

REPORT on the

FOREST ADMINISTRATION of BOTSWANA

for the years 1965-66 and 1966-67

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The Republic of Botswana (formerly the Bechuanaland Protectorate) attained independence on 30th September, 1966. It now is a land-locked country and is situated mainly in the north of South Africa. It is bounded to the north by the Caprivi Strip and by a very well marked boundary to the east by the Government of Windhoek, to the south-east and south by the Republic of Namibia, and to the west by South Africa. The mean altitude is 2,200 feet above sea level. Much of the western part of the country is a semi-arid region with a very low rainfall, especially in the

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STANDARD FORMS

Appendix A. Forest Policy

INTRODUCTION

The Republic of Botswana (formerly the Bechuanaland Protectorate) attained independence on 30th September, 1966. In area it is some 231,805 square miles and it is situated roughly in the centre of South Africa. It is bounded to the north by the Caprivi Strip and by a very small common boundary with Zambia, to the north-east by Rhodesia; to the south-east and south by the Republic of South Africa; and to the west by South West Africa. The mean altitude is 3,300 feet above sea level. Much of the western part of the country is part of the Kalahari Desert which consists of undulating sandhills with stretches of grass scrub and woodland. The climate is semi arid with a low average summer rainfall. Over much of the south-eastern part of the territory this averages 18" a year. In the west the rainfall is much lower whilst in the extreme north-east it reaches 29" per annum. There is considerable variation in actual rainfall from year to year and a four year drought was recently experienced.

The population was 543,105 at the 1964 census. Overall population density is 2.5 persons per square mile, but most of the population is to be found in the eastern part of the territory.

The Forest Department was established in 1940 although there was a Forest Officer in the territory from 1935. With the retirement of this officer in 1952 forestry interests were looked after by the Department of Agriculture. The Forest Department was re-established in April 1965 as a Division in the Ministry of Agriculture.

CHAPTER I

THE FOREST ESTATE (STANDARD FORMS I, IA AND II)

1. No Forest Reserves have yet been gazetted. It is not proposed to gazette any reserves until the revised Forest Law has been enacted.

2. The enumeration surveys on State Lands within the Chobe District have resulted in the selection of several areas as proposed Forest Reserves. Two of these are north of the Ngwezumba River and adjoin the Chobe Game Reserve. The boundaries of the latter are in course of redescription preparatory to the creation of a National Park. Agreement has been reached with the Game Department on common boundaries between the National Park and the proposed Forest Reserves. The two proposed reserves are:

Kasane Forest Reserve	approximately	55 square miles
Chobe Forest Reserve	approximately	580 square miles.

Both proposed reserves will form part of the *Baikiaea plurijuga/Pterocarpus angolensis* Working Circle. Demarcation of the boundaries of the Kasane Forest is in progress.

3. South of the Ngwezumba River but still within the Chobe District there are a number of areas which should form part of the same Working Circle. The definition of the boundaries of these proposed reserves has yet to be made.

4. In the south-east of the territory there are a few small plantations. Additional areas were planted in 1966/67 at Gaberones and Lobatsi whilst new areas were planted at Kanye, Molepolole and Good Hope. It is hoped that these plantations will be created Local Government Forest Reserves when the new Forest Law has been enacted.

5. As yet no Forest Reserves of a purely protective nature have been selected. It is hoped to carry out surveys on the distribution of *Spirostachys africana* in the south-east during 1967/68. These surveys will probably be combined with the selection of possible protection and production Forest Reserves in this area.

Name of Organisation	Period	Value extracted
British Brothers	1965-66	1,100,000 cubic feet overcut
Chobe Commercial Ltd.	1965-66	2,200,000 cubic feet overcut

The Forest Branch Southern Districts has during the year mentioned and it is hoped to reserve this area as the Kasane Forest Reserve. This area will form part of the *Baikiaea/Pterocarpus* Working Circle. The area situated by Molepolole, Chobe Commercial Ltd. lies within the Chobe Game Reserve and the proposed National Park. This will not be available for extraction in the near future.

MANAGEMENT (STANDARD FORM OMITTED)

6. The enumeration and vegetation survey of the area north of the Ngwezumba River and the Kakulwane Seloko was completed in October, 1965. The Forest Officer completed his enumeration report on this area of some 2,000 square miles on 3rd May, 1966. The report included detailed vegetation maps for the area at a scale of 1:40,000; the maps also cover a further 600 square miles to the north and west.

7. The contact prints at 1:40,000 flown by Messrs. Hunting Surveys in 1962 and the Print Lay Downs subsequently prepared by the Directorate of Overseas Surveys were used extensively for these surveys. The Print Lay Downs were used as the basis of vegetation maps of the area.

8. For the purpose of the survey, the area was divided into a number of enumeration blocks. The better stocked areas within these blocks were determined from the aerial photographs and these were given a 2 per cent survey. In other areas, where the main consideration was vegetation typing the percentage survey was much smaller and in places fell to considerably less than one per cent. During the survey 1,158.35 miles of line were cut. Some 9,266.8 acres were actually enumerated. Of this area some 5,175.6 acres were classified as productive.

