

THE COLONY AND PROTECTORATE OF KENYA.

R E P O R T .

of the

DEPARTMENTAL COMMITTEE

appointed to make an Economic Survey of the area

covered by the proposed

THIKA - NYERI RAILWAY LINE

together with Supplemental Report on extension

if constructed from

THIKA TO KAMBINGO only.

1921.

Department of Agriculture,

Nairobi.

28th. April 1921.

To,

His Excellency the Governor,
The Colony & Protectorate of Kenya.

Your Excellency,

As a consequence of the most of the
Secretary of State, the Committee by Your
Excellency, to take the work of the
covered.
by the proposed line -
to be
honour to present the report as follows.

DRAFT

As instructed by the terms of reference referred to the
Hakuzi - ~~11/10/20~~ - Ministry of the Home

The following are the following appendices:-

1. Estimates of earnings, production, produce and earnings 5 years and 10 years after completion of Railway.
2. Estimates of Live Stock, Dairy produce and earnings 5 years and 10 years after completion of Railway.
3. Estimated tonnage and earnings of timber, 5 years and 10 years after completion of Railway.
4. Summary of Produce, earnings and estimates of goods and Passenger traffic 5 years and 10 years after completion of Railway.

Appendix 2. Summaries of Evidence.

Appendix 3. Chemical Research Departmental Report of samples of soils representative of the different areas.

Appendix 4. Public Works Departmental Report on the results of gaugings of certain rivers in North and West Kenya.

Appendix 5. Average monthly rainfall and extremes of annual rainfall at various stations in the different areas.

Schedules 4. omitted

The schedules, referred to above, indicate the manner in which the estimates of production, the tonnage of traffic and the earnings were arrived at.

Section 6. and following line.

Care was exercised to differentiate between the traffic on the new and the existing line and to calculate both.

Section 6. stated

It was found impracticable to estimate the "permanent" traffic as requested by the Secretary of State, and it was decided to submit figures indicating probable traffic and earnings in 3 and 5 year periods after completion of the new line.

The area served by the projected new railway was divided for the purposes of the estimates into sections in which cultural or other conditions are somewhat similar.

In arriving at these estimates of production and traffic use has been made of the Agricultural Statistics and the estimates reflecting an expression of opinion as to the ~~and~~ ~~and~~ ~~and~~ which is calculated to follow from the railway ~~and~~ ~~and~~ ~~and~~ and the nature of the production.

PROCEDURE.

... an opinion might be formed as to their potentialities and productivity the areas to be served by the proposed line were personally inspected by members of the Committee. Evidence having a bearing upon local production and development was taken at Thika and Nyeri from the Local Farmer's Associations and Sir Northrup MacCallan in obtaining information from a number of ... area.

Information 8. Information was sought and furnished from the Associations and persons under the following mainheads, and summaries of the evidence given and taken are to be found in the appendices.

Agricultural and General.

1. Kinds of soil and their fertility.
2. Proportion and areas at present cultivated.
3. Proportion cultivable.
4. Proportion likely to be cultivated by present occupants on advent of railway.
5. Probable rate of influx of new settlers on advent of railway.
6. Kinds of crops grown.
7. Probable main crops.
8. Yield of crops per acre.
9. Suitability for Livestock.
10. Traffic in stock for breeding and slaughter purposes, and in dairy produce.
11. Estimates of traffic in chief kinds of agricultural and dairy produce, livestock and general requirements of commerce, passenger traffic (European and Native).
12. Factors affecting production, climate, soil fertility, capital labour, market prices etc.

Forestral.

Use has been made of the records of the Forest Department dealing with the Mount Kenya Forests.

MAIN REPORT.

as as 9. The area to be served by the proposed new railway line has been divided. sub-divided as follows:-

- (1) An area extending between Thika and Fort Hall and including Kenya Sabuk as well as the farms recently allotted along the Ithanga Hills.
- (2) An area approximately between Nyeri and the Amboni River.
- (3) An area extending from the slopes of Mount Kenya to those of the Aberdare Mountains and extending beyond the Usso Nyiro River on the one side and the Manjuki River on the other.
- (4) The Native Reserve between Fort Hall and Nyeni.

are of 10.
traffic

The main traffic has been classified under the following heads:- (1) Agricultural (2) Timber (3) Passenger (4) Inward.

