Kenya Forestry College. For research and development, Kenya Forestry Research Institute (KEFRI) is the only well organized institution with a clear perception of the problems and research needs of the forestry sector.

5.3.1 Kenya Forestry College

The Kenya Forestry College is the only forestry training institutions that trains at the sub-professional level. It trains technical staff with a two-year forest assistant course and a three-year diploma course in forestry. It is not an independent institution, but a division within the FD.

The college has received development assistance from the German Agency for Technical Co-operation (GTZ) since 1985, which has been mainly for the construction of facilities, staff training and provision of equipment. Together with funding from the Government of Kenya (within the overall FD budget), this investment has lifted the Kenya Forestry College to become a major educational and training institution for the region.

Since 1997, the college has not received any donor assistance, because further assistance has been conditional on the college gaining autonomy, with an independent Board of Directors, who should run the institution on commercial basis. Table 11 shows expenditure by the college in recent years. It clearly shows that the funding of this institution declined greatly after donors withdrew, leaving a low and declining level of government funding. This situation has made the college reduce the level of training available to the forestry sector.

Table 11 Expenditure of the Kenya Forestry College from 1992-93 to 2000-01

Financial year	Development expenditure			Recurrent expenditure			Total recurrent & development expenditure
	Government of Kenya	Donor	Total	Salaries	Operations & maintenance	Total	
1992-93	700,000	4,000,000	4,700,000	4,075,220	3,761,820	7,837,040	12,537,040
1993-94	940,000	4,000,000	4,940,000	5,738,480	2,949,440	8,687,920	13,627,920
1994-95	58,573,400	232,000,000	290,573,400	5,836,040	13,901,240	19,737,280	310,310,680
1995-96	6,035,440	32,000,000	38,035,440	5,783,360	15,322,320	21,105,680	59,141,120
1996-97	25,255,400	18,440,000	43,695,400	6,247,980	18,657,420	24,905,400	68,600,800
1997-98	10,400,040	18,440,000	28,840,040	5,283,360	21,317,440	26,600,800	55,440,840
1998-99	8,000,000	0	8,000,000	6,201,480	9,335,120	15,536,600	23,536,600
1999-00	200,000	0	200,000	6,362,040	10,677,460	17,039,500	17,239,500
2000-01	0	0	0	5,458,360	8,880,560	14,338,920	14,338,920

Notes: all figures are in Ksh; figures are taken from printed estimates.

5.3.2 Kenya Forestry Research Institute

Forestry research in Kenya started about the same time as the large scale expansion of forest plantations. Due to the experiences encountered with the regeneration of indigenous forests, the FD embarked on a programme of planting exotic tree species that required investment in research in order to identify optimal forest plantation practices. This research was to be the basis for policy prescriptions for optimal management of industrial forest plantations.

Forestry research was carried out under the FD and the East African Agriculture and Forestry Research Organization until 1976, when the East African Community broke up. The National Agricultural Research Institute then took up research activities until 1986, when the Kenya Forestry Research Institute (KEFRI) was created. KEFRI's strategic plan is to develop research and development programmes that will support sustainable forest management. These research programmes cover farm, natural, dryland and plantation forestry and, in support of these activities, a service programme that includes information documentation and dissemination.

KEFRI has received development assistance from the Japanese International Co-operation Agency since 1988. This contribution has been mainly in the construction of buildings and research facilities, staff training and procurement of vehicles and equipment. There are also a number of other donors funding the different research programmes highlighted above. The total funding for KEFRI for the last six years is shown in the table below.

Table 12 Expenditure by Kenya Forestry Research Institute from 1995-96 to 2000-01

Financial year	Development expenditure			Recurrent expenditure			Total recurrent & development expenditure
	Government of Kenya	Donor	Total	Salaries	Operations & maintenance	Total	
1995-96	24,051,000	39,900,000	63,951,000	162,558,820	14,236,400	176,795,220	240,746,220
1996-97	8,671,320	0	8,671,320	173,009,920	9,055,520	182,065,440	190,736,760
1997-98	1,930,000	0	1,930,000	177,994,680	17,339,000	195,333,680	197,263,680
1998-99	200,000	52,760,000	52,960,000	232,843,840	22,467,400	255,311,240	308,271,240
1999-00	5,000,000	58,000,000	63,000,000	230,760,700	22,266,380	253,027,080	316,027,080
2000-01	11,000,000	18,800,000	29,800,000	242,592,000	23,408,000	266,000,000	295,800,000

Notes: all figures are in Ksh; figures are taken from printed estimates.