9. The volume of timber at present available within a fairly compact block in this area was estimated at just over 9¼ million cubic feet overbark. Of this approximately 56% was of *Baikiaea plurijuga* (Rhodesian Teak), 41% of *Pterocarpus angolensis* and 3% of three other species. Approximately 4 million cubic feet of this volume of timber lies within the present boundaries of the Chobe Game Reserve. Officers of the Game Department were not prepared to consider multiple land use for this area, and in fact were anxious to elevate the status of the Game Reserve into that of a National Park. As a result of a number of conferences on the matter and a most useful economic survey by Mr. P. Landell-Mills, of the Economic Planning Unit, Ministry of Finance a compromise has been reached. The boundaries of the Game Reserve are to be amended so that part of the timber at present within it is excluded. It is now estimated that approximately 7½ million cubic feet of timber overbark will be available for immediate exploitation in the area north of the Ngwezumba River. It is hoped to reserve this area of 580 square miles as the Chobe Forest Reserve.

10. In the past, timber exploitation in the area north of the Ngwezumba River has yielded the following volumes of timber:—

<i>Name of Concession</i>	<i>Period</i>	<i>Volume extracted</i>
Susman Brothers	1935-38 -	1,440,228 cubic feet overbark
Chobe Concession Ltd.	1945-56 -	5,895,605 cubic feet overbark

The former Susman Brothers Concession lies outside the Game boundaries, and it is hoped to reserve this area as the Kasane Forest Reserve. This area will form part of the *Baikiaea/Pterocarpus* Working Circle. The area exploited by Messrs. Chobe Concession Ltd. lies within the Chobe Game Reserve and the proposed National Park. This will not now be available for exploitation in the second felling cycle.

11. Management of these two reserves will be on a 40 year felling cycle basis with an annual cut of half million cubic feet overbark. This is considered to be the minimum cut which would attract concessionaires taking into account the long and difficult road haul to rail head. It was hoped that the Baikiaea/Pterocarpus Working Circle could be worked on a sustained yield basis. This took into account all of the exploitable Baikiaea/Pterocarpus woodland north of the Ngwezumba River besides the additional areas south of the Ngwezumba River which it is expected to include within the Working Circle. However the exclusion of the former Chobe Concession areas (which previously yielded 5,895,605 cubic feet) and of the other 1¼ million cubic feet to be left within the proposed National Park means that an intermittent yield must now be accepted for this Working Circle. This is to be regretted for it means that the timber industry in this Working Circle will lack continuity with all the resultant problems of break in employment, difficulties of encouraging industry to re-enter, etc.

12. The notice advertising a forest concession in the proposed Chobe Forest Reserve for 7½ million cubic feet overbark to be worked over a 15 year period was published in March 1967. Tenders are unlikely to be received before the end of a three month period.

13. During the year, enumeration surveys were continued south of the Ngwezumba River. Latterly progress has been much retarded by transport difficulties and the exceptional rains which have fallen this year. 326¼ miles of line were cut and some 2,610 acres enumerated. Preliminary indications are that there are areas worthy of inclusion in the Baikiaea/Pterocarpus Working Circle in the area about Borehole 3 on the Cattle Trek Route to the west of the Bushman Pits road, and smaller areas near Kazuma Pan. Vegetation typing has been completed over a further 1,000 square miles. The enumeration results have not as yet been fully worked up.

14. Two maps on a scale of 1:125,000 have been prepared for the area north of the Ngwezumba River. These maps are based on the Directorate of Overseas Surveys Print Lay Downs at a scale of 1:40,000. The two maps show:-

- (1) general topographic features
- (2) general topographic features combined with a detailed vegetation typing by dominant tree species.

CHAPTER III

COMMUNICATIONS, TRANSPORT AND BUILDINGS (STANDARD FORM IV)

15. In the area north of the Ngwezumba River within the Chobe District, the mileage of motorable firebreaks maintained by the Forest Department during the period under review was 256 miles. These firebreaks are narrow and range from 4 to 8 yards wide. In general they serve as access lines and lines from which to carry out the early burning programme. These lines have been harrowed annually with a disc harrow drawn by a Massey-Ferguson M.35 tractor.

16. As a result of the proposed demarcation of the new Forest Reserves the firebreaks occurring in the former regeneration areas within the Chobe Game Reserve will be abandoned by this Department. These amount to 132 miles. It is not known whether the Game Department will continue to maintain these firebreaks. After 1st April 1967 only 124 miles of the original firebreaks will be maintained by the Forest Department.

17. During the latter part of 1966/67, 8 miles of additional firebreaks were completed in the proposed Kasane Forest Reserve. These breaks are parallel to and approximately 40 yards away from existing firebreaks, and the intention is that the intervening strips will serve as burnt firebreaks in the coming year.

18. Three loading ramps for use by the tractor and trailer were completed at Kasane, Serondela and at Firebreak 16 in August 1966.

19. General communications to and from the Chobe District were improved by the completion of the new road along the South Bank of the Zambesi by the Rhodesian authorities and the completion of the causeway across the Chobe River at Ngoma by the South African authorities. The road along the South Bank of the Zambezi was opened in August 1966. An axle load of 14,000 lbs. is allowed on this road so that it will probably serve as part of the extraction route to rail head.

20. The heavy rainfall in 1966/67 considerably upset communication generally. In January 1967, roads in the south became impassable to anything except trucks and lorries. There was extensive flooding along sections of the main road to the north and in places bridges and culverts were washed away.

21. A new Bedford 5 ton lorry was delivered to the Department in January 1967. This lorry is intended as a replacement for the one in the Chobe District which is now about 8 - 9 years old. Permission to retain this old lorry for a further year was given at the beginning of 1966/67. Without this vehicle it would not have been possible to start the plantation programme in the South. Even so there have been considerable mechanical troubles with both of the old Bedford lorries. The 5 ton Bedford lorry, received in December 1964, has given persistent trouble with the fuel system, and the diesel fuel pump have been replaced or overhauled three times during a two year period.