The Agricultural and Timber traffic has been estimated mainly on the basis of an export trade, and the inward traffic represents the needs of the community for maintenance and for development purposes. In respect of each, figures of tonnage and earnings are given for the period:-

- (a) 3 years after completion of line.
- (b) 10 years after completion of line.

Section 11.
loss and
probable
production

It will be realised that considerable difficulties were experienced in furnishing estimates indicating the nature and the volume of the production in the area. Particularly in area 3 comparatively little development has yet taken place and its potentialities are not yet known. Again the progress of settlement and agricultural development of new and extensive areas must depend on several factors which cannot at present be gauged. For purposes of this report, it has been assumed that market prices of the different export products will show a fair profit over the cost of production. The estimates have been submitted on a conservative basis, and on the information disclosed in the course of evidence, and after personal investigation, it is considered that unless the world's market prices render the Agricultural industry generally unprofitable the results forecasted will be achieved.

The estimates are confined to those branches of the Agricultural industry which are calculated to succeed and those crops &c., about which there is some doubt as to whether they will be grown, though the conditions may be suitable, have not been included.

Thika - Fort

Donya Sabuk - Ist Thenga Hills

For purposes of this report the agricultural area is estimated at 379,000 acres.

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occupation as at 3000 and the cultivated area is considerably increased.

European Holdings and the which have

The acreage of the

grown was on that date

Sisal - 8,717; Cereals - 1,000;

Cereals - 1,000;

Peas - 97; Flax - 100;

Peas - 97; Flax - 100;

Miscellaneous Crops - 100;

Miscellaneous Crops - 100;

but not planted - 8,990 acres.

Land prepared but not planted - 8,990 acres.

In order to arrive at the production if the railway is constructed it has been estimated that some 200,000 acres should come under European occupation 3 years after construction of the railway, of which 120,000 is cultivable.

A large proportion of the land is highly fertile. Much of it is well suited for coffee growing; the lower land is composed, for the most part, of a black loam, rather difficult to cultivate, but fertile. Such land would produce good crops of coffee. Other areas are not unlikely to be found suitable for rubber but a sugar industry is yet too speculative to warrant estimates based thereon being made at this time.

The rainfall in this area ranges from 25 to 48 inches.

The rivers and streams are numerous and the climate is generally well suited for the cultivation of the crops mentioned in pages 37 and 38 of the report.

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This area constitutes the chief centre of the Sisal Industry of the Colony. The sisal plant grows to perfection and the quality of the fibre is high. The estimates are, for the most part, extensive and the sisal industry lends itself to successful operation on a large scale. On the market prices which have obtained for many years past, and on the basis of

export and sale the margin of profit is small. The provision of the railway ~~usage~~ consideration would have the effect of reducing costs of marketing by 20/- to 30/- per ton, an amount sufficient to encourage further development and production.

Considerable areas of sisal have recently been planted and an increased tonnage within the next few years is already in sight.

Private railway facilities are calculated to bring about a substitution of the larger estates. Land which is now growing sisal will ~~be~~ also valuable for the purpose and an economic ~~use~~ it will be put to other use.

Land now producing sisal is suitable for coffee

growing and in all ~~cases~~ ~~where~~ ~~the~~ ~~soil~~ ~~is~~ ~~under~~ ~~coffee~~ ~~will~~ ~~be~~ ~~able~~ ~~to~~ ~~increase~~. ~~Land~~ ~~which~~ ~~is~~ ~~now~~ ~~growing~~ ~~sisal~~ ~~will~~, ~~after~~ ~~cutting~~ ~~is~~ ~~removed~~, ~~not~~ ~~be~~ ~~replaced~~ ~~by~~ ~~sisal~~. ~~will~~ ~~take~~ ~~its~~ ~~place~~.

