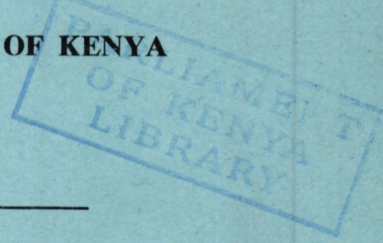


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REPUBLIC OF KENYA



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ANNUAL REPORT
1964**

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SUMMARY

Towards the end of the year the portion of the Constitution which dealt with forestry was cancelled, and this meant that the National Forest Authority ceased to exist. Our thanks are due to the Chairman and Members for their interest and advice during the period that it was in being. Provision was made for the continued management of the gazetted forests but changes are required in the Forests Act to meet the new constitutional situation.

Two men returned to Kenya with forestry degrees and they, together with a third man with an agricultural background, were appointed as Assistant Conservators of Forests. Two men from Britain were also appointed on contract. As part of the Africanization programme all the Senior Foresters, with the exception of one engaged in training, were given notice which would become effective in 1965. Officers on secondment from Canada, New Zealand and Britain were of great assistance during this period of staff shortage.

The 1,000 additional men who were engaged during 1963 have been accommodated partly at new forest stations and partly as additional labour at existing stations. Owing to poor food crops, rationing on the full scale had to be continued for longer than expected in some areas.

The forest inventory continued under the Canadian S.C.A.A.P. programme and achieved very useful results. The main New Zealand effort was devoted to starting a logging unit. The logging unit is intended both to provide experience on logging costs and methods with a view to the expansion of forest industries and to demonstrate better methods to existing sawmillers.

There was a very welcome rise in log sales from 4,738,161 to 6,030,488 cubic feet. Much of the rise was due to increased internal use, but exports also improved. Mature cypress is in great demand, but unfortunately the quantities available are still small. The trade in mangrove poles improved, but there were difficulties over the production of mangrove charcoal and exports did not rise as much as had been expected.

Discussions were held with firms and others interested in the possibility of setting up a pulp and paper mill. Although finality was not reached, a considerable amount of useful information resulted from the study of different proposals.

A total of 11,275 acres were planted of which 10,588 acres were exotic softwoods.

Many of the staff had to undertake increased responsibilities and the majority faced up to these very well.

FOREST DEPARTMENT ANNUAL REPORT 1964

CHAPTER I—FOREST POLICY AND LEGISLATION

1. Two meetings of the National Forest Authority were held in 1964 before amendments were made to the Constitution (Kenya Gazette Supplement No. 155) which revoked that part of the law under which the Authority existed.

The Members of the Authority were:—

Mr. T. Dennison, Chairman.

The Rt. Hon. Earl of Portsmouth.

Mr. J. L. Riddoch, C.B.E.

Mr. M. Manji.

Mr. B. M. Gecaga.

Mr. J. Omino, B.E.M.

The Hon. E. K. K. Bomett.

The Chief Conservator of Forests.

Mr. J. Muturi, Eastern Region.

Mr. G. B. Toya, Coast Region.

Mr. S. Mmaitso, Western Region.

Mr. L. M. J. Ole Tipis (Rift Valley Region).

Mr. G. Kahengeri (Central Region).

It is hoped that legislation setting up a similar committee will be enacted as soon as possible.

2. The Forests (General) Rules were amended slightly by Legal Notices Nos. 65, 209, and 222 (deletion of reference to Distance Allowance and *Olea welwitschii* royalties). The annual determination of average selling prices f.o.r. mill station was published as Legal Notice No. 221. These selling prices are used in calculating the royalty rates for the following year.

3. Obsolete legislation revoked included the Forests (Fish Hatchery) Order (L.N. 280) and the Forests (Coast Special Areas) Rules (L.N. 337).

4. The Export of Timber Rules, Legal Notice No. 358, laid down grading procedure, standards and marks for hardwoods, softwoods (strength and appearance) and black wood (*Dalbergia melanoxylon*). These rules are the result of discussions held on an East African basis so that practices will be the same in Kenya, Tanzania and Uganda. Kenya's main contribution was the Softwood Rules.

5. The following Foresters were authorized to compound offences:—

General Notice No. 6: Bernard Methu, Simeon Kinara, Henry Macharia, James Oruko, Gideon Nahason Kinumbi, Karanja Mwaniki, John Mwaura Njehia.

General Notice No. 434—James Maina Muiruri, Wilson Ndonge Mgbu.

6. New Terms of Service for Resident Labourers to replace those under the Resident Labourers Ordinance repealed in 1962 were still not finalized at the end of 1964. In the meantime Resident Workmen continued under a monthly verbal contract.

7. *The Forest Estate*—No excisions or additions to the Forest Estate were gazetted during the year. Some boundary changes approved, demarcated and accepted on the ground have now been awaiting gazettelement for some years and action is needed to legalize the changes. These have mainly been held up by survey difficulties and Constitutional changes. The recorded area of the Forest Estate was therefore unchanged at the end of the year:

	<i>Square Miles</i>
Land Forest	6,523.6
Mangrove Forest	209.4
TOTAL	6,733.0

8. *Legal Notice Total No. 174*—The Forests Act, Declaration of Central Forests declared the existing gazetted forests to be “Central”. This action was required, owing to changes in the Constitution, to allow for the continued management of these forests by the Government. This declaration was amended in respect of four forests by L.N. 300 under the Kenya Independence Order in Council, 1963. Legal Notice Nos. 236 and 303 made certain changes in nomenclature of the Forests Act and Rules made thereunder to conform with the Constitutional changes of 1963.

9. A revision of the list of rightholders in the Lembus Forest Reserve was carried out by General Orders 7 and 2640 (incorporating and cancelling 1303).

CHAPTER II—SURVEYS, BOUNDARIES, ENUMERATIONS AND WORKING PLANS

10. *Surveys and Boundaries*.—One boundary change, the extension to the Prison at Eldoret Township Forest Reserve, was surveyed.

Detailed contour surveys of Broderick Falls Township and plantation areas in Kaptagat Forest were made for the pulp and paper project investigations.

A total of 230,000 acres, mainly in Western Kenya was mapped from 1:25,000 aerial photographs by stereotope and slotted template to make 1:10,000 plantation maps.

Fixed points for plane table survey control were put in Kaptagat, Kimilili and Kakamega Forest Districts.

11. *Forest Inventory*.—Work continued under the leadership of Canadian Aid personnel. Progress at the end of 1964 was as follows:—

- (a) Forest type delineation, preliminary on air photographs, 5,000 square miles.
- (b) Forest type interpretation, field checked, 2,400 square miles.
- (c) Base map preparation, 5,000 square miles.
- (d) Transferring, 2,850 square miles.
- (e) Field reconnaissance. Photo interpretation in low priority areas; type maps are being drafted covering these areas, 355 square miles.
- (f) Field work, sample plots: 6,600 plots located within 1,000 square miles.
- (g) Compilation continues in all areas sampled.
- (h) Local volume tables cover all areas where field work has been completed.
- (i) Operational cruising was done in the Wason area, Meru, and also in the Timsales area, north-western Mount Kenya.

12. *Plantation Suitability Survey.*—A total of 1,064 square miles of forest areas was classified according to productivity and suitability for plantation establishment.

Productivity classes, based on rainfall, soil and soil depth ranged from I-V and the classification on suitability for plantation establishment was based on existing vegetation, soils, topography, wildlife damage and restrictions due to physical factors.

13. *Working Plans.*—The working plan for North Marmanet and South Marmanet districts was revised to meet the new conditions brought about by the Accelerated Reafforestation Scheme whereby a further 350 unemployed were absorbed into the Marmanet Forest Reserve. The original management plan for Nessuit which had been obsolete for some years was revised to cover the Nessuit, Teret and Likia Forest Districts and provision was made for the use of part of the area as a practical training ground for Forestry students at Egerton College. The Working Plans Officer was on vacation leave during the last three months of the year.

CHAPTER III—FOREST PROTECTION

14. *Offences.*—A feature of the year was the very large number of offences compounded—almost double that for 1963. A small increase in the number of offences taken to court also occurred. Cases of illegal removal of forest produce were fewer, but all other categories of offences showed a marked increase. The eviction of illegal residents remained a major problem in the field.

15. *Climatic influences.*—Total rainfall for the year over most forest areas was average. However, distribution was slightly abnormal, with dry spells immediately after planting in April/May. These were compensated by above-average rain in the latter part of the year. No high winds were experienced and no hail or frost damage was reported.

16. *Fires and Fire Protection.*—There were few fires and little fire damage to the Forest Estate in 1964. This was essentially due to prolonged rains at the end of 1963 and a little rain during the fire season January-March. In Western Kenya, Lambwe District was dry for a long time but no major fires were recorded. At Maragoli six plantation fires burning a total of 92 acres were caused by arson. After approaches to the President of the (then) Western Region by Forest Department staff no further arson occurred in the December dry season.

17. *Wild Animals.*—The construction of big game defences for major plantation blocks in affected areas continued during the year, the main projects being Ragati, Hombe, Kimakia/South Kinangop and Kinale.