5.3.3 Statistical activities within the forestry sector

Data collection, processing and retrieval are currently deficient and this sometimes results in irrational decision making about the management and utilisation of the forest resource. Indeed, the current status of management of the forest resource is an indicator of the amount of essential data that is not at the disposal of the main forestry institutions.

Although database development in the FD is as old as the department, data for both research and management has been difficult to acquire due to the costs involved. As a result of these costs, the FD has often relied on donor projects that, in the course of project implementation, generate raw data. This data is usually tailored to each project, with an emphasis on project goals and objectives. Once the project is over, there is no organised data centre where this information is stored and can be accessed rapidly.

There is generally no specific financial provision for raw data acquisition by the FD, but KEFRI has established a data centre as a service programme with an independent budget for operational functions.

5.4 *Grants and subsidies to the forestry sector*

The government has at times extended subsidies to the PPM pulp and paper mill, in order to defend it from the impacts of cheap and subsidised imported paper products. This has been done through the reduction of royalty rates charged for pulpwood production. Concessions have also been given to PPM to compensate for its contribution towards afforestation of harvested areas and the extra costs the company has to incur on road construction before they can extract materials from the forest areas. The average annual contribution of PPM towards plantation establishment has been in the region on Ksh 10 million, but this is far less than the subsidies that the government has given to the firm.

6 DISCUSSION AND CONCLUSIONS

6.1 *Overall appraisal of forest revenue system*

The management of revenue collection involves proper planning, target setting and a management information system, to allow the monitoring of progress against set targets.

According to Omwami (1992), the ground scaling and standing volume methods of volume assessment recover, on average, 26 percent and 55 percent respectively of the total expected royalties per hectare. Low volume assessments translate into low royalty collection, so the efficiency of revenue collection was increased by eliminating the inefficient ground scaling method of volume assessment and replacing it with the current system of standing volume (stumpage) assessment. This assessment procedure is also easy to implement and sawmillers have developed a sense of the cost of individual standing trees.

The cost of revenue collection by the FD is small, as sawmills normally pay for produce at the station level where production occurs. In the case of lump-sum payments, sawmills usually pay by banker's cheque through the local district treasuries. With this arrangement, the cost of revenue collection is small compared to the total revenue collected.

As mentioned elsewhere, the current royalty payable to the FD is rather low and does not reflect either the cost of production or the value of roundwood in international markets. Under these circumstances, sawmills are ready and willing to pay the royalties.

If the process of wood allocation is based on merit and the standards in FDGO No. 232 are met, then the current system could be viewed as fair and transparent. However, if there are cases where some are paying less (e.g. due to collusion and under assessment), the general tendency is for others to also devise mechanisms to pay less for the produce. This under-collection and non-collection of revenues is one area where the FD has major weakness.

6.1.1 **Recommendations to improve the forest revenue system**

Since 1995, the FD has taken various actions to improve revenue collection and recommendations for further improvements are described below.

Updating inventories: Accurate inventory data is essential for good management of the forest resources (i.e. for the determination of allowable cut, scheduling timber supply to the market in an orderly way and producing good advance data in the timber trade to facilitate development and growth of the industry). The current plantation inventory data was collected in the early 1990s. Since then a lot of developments have occurred, rendering this information obsolete. Therefore, inventory data should be updated on a continuous basis to establish a database on clearfelling, establishment, stand allocation records etc. This should be a basic parameter in sound forest management, which will eventually lead to improved revenue collection.

Mapping: Information about forest plantations is based on the sub-compartment area and this is currently a major source of most of the errors in the inventory database. Therefore, it is recommended that new maps should be produced to correct information about forest plantation areas.

Funding: Budgetary provision should also be increased for the inventory and mapping units in order to facilitate rapid updating of measurements before plantations are allocated to licensees.