Estimated ~~value~~ of land suitable for coffee is

666 ~~acres~~ - ~~Annex~~

The area under consideration is, for purposes of this report, taken as 20,000 acres, of which it is calculated that about 20,000 acres are cultivable, much of which consists of red loam soil of high fertility and primarily suitable for coffee growing. The same kind of soil is also adapted to Flax. In the ordinary course of farming operations it is likely that ~~Wheat~~, ~~beans~~ ~~etc.~~, will be grown.

This area enjoys a good rainfall of 36 inches per annum well distributed, and it is remarkably healthy for Europeans.

The number of holdings under occupation in the Nyeri Amboni and North West Kenya comprising the Nyeri Magisterial District was on 30th. June 1920 fifty-seven and the area under cultivation was 2,084 acres.

In the above connection ~~no~~ separate records are not available in respect of areas

2 and 3. The number of Holdings under occupation has

considerably increased since the date given due to the arrival of new Settlers particularly those to whom land was allotted under the Ex-Soldier Settlement Scheme. Producers are suffering a great handicap in being 70 to 80 miles from the present railhead and undoubtedly considerable development would take place in this fertile area if the present hindrance of costly transport over bad roads was removed.

It is estimated that the acreage under the chief crops

is as follows:-

	1922	1923	10 years after completion of line
Wheat	100	100	100
Maize	100	100	100
Barley	100	100	100
Oats	100	100	100
Other	100	100	100

the Aberdares and Nyiro & Manyuki Rivers.

... area amounting to approximately 800,000 ... may be regarded as essentially a pastoral country. ... due to its proximity to the snow clad Mount Kenya ... a pleasant bracing climate most favourable to European Occupation. In the region extending between the slopes of Mount Kenya and the Plains the country is well watered by permanent streams or rivers. From the records of the discharge of five rivers within

this area (see appendix 8) about 10,000 acres of land could be placed under irrigation. From the contour of the land and the fall of the rivers it is seen that irrigation projects could be developed at comparatively little expense. Much of the land is fertile and with an average rainfall of 34 inches various crops can be grown successfully.

It is worthy of note that wheat of excellent quality has been grown on the Mount Kenya side of the area now under consideration.

With the aid of irrigation, once or twice only, during the growing period, a heavy yield is obtained.

It is considered that the future lies in a pastoral industry. good quality, cattle maintain throughout the year and in care is exercised to cor The pasturage is suffi fatten beef cattle but land and the conditions Committee have in these est area will, with railway facilities,

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dairy farms. Its suitability in this respect lies in (1) it's good pasture; (2) it's mild climate with no rigorous winter or frost; (3) it's good water supply and cool atmosphere; (4) it's production of farm food stuffs at low cost when required to supplement pasture for a very short period; (5) Cheap labour.

It is doubtful whether in any part of the Empire there is land available for settlement where conditions so favourable for the development of a Dairying Industry can be found.

At present the land is cheap for that purpose, prices ranging from 20/- to 40/- per acre. Although many estates are to-day too large to be developed fully by the present owners

the advent of the railway would hasten their subdivision. It should be stated, however, that the dairying industry will require to be built up upon an export trade. In it's train will follow pig keeping and bacon production. In dairy products, lagoon and bacon products, it is considered that the conditions in this area are such that these products can be profitably marketed in competition with other Countries; but in order to achieve success it is essential that good dairy cows be bred up from the native stock, that the industry be organized, and that butter, cheese and bacon factories be established upon a co-operative basis.

It will be realised that in treating so extensive an area of country in which comparatively little development has yet taken place it is difficult to forecast it's Agricultural future.

Conservative estimates have been prepared upon the following basis:-

- 500,000 acres.
- Establishment of railway.
- 350 Holdings.
- Butter and Cheese 5000 cows.
- Bacon and Lagoon
- Wool from 50,000
- Cattle 1,000 head railed per annum.
- Sheep 10,000 head railed per annum.
- Wheat 20,000 bags per annum.
- Other grain crops 2,000 tons.
- Flax 200 tons.