22. The Land Rover has continued to give service in spite of an accident in which it was overturned in September 1964. Proper repairs were never effected to this vehicle. However it remains functional if not of a very elegant appearance.

23. The Massey-Ferguson M. 35 tractor used in the Chobe District for the maintenance of firebreaks has also given good service but at the end of the year was giving clutch trouble.

24. An 800 gallon water tanker was received from the P.W.D. Mechanical Workshops in January 1967. Payment for this tanker was made by the Community Development Department. The gift of the tanker is acknowledged with thanks.

25. In general during 1966/67 the maintenance and running of vehicles has proved to be a major problem. Fuel supplies for the Chobe District formerly drawn in bond from Livingstone, Zambia were cut off as a result of the Rhodesian situation. At one time it became necessary to send a lorry to Francistown for fuel - a return trip of some 790 miles. Fortunately the difficulties at Kasane were resolved towards the end of 1966 by the installation of Government fuel tanks and the supply of fuel in bulk by tankers.

26. There are no garage facilities in the Chobe District. Formerly some repairs were possible at Livingstone, Zambia but for practical purposes these are no longer available - mainly because of immigration difficulties. A request for a regular quarterly visit by a Mechanical Workshop team has not met with any response. In the past year the number of Government Vehicles in the Chobe District has considerably increased and it is suggested that this would be an opportune time for a small Government Workshop to be opened in the area.

27. Departmental housing at Kasane was maintained during the period. In addition, the quarters occupied by the Forest Officer and the Forest Office were redecorated by the Public Works Department.

28. At Phareng Nursery, Kanye three rondavels used by staff and labour were re-thatched and renovated as was a store. Another store was re-roofed with corrugated iron whilst two rondavels which formed part of the former Forest House at Phareng were renovated and roofed. This house was burnt down in 1952 and only the walls of the rondavels and part of the stoop were left.

29. At present Serondela is in a small cut-out from the Chobe Game Reserve. It is believed that it is to be included in the new National Park and that the house occupied by the Forester will be amongst those to be demolished. There are also two other staff houses belonging to the Forest Department at Serondela. Assuming that these moves are to take place it will involve the erection of additional housing for the Forest Department staff outside the boundaries of the proposed National Park.

CHAPTER IV

FOREST PROTECTION (STANDARD FORM OMITTED)

30. As the Forest Proclamation No. 62 of 1948 (Cap.138) has never been applied there are no forest offences as such. In the Chobe District, only general protection has been given within the scope of the District Commissioner's notices issued under the African Administration Proclamation (Cap. 67).

31. Fire is the major hazard in the Baikiaea/Pterocarpus woodland. The Herbage Preservation Proclamation (Cap. 135) applies to the Chobe District and forbids the malicious or negligent firing of herbage. During the period under review a number of persons were prosecuted in the Court by the Police in Chobe District for offences under this proclamation.

Year	Total Cases	Found not guilty	Guilty
1965/66	6	1	5
1966/67	13		13

32. Until recently responsibility for fire fighting in the Chobe District has rested solely with the Forest Department. In general, fire prevention measures have been confined to the 2,000 square miles north of the Ngwezumba River. It has now been agreed that the Game Department will look after their own fire prevention measures and fire fighting, whilst the activities of the Forest Department in this respect will be limited to the proposed Forest Reserves.

33. During the two years under review the fire prevention measures adopted in the area are as follows:-

- (1) the annual disc harrowing of 256 miles of breaks most of which are either in the former Susman or Chobe Concession areas.
- (2) the early burning of the woodland outside the breaks limiting the exploited area in the former Chobe Concession.
- (3) the early burning of parts of the former Susman Concession, parts of the proposed Chobe Forest Reserve and part of the area adjacent to roads and tracks in the southern part of the block.

A Cranco Drip Torch has been acquired for trial in the early burning programme in 1967. As already recorded the disc harrowed breaks are narrow and serve mainly as access lines. Experience has shown that these breaks can only be fully effective if combined with wider fully burnt breaks or with a good early burn. It is also considered that in the past we were attempting to protect too large an area with the limited resources available.

34. Although there are a few recorded instances of fires caused by lightning it is considered that the majority of the fires in the Chobe District are of man-made origin. Some are started for hunting purposes, others arise by negligence whilst a few are started out of malice.

CHAPTER V

35. Two fire look-out towers were erected in August 1965. One of these is near Kasane and the other is 11 miles away at Serondela. An elephant ditch has been dug about each tower. Field telephones were received in January 1967 and the telephone link from this office to the Kasane tower has been completed. A radio telephone is on order for the tower at Serondela and a battery charging plant has been purchased for the same purpose. The future of the Serondela tower is in some doubt because this is inside the Game Reserve. If the tower is taken over by the Game Department it is hoped that they will provide an alternative tower for erection at Ngoma.

36. The fire look-out towers are manned throughout the day during the fire season roughly July/August to October/November.

37. During 1965/66 there were 12 recorded outbreaks of fire in the northern part of the Chobe District. In 1966/67 there were a similar number of outbreaks. In October 1966 there were 3 outbreaks of fire in as many days and it is considered that these were of malicious origin. The outbreaks occurred at a time of high winds, and this combined with the break-down of the 5 ton lorry at an early stage in the fire fighting resulted in very considerable areas being affected by the fires. The considerable assistance given by the Botswana Police and by employees of the Mines Labour Organisation in fighting these fires is gratefully acknowledged.