With the near completion of major defences (only Mt. Elgon is now outstanding) attention is turning to the problem of research into the determination of reasonable game stocking for protection forests. No staff are available for such work but with the inauguration of a Wildlife Research Section at E.A.A.F.R.O. it is hoped that the work will be undertaken by this organization.

Damage by small game to resident workmen's crops and, to a lesser extent, to young trees, continues and has probably increased after an agreement with the Kenya Civil Servants' Union to make the fencing of cultivation solely the responsibility of the workers, instead of enforceable by the Forester concerned.

Rats continue to be a major pest and no technical advances in their control were achieved, the most effective control remaining as cleaning, trapping and poisoning. Sykes monkeys continued to be a serious menace in some localities. Moles were a minor pest and were dealt with by trapping as required.

18. *Fungi*.—*Dothistroma* blight of pines remained the most important pathogen and investigations into this problem were intensified (*see* Chapter VI).

The following additional pathogenic fungi have been recorded during the year and are under current investigation.

Stereum sanguinolentum (Alb & Shw) fr. on pines.

Cercospora myrticola sp. on *Eugenia jambolana*.

Phyllosticta sp. (IMI 106606) on *Vitex keniensis*.

Geotrichum sp. (IMI 109470) on *Cupressus lusitanica*.

Phyllostictina sp. (IMI 110522) on *Pinus insularis* seedling.

Coniothyrium sp. (IMI 110444C) On *Araucaria cunninghamii* seedlings.

19. *Insects*.—*Oemida gahani* remained the principal insect pest. After experiments on the efficiency of various pruning scar treatments and an examination of financial losses caused by devaluation of timber by this species, it was concluded that the protection given was not sufficient in relation to the costs and to actual losses to warrant the coating of pruning scars and this practice has now ceased. Financial losses on logs sold during the period April 1962 to September 1964 amounted to only 3 per cent of the total cypress royalty.

Further investigations of old thinnings in the main cypress plantations areas west of Rift, confirmed that they harbour the borer for a number of years after felling and thus constitute a potential danger to the standing crop. Various cultural measures can be taken to reduce the hazard but the greatest improvement will occur when it is possible to start industries which can use small sized thinnings.

Chlorophorus carinatus Aur: The possibility that this borer might be causing considerable damage to living cypress trees was not confirmed by more sampling of wounded trees. It has, however, caused some damage to *Pinus patula* cones from seed trees in three separate forest areas Narasha, Elburgon and Kinale, and may constitute a potential danger.

Bark Beetles : *Phloeosinus schemensis* Egg: This common bark beetle caused much damage to cypress plantations in the Chepalungu area, by girdling the branches and producing die-back but few actual deaths. Previous outbreaks have been connected with drought, fire damage, or disease but there appears to be no obvious reason in this case.

Other Pests: Small outbreaks of damage by aphids (*Toxoptira citricidus* Kirk) to young trees and by the common lepidopterous defoliators were reported, but caused little damage.

CHAPTER IV—SILVICULTURE

20. The section was under the charge of Mr. T. J. Wormald throughout the year, and was strengthened by the secondment of Mr. D. A. Skeates from the Canadian Government under the Special Commonwealth Africa Aid Programme.

21. *Purchase and Collection of Seed.*—2,075 lb. of seed was imported, of which 2,000 lb. was *Maesopsis eminii* from Uganda. 1,713 lb. were recorded in the Central Seed Store ledger, and another 500 lb. was probably collected and used in districts. Plans were laid for collecting and extracting seed by a centralized organization.

22. *Export of Seed.*—657 lb. of seed were exported.

23. *Nurseries.*—No new techniques were introduced.

24. *Natural Regeneration.*—A limited amount of treatment was carried out in Kakamega and on South Mount Kenya to encourage the regeneration of valuable hardwoods.

25. *New Plantations.*—As a result of *Dothistroma* blight the planting of *Pinus radiata* was drastically reduced and the planting of *Cupressus lusitanica* and *Pinus patula* was increased. *Pinus patula* was used for planting grasslands which had previously been planted with *Pinus radiata*. The planting of *C. lusitanica* is still confined to cultivated *shambas*. *P. elliotii* was planted in the 4,000 ft.-6,000 ft. a.s.l. zone.

There is now an urgent need to find exotic softwood species other than *P. patula* and *C. lusitanica* which can be grown economically in the Kenya Highlands. The following species were either being raised in the nursery or were planted out in species trials in 1964:—

Araucaria hunsteinii (syn. *klinkii*)—very poor germination.

Araucaria angustifolia.

Cryptomeria japonica.

Pinus elliotii (three provenances incl. var. *densa*).

Pinus taeda (eight provenances).

Pinus pinaster (three provenances).

The following are being tried in the lowland (below 6,000 ft.) areas:—

Pinus caribaea.

Pinus khasya (syn. *insularis*).

Pinus oocarpa.

Pinus merkusii.

Pinus occidentalis.

Pinus strobus var. *chiapensis*.

Pinus pseudostrobus.

Pinus montezumae.

Pinus cubensis.

Pinus elliotii.

Pinus taeda.

Of these the first three show considerable promise.

26. *Nairobi Arboretum.*— 691 trees were planted, including *Thuja plicata*, *Sequoia sempervirens* and *Sapindus emarginatus* as new introductions.

Three compartments were thinned and two were grassed down.

CHAPTER V—RURAL AFFORESTATION SCHEMES

27. These schemes include those which have been reported in previous years as Aldev forestry projects.

28. *South Nyanza Advisory Service.*—This is the most developed and successful scheme and is purely advisory with a small experimental planting area. No gazetted forest reserves exist in the area. During 1964 efforts were concentrated on the advisory service to county councils and farmers, the maintenance of species and establishment trials at Lambwe and an assessment of woodland areas in the Kisii Highlands. Lambwe had a very dry year with a fire season for almost 12 months and the lack of damage reflects great credit on staff at that station.

29. *Samburu District.*—During the year a major exercise of rebranding Nderobo stock on the Mathews Range was completed. Much work remains to be done in this district on the assessment of the safe grazing potential of the forests.

30. *West Pokot District.*—Routine work on the maintenance of boundaries was carried out on Sekerr and Lelan, while 50 acres were planted at Kamatira. The area suffered from lack of a Forester during the year, being supervised from the Divisional Office due to lack of staff.

31. *Embu Hills.*—No planting took place on these hills during 1964, which are still not gazetted, as the emphasis has been changed to protection forestry.

CHAPTER VI—RESEARCH AND INVESTIGATION

32. *Silviculture.*—Acting on the advice given by Mr. Jeffers of the British Forestry Commission on his visit to East Africa, a start was made in setting up permanent sample plots in *Pinus radiata*, *Pinus patula*, *Cupressus lusitanica* and *C. macrocarpa* plantations. Over 200 plots were established at Timboroa, Nabkoi, Nessuit, Elburgon and Nanyuki. The data obtained from these plots will be processed by computer at Oxford.

Sample plots were also established in *Araucaria angustifolia* and *Vitex keniensis* plantations.

The tree breeding programme was tackled in conjunction with the Tree Breeder, E.A.A.F.R.O. 2 *P. radiata*, 20 *P. patula* and 9 *C. lusitanica* plus trees were accepted in Kenya by the Tree Breeder. In addition over 200 seed trees of *P. patula* in seed stands were selected by the silvicultural staff. A *C. lusitanica* progeny trial was converted to a seed stand.

Publications

Technical Order No. 34—Treatment of *P. patula* plantations.

Technical Note No. 96—Tree Breeding & the selection of plus trees.

Research Bulletin No. 26—Interim results of progeny and provenance trials of cypress and Eucalyptus-G. Fry.

33. *Pathology.*—*Research:* Pathology research has been concentrated on investigations into possible control measures for *Dothistroma* blight in pines. Fungicides based on copper have shown promising results and there is hope for the development of cultural control measures. Investigations into the detailed physiology of host-parasite relations have been started by Mr. M. H. Ivory appointed to the department through the Department of Technical Co-operation. Further investigations have been made into a range of nursery problems.

Liaison and Conferences: Advisory work and liaison have been maintained with the neighbouring countries of Uganda and Tanzania.

The F.A.O./I.U.F.R.O. Symposium on Internationally Dangerous Forest Pests and Diseases was attended and a paper presented on effects of disease on African Forest Production.

Publications

"The Impact of Disease on Forest Production in Africa" F.A.O./I.U.F.R.O. Symposium.

"Recent Research into Dothistroma Blight of pines in Kenya". Agri. Vet. Chem. & Agric. Eng.

Mycological Notes:

No. 24 and No. 25 Needle Blight Surveys, 1964.

No. 26 Observations on the Relation between Climatic Moisture & Disease. Suppression in *Dothistroma* Blight.

No. 27 Field Control of *Dothistroma* Blight.

34. *Entomology*.—Research continued to be concentrated on the Cerambycid borer, *Oemida gahani* Dist.

Distribution: Investigations on the occurrence of the Kenya "type" of this species in the lowland savannah forests of Uganda showed that it is present in large numbers between Tororo and Jinja. It has yet to be found west of the Nile and a survey of the highland forests of the Ruwenzori Mountains, where a number of its typical Kenya host tree species are found, produced negative results.