Five Years after completion of Railway.

On basis of 400 Holdings.

- Butter and Cheese from 50,000 cows.
- Bacon & Bacon Products from 10,000 pigs per annum.
- Wool from 100,000 sheep, say 500,000 lbs per annum.
- Cattle 2,000 head killed per annum.
- Sheep 20,000 head killed per annum.
- Wheat 50,000 bags per annum.
- Other Grain Crops 3,000 tons per annum.
- Flax 400 tons per annum.

Native Reserves Port Hall - Nyari

In the ... part of the Nyari Reserve the land ... grain and pulse crops ... quantities by the Natives who belong to an agricultural race ... a maximum effort they are able to produce ... for their own live food and of late years they have produced increasing quantities of grain, beans etc., for consumption outside their Reserve.

The Committee are of the opinion that on the advent of the railway the natives will be stimulated to cultivate more land by the reduction of the distance which they have at present to carry their goods to market.

The estimates of tonnage and earnings in respect of timber have been placed at:-

3 years after completion of Railway	10,000 tons
Total Earnings	Fls. 285,600
10 years after completion of Railway	20,000 tons
Total Earnings	Fls. 571,200

In the absence of a complete survey of the Mount Kenya plateau the information of your Committee is necessarily incomplete and it is not practicable to attempt to predict what might be the production in the future beyond the expression of opinion now given.

16. Upon a population basis of about 2,000 Europeans three years after completion of the line and 30,000 ten years afterwards together with incidental passenger traffic of 8,000 and 12,000 respectively will be undertaken. A substantial amount of revenue will be derived from passenger traffic. The native population in the region through which the Railway passes is large and the traffic would be augmented from the Embu and Meru Districts. It is calculated that the present native passenger traffic will be increased five and ten fold in three and ten years after completion of railway.

17. With the influx of new settlers and the development of the areas under consideration there will be a substantial increase in the inward traffic of goods of all kinds to meet their requirements and the needs of a growing population. Expansion of trade generally will take place at the ports and at the distributing centres. It is impracticable to attempt to estimate the increase in traffic and the benefits to be derived from that general trade expansion so that the Inward

Traffic has been restricted for purposes of this report to a three fold and ten fold increase over three and ten years respectively on the present annual traffic tonnage and earnings.

18. As indicative of the promise of development it may be mentioned that in the areas under review about 70 holdings have been allotted under the Ex-Soldier Settlement Scheme.

19. The areas under consideration are favourably situated in respect of the supply of native labour, and there is no reason to suppose that having regard to the number of natives now prepared to engage there will be any serious shortage of unskilled labour to carry out the development and the operations contemplated in this report.

20. The settlement scheme appears in this Colony can only in the opinion of your Committee, be permanently successful if railway facilities and other communications are provided to enable the agricultural products raised by them to be placed on overseas markets at reasonable cost.

Your consideration will serve large areas of the land and an extensive area of good pastoral country. The view is expressed that as compared with other parts of the Empire this Colony possesses many advantages but its settlement cannot progress, nor can its great potentialities be developed, without railway facilities.

Your Committee would urge that the extension of the line to a point about 30 miles from Thika should not be long delayed and further, assuming that no unsurmountable or too costly engineering difficulties are presented, when a more exhaustive survey is made of the projected line beyond, that the latent agricultural wealth of the areas between Fort Hall and Nyeri and Northwards, together with the unexploited timber resources of the Mount Kenya Forests, justify the provision

REPORT.

22. The estimated production per annum in the areas served less requirements for local consumption is:-

(a) 3 years after completion of Railway.

Sisal	Tons	4,400
Coffee	"	2,500
Flax	"	400
Maise & Beans	"	12,786
Wheat	"	1,786
General Crops	"	5,024
Timber	"	10,000
Cattle	Number	1,000
Sheep	"	10,000
Pigs	"	3,000
Bacon & Bacon Products	Tons	500
Butter	"	223
Cheese	"	558
Wool	"	111

(b) 10 years after completion of railway.