21. During 1965/66 most of the plants produced at Pharing were white woodblock glass and sheets or holding glass. The total production in the period 1st January 1966 to 31st December 1966 was 2222 sheets or approximately 22,000 plants. Most of these were used either to the public or to Government Offices at Gaborone.

22. During 1966/67 most of the plants produced were manufactured with polythene covers while only holding glass was manufactured and sold in trays (16 plants per tray). The total production in 1966/67 was as follows:-

	Sheets	Trays
Manufactured glass	20,751	20
Clear and float and other	1,330	
Holding material	1,252	720
Total plants	23,333	1020 = 24,353

23. Funds for the employment of labour for the establishment of glassworks were limited to an expenditure of Department and to rely on private labour for the clearing of glassworks, sites at Gaborone and at Lobotse whilst at Kanye and Molepolole the work was undertaken by indigenous (Fees for Work Projects, Donations) available for the large areas of indigenous in the country.

24. The total area planted during the period January - March 1967 was 124 acres divided as follows:-

CHAPTER V

SILVICULTURE (STANDARD FORM OMITTED)

38. The only silvicultural operations undertaken during the period under review were those in the south-eastern part of the territory. In the south-east there are a number of small plantations established during the period 1940-52 when the late Major O.B. Miller, I.S.O. was Forest Officer. These plantations were intended as species trials and only four of them have received much attention in the period since 1952. These plantations were those at Lobatsi (60 acres), Gaberones, Diphawana (near Kanye) and at Mogobane. The first three are predominantly of Eucalypts whilst the latter is of *Populus deltoides*. The first two are on State Lands whilst the other two are on Tribal Lands.

39. Until 1st April 1967 these small plantations and the nursery at Phareng near Kanye were under the control of the Department of Agriculture. Thereafter the nursery and plantations came under the control of the Forest Department.

40. The spring in the gorge which formerly supplied water to the nursery at Phareng dried up in November 1964. In May 1965 a borehole approximately 300 yards from the nursery was put into working order by the P.W.D. and a pipe-line was installed as far as the lower part of the nursery. During 1966/67 the water supply at Phareng was further improved by the installation of additional pipes to reservoir tanks at the top of the nursery. A gravity feed low pressure sprinkler system was subsequently installed.

41. During 1965/66 most of the plants produced at Phareng were either ornamental trees and shrubs or hedging plants. The total production in the period 1st October 1964 to 30th September 1965 was 2,028 trays or approximately 32,000 plants. Most of these trays were supplied either to the public or to Government Offices at Gaberones.

42. During 1966/67 most of the plants produced were transplanted into polythene sleeves whilst only hedging plants were transplanted and sold in trays (16 plants per tray). The total production in 1966/67 was as follows:-

	Sleeves	Trays
Plantation species	36,201	20
Ornamental trees and shrubs	4,339	
Hedging material	6,288	733
Total plants	46,828	12,048 = 58,876

43. Funds for the employment of labour for the establishment of plantations were limited. In consequence the Department had to rely on prison labour for the clearing of plantation sites at Gaberones and at Lobatsi whilst at Kanye and Molepolole the work was undertaken by Ipelegeng (Food for Work) Projects. Considerable assistance has also been given by Ipelegeng in the nursery.

44. The total area planted during the period January - March 1967 was 44½ acres divided up as follows:-

Gaberones Plantation	6
Gaberones Prison	½
Lobatsi Plantation (replanting)	8½
Lobatsi New Plantation	8
Good Hope	11
Lothakane	5
Bathoen Soil Conservation Area	2
Phareng	2
Molepolole	2

The main species planted were *Eucalyptus camaldulensis*, *E. sideroxylon*, *E. citriodora*, *E. maculata* and *E. paniculata*. In addition small plots were planted with *Acacia meamsii*, *Ac. cyanophylla*, *Cupressus arizonica*, *Grevillea robusta*, *Callitris robusta*, and *Populus deltoides*.

42. In the same period the Phytotechnical Veterinary Department was allowed to set small trees of *Acacia saligna* in Beaufort by request to the Game (Forestry) Branch along the border between Maseru and a point near Lusakane on T. road.

Year	Number of trees	Value
1963-67	145	400
1966-67	1,700	4,200

During 1963-67 1,717 poles in this same length of trees were also required. It will be seen therefore that requests for this type of wood are likely to be a steady drain on the timber resources in the area.

43. In the Katana/Maseru area (population 100) it has also been possible to obtain some idea of the number of poles taken for the building of huts over a two year period:

1963-66	1,219
1966-67	2,500

These figures are mainly used for this - *Terminalia catappa*, *Centropus prostratus* and *Colopocarpus supax*. Straight poles of latter are no longer to be found in the area, while it is becoming increasingly difficult to find good poles of the other two species which are a valuable component of the village.

44. An opportunity arose during the construction of *Colopocarpus supax* huts near Maseru and have been used. The number sold in each of the 2 years was about 100 and they yielded a small annual revenue of about 100.

45. Forewood is taken from stocks in the case of 2 commercial organisations - Blue Light Organisation (Windley) and the Orange River Board. Both organisations pay a small amount for the wood.