More surveys of the forests of the Kenya Coast were combined with experiments at Mombasa to investigate the effect of the climate there on the life cycle. The latter showed that although all the different stages of the life cycle can occur, the completion of the cycle is apparently not possible, which supports the apparent lack of this insect in the coastal forests.

Attack on Cypress Thinnings: A survey of attack of cypress thinnings was carried out in 10 forest districts, west of Rift, by a sequential sampling method—75 plantations aged from 11 to 33 years containing thinnings felled for 2 to 15 years were sampled. More than 15 per cent attack was found in the majority of plantations containing thinnings felled up to 8 years, and thinnings felled more than 12 years, though more than 50 per cent rotten, still harboured live borers.

Investigations of possible methods of accelerating rotting of thinnings in plantations were started.

Defoliator Survey—Pilot Scheme.

A preliminary survey of young exotic plantations up to age 5 was carried out in the Londiani area to investigate methods and feasibility. Some 25 plantations of pine and cypress species were sampled in a month by from two to six men and although little damage or insects were found, most useful information and experience was gained.

Publications

1. "The Incidence and Control of Indigenous Pests of Kenya Forest Plantations with particular reference to wood borers in exotic Crops". Presented to the XII International Congress of Entomology Section 10, Tropical Forest Entomology—London July, 1964.

2. "Forest Entomology in East Africa"—report to the F.A.O./I.U.F.R.O. Symposium on internationally Dangerous Forest Diseases and Insects, Oxford, July, 1964.
 3. "*Oemida gahani Distant* (Cerambycidae) its Host Plants, Host Range and Distribution". East African Agriculture and Forestry Journal, Vol. XXX No. 2 October, 1964.
35. *Utilization*.—Research into the strength properties of certain locally grown Eucalyptus and other species continued at the Materials Branch of the Ministry of Works.

CHAPTER VII—FOREST ENGINEERING

36. *Roads and Bridges*.—The Departmental Road Unit (west of Rift) was engaged on road maintenance duties for most of the year, and the staff spent much time on maintenance of Forest Department vehicles. East of Rift the Road Superintendent was employed full time on vehicle maintenance for Nyeri and Thomson's Falls Division. At the end of the year, attempts were made to obtain new road making equipment and project leaders from Britain under Commonwealth Aid Schemes.

The only new roads of note were those made in the Maji Mazuri District for the operation of a departmental unit logging exotic softwoods (*see* Chapter VIII).

The following tables show the classification and distribution of forest roads:

Mileage of Roads

Division	Motorable Roads	Dry Weather Roads	Total
Nairobi	95	268	363
Nyeri	229	262	491
Coast	—	101	101
Southern	—	85	85
Thomson's Falls ..	523	135	658
Elburgon	240	49	289
Eldoret	169	71	240
Kitale	222	8	230
Londiani	227	222	449

"Motorable" roads are those suitable to normal types of motor vehicles except after heavy rain and "Dry Weather" roads are those unsuitable for vehicles without four-wheel drive except in dry weather.

37. *Building and Water Supplies*.—The building programme in 1964 was essentially development under the Accelerated Reafforestation Scheme for the resettlement of unemployed and comprised mainly villages, junior staff and teachers housing and schools.

The following table summarizes properties constructed during the financial year 1st July 1963 to 30th June 1964:

PROJECTS	EAST CONSERVANCY				T. FALLS		WEST CONSERVANCY			TOTAL
	Coast	Southern	Nairobi	Nyeri	Thomson's Falls	Elburgon	Londiani	Eldoret	Kitale	
Senior Staff Houses ..	—	—	—	—	1	—	—	—	—	1
ACS & Teachers houses	1	—	9	1	9	4	6	13	4	46
F.G. Houses ..	—	—	1	—	7	—	3	—	—	11
Schools ..	—	—	—	—	—	2	—	—	—	2
School Extension ..	—	—	6	2	1	3	4	1	1	18
Office ..	—	—	—	—	—	—	—	—	—	—
Store ..	—	—	1	—	—	—	—	—	—	1
Dispensary ..	—	—	—	—	1	—	—	—	—	1
Shops ..	—	—	6	—	1	1	—	—	1	9
Office/Store ..	—	—	—	1	1	—	2	1	—	5
New Water supplies ..	—	—	1	—	2	—	3	3	—	9
Gristing Mills ..	—	—	—	—	—	2	—	—	—	2
Cattle Crush ..	—	—	—	—	1	—	—	—	—	1
Sheep Dip ..	—	—	—	—	—	—	—	—	1	1

A most important development during the year was the start of a long-term scheme to rehouse all resident workmen in an improved type of house, which normally is of 300 sq. ft. and consists of off-cuts on a stone plinth with shingle roof. The provision of a fireplace or stove within the limit of available funds have proved a problem which has still not been satisfactorily solved. It is hoped that rehousing the entire labour force can be completed in about ten years. Existing huts are 18 ft. diameter mud and wattle rondavels with a thatched roof.

38. Vehicles.

(a) The following table shows the state on 30th June 1964.

Type	Position as at 30-6-64
Motor Scooters	1
Motor Cycles	2
Land-Rovers	77
Lorries	69
Trailers	67
Tractors	34
Caravans	3
Bulldozers and Graders	10
Albion Tank Transporter	1
Workshop Caravan	1
Motor Boats	4

During the 1963-64 Financial year one Land-Rover and one lorry were written off but not replaced due to lack of funds. Eight vehicles were added to the fleet under the Accelerated Reafforestation Scheme.

At the Coast, one motor-boat was virtually rebuilt, this being cheaper than buying a replacement boat.

The establishment of an experimental logging unit necessitated the conversion of the old Albion Tank Transporter into a logging truck. A Leyland logging truck and a "Timberjack" were purchased, and a bulldozer was modified to serve as a front loader. The transport fleet was also increased by one Land-Rover.

39. *Telephones and Wireless.*—Purchases of V.H.F. radios continued as rapidly as funds would allow.

It is unfortunate that radio communications east of Rift and west of Rift have developed, not only on different frequencies, but on different systems (A.M. and F.M. respectively). However, in practice there is no necessity for radio communication between the two conservancies. Nyeri Division now has an A.M. 25-watt output set at headquarters with five 4-watt sets on forest stations, in addition to three pack sets. Although most useful for routine administration the primary object of the sets in this area is for fire control on the Mount Kenya and Aberdare National Parks.

Three V.H.F. F.M. 10-watt sets were purchased for use in Londiani Division, to connect the divisional office with remote stations. They have proved most efficient and reliable.

Two H.F. transmitters were purchased for South Kinangop and Gatere Forest Stations but were out of action for much of the time and no quick improvement can be expected.

Three obsolescent H.F. sets were retained by the Forestry Section at Egerton College but were not functioning during the year. More widespread use of H.F. is prohibited by the non-availability of frequencies and within divisions V.H.F. has proved generally better than H.F.

Field telephones have proved expensive to maintain due to thefts of wire and breakages due to big game, wind, etc., and are invariably not working when most required. The emphasis now is to purchase radios instead of field telephones wherever possible.

CHAPTER VIII—FOREST INDUSTRIAL DEVELOPMENT

40. *Forest Industrial Development.*—The Forest Industrial Development Conservancy was established on 1st July 1964 to deal with all matters relating to forest industrial planning. This Conservancy, in conjunction with the Pulp and Paper Company of East Africa Ltd., made considerable progress in the detailed collection of data on which proposals for a pulp and paper industry could be formulated. Pre-investment survey of the area and market survey were carried out during the year.

41. *Logging Unit.*—An Operational Research Logging Unit was set up in May under the supervision and management of an experienced Logging Engineer on secondment from the New Zealand Government, with primary objectives of:—

- (1) Securing large-scale logging experience which might be applied in pulpwood logging.
- (2) The collection of accurate cost data.
- (3) The training of local personnel in pulpwood logging techniques.
- (4) Encouraging the adoption of more modern logging methods by the Kenya sawmilling industry.

During 1964/65 the logging unit supplied approximately 500,000 true cubic feet of logs on contract basis to the Amalgamated Sawmills at Maji Mazuri and made a profit of approximately £4,000 during the nine months from September 1964 to June 1965 inclusive.

42. *Sawmilling.*—The sawmill activity was greater than in 1963 and saw logs from the gazetted forest areas amount to 6,028,072 true cubic feet net as compared with 4,738,161 true cubic feet net in 1963. Cypress log sales showed an increase of 38 per cent, pines a rise of 30 per cent, cedar an increase of 50 per cent and podo a rise of 8.5 per cent as compared with 1963 sales.

43. *Timber Trade.*—The upward trend shown in 1963 was maintained in 1964 and the sale for sawn timber improved very much. Timsales reported that their monthly average sales for the twelve months ending 31st October 1964 was 1,755 tons compared with 1,721 tons average monthly sales for 12 months ending 31st October 1963. However, their sales for export fell by 570 tons during the first ten months of 1964.

High grade cedar and podo maintained their position in the European market and cypress timber remained popular in the markets of the Persian Gulf and the Indian Ocean Islands.