Sisal	Tons	6,000
Coffee	"	4,100
Flax	"	800
Maise & Beans	"	15,702
Wheat	"	4,464
General Crops	"	8,429
Timber	"	20,000
Cattle	Number	2,000
Sheep	"	20,000
Pigs	"	3,000
Bacon & Bacon Products	Tons	812
Butter	"	446
Cheese	"	1,116
Wool	"	222

Other Traffic under (a) - Inward 11,888 tons

Passenger Traffic (European)
8,000 Journeys
Passenger Traffic (Native)
242,500 Journeys.

Other Traffic under (b) Inward Traffic 56,388 tons

Passenger Traffic (European)
18,000 Journeys.
Passenger Traffic (Native)
485,000 Journeys.

The following are estimated earnings on new and existing railway lines after reductions have been made covering traffic now loaded at Thika, also traffic which would result from development and be carried if the new lines were not constructed.

Calculations made allow for a proportion of traffic to be consumed or used in the Colony and the remainder carried to the coast for export.

(a) Earnings on new line 3 years after completion.

Sisal	Florins	5,913	
Coffee	"	10,281	
Flax	"	1,746	
Maize & Beans	"	17,634	
Wheat	"	10,200	
General Crops	"	8,096	53,870
Timber	"	57,120	57,120
Cattle	"	3,488	
Sheep	"	5,590	
Pigs	"	667	
Bacon & Bacon Products	"	5,780	
Butter	"	1,275	
Cheese	"	3,188	
Wool	"	675	18,653
Inward Traffic	"	22,361	22,361
European Personal	"	21,028	21,028
Native Personal	"	363,350	363,350
		431,206	431,206
		575,104	575,104

3/5

Earnings of increased traffic on existing line.

Sisal	Florins	29,030	
Coffee	"	44,486	
Flax	"	3,630	
Maize & Beans	"	26,116	
Wheat	"	2,700	
General Crops	"	<u>27,898</u>	133,660
Timber	"	228,480	228,480
Cattle		1,580	
Sheep		1,486	
Pigs		-	
Bacon & Bacon Products		2,416	
Butter		1,108	
Cheese		2,750	
Wool		<u>7,590</u>	53,876
Inward Traffic			97,434
			68,500
Native Port			<u>145,500</u>
			749,182

(c) Earnings on new line 10 years after

Sisal	Florins		
Coffee	"	16,598	
Flax	"	3,492	
Maize & Beans	"	22,002	
Wheat	"	25,500	
General Crops	"	<u>15,738</u>	81,338
Timber	"	114,240	114,240
Cattle	"	6,975	
Sheep	"	11,160	
Pigs	"	667	
Bacon & Bacon Products	"	7,860	
Butter	"	2,550	
Cheese	"	6,375	
Wool	"	<u>3,380</u>	36,637
Inward Traffic	"	<u>23,576</u>	74,240

Brought Forward	Florins	334,736	334,736
European Personal	"	519,200	519,200
Native Personal	"	21,000	21,000
		414,936	414,936
		600,200	600,200

(a) Earnings of increased traffic on existing line.

Sisal	Florins	50,804	
Coffee	"	122,081	
Flax	"	7,260	
Maize & Beans	"	30,120	
Wheat	"	7,200	
General Crops	"	55,149	272,614
Timber	"	456,960	456,960
Cattle	"	3,100	
Sheep	"	4,960	
Pigs	"	-	
Bacon & Bacon Products	"	39,676	
Butter	"	10,800	
Cheese	"	25,500	
Wool	"	15,485	98,921
Inward Traffic	"	469,214	469,214
European Personal	"	132,300	132,300
Native Personal	"	327,375	327,375
		1,757,384	1,757,384

APPENDIX.

Estimate of Areas, Cultivation, Produce, and Revenue
Districts served by the proposed Thika - Nyeri
Extension.

Three Years after completion of Railway.