Supply and demand reconciliation: Currently, the allowable cut from forest plantations is not known. There is also limited knowledge about current demand and supply. In order to improve the revenue collection, a starting point would be to develop a single sales decision process (KFMP, 1994) where cutting plans are institutionalised in the Forest Management Plans office. This office should monitor industrial plantation growing stock at the national level through the development of a national data bank. Based on this process, when sawmills request roundwood, the FD should allocate roundwood to consumers based on management plans and merchantable stock information. Any significant discrepancies between the expected volumes (based on management plans) and actual inventory assessment should be clarified through an independent revenue-monitoring unit before the wood is cut and removed from the forest.

Developing an efficient marketing strategy: The current practice (where wood consumers are allocated forest stands close to their wood processing factories) is not an efficient marketing strategy, because it restricts the utilisation of various roundwood assortments. If the FD is to maximise returns from the resource, then future wood allocation should be based on the consumer's ability to efficiently extract all the assessed merchantable volume from the forest, regardless of the assortments.

Royalty revision: The current royalties paid for sawnwood and pulpwood are low compared to the value of the roundwood in international markets. This has, in part, resulted in significant inefficiency in the wood industry. Therefore, royalty (stumpage) rates should be reviewed and a regime should be developed to increase these prices to recover the full cost of production. In addition, at the moment there is also a big scope for improved revenue collection by more intensive collection of the arrears owed by some major customers.

Public auction: Open bidding and auctioning of roundwood could also be helpful, by setting market-based prices and improving the supply situation. It could also result in a pricing system that would correctly reflect the costs of extraction and delivery. For an auction system to succeed, the widest number of participants would have to be involved and the auction would have to be opened to others currently outside the industry. The FD would have to establish procedures to limit the possibility of collusion between major firms in the industry, but if this system was introduced, it is likely that revenues would improve, leading to enhanced sustainable forest resource utilisation.

Improved licensing process: The problems of licensing and low royalty rates are closely related. In response to the supply and demand situation in the industrial roundwood sector, the FD has been restricting the license period from five years to one year, cancelling the licenses of sawmills who are in arrears and withholding or delaying the issuance of other licences. Higher royalty rates would encourage sawmills to improve their conversion efficiency and would reduce the amount of trees cut in the forest plantations. Sawmills with low recovery rates would have a considerable incentive to improve technology and if there were genuine market competition for supplies and free trade in sawlogs, allocation inefficiency could be reduced. However, for this to work, it would be necessary to introduce a transparent licensing mechanism that would reflect the long-term nature of private sector investments in wood processing.

Integrated harvesting: Integrated harvesting should be tried (first on a pilot basis and especially in areas used for pulpwood production), so as to improve resource utilisation and revenue collection. At the moment, large quantities of wood are pulped for paper production, when it would be more appropriate to use them in sawmills or the plywood industry. In addition, there is a need to lower the top merchantable diameter limits from 15cm to 10cm for cypress and 20cm to 15cm for pine in order to recover extra industrial roundwood that would otherwise be marketed as fuelwood. The sale of cypress and pine tops as fuelwood is an inefficient marketing strategy and the FD could increase plantation sales revenue substantially in future by marketing softwood tops as pulpwood material.

Management information system: Finally, a strong management information system will be needed to collect and organise silvicultural and economic data related to stand-level forest management (especially: estimated growing stock; increment and yield; labour productivity; trade in forest products; forest revenue; and expenditure).

6.2 *The impact of the forest revenue system on sustainable forest management*

To a large extent, forests and forestry issues are the responsibility of the FD. In broad terms, the duties of the FD can be divided into:

- protection and improvement of indigenous forests;
- provision of alternative sources of fuelwood and poles; and
- development of forest plantations to satisfy the ever-increasing needs of the forest industry.

From the financial point of view, the requirements for the performance of the above duties differ from each other greatly.

Protection and improvement of indigenous forests: Indigenous forests are protected mainly for the benefit of water catchment functions, soil conservation and general environmental protection functions (for present and future generations). It has been suggested that this should be considered as an investment in the future (KFMP, 1994). It is difficult to quantify these benefits, but it is assumed that the value of protection is greater than that of exploitation. Thus, it is taken for granted that protective duties must be performed and no annual revenues to the FD can be expected from these activities.