The refund of royalties on exported timber to encourage export trade was continued.

44. *Sleepers.*—The East African Railways and Harbours bought more sleepers than in the previous year, although only of cypress. The total amounted to more than 43,000 sleepers as compared with 30,000 sleepers in 1963.

45. *Timber Grading Rules.*—New Timber Grading Rules were prepared and gazetted in 1964, to come into operation on 1st April 1965. They provide for the grading of export timber on strength and appearance and are common to Uganda and Tanzania.

CHAPTER IX—EDUCATION AND TRAINING

46. *Professional Training.*—Two African graduates completed their studies in Great Britain and returned to take up appointments but no students were sent abroad for professional training. However, the flow of interested suitably educated students improved and it is hoped to send more in 1965.

47. *Sub-Professional Training.*

(a) *Diploma Students:* After two years study entrants of School Certificate standard sit examinations leading to a Diploma in Forestry at Egerton Agricultural College. This Diploma is recognized as the normal qualification for appointment to the Forester grade. Twelve students passed out successfully at the end of the first two-year course and a further 15 were recruited for the start of the second course in October. The course is directed by an Assistant Conservator of Forests on secondment to the college, who is assisted by an experienced Forester Instructor.

(b) *Certificate Students:* Entrants of K.P.E. or School Certificate standard with Forestry experience (usually serving Rangers) attend a year's course at the Forest Training School, Londiani. The fifth Rangers' Long Course finished in June 1964 and the 27 Rangers who successfully completed the course were awarded certificates. Short courses for non-English speaking Rangers and for Forest Guards were also held. The Sixth Rangers' Long Course for 33 serving Rangers commenced in November the syllabus having been amended to put greater emphasis on utilization and the correct use of new tools.

48. *Woodsmen's Training.*—After a promising beginning on the training of Forest Workmen in correct tool use and work methods by New Zealand Staff, the scheme had to be shelved owing to more urgent commitments.

CHAPTER X—TERRITORIAL ORGANIZATION, STAFF AND LABOUR

49. *Territorial Organization.*—In recognition of the emphasis placed on industrialization and the expansion of forestry industrial planning, particularly for the projected pulp and paper project at Broderick Falls, the post of Forest Industries Planning Officer was up-graded to Conservator rank, as head of a Forest Industrial Development Conservancy and the Utilization Section transferred to this Conservancy from Research and Planning.

Towards the end of the year a slight improvement in staffing allowed the re-opening of Kitale Division and the headquarters of Conservator (west of Rift) was transferred from Londiani to Eldoret, which is nearer the centres of development. At the end of the year Elburgon Division was transferred from the charge of Conservator (west of Rift) to that of Conservator (Thomson's Falls) to even up to the work load on those two posts.

50. *Staff.*—The year was marked by the appointment of the first officers to obtain Diplomas in Forestry at Egerton College, the giving notice of retirement to 11 experienced Senior Foresters and the direct appointment of a number of men to Forester posts.

The officers holding super-scale and professional posts were:—

Chief Conservator of Forests:

M. C. Argyle, 1st January 1964 to 31st December 1964.

J. P. W. Logie (acting from 24th February 1964 to 26th September 1964).

Deputy Chief Conservator of Forests:

J. P. W. Logie 1st January 1964 to 31st December 1964.

J. B. Smart (acting from 24th February 1964 to 26th September 1964).

Conservator of Forests (West):

P. St. J. Matthews (Assistant Conservator of Forests from 1st January 1964 to 14th March 1964. Promoted to Conservator of Forests from 15th March 1964).

Conservator of Forests (East):

T. A. M. Gardner 1st January 1964 to 31st December 1964.

Conservator of Forests, Thomson's Falls:

C. C. Plumb, 1st January 1964 to 31st December 1964.

Conservator of Forests, Research and Planning:

J. B. Smart, 1st January 1964 to 31st December 1964.

Conservator of Forests, Forest Industrial Development:

J. S. Spears, 7th March 1964 to 31st December 1964.

As at 31st December 1964 other posts were held as follows:—

Divisional Forest Officer, Eldoret	.. ..	S. J. Emtage
Divisional Forest Officer, Londiani	.. ..	C. N. Ndegwa
Divisional Forest Officer, Kitale	.. ..	D. T. Elston
Divisional Forest Officer, Nairobi	.. ..	C. I. Peat
Divisional Forest Officer, Nyeri	.. ..	P. J. Andrews
Divisional Forest Officer, Coast	.. ..	M. Newton
Divisional Forest Officer, Southern	.. ..	T. N. Middleton
Divisional Forest Officer, Thomson's Falls	.. ..	W. W. Beer
Divisional Forest Officer, Elburgon	.. ..	E. W. Chapman
Pathologist	.. ..	I. A. S. Gibson
Entomologist	.. ..	S. J. Curry
Silviculturist	.. ..	W. G. Dyson
		T. J. Wormald
Utilization Officer	.. ..	A. J. Hume
Staff Surveyor	.. ..	J. D. Bald
Forest Industries Development Officer	.. ..	J. S. Spears,
		1st January 1964 to
		6th March 1964
Working Plans Officer	.. ..	T. A. R. Choate
Lecturer, Egerton College	.. ..	D. L. Mallinson
Principal, Forest Training School	.. ..	B. Oland

The following staff were absent from duty at 31st December 1964:

W. G. Dyson, Silviculturist, on secondment to E.A.C.S.O. as Tree Breeder.

W. Muir, A.C.F. (Kenya), on leave.

Titus Onyango, Forester, on course.

Lugano Mambiri, Forester, on course.

A. Duncan, Senior Forester, on leave pending retirement.

A. R. Moore, Senior Forester, on leave pending retirement.

Grateful acknowledgement is given to the British, Canadian and New Zealand Governments for the assistance of the following staff during the year:

J. Kellie	}	Great Britain.
R. J. Dewe		
B. Veldhoen	}	Canada.
C. Smith		
A. A. Rotherham		
D. A. Skeates		
E. H. J. Hiscock		
W. J. Ellis	}	New Zealand.
E. J. Rooney		
N. F. S. Johnson		

The following changes took place:—

(a) First Appointments:

P. J. Andrews, Assistant Conservator of Forests.

D. T. Elston, Assistant Conservator of Forests.

O. Mburu, Assistant Conservator of Forests.

J. D. O. Onyango, Assistant Conservator of Forests.

J. P. C. Fry, Assistant Conservator of Forests.

S. C. Mbinda, Assistant Conservator of Forests.

C. Kairu, Forester (Settlement).

M. Kinyanjui, Forester (Settlement).

F. W. Ojuka, Forester (Settlement).

L. M. A. Mutio, Forester (Settlement).
 S. G. Wangai, Forester (Settlement).
 A. Otachi, Forester.
 D. B. Odingo, Forester.
 M. B. Odingo, Forester.
 E. O. Oluoch, Forester.
 J. Ogutu, Forester.
 J. P. Omulo, Forester.
 G. O. Togo, Forester.
 Z. I. Amahwa, Forester.
 P. N. Kairu, Forester.
 S. O. Amoko, Forester.
 G. M. Muguiyu, Forester.
 E. O. A. Ochieng, Forester.
 C. Ndegwa, Forester.
 J. Nyaroo, Forester.
 M. K. Mwashila, Forester.
 D. H. Gathu, Forester.
 J. A. L. M. Muhenge, Forester.
 M. M. Gani, Forester.

(b) Promotions:

Ranger to Forester

J. Omolo.
 I. E. Musinya.
 J. K. Kihonge.
 J. O. Nyundo.
 P. I. Angode.
 W. K. Kiwinda.

(c) Retirements:

M. F. H. Abraham, Acting Conservator of Forests.
 G. A. Park, Forester.

(d) Deaths:

There were no deaths of Senior Staff during the year.

The authorized establishment of Forest Department at the end of the year was:—

Chief Conservator of Forests	1
Deputy Chief Conservator of Forests	1
Conservators of Forests	5
Assistant Conservator of Forests	21
Entomologist	1
Forest Pathologist	1
Silviculturist	1
Utilization Officer	1
Staff Surveyor	1
Road Superintendents	2
Survey Assistant G.I.	2
Senior Foresters	14
Foresters	95
Steno/Secretary	2
Executive Staff	7
Senior Assistant Draughtsman	1

Survey Assistant G. II	..	..	..	..	..	1
Assistant Draughtsman	..	..	..	..	..	7
Forest Rangers	..	..	..	..	..	163
Printer	..	..	..	..	..	1
Clerks	..	..	..	..	..	105
Dressers	..	..	..	..	..	59
Drivers	..	..	..	..	..	108
Forest Guards	..	..	..	..	..	885
Subordinate Staff	..	..	..	..	..	21

51. *Labour*.—1,000 families were taken on at the beginning of the year under the Accelerated Reafforestation Scheme as an unemployment relief measure. However, in some areas difficulties due to climate over cultivation on which the reafforestation schemes are based meant a policy of not recruiting to replace workmen wastage so that at the end of the year a net increase of only 684 resident workmen was evident. The number of casual labourers employed showed a decrease due to a policy of not replacing wastages in order to conserve funds which are better spent on resident workmen. The following table shows the employment figures at the end of the year, with 1963 figures shown for comparison:—

Division	Resident Workmen	Casual Labourers	Sawmill and Contractors' Labour
Nairobi	1,322	38	493
Nyeri	1,405	169	716
Thomson's Falls	928	211	931
Southern	nil	—	117
Coast	nil	114	1,828
Londiani	1,522	306	687
Elburgon	1,248	181	942
Eldoret	1,236	29	1,011
Kitale	463	125	209
TOTAL	8,124	1,173	7,134
(Total 1963)	(7,440)	(2,088)	(6,921)

Throughout the year all resident workmen worked on verbal contracts while awaiting the preparation of new terms of service contract based on one contract of employment and one cultivation licence.