CHAPTER VI

PRODUCTION AND TRADE (STANDARD FORM OMITTED)

45. There is little to record under this section as virtually all forest produce is at present taken free. The only restriction imposed on the taking of major forest produce is that in respect of the five principal timber species. Five trees were taken in 1966/67 on paid permit for the manufacture of canoes.

46. During the two year period recorded free permits to take major produce for local use were as follows :-

Year	Sledge Making (<i>Baikiaea</i>)	Dried Mukwa Logs (<i>Pterocarpus</i>)
1965/66	14	15
1966/67	18	21

47. In the same period the Rhodesian Veterinary Department were allowed to cut small trees of *Burkea africana* in Botswana for repairs to the Game (Veterinary) Fence along the border between Kazungula and a point near Lesuma (about 7 miles) :-

Year	<i>Burkea africana</i> (av. 2' 8" g.b.h. and 12' long)	Volume (c. ft.)
1965-66	145	903
1966-67	1,000	6,230

During 1964-65 1,147 poles in this same length of fence were also replaced. It will be seen therefore that repairs to this type of fence are likely to be a steady drain on the timber resources in land adjacent to it.

48. In the Kasane/Kazungula area (population 958) it has also been possible to obtain some idea of the numbers of poles taken for the building of huts over a two year period :-

1965-66	1,219
1966-67	2,565

Three species are mainly used for this - *Terminalia sericeae*, *Croton gratissimus* and *Colophospermum mopane*. Straight poles of latter are no longer to be found in the area whilst it is becoming increasingly difficult to find good poles of the other two species within a reasonable distance of the villages.

49. As opportunity arose during the enumeration poles of *Colophospermum mopane* have been cut and have been sold. The number sold in each of the 2 years was about 240 and these yielded a small annual revenue of about R60.

50. Firewood is taken free except in the case of 2 commercial organisations - Mine Labour Organisations (Wenela) and the Chobe River Hotel. Both organisations pay an annual permit fee to take firewood.

<i>Organisation</i>	<i>Cords</i>	<i>Volume c. ft.</i>	<i>Value (R)</i>
M.L.O. (W.N.L.A.)	240	24 000	60.00
Chobe River Hotel	52	5 200	13.00

51. *Production from Plantations.* Detailed production figures for the small plantations in the south-east are not available. These plantations are regenerated by coppice. In the past much of the production from Lobatsi plantation has been taken free by various Government Departments so that it is difficult to assess the productivity of the plantation. It is also considered that there has been some felling of stands whilst they were somewhat immature. Stands have also not been beaten up after felling so that some stands have fairly large gaps.

52. Revenue from the Lobatsi Plantation – 1965/66 was R283.68 and in 1966/67 was R151.90. These figures do not take into account the volume of produce taken free by the Department of Agriculture in the period 1965/66 (R51.20) and in the first few months of 1966/67.

CHAPTER VII

INVESTIGATION AND RESEARCH

53. During the course of the forest enumeration in the Chobe District 476 herbarium specimens have been collected. Identification of these was carried out by the Branch of Botany in the Ministry of Agriculture, Salisbury Rhodesia to whom our debt is gratefully acknowledged. In most cases the triplicate copies of the specimens have been forwarded to the herbarium of the Department of Agriculture at Mahalapye. It is hoped to acquire herbarium cases so that the specimens may be easily consulted.

54. An investigation into possible causes for elephant damage to the bark of different tree species has been undertaken in collaboration with Professor W.H. Elder of the University of Missouri. Bark specimens from 17 different species have been collected at different times during the year. These have been kindly analysed by the Chemistry Department of the University College of Rhodesia and Nyasaland. The analyses record the percentage crude Protein, Phosphorus, Calcium, Sodium and Potassium but as yet the results are inconclusive. It is hoped to make a further collection in the middle of the coming Dry Season (about August/September).

CHAPTER VIII

FINANCE (STANDARD FORM X)

55. At present there is a considerably unfavourable balance between expenditure and revenue. It is hoped that this will be partially rectified when timber exploitation commences in the Chobe District.

56. A large part of the previous effort has been directed into reconnaissance surveys but in the future this aspect will be considerably reduced. Most of the coming expenditure will be directed into artificial regeneration projects.

57. During 1965/66 and 1966/67 expenditure was divided between Territorial Budget funds and a C.D. & W. Scheme. In addition at the beginning of 1965/66 some labour employed on opening firebreaks were paid out of famine relief funds provided by Oxfam. The relevant figures were as follows :-

	1965/66	1966/67
Budget	6,092.74	9,866.72
C.D. & W.	18,632.72	24,884.51
Oxfam	199.35	-
Total	<u>R 24,924.81</u>	<u>R 34,751.23</u>

58. The minimum daily wage for labour was increased from 45 cents to 54 cents in October 1965. There was a further increase to 63 cents in October 1966 when the 5 day week was brought into operation in this Department. The last increase is offset to some extent by an increase in the daily hours of work from 8 to 9 hours.

59. *1965/66 Expenditure.* The special expenditure in 1965/66 includes the cost of erection of quarters for a clerk at Kasane and the cost of the two fire look-out towers. The small expenditure in 1965/66 on silviculture at Phareng Nursery and at Lobatsi Plantation is not shown on the Standard Form as this expenditure was controlled by the Department of Agriculture.

60. *1966/67 Expenditure.* The increase in personal emoluments in 1966/67 arises partly from the appointment of an additional Forester but mainly from the effect of the 1965 salaries revision and normal increments.