DISTRICT	Areas under cultivation of:-						Estimated Produce for Rail						Estimated earnings	
	Sisal	Coffee	Flax	Maize and Beans	Wheat	General Crops	Sisal	Coffee	Flax	Maize and Beans	Wheat	General Crops	Maize	Beans
	Acres	Acres	Acres	Acres	Acres	Acres	cwts	cwts	cwts	cwts	cwts	cwts	cwts	cwts
Thika Donyi Sabuk Area 1.	11,000	10,500	-	-	-	-	88,000	48,000	-	-	-	28,000	8,912	-
Nyeri Area 2.	-	2,000	1,000	1,000	-	-	-	8,000	4,000	8,929	-	-	-	2,889
E. W. Kenya Area 3.	-	-	1,000	-	-	-	-	-	4,000	-	35,714	40,000	-	-
Native Reserve Area 4.	-	-	-	-	-	-	-	-	-	246,785	-	40,400	-	-
Total							88,000	50,000	8,000	255,714	35,714	100,400	5,912	10,289

Ten Years after Completion of Railway.

DISTRICTS	Areas under cultivation of:-						Estimated Produce for Rail						Estimated earnings	
	Sisal	Coffee	Flax	Maize and Beans	Wheat	General Crops	Sisal	Coffee	Flax	Maize and Beans	Wheat	General Crops	Sisal	Beans
	Acres	Acres	Acres	Acres	Acres	Acres	cwts	cwts	cwts	cwts	cwts	cwts	Fls	Fls
Thika Donyi Sabuk Area 1.	15,000	17,500	-	-	-	-	120,000	70,000	-	-	-	20,000	8,064	11,760
Nyeri Area 2.	-	2,000	2,000	2,000	-	-	-	18,000	10,000	17,887	-	-	-	4,830 1,746 2,1
E. W. Kenya Area 3.	-	-	2,000	-	-	-	-	-	8,000	-	89,286	10,000	-	1,746
Native Reserve Area 4.	-	-	-	-	-	-	-	-	-	296,161	-	48,580	-	- 19,9
Total							120,000	88,000	18,000	314,018	89,286	160,580	8,064	16,598 3,492 22,

Income, Expenses and Earnings for Proposed ~~Line~~ - Nyori Railway

Earnings on New Line				Earnings of Increased Traffic on Existing Line						TOTAL	TOTAL	TOTAL
Grain and Beans	Wheat	General Crops		Sisal	Coffee	Flax	Wheat and Beans	Wheat	General Crops	Earnings New Line	Increased earnings existing line	Earnings
Fls	Fls	Fls		Fls	Fls	Fls	Fls	Fls	Fls	Fls	Fls	Fls
		572		29,000	29,600	-	-	-	5,700	30,572	78,332	
2,225	572	1,080			4,500	1,915	4,000			4,700	19,020	
	572		10,800	4,700		1,915		4,700	21,115	25,777	4,865	3,640
									25,115			
19,281	1,740			29,000	24,400	2,500	26,115	2,700	27,000	55,000	124,000	49,143

Estimated Earnings on New Line				Earnings of Increased Traffic on Existing Line						TOTAL	TOTAL	TOTAL
Grain and Beans	Wheat	General Crops		Sisal	Coffee	Flax	Wheat and Beans	Wheat	General Crops	Earnings New Line	Increased earnings existing line	Earnings
Fls	Fls	Fls	Fls	Fls	Fls	Fls	Fls	Fls	Fls	Fls	Fls	Fls
		572		20,000	128,214	-	-	-	5,700	20,490	109,000	129,490
4,800	1,740	2,100			2,700	2,000	2,000			13,100	21,297	34,397
	1,740		25,500	11,700		2,000		7,800	14,000	29,040	25,000	54,040
			19,900	3,200				22,100		2,000	20,100	42,100
14,500	3,480	78,000	15,800	20,000	128,014	7,000	20,100	7,800	26,140	22,507	278,014	360,421