This has been the case since 1985, when a ban was placed on the exploitation of indigenous forests. However, the demand for these species is great, especially in the furniture industry. Due to this demand, there is illegal felling in nearly all the blocks of natural forest in the country. According to KFMP (1994), as much as 50,000 m³ of wood is produced in these forests each year, without the FD realising any revenue.

Provision of fuelwood and poles: Individual farmers and communities are most directly involved in these activities. However, the FD provides support through the provision of extension services. Currently, FD activities are mostly orientated towards social objectives in

this part of the forestry sector. Government investment is rather low and mostly covers the payment of salaries and other related costs to extension staff.

Development of forest plantations: The industrial plantation development programme is the financial backbone of the FD. However, although estimates show that revenues from these operations should be sufficient to cover the cost of all operations, only about 29 percent of these revenues are actually collected (Omwami, 1992). There have been problems of low royalties (stumpage prices), under-collection and non-collection of forest revenue.

As a government department, the FD is financed through the government budget system. Operational expenses are normally covered from central government tax revenues, but the bulk of development projects are funded by external financing. The release of budget funds for forest management is not pegged to the collection of forest revenue, so there are no incentives for increased revenue collection as there are no arrangements to apportion or reinvest some of these revenues in forest management. Therefore, this arrangement has constrained the mobility and performance of the FD to implement sustainable forest management. Furthermore, the government has also not been able to fulfil its financial obligations towards the funding of the local costs of a number of development projects.

Based on the above, it is concluded that the government is increasingly unable to invest in forest management. The long-term implications of this for the timber industry and for the overall economy are, of course, disturbing because of the very considerable expenditure that has already been invested in both sawmilling and pulping in the country and the very large costs that would be incurred if these products were to be imported into Kenya.

6.2.1 Recommendations for institutional reform

In order to address the above problems, the following recommendations are suggested.

Financial independence: The revenue generating capacity of forestry operations is the key to improving performance in the sector. The FD should be a financially independent organisation, so that it can take full responsibility for the capital already invested in the sector. If the FD were allowed to retain a certain percentage of royalties, it is likely that it could raise enough money to finance its operations and meet the costs of forest protection, extension and administrative costs (and leave some profits from operations for the government).

Public-private partnerships: In forest plantations, the government should consider the alternative of letting the private sector lease land for commercial forestry development, with the FD performing a supervisory and monitoring role. Greater involvement of non-governmental organisations (especially in farm forestry development) could also be crucial. In the future, farmers will be a driving force for tree planting (and, thereby, increasing forest cover and associated environmental benefits). However, for this to be achieved, economic and non-economic incentives will be required.

6.3 *Government expenditure on sustainable forest management*

It is notable that the overall government budget provision to the FD has been inadequate over the past several years. This situation is demonstrated by increased backlogs in silvicultural operations and uncontrolled and unsustainable use of forest resources.

6.3.1 Expenditure on forest plantation management

In terms of investment in the forestry sector, the government has put most emphasis and resources into the development of forest plantations. In terms of area, industrial forest plantations account for only a small part of total forest cover, but their economic significance to the country is considerable. The raw material requirements for pulp and paper and other wood products needed for construction come mainly from forest plantations and they also play a key role in easing the pressures of exploitation in the natural forest.

In an effort to increase wood production from the forest plantation sector, the government has solicited loans from external sources since 1970. The main financial institutions funding development have been the World Bank and other bilateral donor. So far, approximately USD 153.5 million has been invested in the forest plantation development programme.

In spite of all these development, the forest plantation resource appears to have been neglected. Besides insufficient funds, there is serious imbalance in allocation between personnel emoluments and operational funds, leading to under employment (as employees have no tools and equipment to use for forest management duties).

In addition to industrial forest plantations, farm forestry is one area that has scope for development and could increase the supply of roundwood to the industry. Although the government's investment in farm forestry has been limited to date, the results of farmers' efforts can be seen from the KFMP (1994) wood biomass survey. This indicated that about 40 percent of the total wood biomass outside the closed-canopy indigenous forests is found in planted trees on farms. In order to improve the performance of this sector, a set of both economic and non-economic incentives should be put in place and the role of the government should be to create an enabling environment for these developments to occur.