52. *Ministerial Joint Industrial Committee*.—One meeting of the Committee was held during the year. A subcommittee agreed on the basic form of the proposed new employment agreement and licence under the proposed Forests (Workmen's Residence) Rules and these were forwarded to the Legal Department.

Cash wages for resident workmen and a reduction in working hours for resident workmen (at present a 45-hour week) were also discussed and referred to the next meeting. There is some opposition to the present resident workmen's employment terms whereby the Forest Department pays a small wage and most of the workers emoluments come from the sale of vegetables and maize grown in the forests as part of the plantation establishment system. Administratively, socially and politically a full cash wage would be preferable, but this is not possible economically and any abolition of workmen's cultivation would lead to serious silvicultural and economic difficulties in establishment of tree crops.

As in 1963 the Committee served an invaluable purpose in the discussion of employees working conditions.

53. *Welfare and Community Development.*—Following the abolition of two posts of Forest Officer (African Affairs) last year, the burden of administration of the Forest Welfare Fund fell on the three Field Conservators. West Conservancy with its large numbers of resident workmen and produce surpluses had the largest problem and an experienced Forester was employed almost full time on welfare work.

One Welfare Assistant resigned during the year and was replaced. All three officers worked well and spent a considerable time on safari supervising welfare activities at district level.

Changes in the activities of the Welfare Fund, forecast in 1963, have not occurred but the possibility of handing over some services to county councils was kept under a review.

The Forest Welfare Fund Balance Sheet at 30th June 1964 showed assets of £28,880, an increase of £3,000 over the 1963 figure. The General Income and Expenditure Account for the year ending 30th June, 1964 is as follows:—

		Income			
		<i>East</i>		<i>West</i>	
		<i>Conservancy</i>		<i>Conservancy</i>	
		£	<i>s. cts.</i>	£	<i>s. cts.</i>
A.—RENTS, FEES AND CONTRIBUTIONS					
Rents for Shops and Houses	.. .. .	2,611	12 79	2,546	17 09
Market Fees	.. .. .	—		35	8 00
Gristing Fees	.. .. .	6	0 00	580	3 60
Agriculture Produce Fees and Cess	.. .. .	3,485	3 46	9,347	9 32
Maternity Fees	.. .. .	107	13 40	—	
Contribution to distressed Persons	.. .. .	69	0 00	—	15 00
Miscellaneous	.. .. .	355	11 33	10	9 80
Contribution from District Education Board	.. .. .	300	0 00	—	
Total	.. .. .	6,935	0 98	12,521	2 81
C.—INTERESTS					
Interest on Investments	.. .. .	547	15 84	547	15 85
Total	.. .. .	547	15 84	547	15 85
		Expenditure			
		<i>East</i>		<i>West</i>	
		<i>Conservancy</i>		<i>Conservancy</i>	
		£	<i>s. cts.</i>	£	<i>s. cts.</i>
A.—PERSONAL EMOLUMENTS					
	.. .. .	1,904	8 16	2,131	5 00
Total	.. .. .	1,904	8 16	2,131	5 00
B.—TRAVELLING EXPENSES					
	.. .. .	83	0 35	855	15 35
Total	.. .. .	83	0 45	855	15 35
C.—WORKS EXPENDITURE					
Maintenance of Buildings and Furniture	.. .. .	1,190	16 23	977	9 12
New Buildings, Playing fields and furniture	.. .. .	5,437	1 90	2,599	0 52
Roads	.. .. .	—		—
Total	.. .. .	6,627	18 13	3,576	9 64

Expenditure—(Contd.)	East Conservancy		West Conservancy	
	£	s. cts.	£	s. cts.
D.—MISCELLANEOUS OTHER CHARGES				
Purchase and Maintenance of Tools, Stores and Equipment	32	14 80	110	4 00
Gristing Expenses	—		344	3 22
Incidental Expenses	315	7 07	892	6 20
Assistance to distressed persons	59	18 00	20	0 00
Audit Fees	12	10 00	12	10 00
Total	420	9 87	1,379	3 42
E.—PENSIONS AND MEDICAL BENEFITS				
Medical Benefits	12	7 25	7	15 25
Retirement Benefits	250	0 00	250	0 00
Total	262	7 25	257	15 25

CHAPTER XI—PUBLICITY

54. *General.*—Public Relations remained the responsibility of an experienced Senior Forester throughout the year. The posting to the Ministry of Natural Resources and Wildlife of an Assistant Conservator of Forests as Public Relations Officer meant that much work at Ministerial level was taken from the Departmental officer.

55. *Agricultural Shows.*—The Forest Department exhibit at the *Jamhuri* Park evoked much interest, both from His Excellency the President himself and from the general public, and won the Evelyn Baring Perpetual Challenge Cup for the best Government stand. The most popular exhibit was a Canadian style log cabin, on a corner of the ground and on the main stand the exhibit was a demonstration of aerial photography and inventory methods. Great credit goes to the Canadian personnel responsible for both the cabin and exhibit. In the arena a log-chopping event was staged; this also proved popular with the crowd and is likely to become an annual event.

Up-country the Department exhibited at the Nakuru and the Western Kenya Shows.

An additional exhibit put on this year was for the *Fahari ya Kenya* Exhibition in December and consisted mainly of examples of forest produce.

56. *Visits.*—International visitors included:—

Dr. N. J. Jago, Zoologist, University of Ghana.

Hon. Yvon Dupuis, Canadian Minister without Portfolio.

Dr. H. Hesmer, Professor of Silviculture, Bonn.

Mr. C. M. Kiragga, Publicity Assistant, Ministry of Agriculture and Co-operatives, Uganda.

Mr. E. Jense, Norwegian Agency of International Development.

Professor E. Saar, Professor of Forest Economics, Helsinki.

Professor D. A. M. Taylor, Professor of Chemistry, Ibadan.

Mr. J. Procter, Assistant Conservator of Forests, Tanganyika.

Mr. A. F. Lamb, C.F.I. Oxford.

Mr. J. N. R. Jeffers, U.K. Forestry Commission.

57. *Conferences.*—Due to staff shortages and posting no Divisional Forest Officers Conference was held during the year, but it was decided that Divisional (Foresters) Conferences should be instituted, at which specialists, i.e. Silviculturist, Pathologist, Entomologist, etc., should attend in order to keep field staff in touch with the latest developments. The first of these 'local' conferences was held in the latter part of the year.

CHAPTER XII—FINANCE

58. 1964 was significant in that total revenue collected was considerably more than 1963 and is the highest since 1960. This is directly attributed to the rise in timber consumption and is a most encouraging sign. Expenditure was much increased due mainly to funds from Great Britain for the Accelerated Re-forestation Scheme. An analysis of revenue and expenditure is given in Standard Form XI and a table of revenue and expenditure for the last ten years is given in Standard Form XII.

Kenya Form I

BOUNDARY STATEMENT AS AT 31ST DECEMBER 1964

Division	Artificial Boundaries						Natural Boundaries Length Miles	Total Length of boundaries Miles
	Maintained during year			New demarcations during year				
	Miles	Cost £	Cost per mile	Miles	Cost £	Total Length Miles		
Nairobi ..	96.95	396	4.1	—	—	219.80	260.60	
Londiani ..	250.60	1,482	5.9	—	—	642.42	811.52	
Elburgon ..	128.55	829	6.4	—	—	179.30	212.20	
Eldoret ..	228.30	853	3.7	—	—	410.42	444.19	
Nyeri ..	387.90	1,325	3.4	—	—	762.25	971.20	
Thomson's Falls ..	134.50	1,932	14.4	—	—	770.50	806.10	
Coast ..	172.90	900	5.2	—	—	216.40	291.10	
Southern ..	107.75	2,869	26.6	—	—	461.80	514.05	
Kitale ..	179.00	1,115	6.2	—	—	628.20	729.20	
Total ..	1,686.45	£11,701	£6.9	—	—	4,291.09	5,040.16	

FIRE PROTECTION AND OUTBREAKS 1964

Kenya Form 2

Division	Fire lines main- tained and cons- tructed during year (miles)	Grassland early-burnt (acres)	Cost (Labour only)	Number	Area acres	Direct cost of extinguishing
Nairobi	33.9	—	£ 242	5	4.6	£ 1
Londiani	71.8	10,970	1,168	5	9.3	40
Elburgon	148.3	1,574	696	1	0.3	—
Eldoret	71.5	—	324	9	482	60
Nyeri	40.0	—	144	5	273	1
Thomson's Falls	32.0	250	201	18	1,319	36
Coast	26.5	1,725	146	13	1,248	4
Southern	104.1	—	2,070	9	536.5	37
Kitale	37.1	—	628	4	524.5	15
Total	565.2	14,519	£5,619	69	4,397.2	£194

Direct costs of protection (exclusive of overheads) 1. per sq. mile of gazetted Forest: Sh. 16.80.
2. per acre of plantation: Sh. 0.53.