YEARS AFTER COMPLETION OF RAILWAY

LIVE STOCK

BACON AND BACON PRODUCTS

District	Estimated No. on rail			Earnings on New Line			Earnings of increased traffic on existing line			Total earnings New Line	Total increased earnings existing line	Total Earnings	Estimated produce for rail	Earnings on New Line	Earnings of increased traffic on existing railway
	Cattle	Sheep	Pigs	Cattle	Sheep	Pigs	Cattle	Sheep	Pigs	Fls	Fls	Fls	Cwts	Fls	Fls
	No.	No.	No.	Fls	Fls	Fls	Fls	Fls	Fls	Fls	Fls	Fls	Fls	Fls	Fls
Dorset	-	-	2,500	-	-	-	-	-	-	-	-	386	3,125	-	7,630
Weymouth	-	-	500	-	-	-	-	-	-	-	-	279	625	-	1,526
W. Kent	20,000	-	-	3,488	1,800	-	1,800	2,480	-	9,068	13,098	6,250	3,780	15,260	
W. Kent	20,000	2,000	-	3,488	1,800	-	1,800	2,480	-	9,728	13,765	10,000	3,780	24,116	
W. Kent	2,000	20,000	-	5,975	11,160	-	5,100	4,900	-	15,802	20,682	12,500	7,560	39,872	
W. Kent	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Total	4,000	20,000	5,000	4,975	11,160	-	5,100	4,900	-	15,802	20,682	12,500	7,560	39,872	

BACON PRODUCTS			BUTTER				CHEESE				WOOL			Total Earnings on New Line	Total earnings - Stock & Animal Products on Increased traffic on existing line	Total earnings Stock and animal Products.		
Earnings on New Line	Earnings of increased traffic on existing railway	Total Earnings	Estimated produce for rail	Earnings on New Line	Earnings of increased traffic on existing line	Total Earnings	Estimated produce for rail	Earnings on New Line	Earnings of increased traffic on existing line	Total Earnings	Estimated produce for rail	Earnings on New Line	Earnings of increased traffic on existing line					
Fls	Fls	Fls	Cwts	Fls	Fls	Fls	Cwts	Fls	Fls	Fls	Cwts	Fls	Fls	Fls	Fls	Fls		
-	7,630	7,630	-	-	-	-	-	-	-	-	-	-	-	-	-	388	7,630	8,018
-	1,526	1,526	-	-	-	-	-	-	-	-	-	-	-	-	-	279	1,526	1,805
3,780	15,260	19,040	4,464	1,275	5,100	6,375	11,161	3,188	12,750	15,938	2,232	675	7,580	8,255	17,986	17,986	44,720	62,706
3,780	24,416	28,196	4,464	1,275	5,100	6,375	11,161	3,188	12,750	15,938	2,232	675	7,580	8,255	18,653	38,876	72,529	

BACON PRODUCTS			BUTTER				CHEESE				WOOL			Total Earnings on New Line	Total earnings - Stock & Animal Products on Increased traffic on existing line	Total earnings Stock & Animal Products.		
Earnings on New Line	Earnings of increased traffic on existing railway	Total Earnings	Estimated produce for rail	Earnings on New Line	Earnings of increased traffic on existing line	Total Earnings	Estimated produce for rail	Earnings on New Line	Earnings of increased traffic on existing line	Total Earnings	Estimated produce for rail	Earnings on New Line	Earnings of increased traffic on existing line					
Fls	Fls	Fls	Cwts	Fls	Fls	Fls	Cwts	Fls	Fls	Fls	Cwts	Fls	Fls	Fls	Fls	Fls		
-	7,630	7,630	-	-	-	-	-	-	-	-	-	-	-	-	-	388	7,630	8,018
-	1,526	1,526	-	-	-	-	-	-	-	-	-	-	-	-	-	279	1,526	1,805
7,580	30,520	38,100	4,464	2,550	10,200	12,750	22,322	3,375	15,500	31,875	4,464	1,300	15,485	16,835	35,970	89,785	125,735	
7,580	42,616	47,996	4,464	2,550	10,200	12,750	22,322	3,375	15,500	31,875	4,464	1,300	15,485	16,835	38,687	98,921	135,558	

T I M B E R

Estimated Tonnage and Earnings of Timber over proposed
 Shilka - Ujveri Railway Extension.