6.3.2 Expenditure on indigenous forest management

Following the presidential decree that banned the commercial exploitation of indigenous forests, there has been no formal indigenous forest management. Since this ban, the main activities in these forest reserves have been limited to law enforcement activities geared towards protection and conservation, fire protection, game control and maintenance of paths and buildings. Other management activities include the restoration of degraded areas through enrichment planting.

The FD lacks adequate funding for the effective management of these forests and relies mainly on external grants from donor projects. Usually, the government's contribution to forest management is only to pay forest guard salaries and a very small amount of operational and maintenance funds. Under these circumstances, natural forests face a lot of threats from human activity that include illegal encroachment, charcoal burning, poaching for timber and numerous forest fires originating from adjacent farmlands. If this trend persists, it is expected that the total area under natural forest will decline substantially as areas are converted to

agricultural activities. Since the ban has not yielded the desired results and in view of the fact that sustainable management may offer limited returns, it is probably the right time to review the ban and allow limited exploitation on a sustainable basis.

Development of forestry in the arid and semi-arid lands is currently restricted, due to land tenure issues. The government investment in this sector is very low but it could be greatly enhanced by exploiting the high potential available, especially in the area of non-wood forest products development and marketing.

To summarise, the most critical problems in financing the FD are as follows.

Budgetary ceilings: These are the financial ceilings on FD expenditure set by the Treasury. They are quite rigid and constrain effective budgeting by the FD, leading to low implementation of work programmes.

Exchequer releases: Exchequer releases to the FD have not been timely, especially given the seasonality of forestry operation. These releases are also generally erratic and lower than the actual annual provision in the printed budget.

Delay in issuance of the Authority to Incur Expenditure: These authorities are required before the FD can spend money and it often takes a long time for the FD to obtain these authorities. In addition, in relation to the employment of casual labour, permission is also required from the Directorate of Personnel Management. Problems with these authorisations and permissions cause long delays in the implementation of annual work programmes.

Delay in disbursements: For some donor funded items, it is necessary for the Ministry to spend its funds first and then seek reimbursement through the Treasury. This system greatly impedes programme implementation, because the Treasury does not always have enough liquidity in the exchequer.

Lack of reforestation performance bonds: The timber processing sector is characterised by a small number of medium-sized sawmills and a large number of very small-scale sawmills. Apart from the only pulp and paper mill, these mills now operate on a one-year license, which has resulted in little incentive for long-term investment in the sector. Due to these problems, private sector involvement in plantation development has been lacking. There are no arrangements for specific funds other than the normal government funds for sustainable forest management functions and this situation has meant that the government is the only investor in the production and management of roundwood.

6.3.3 Recommendations to improve government expenditure

The solutions to the above problems include the following.

Budget allocation: In view of the size of the challenge of natural resource management and the direct and indirect contribution of forests to the general economy, the budgetary ceilings for the FD should be increased.

Revenue retention: The Treasury should allow the FD to retain a certain percentage of forest revenue collected, in order to reinvest this in operations and management.

Operating procedures: The FD should be allowed to open and operate a commercial bank account, in order to reduce the bureaucratic delay in disbursements

6.4 *Effects of other fiscal policies on sustainable forest management*

Agriculture: The current status of forest management in Kenya is rather discouraging. Forest cover is decreasing rapidly and this decrease is accelerated by the increase in population that, in turn, brings about the need for more agricultural land to produce food.

Although government policy is to intensify agricultural production, some fiscal policies dealing with input procurement, marketing and credit facilities have not resulted in increased land productivity. Therefore, some of these policies have resulted in “horizontal” expansion, where more and more land is opened up for agriculture. In nearly all cases, such land is converted from forest (or bushland in arid and semi-arid lands). Currently, this is resulting in a downward spiral of natural resource degradation, declining productivity and increasing poverty.

Urban development: The increase in population is also resulting in increased demand for housing, settlement schemes, schools and other public amenities. At the moment, the construction industry is growing rapidly, especially in peri-urban zones. This is leading to increases in land value that are exerting a lot of pressure to convert forests to other uses through both legal and illegal forest excisions. This trend is now very common in both rural areas and in forests near to urban areas.