Kenya Form 3

TIMBER SALES 1955-1964

(In tons of 50 cubic ft. True Measure)

Year	Podo	Cedar	Cypress	Pine R.	Pine P.	Other Softwoods	Total Softwoods	Hardwoods	Total Softwoods and Hardwoods
1955	89,197	39,406	29,645	1,115	1,141	—	160,504	23,994	184,498
1956	81,634	31,180	32,260	1,450	40	—	146,564	22,426	168,990
1957	66,015	17,642	34,137	3,225	38	—	121,057	26,421	147,478
1958	66,727	22,959	28,732	1,557	247	—	120,222	25,969	146,191
1959	62,749	21,221	27,247	4,224	244	—	115,685	22,662	138,347
1960	66,423	21,859	31,146	2,664	6	—	122,098	29,711	151,809
1961	32,965	14,015	21,229	117	18	—	68,344	12,967	81,311
1962	35,399	14,992	33,338	2,430	11	—	86,169	11,710	97,879
1963	32,500	10,532	38,336	3,310	167	6	84,852	9,911	94,763
1964	35,267	15,795	53,042	2,765	1,753	392	109,015	11,595	120,610

Kenya Form 4

EXPORTS OF TIMBER AND TIMBER PRODUCTS, 1955-1964

Units as Stated.

Year	Cedar Pencil Slats	TIMBER AND WOODWORK						Fire Wood Tons	Charcoal Tons	Mangrove Poles Thousands	Mangrove Bark Tons	Total value of Exports £
		Cedar C. ft.	Podo C. ft.	Other Softwoods C. ft.	Hard- woods C. ft.	Total						
						C. ft.	C. ft.					
1955 ..	106,764	2,509	50,203	20,085	15,758	88,758	24	2	431	211	212,201	
1956 ..	77,458	200	10,902	23,630	7,420	42,152	214	64	651	140	196,503	
1957 ..	28,523	1,839	49,858	36,169	35,188	123,054	35	149	477	265	157,329	
1958 ..	40,430	11,572	81,500	16,206	227,421	336,699	112	164	436	77	305,061	
1959 ..	29,850	10,045	108,836	26,361	112,413	257,655	24	86	239	107	212,659	
1960 ..	31,407	23,587	95,228	11,522	199,957	330,294	13	154	548	163	316,162	
1961* ..	50,633	18,724	119,819	17,047	104,532	260,122	15	1,716	264	479	332,761	
1962* ..	42,559	26,273	104,549	50,038	102,184	283,044	15	4,890	338	717	340,423	
1963 ..	41,181	39,209	147,101	48,491	107,359	342,160	9	4,938	224	1,030	408,729	
1964 ..	32,452	41,758	256,929	149,999	155,886	629,885	3	8,120	507	606	445,433	

*The total figures in the above do not agree with those in Standard Form X because certain items included in that table have not been included in the above.

Kenya Form 5

COMPARATIVE STATEMENT OF FIREWOOD SALES

Thousands of Stacked Cubic Feet.

YEAR	CENTRAL GOVERNMENT FORESTS		TRUST LAND FORESTS	TOTAL	REVENUE AS PER-CENTAGE OF TOTAL FOREST REVENUE
	Railway	Public			
	Total	Public	Total	Public	
Average for 1930-39	6,787	2,842	—	9,629	40.5
Average for 1940-49	12,698	7,933	615	21,246	24.6
Average for 1959-59	2,543	6,617	861	10,021	7.7
1960	261	6,161	788	7,210	5.5
1961	166	5,700	521	6,387	7.4
1962	Distinction discontinued		484	7,620	7.8
1963			634	5,866	7.0
1964			587	5,859	

Notes:—1. Railways ceased to be major consumers of Woodfuel in mid-nineteen fifties.

2. Trust land forests include gazetted forests formerly known as A.D.C. or County Council Forests which are managed by the Forest Department. They were redesignated as Central Government forests vide Legal Notice 174/64 with effect from 1st June 1963.

Kenya Form 6

NEW PLANTING REPAIRS AND MAINTENANCE

Division	NEW WORK			REPAIRS			MAINTENANCE		
	Acres	Total Cost £	Cost per acre Sh.	Acres	Total Cost £	Cost per acre Sh.	Acres	Total Cost £	Cost per acre Sh.
	Total 1961	15,928	—	33.42	7,922	—	8.22	75,179	—	8.20
62	13,636	—	38.00	4,451	—	12.60	76,808	—	8.25
63	12,884	£19,771	30.69	3,411.5	1,753	10.56	84,881	39,430	9.29
1964									
Nairobi	1,770	2,270	25.65	174	109	12.55	9,790	7,330	14.98
Londiani	1,964	3,453	35.17	940	772	16.43	24,485	12,039	9.83
Elburgon	1,822	2,858	31.36	380	73	3.82	10,369	4,249	8.19
Eldoret	1,964	4,828	49.16	372	653	35.12	9,493	7,492	15.78
Nyeri	1,550	3,295	42.51	160	47	5.83	11,002	6,649	12.09
Thomson's Falls	1,229	2,574	41.89	371	92	4.94	5,780	5,220	18.09
Coast	27	348	35.78	—	—	—	622	618	19.89
Southern	434	1,131	52.13	120	684	11.40	7,847	5,196	13.24
Kitale	515	1,723	66.90	75	19	5.02	4,719	2,266	9.60
Total 1964	11,275	£22,481	Sh. 39.88	2,592	£2,449	Sh. 18.89	84,107	£51,068	Sh. 12.14

Kenya Form 7

AREA OF PLANTATIONS BY DIVISIONS

(a) Area of plantations as at 31st December 1963

Acres

Division	Indigenous Softwoods	Indigenous Hardwoods	Exotic Cypress	Softwoods Pines	Exotic Timber	Hardwoods Fuel	Total
Nairobi ..	993	794	8,101	13,069	1,106	5,719	29,782
Londiani ..	3,866	861	17,832	16,063	603	3,815	43,040
Elburgon ..	2,531	123	15,585	13,617	2,348	2,295	36,499
Eldoret ..	41,319	4,177	15,835	20,146	1,439	1,862	44,778
Nyeri ..	2,247	2,338	8,621	11,821	385	796	26,208
Thomson's Falls ..	560	133	2,388	4,212	1,035	420	8,748
Coast ..	—	23	—	1,857	34	25	1,939
Southern ..	—	188	2,475	6,854	157	1,624	11,435
Kitale ..	—	—	—	—	—	—	—
Total ..	11,653	8,637	70,837	87,639	7,107	16,556	202,429

(b) Area of planting during 1964

Nairobi ..	—	8	1,070	594	—	98	1,770
Londiani ..	2	4	1,095	861	1	1	1,964
Elburgon ..	—	—	1,390	432	—	—	1,822
Eldoret ..	—	255	1,313	396	—	—	1,964
Nyeri ..	—	77	818	594	4	57	1,550
Thomson's Falls ..	—	—	764	465	—	—	1,229
Coast ..	—	—	—	27	—	—	27
Southern ..	—	7	137	120	—	170	434
Kitale ..	—	—	317	195	—	3	515
Total ..	2	351	6,904	3,684	5	329	11,275

Kenya Form 7—(Contd.)

AREA OF PLANTATIONS BY DIVISIONS—(Contd.)

(c) Utilized or written-off

Acres

Division	Indigenous Softwoods	Indigenous Hardwoods	Exotic Cypress	Softwoods Pines	Exotic Timber	Hardwoods Fuel	Total
Maturity	—	—	148	—	—	401	549
Fire Damage	—	—	26	185	3	36	250
Game damage	—	—	—	40	—	—	40
Disease	—	—	—	374	—	—	374
Not established or unthrifty	—	131	—	113	58	—	302
Land required for other purposes	—	—	20	50	—	103	173
Resurvey or Unspecified	80	1	132	722	14	16	965
Total	80	132	326	1,484	75	556	2,653

(d) Area of plantations as at 31st December 1964

Nairobi	730	792	7,953	11,488	1,015	5,729	27,707
Londiani	3,694	866	18,823	16,704	601	3,722	44,410
Elburgon	1,917	84	12,343	10,755	1,693	1,173	27,965
Eldoret	771	4,408	12,164	15,323	1,340	1,061	35,067
Nyeri	2,247	2,284	9,357	12,261	389	809	27,347
Thomson's Falls	1,531	180	8,965	9,727	1,719	1,244	23,366
Coast	—	23	—	1,884	34	25	1,966
Southern	137	195	2,610	6,966	156	1,762	11,826
Kitale	548	24	5,200	4,731	90	804	11,397
Total	11,575	8,856	77,415	89,839	7,037	16,329	211,051
%	5.4	4.2	36.7	42.6	3.3	7.8	100.0

Note:—There was some territorial reorganization during the year.