61. The increased expenditure on maintenance of buildings arises mainly from the renovation of buildings at Phareng Nursery, Kanye, whilst the increased expenditure on equipment arises from the purchase of tools and other equipment for the plantation schemes. Expenditure on the purchase of tools has been higher than would normally be warranted but the work is being undertaken by Ipelegeng and Prison labour. This labour is not particularly productive in comparison with directly employed labour so that more hands and tools are required to complete any particular job.

62. The expenditure under silviculture has all been in connection with the nursery and the new plantations. This includes the cost of the labour employed, purchase of seed, fencing, etc.

63. The Special Expenditure includes the purchase of one new 5 ton Bedford lorry, irrigation equipment for the nursery, and the purchase of tanks, a pump and special fittings on the lorry for the supply of water to and its storage at the plantation sites.

64. At present revenue arises from a number of sources all of which yield only a very small revenue:—

- Sale of plants from Phareng Nursery
- Sale of produce from Lobatsi Plantation
- Firewood permits Chobe District
- Sales of other produce Chobe District.

65. No figures are shown for Local Authority expenditure and revenue. The only area where there is a Local Authority plantation is at Mogobane Irrigation Scheme. The revenue from this area in 1966/67 was R803.72 arising from the sale of 98 tons of logs of *Populus deltoides* for match production.

CHAPTER IX

ORGANISATION AND STAFF

66. At the 31st March 1967 the following salaried personnel were employed in the Forest Department:-

<i>Post</i>	<i>Approved Establishment</i>	<i>Name</i>
Forest Officer	1	P.W.T. Henry, B.Sc.
Foresters	2	F.L. Ledebouer P.M. Moyo
Forest Assistants	5	G.R. Maphane G.B. Mosikiri C.M. Kalaluka M.L. Mutakela
Forest Guards	6	One Vacancy J. Hule N. Mogobe A. Mwezi S. Samunzala M.C. Munisola
Motor Drivers	3	G.G. Moshupukwa J.M. Dube S. Mafumba
Clerical Officer	1	M.E. Sibanda
Messenger/Interpreter	1	S.D. Ramahobo T. Sinvula

67. As a result of the Review of Gradings by Mr. J.F.G. Sykes in 1964, Mr. P.M. Moyo was regraded as a Higher Technical Assistant on Scale C.2 with effect from 1st October, 1964. Similarly Messrs. Maphane, Mosikiri, Kalaluka and Mutakela were all regraded from Scale C.4 to Scale C.3 with effect from 1st October, 1964. Mr. E.M. Sibanda, Tractor Driver was also regraded from Scale E to Scale C.4 with effect from 1st October 1964. All of these regradings were implemented during the financial year 1965/66.

68. As part of the development programme to establish new plantations in the south, an additional post of Forester was created in the 1966/67 estimates. Mr. P.M. Moyo was promoted to this post on trial for 6 months with effect from 1st August 1966. A recommendation confirming his promotion was submitted in February 1967.

69. The Department forms a Division within the Ministry of Agriculture. At present the headquarters are at Kasane in the north-eastern part of the territory (Chobe District). Until comparatively recently all of the Departmental activities have been within the Chobe District. Mr. F.L. Ledebouer, Forester (North) is also stationed in the north at Serondela approximately 11 miles from Kasane. He is in-charge of fire protection measures in the Chobe District. When timber exploitation commences in the District this will also be brought under the charge of the Forester (North).

70. Three Forest Assistants are also stationed in the north and are employed on enumeration and ancillary duties. One of these Forest Assistants is also in charge of the

Herbarium and much of his time in the past twelve months has been taken up with the collection and mounting of herbarium specimens.

71. In the south, Mr. P.M. Moyo is in-charge of the Nursery at Kanye and of the new plantations at Kanye, Lobatsi, Good Hope, Gaberones and Molepolole. He is assisted by one Forest Assistant.

72. During the two year period, leave was taken by the following officers :-

P.W.T. Henry, Forest Officer	26. 9.65-27 1.66
F.L. Ledebøer, Forester	30. 3.66-15 6.66
	16. 6.66- 4. 7.66 (sick leave)
	20. 8.66- 6 9.66
	5.12.66-19.12.66
P.M. Moyo, Forester	25. 4.66-25. 5.66
C.M. Kalaluka, Forest Assistant	17. 5.65-21. 5.65
	6.12.65-15. 1.66
	29. 6.66- 5. 7.66
G.R. Maphane, Forest Assistant	1. 2.65- 3. 1.66
G.B. Mosikiri, Forest Assistant	6. 9.65-22.10.65
M.L. Mutakela, Forest Assistant	4.10.65-28.10.65
	4. 7.66-14. 7.66
S.D. Ramahobo, Clerical Officer	1.12.65-24.12.65
	25. 7.66-26. 7.66
	1. 12.66-30.12.66
T. Sinvula, Messenger/Interpreter	1.11.65-27.11.65
A. Mwezi, Forest Guard	6. 9.65-15.10.65
	28.12.66-31.12.66
M.C. Munisola, Forest Guard	15.11.65-19.11.65
	3. 9.66- 4. 9.66
	1. 2.67- 7. 2.67
S. Samunzala, Forest Guard	18.10.65-19.11.65
G.G. Moshupukwa, Forest Guard	1.12.65-24.12.65
J. Hule, Forest Guard	1.12.65-24.12.65
J.M. Dube, Motor Driver	5. 4.65-11. 4.65
	25. 8.66- 6.10.66
S. Mafumba, Motor Driver	1.11.65-13.12.65
M.E. Sibanda, Motor Driver	15.11.65-24.12.65

To date technical staff have been trained on the job and as opportunity arises are given lectures on their work. This has proved reasonably satisfactory during the enumeration phase but it is now evident that a more formal type of training is necessary. It is hoped to send two members of the technical staff on courses in neighbouring territories as soon as these can be arranged by the Training Officer, Central Establishments.