Energy: The lack of an appropriate energy policy (e.g. with respect to tariffs and other charges) has resulted in a majority of the population relying on woodfuel as a source of domestic energy. Over 80 percent of Kenya's population is currently dependent on woodfuel and it is estimated that 80 percent of household woodfuel demand in urban areas is met by charcoal. Therefore, the use of woodfuel is exerting a lot of pressure on forests and this is resulting in over-exploitation and unsustainable forest management. A more supportive fiscal policy in the energy sector (especially to encourage urban households to consider alternative types of energy) could contribute to sustainable forest resource management.

Trade and industry: The government has recently authorised the importation of commercial timber and has put in place incentives and subsidies on duties and other taxes. This measure is expected to reduce pressures on the already meagre forest resource, which will eventually assist sustainable forest management.

The sawmilling industry in Kenya is characterised by a lot of waste. On average the recovery rate in sawnwood production is about 25 percent. This is largely attributable to the use of old, inappropriate and inefficient machinery for sawmilling. While most sawmillers are aware of the existence of modern and more efficient equipment and are willing to invest in them, high taxes levied on such machinery have been a disincentive. As part of a wider restructuring of the timber industry, the government should explore the possibility of lowering or waiving duties levied on such machinery (as they already do with other agricultural implements).

The development of ecotourism as a non-extractive use of forests is currently improving the level of forest management. Supporting fiscal measures, such as user charges and mechanisms to facilitate access and benefit sharing by local communities will greatly promote sustainable

forest management through collaborative and participatory mechanisms. Introduction of water use charges for the main utilities (based on the volumes used), could also contribute immensely to sustainable forest management if they were reinvested in catchment management. In future, the use of appropriate supportive fiscal policies such as these could be an important tool to enhance the sustainable use of natural resources and promote environmental sustainability.

6.5 Overall government support to forestry sector

6.5.1 Forestry policy and legislation

Forestry policy in Kenya can be traced back to 1957 (White Paper No. 1 of 1957) and was restated after independence in 1968 (Sessional Paper No. 1 of 1968). These documents provided continuous guidance on sustainable forest management and included the following policy objectives for the sector:

- the reservation of forest areas for catchment protection, production of timber and other forest resources;
- the protection of forests by strict control of fire and grazing and by the eradication of private rights in gazetted forests;
- the management of state forests on a sustainable yield basis as far as is consistent with the primary aims of forest reservation;
- the development of forest industries;
- the provision of adequate funds for the implementation of forestry policy;
- the provision of employment in the forestry sector; and
- the promotion of research and education.

Due to significant changes that have taken place in the country and the rest of the World (especially after the Rio-Summit of 1992), the government has now started to update the policies and legislation related to natural resource management (including forests) in Kenya.

In recognition of the inadequacy of existing policies, the government has been reviewing forest policy and legislation since 1991. It has realised that sustainable forest management requires the involvement of all citizens and adjacent forest communities. It is also now clear that forestry issues are no longer a narrow sectoral issue, but a component in overall integrated development efforts that aim to raise the living standards of the people, create employment and increase industrial output for both local and export markets.

A new forestry policy has now been approved by the government and is currently ready for submission to parliament. This policy has been prepared through wide consultation and participation of all stakeholders and has taken into consideration other existing related policies. This policy includes the following:

- an increased role for the private sector and other stakeholders in sustainable forest management and utilization;
- greater participation of local communities and recognition of gender issues in planning, programming and implementation of forest programmes and access to benefit sharing from forest resources;
- an increased role for farm forestry and dryland forestry in the expansion of forest resources, services and products; and
- recognition and adherence to global conventions and other protocols related to sustainable forest management.

The new policy, together with the Kenya Forestry Masterplan, will form the basis of the forestry component of the National Development Plan and is expected to guide the development of the forestry sector into the new millennium.

In order to support the new policy, the government has also embarked on a revision of the current Forest Act (Cap 385). After consultation, a draft Forests Bill has already been prepared for enactment by parliament and, when approved, the new legislation will provide the legal basis for implementation of the new policy.

There have also been numerous other government proclamations on the need for sustainable forest conservation and management. For example, the government has pledged to allocate more funds for reforestation programmes and has recently authorised the importation of timber for commercial use so as to reduce the pressure to exploit the remaining meagre forest resources.