Standard Form I AREA OF FOREST LAND BY TYPES AS AT 31ST DECEMBER 1964 Square Miles

RESERVE	HIGH FOREST		BUSHLAND	BAMBOO	GRASSLAND	MAN-GROVE	FOREST RESERVES
	Production	Protective					
Division			Total	Total	Total	Total	Total
Londiani	230.9	357.0	118.2	145.5	67.6	—	919.2
Thomson's Falls	84.3	614.2	720.0	10.5	324.9	—	1,753.9
Kitale	217.0	249.7	109.9	120.8	105.7	—	803.1
Eldoret	251.5	113.8	42.2	13.4	23.3	—	444.2
Elburgon	107.1	93.8	48.1	51.1	85.3	—	385.4
Nyeri	366.9	319.9	241.7	245.7	137.4	—	1,311.6
Southern	82.5	0.3	115.1	16.2	67.7	—	281.8
Nairobi	59.1	136.8	15.7	123.8	9.5	—	344.9
Coast	177.3	17.4	21.1	—	63.1	174.0	452.9
TOTAL	1,576.6	1,902.9	1,432.0	727.0	884.5	174.0	6,697.0
Total as percentage of land area of Kenya ..	0.72	0.86	0.65	0.34	0.40	0.08	3.05

Standard Form II

PROGRESS IN FOREST RESERVATION 1964

Square Miles

RESERVE	RESERVES APPROVED BUT NEITHER DEMARCATED NOR GAZETTED		RESERVES APPROVED AND DEMARCATED BUT NOT GAZETTED		RESERVES DEMARCATED AND GAZETTED			Total At 31-12-64
	At 31-12-63	Change during year	At 31-12-64	Change during year	At 31-12-63	Change during year	At 31-12-64	
Nairobi ..	0.2	0.2	0.4	-17.3	412.4	-67.5	344.9	328.4
	0.2	-0.2	—	—	4.8	-4.8	—	—
Londiani ..	—	—	—	—	622.1	297.1	919.2	919.5
	—	—	0.3	—	297.0	-297.0	—	0.4
Elburgon ..	—	—	—	-0.2	426.3	-40.9	385.4	385.4
	—	—	0.4	—	—	—	—	—
Eldoret ..	—	—	—	—	560.9	-116.7	444.2	444.2
	—	—	39.1	-39.1	686.4	-686.4	—	—
Nyeri ..	0.8	-0.8	—	—	1,153.8	157.8	1,311.6	1,311.6
	—	—	—	—	157.9	-157.9	—	21.0
Thomson's Falls ..	—	—	—	—	1,641.3	112.6	1,753.9	1,810.2
	—	—	21.0	—	—	—	—	2.5
	—	—	56.3	—	254.4	24.5	278.9	289.8
	—	—	2.5	—	209.4	-35.4	174.0	174.0
Coast ..	—	—	—	—	24.5	-24.5	—	3.4
	—	—	10.9	—	4.8	-1.4	—	—
	—	—	—	—	4.1	—	281.8	285.9
	—	—	4.8	—	22.6	259.2	—	57.6
	—	—	4.1	—	259.2	-259.2	—	—
Southern ..	—	—	—	—	—	—	803.1	842.2
	—	—	57.6	—	—	—	—	-0.8
	—	—	—	39.1	—	—	—	—
Kitale ..	—	—	—	—	—	—	—	—
	—	0.8	—	—	—	—	—	—
TOTAL ..	0.2	0.2	0.4	-17.5	5,303.2	1,393.8	6,697.0	6,791.2
	1.0	-0.2	0.8	-1.4	-1,429.8	1,429.8	—	85.7
GRAND TOTAL ..	1.2	—	1.2	-18.9	6,733.0	-36.0	6,697.0	6,876.9

Standard Form III

PROGRESS MADE IN WORKING PLANS

Square Miles

TYPES OF PLAN	AREA UNDER PLANS				Area not under Plans	Total Area Forest Reserves	Area for which Plans revised
	At 31-12-63	Added during period	Excluded during period	At 31-12-64			
Sanctioned and Approved Plans completed and awaiting sanction or approval	1,702	—	—	1,702		25	
Plans under preparation	809	—	—	809			
Basic skeleton plan	369	—	—	369	1,959		
	3,072	—	36	3,036	6,697		

Note:—Plans under preparation and awaiting sanction are also included in the figures for basic plans.

Standard Form IV

FOREST COMMUNICATIONS, 1964

Miles

DIVISION CATEGORY	ROADS		FIRELINES		INSPECTION PATHS				
	Added during 1964	Abandoned during 1964	Total	Added during 1964	Abandoned during 1964	Total	Added during 1964	Abandoned During 1964	Total
Nairobi	—	—	363.3	0.8	1.5	121.7	—	—	71.5
Londiani	11.0	—	449.0	1.3	—	127.0	—	—	13.0
Elburgon	12.4	—	288.7	3.5	—	90.3	—	—	73.4
Eldoret	2.0	—	240.2	19.5	—	117.8	—	—	33.0
Nyeri	14.0	—	490.5	14.6	2.0	149.1	5.5	—	104.9
Thomson's Falls	39.4	—	658.4	—	—	95.3	—	—	365.5
Coast	—	—	107.0	11.0	—	26.5	—	—	22.0
Southern	6.2	—	85.2	7.0	—	13.5	—	—	1.7
Kitale	0.8	—	229.9	1.0	—	52.7	—	—	22.0
TOTAL	85.8	—	2,912.2	58.7	3.5	793.9	5.5	5.5	711.0

Standard Form V

OFFENCES AGAINST THE FOREST ORDINANCE

Offence	Number of Cases Reported	CASES TAKEN TO COURT					CASES COMPOUNDED	
		Number of Cases	Acquitted (Number)	Im-prisoned without option of a fine	Fined and/or Ordered to Pay Compensation		Number of Cases	Compen-sation Paid
					Number	Fines			Compen-sation
A.—Illegal Removal of Forest Product	678	58	4	15	39	5,645	56	577
B.—Illicit Grazing	821	128	27	2	99	6,730	901	10,168
C.—Careless use of fire and illicit honey hunting	239	42	1	—	41	1,340	78	2,234
D.—Damage to young trees	87	87	2	1	84	3,775	793	12,500
E.—Other Offences	338	132	21	7	104	6,090	804	6,670
TOTAL	2,163	447	55	25	367	23,580	2,632	32,149

Standard Form VI

PROGRESS IN REGENERATION AND AFFORESTATION, 1964

Acres

Division	REGENERATION OF EXPLOITED FOREST						AREA OF PLANTATIONS				
	Area Under Improvement			Area of Completed Improvement							
	On 31st Dec. 1963	Added during year	Excluded during year	On 31st Dec. 1964	On 31st Dec. 1963	Added during year	Excluded during year	On 31st Dec. 1964	Added during year	Excluded during year	On 31st Dec. 1964
Nairobi	6	—	—	6	7	—	—	7	1,770	3,845	27,707
Londiani	18	—	—	18	23	—	—	23	1,964	594	44,410
Elburgon	—	—	—	—	—	—	—	—	1,822	10,356	27,965
Eldoret	1,694	—	463	1,231	209	—	209	—	1,964	11,675	35,067
Nyeri	1,618	—	205	1,413	841	—	—	941	1,550	411	27,347
Thomson's Falls	51	—	—	51	51	—	—	51	14,622	—	23,366
Coast	—	—	—	—	—	—	—	15	27	—	1,966
Southern	—	—	—	—	—	—	—	—	391	—	11,826
Kitale	—	450	—	450	—	—	—	358	11,397	—	11,397
TOTAL	3,387	450	668	3,169	1,131	473	209	1,395	35,507	26,885	211,051

Standard Form VII

SALES OF TIMBER, FIREWOOD AND POLES, 1963

Units as Stated

	TIMBER (TRUE CUBIC FEET)						FIREWOOD (ST. CUBIC FEET)				Power and Telegraph Poles No.		
	SOFTWOODS						Hardwood	Total	Fuel Wood	Charcoal		Total	
	Podo	Cedar	Cypress	Pine R.	Pine P.	Other							Total
Central Govt. . .	1,182,561	771,488	2,620,894	138,278	87,662	16,302	4,817,185	451,234	5,268,419	3,020,136	2,252,200	5,272,336	9,414
County Council . .	580,781	18,269	31,188	—	—	3,316	633,554	128,515	762,069	316,091	270,880	586,971	12
TOTAL . . .	1,763,342	789,757	2,652,082	138,278	87,662	19,618	5,450,739	579,749	6,030,488	3,336,227	2,523,080	5,859,307	9,426
Tons of 50 cu. ft. . .	35,267	15,795	53,042	2,765	1,753	392	109,015	11,595	120,610				