73. Mr. S.D. Ramahobo, Clerical Officer attended the Intermediate Typing Course at the Botswana Training Centre, Gaberones from 23rd January 1967 to 3rd March 1967 whilst Mr. T. Sinvula Messenger/Interpreter also attended the Elementary Clerical Duties Course at the Botswana Training Centre, Gaberones from 23rd January 1967 to 3rd March 1967.

CHAPTER X

POLICY AND LEGISLATION

74. No decision was made by Government on the draft Forest Policy submitted for consideration in May 1963. In the light of recent developments concerning the forest areas within the Game Reserve, a revision of this policy has become necessary. The new draft policy was submitted in March 1967 and a copy of it is attached to this Report as Appendix A.

75. As recorded earlier, the existing Forest Law – Cap. 138 (Proclamation No. 62 of 1948) – is considered unsatisfactory in many respects. The Law has also never been applied or enforced since its enactment. A revised draft law was submitted in September 1963. This has subsequently been the subject of two further major revisions and numerous minor ones. At the end of the year the new draft law was ready for submission to the Legislature. Draft Regulations under the new law were also being prepared.

76. Within the Chobe District some measure of protection to the woodland is given by two notices issued under section 24(4)(iii) of Cap. 67, the African Administration Proclamation. District Commissioner's Notice No. 3 of 1966 prohibits the felling of five species of trees – all trees of major timber importance – within the Chobe District. This confirmed an earlier order of October 1958. An earlier notice of July 1963 prohibits the cutting of any trees in the Kasane/Kazungula area.

77. In the Northern State Lands, an order made by the District Commissioner Serowe prohibits the felling of all trees. This order was made in 1961. Advice on the definition of trees was given to the District Commissioner Serowe during the year and some amendment of the order was suggested so as to make its provisions less ambiguous and less onerous on the local people.

78. It is believed that some restriction on the felling of trees in certain areas is imposed in some of the former Tribal Areas.

79. All of the above measures made under the African Administration Proclamation are somewhat makeshift restriction whose provisions are by no means uniform either in theory or in practice. It is hoped that there will be a greater degree of uniformity in forest protection when the new Forest Proclamation is enacted and applied.

CONCLUSION

The writer wishes to thank all the staff of the Department for their industry and efficiency throughout the period. Thanks are also due to the Administrative officer^s and officers of Government Departments who have assisted the Department in its work during the period.

P.W.T. HENRY,
Forest Officer,
Republic of Botswana.

8th May, 1967.

STANDARD FORM I
AREAS IN SQUARE MILES OF FOREST LAND (a) ON 31ST MARCH, 1967

Status of Land	Total Area of Unit (2)	State Forest Reserves			Local Authority Forest				Private Forest	Total Forest Areas (12)	Percentage of whole area	
		Production Reserves (3)	Protection Reserves (4)	Unreserves (5)	Total State Forest (6)	Production Reserves (7)	Protection Reserves (8)	Unreserves (9)			Total Local Authority (10)	Forest Reserves (Cols. 3, 4, 7 & 8) (13)
State Lands	104,730	-	-	-	-	-	-	-	-	31,830	-	.30
Tribal Lands	117,403	-	-	-	-	-	-	-	-	84,367	-	72
Freehold	9,682	-	-	-	-	-	-	-	-	9,682	-	100
Totals	231,810	-	-	-	-	-	-	-	-	125,879	-	54

Notes -- (a) These figures refer not to forest but to deciduous woodland of varying height and density.
(b) The figures are estimates of land which should carry a cover of such woodland and do not take into account areas cleared for cultivation (about 1,500 square miles).

STANDARD IA
AREAS IN SQUARE MILES OF LAND BY VEGETATION TYPES AND BY LAND STATUS

District	State					Tribal					Freehold					Total				
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)
Kgadeng	2,000		1,902	2,000	5,902	4,096	10,623	4,096	1,300	45,600	10				8	2,798	10,623	3,300		14,719
Kweneng										14,719	3					4,096				2,798
Ngwato										10,053						42,214		5,998		51,512
Ngwaketse			982		7,997	1,536	8,517									1,536	8,517			10,053
Chobe	7,015				7,997											7,015	8,517			7,997
Francistown	5,865				5,865											7,927				7,927
Gaborone	16			5	21	234				234						141		5		396
Ghanzi	9,745	26,863			36,608											3,835	26,863			40,443
Kgalagadi		41,122			41,122											1,430	41,122			42,552
Lobatsi	72				72	420				420	206					700				700
Ngamiland	7,117		16		7,133	85,082			8,500	46,582						42,199	16	8,500		50,715
Tuli Block											1,993					1,993				1,993
	31,830	67,985	2,900	2,005	104,730	84,367	19,140	4,096	9,800	117,403	9,682				9,682	135,879	87,125	6,996	11,805	231,810

Based upon the Beets' Bechuanaland Protectorate Provisional Vegetation types Map 1963 and upon Table No. 1 of Republic of Botswana Statistical Abstracts 1966.