The government has also produced a number of studies to review the role of forestry in the socio-economic development of the country, including the following:

- Economic aspects of forestry development (1992).
- Review of forest industrial plantation methods, of royalty assessment and revenue collection (1993).
- Development of separate accounting system for plantations grown wood (1993).
- Plantations forest inventory and management planning project (1993).
- The Kenya Forest Masterplan (1994).
- The National Environmental Action Plan (1994).
- The reorganization of management of industrial plantations and restructuring options for the Forestry Department (1997).

The list of studies above shows that a lot of information and recommendations have been generated that, if implemented, could lead to enhanced and efficient forest management. However, the commercialisation of forest plantations can not be implemented in a single step

and this remains an issue that needs careful study. There are also other issues related to forest valuation, operations, economics and social equity that have to be resolved and where FAO could assist (e.g. by organising a donor round table consultation to review the sector and recommend ways forward).

6.5.2 Other policies

The government has recently (January 2000) enacted the Environmental Management and Co-ordination Act, which includes comprehensive environmental legislation with overriding legal authority with respect to other land-use laws. A National Environmental Action Plan has also been produced, which includes an overall strategy for all natural resources (including forestry) that will harmonise the activities in different sectors.

The government has also embarked on a programme of rationalisation (including “right-sizing” the number of staff working in the forestry administration). In order to enhance efficiency and improve productivity and the quality of service delivery, the existing imbalance between budgetary provisions for personal emoluments and operations and maintenance has been addressed under this programme by the intended divestiture of non-core functions and a proposed reorganization of the FD. The aim of this programme is to improve the effectiveness and productivity of forestry operations in order to ultimately achieve the goal of sustainable forest management.

6.5.3 Concluding remarks

Despite all of the above initiatives, there are still some problems in forest management that are a serious cause for concern. Consensus exists among forestry professionals that strong political support is still required in order to reduce interference with forest operations and management. There is also a strong feeling that there is still almost no participation by stakeholders in the planning and development of forest resources. Stakeholders should be sensitised to enable them to participate fully in forest issues and this could be achieved through round table discussions in workshops and other appropriate meetings. As the leading global forest agency, the FAO could spearhead such an endeavour.

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ANNEX 1: SUMMARY OF THE KENYAN FORESTRY SECTOR

Table 13 Forest area by type, land tenure and inclusion in the tax base

Forest types	Total area (in ha)	Land tenure			Included in the tax base?
		Government	Trust	Private	
Forest reserve(terrestrial)	1,200,000	1,200,000	0	0	yes
Forest reserve(mangrove)	54,000	54,000	0	0	yes
Nature reserve	27,000	27,000	0	0	no
National Park	63,000	63,000	0	0	yes
Sanctuary	500	500	0	0	yes
Marine reserve (mangrove)	14,000	14,000	0	0	no
Trust land	180,000	0	180,000	0	yes
Farm/settlement	9,720,000	0	0	9,720,000	no
Forest plantations	238,000	168,000	0	70,000	yes
Bush land	24,750,000	0	24,750,000	0	yes
Wooded grassland	10,700,000	0	10,700,000	0	yes
Woodlands	2,140,000	0	2,140,000	0	yes

Sources: IUCN: Forest cover and forest reserves in Kenya - policy and practice; FAO: FRA 2000 - Kenya indigenous forests (status, management and conservation); KFMP: 1994. Note, the last column indicates whether the forest type is a source of tax revenue for at least one type of tax.

Table 14 Number of companies operating in forestry sector

Nature of company	Number
Pulp and paper mill	1
Veneer and plywood	3
Saw milling	376
Other minor companies (general forest licensee)	304

Table 15 Summary of taxes paid by the forestry sector in addition to forest charges

Name of tax	Rate
Value added tax (VAT)	18 percent of sales value
Training levy	0.25 percent of sales value
Trade license fees	Variable
Income taxes	Variable
Cess charges	Per truck load

Table 16 List of institutions collecting and receiving taxes from the forestry sector

Name of tax	Institution collecting	Institution receiving
Value added tax (VAT)	Kenya Revenue Authority	Treasury
Training levy	Directorate of Industrial Training	Directorate of Industrial Training
Trade license fees	Local government authorities	Local government authorities
Income taxes	Kenya Revenue Authority	Treasury
Cess charges	Local government authorities	Local government authorities

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