Standard Form VIII

SALES OF OTHER FOREST PRODUCE, 1964

Units as Stated

Mangrove Poles	Other Poles	Bamboos	Withies	Fence Posts	Mangrove Bark	Plants	Seeds	Stone	Murram	Xmas trees
No. 851,616	R. ft. 4,605,288	R. ft. 6,382,239	H.L. 49,721	Cu. ft. 77,948	Lb. 1,272,619	No. 425,241	Lb. 820	Cu. ft. 15,258	Tons 3,035	No. 1,276
Sand	Gum Gopal	Stone	Off-cuts	Clay Soil	Bricks	Forest Soil	Wattle Bark	Grass	Hay	Bamboo Tips
Tons 11,206	Lb. 403	Tons 2,842	R. ft. 7,317	Tons 615	No. 3,000	Tons 54	Lb. 19,840	H.L. 12,922	Tons 100	Lb. 300

Standard Form IX

EMPLOYMENT IN PRIMARY FOREST INDUSTRIES, 1964

PERSONS EMPLOYED (APPROXIMATE NUMBER)

Division	Fuelwood	Charcoal burning	Bricks	Poles	Fence Post	Mangroves Poles	Bamboo Cutting	Timber Saw Mills	Timber Pitsawyers	Total
Nairobi ..	127	67	—	51	4	12	—	156	74	491
Londiani ..	107	115	—	76	6	—	—	336	47	687
Elburgon ..	93	83	—	18	95	—	—	637	16	942
Eldoret ..	4	52	—	4	53	—	—	878	20	1,011
Nyeri ..	153	98	—	31	57	—	—	278	99	716
Thomson's Falls ..	66	116	—	12	39	—	—	687	11	931
Coast ..	212	249	—	8	2	1,153	—	170	34	1,828
Southern ..	52	31	—	2	—	—	—	18	14	117
Kitale ..	2	1	—	—	3	—	—	535	21	562
TOTAL ..	816	812	—	202	259	1,165	—	3,695	336	7,285

Standard Form X

TRADE IN TIMBER AND TIMBER PRODUCTS, 1964

Item	Unit of Quantity	TRADE OUTSIDE EAST AFRICA				TRADE WITHIN EAST AFRICA				Balance of Trade
		Imports		Exports		Imports		Exports		
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	
Fuelwood (including sawdust) ..	Cental	—	£ 23	43	£ 23	60	£ 15	20	£ 25	+33
Charcoal ..	"	—	—	134,276	79,722	1,347	435	45,400	12,537	+91,824
Sawlogs—conifer:	Cu. ft.	—	—	—	—	—	—	—	—	—
Cypress ..	"	—	—	—	—	—	—	—	—	—
Other ..	"	11,668	9,843	149	36	—	—	—	—	-9,807
Non-conifer:	"	—	—	—	—	—	—	—	—	—
Mvule ..	"	—	—	—	—	—	—	—	—	—
Blackwood ..	"	—	—	6,800	6,151	—	—	—	—	+6,151
Other ..	"	—	—	190	140	—	—	—	—	+140
Poles and Posts:	"	—	—	—	—	—	—	—	—	—
Mangrove ..	Number	—	—	505,219	29,367	—	—	2,084	53	+29,420
Other ..	"	—	8,691	—	569	—	—	—	2,574	-5,548
Sawn Timber—Conifer:	"	—	—	—	—	—	—	—	—	—
Cedar ..	Cu. ft.	—	—	34,666	20,118	—	—	7,062	3,826	+23,944
Podocarpus ..	"	—	—	148,749	77,962	14,251	6,313	108,180	31,617	+103,266
Cypress ..	"	—	—	55,339	23,965	—	—	92,546	25,415	+49,380
Pencil Slats ..	"	—	—	32,452	27,561	—	—	—	—	+27,561
Other ..	"	—	—	955	456	130	85	1,040	367	+738
Sawn Timber—non-Conifer:	"	—	—	—	—	—	—	—	—	—
Mvule (Iroko) ..	"	—	—	2,603	3,315	23,113	19,041	1,776	2,007	-13,719
Camphorwood ..	"	—	—	20,541	12,715	64,473	36,852	14,753	8,450	-15,687
Blackwood ..	"	—	—	365	4,232	—	—	—	—	+4,232
Mahogany ..	"	—	—	123	261	23,385	15,654	2,072	946	-14,447
Muhugwe (Muhugu) ..	"	—	—	52,745	36,669	310	241	—	—	+36,428
Other ..	"	—	—	21,971	12,659	16,676	9,983	31,947	13,757	+16,433
Boxes, cases, crates, etc. ..	Cental	31,832	112,543	3,827	17,920	12,650	65,601	253	1,264	-158,960

Standard Form X—(Contd.)

TRADE IN TIMBER AND TIMBER PRODUCTS, 1964—(Contd.)

Item	Unit of Quantity	TRADE OUTSIDE EAST AFRICA				TRADE WITHIN EAST AFRICA				Balance of Trade
		Imports		Exports		Imports		Exports		
		Quantity	Value	Quantity	Value	Quantity	Value	Quantity	Value	
"Improved" or reconstituted wood, etc., n.a.s.	—	24,847	£ —	—	£ —	—	91	—	—	-24,756
Builders' woodwork and prefabricated buildings of wood (including doors, sashes, parquet flooring panels)	—	189	1,155	1,613	6,919	168	746	13,058	64,759	+69,777
Wood carvings	—	—	6,035	—	225,498	—	—	2,736	12,003	+168,930
Railway Sleepers	Cu. ft.	1,380	—	—	—	—	—	—	1,800	+1,800
Veneer Sheets	Sq. ft.	3,052,710	111	—	—	4,579,133	95,594	231,429	16,999	-158,980
Plywood	"	—	80,385	—	—	—	—	—	—	-71
Cooperage products	"	—	71	—	1,145	—	2,696	—	41,726	+29,390
Furniture (Wood)	"	—	10,785	—	41	—	—	—	82,687	-18,168
Matches	"	—	100,896	—	4,711	—	3,796	—	20,753	-3,884
Other manufactures	"	—	25,554	—	—	—	—	—	—	—
TOTAL WOOD			380,916		592,155		319,588		343,656	+235,307
Paper, Paperboard and Manufactures thereof (excluding Fibre Board)	Sq. ft.	6,801,441	3,109,921	—	104,577	—	24,839	—	866,807	-2,163,376
Fibre Board	"	—	87,989	—	—	—	—	—	—	-87,989
TOTAL PULP			3,197,910		104,577		24,839		866,807	-2,251,365
Mangrove Bark	Cental	—	—	13,574	11,081	—	—	—	—	+11,081
Wattle Bark	"	—	—	144,043	197,694	—	—	—	—	+197,694
Cedar wood oil	Lb.	—	—	116,244	22,237	—	—	—	—	+22,237
Gum resins	Cental	1,274	11,297	22	95	35	181	16	110	-11,273
TOTAL OTHER			11,297		231,107		181		110	+219,739
GRAND TOTAL			3,590,123		927,839		344,608		1,210,573	-1,796,319

(Prepared by the Statistics Division of the Treasury, Nairobi, Kenya for the Ministry of Natural Resources and Wildlife
 Note:—The items above have been arranged according to the 'revised' (1964) S.I.T.C. Codes.

Standard Form XI

SUMMARY OF REVENUE AND EXPENDITURE FOR THE CALENDAR YEAR 1964

	EXPENDITURE					
	REVENUE (A)	Central Forests Recurrent (B)	Central Forests on Trust Land (C)	Forest Development (D)	County Council Rural Afforestation Schemes (E)	Accelerated Reafforestation Schemes (F)
	£	£	£	£	£	£
1. Timber	134,505					
2. Fuel	14,077					
3. Seeds and Plants	4,407					
4. Miscellaneous	9,994					
5. Sundry (Offences compounded and unclaimed Balances)	1,483					
6. Reimbursements (County Council Forests)	23,005	516,577	59,065	—	31,412	27,792
7. Personal Emoluments		58,108	9,325	—	5,057	6,763
8. Travelling Expenses						
9. Maintenance of Forest Stations and Roads		32,078	3,947	—	3,342	—
10. Miscellaneous		8,113	2,038	86,570	86	216
11. Purchase and Maintenance of Uniforms, Boats, Tools, Plant, Equipment and Stores		27,036	1,439	—	1,294	939
TOTAL	£187,471	641,912	75,814	86,570	41,191	35,710

Standard Form XII REVENUE AND EXPENDITURE 1955-1964

	Year	Revenue and Expenditure			Surplus or Deficit	Value of Free Issues
		Revenue	Expenditure			
1955/56	..	£ 290,692	£ 425,140	£ -134,448	£ 466	
1956/57	..	313,320	558,970	-245,550	859	
1957($\frac{1}{2}$)	..	147,921	249,235	-101,314	546	
1958	..	290,064	581,346	-291,282	4,403	
1959	..	255,539	675,151	-419,612	2,600	
1960	..	263,392	711,598	-448,206	3,452	
1961	..	179,145	765,739	-586,594		
1962	..	174,364	732,139	-557,775		
1963	..	153,002	790,611	-637,609		
1964	..	187,471	881,197	-693,726		