(a) Tree (Columns 2, 7, 12 and 17) : Woodland varying in density.

(b) Scrub (Columns 3, 8, 13 and 18) : Open country with some low scrub cover (Categories 1 (a), (b) and (c)).

(c) Grass (Columns 4, 9, 14 and 19) : Swamps and Dryland grassland (Categories 12 (b), 13, 14 and 15).

(d) Swamps and Water : Includes salt lakes.

STANDARD FORM II
STATEMENT IN SQUARE MILES OF PROGRESS MADE IN FOREST RESERVATION AND
DEMARCATIION DURING THE YEAR ENDED 31ST MARCH, 1967

Reserves (1)	Proposed reserves but not legally constituted			Reserves gazetted but Boundaries not completely Demarcated			Reserves constituted and Demarcated				
	On 1.4.66 (2)	Added during the year (3)	On 31.3.67 (4)	On 1.4.66 (5)	New Reserves gazetted during the year (6)	Demarcated and transferred to Column 10 (7)	On 31.3.67 (8)	On 1.4.66 (9)	Added during year (10)	Excluded during the year (11)	On 31.3.67 (12)
Production Reserves											
State Lands	-	635	635	-	-	-	-	-	-	-	-
Tribal Lands	-	-	-	-	-	-	-	-	-	-	-
Freehold	-	-	-	-	-	-	-	-	-	-	-
Totals	-	635	635	-	-	-	-	-	-	-	-
Protection Reserves											
State Lands	-	-	-	-	-	-	-	-	-	-	-
Tribal Lands	-	-	-	-	-	-	-	-	-	-	-
Freehold	-	-	-	-	-	-	-	-	-	-	-
Totals	-	-	-	-	-	-	-	-	-	-	-

STANDARD FORM IV

RECORD IN MILES OF FOREST DEPARTMENT FIRE TRACES/MOTOR TRACKS FOR THE YEAR ENDED 31ST MARCH, 1967

FOREST DEPARTMENT MOTOR ROADS						
Territorial Unit and Name of Working Circle or Reserve	Government			Local Government		
	Added	Abandoned	Total at end of year	Added	Abandoned	Total at end of year
Baikiaea/Pterocarpus	8	132	132			

STANDARD FORM X
SUMMARY IN RAND OF REVENUE AND EXPENDITURE FOR THE YEARS 1965/66 AND 1966/67

	1965/66			1966/67		
	Government	Local Authority	Total	Government	Local Authority	Total
	<i>Revenue</i>					
2. Timber and Fuel	394.25		394.25	290.90		290.90
3. Minor Forest Produce	—		—	—		—
4. Miscellaneous	595.75		595.75	341.17		341.17
5. Total Revenue	990.00		990.00	632.07		632.07
<i>Expenditure</i>						
6. Personal Emoluments	14,974.81		14,974.81	17,219.42		17,219.42
7. Transport and Travelling	3,498.65		3,498.65	4,682.75		4,682.75
8. Other Administrative Charges	105.11		105.11	360.26		360.26
9. Maintenance of Buildings	—		—	232.65		232.65
10. Equipment	718.31		718.31	1,204.95		1,204.95
11. Research and Education	—		—	—		—
12. Protection	1,509.46		1,509.46	1,787.50		1,787.50
13. Silviculture	—(1)		—	3,736.30		3,736.30
14. Other Forest Improvements	1,798.74		1,798.74	1,584.91		1,584.91
15. Exploitation	—		—	—		—
16. Miscellaneous	321.14		321.14	113.00		113.00
17. Total Annual Recurrent	22,926.22		22,926.22	30,921.74		30,921.74
18. Special	1,998.59		1,998.59	3,829.49		3,829.49
19. Total Expenditure	24,924.81		24,924.81	34,751.23		34,751.23
20. Surplus/Deficit	—23,934.81		—23,934.81	—34,119.16		—34,119.16

(1) See Paragraph 59.

Appendix A

FOREST POLICY

The declared Forest Policy for the Republic of Botswana is as follows:—

- (a) to establish a permanent Forest Estate composed of protection and production Forest Reserve for the benefit of present and future inhabitants of the country on forest and other land sufficient in size or distribution for:—
 - (i) the maintenance of the climatic and physical conditions of the country, the safeguarding of water supplies and soil fertility, and the prevention of damage to rivers and agricultural land by flooding and all forms of erosion;
 - (ii) the supply in perpetuity at reasonable rates of all forms of forest produce required by the people for domestic, agricultural and industrial needs;
 - (iii) the encouragement of an export trade to utilize any balance of forest produce which may be available subject to the fulfilment of the two primary objects set out above.
- (b) to manage the Forest Estate with the object of obtaining the highest revenue in so far as this is consistent with the protective and productive function of the Forest Estate.
- (c) to obtain maximum exploitation of the other Forest Resources which may remain outside the designated Forest Estate, such exploitation to be carried out with the object of obtaining the highest revenue and to be qualified by the proviso that it will not take place in areas where its effect would be detrimental to the maintenance of the climatic and physical conditions of the country.
- (d) to train and provide adequate numbers of professional, technical and other local staff for the management of the Forest Estate, for revenue collection, and for research into such problems as can be investigated locally.
- (e) to support and co-operate with all appropriate schemes of regional forest research.
- (f) to foster, by education and propaganda, a real understanding among the people of Botswana of the value of forest to them and their descendants.