Three Years after Completion of Mine. For Years after Completion of line.

Estimated Tonnage for rail.	Total earnings on New Line	Total increased earnings on existing line	Estimated tonnage for rail	Total earnings on New Line	Total increased earnings on existing line	Total Earnings
Tons	Fls	Fls	Tons	Fls	Fls	Fls
16,000	57,120	255,600	20,000	114,240	456,960	571,200

T I M B E R

Estimated Tonnage and Earnings of Timber over proposed
 Thiba - Nizari Railway Extension.

Three Years after Completion of Line. Ten Years after Completion of Line.

Estimated tonnage for rail.	Total earnings on New Line	Total increased earnings on existing line	Total Earnings	Estimated tonnage for rail	Total earnings on New Line	Total increased earnings on existing line	Total Earnings
Tons	Fls	Fls	Fls	Tons	Fls	Fls	Fls
10,000	57,120	228,280	285,400	20,000	114,240	456,960	571,200

EXISTING LINE		NEW LINE	
Total No. Passengers 4 line 2000 x 4	First Class 2000 Tickets 40000 miles	Total No. Passengers 4 line 2000 x 4	First Class 2000 Tickets 40000 miles
15 Years.	8000	15 Years.	8000
10 Years.	5000	10 Years.	5000
Total No. Passengers 4 line 2000 x 4	Second Class 2000 Tickets 40000 miles	Total No. Passengers 4 line 2000 x 4	Second Class 2000 Tickets 40000 miles
15 Years.	40000	15 Years.	40000
10 Years.	25000	10 Years.	25000
Total No. Passengers 4 line 2000 x 4	Third Class 2000 Tickets 40000 miles	Total No. Passengers 4 line 2000 x 4	Third Class 2000 Tickets 40000 miles
15 Years.	20000	15 Years.	20000
10 Years.	15000	10 Years.	15000
Total No. Passengers 4 line 2000 x 4	Fourth Class 2000 Tickets 40000 miles	Total No. Passengers 4 line 2000 x 4	Fourth Class 2000 Tickets 40000 miles
15 Years.	10000	15 Years.	10000
10 Years.	7500	10 Years.	7500
Total No. Passengers 4 line 2000 x 4	Fifth Class 2000 Tickets 40000 miles	Total No. Passengers 4 line 2000 x 4	Fifth Class 2000 Tickets 40000 miles
15 Years.	5000	15 Years.	5000
10 Years.	3750	10 Years.	3750
Total No. Passengers 4 line 2000 x 4	Sixth Class 2000 Tickets 40000 miles	Total No. Passengers 4 line 2000 x 4	Sixth Class 2000 Tickets 40000 miles
15 Years.	2500	15 Years.	2500
10 Years.	1875	10 Years.	1875
Total No. Passengers 4 line 2000 x 4	Seventh Class 2000 Tickets 40000 miles	Total No. Passengers 4 line 2000 x 4	Seventh Class 2000 Tickets 40000 miles
15 Years.	1250	15 Years.	1250
10 Years.	937	10 Years.	937
Total No. Passengers 4 line 2000 x 4	Eighth Class 2000 Tickets 40000 miles	Total No. Passengers 4 line 2000 x 4	Eighth Class 2000 Tickets 40000 miles
15 Years.	625	15 Years.	625
10 Years.	468	10 Years.	468
Total No. Passengers 4 line 2000 x 4	Ninth Class 2000 Tickets 40000 miles	Total No. Passengers 4 line 2000 x 4	Ninth Class 2000 Tickets 40000 miles
15 Years.	312	15 Years.	312
10 Years.	234	10 Years.	234
Total No. Passengers 4 line 2000 x 4	Tenth Class 2000 Tickets 40000 miles	Total No. Passengers 4 line 2000 x 4	Tenth Class 2000 Tickets 40000 miles
15 Years.	156	15 Years.	156
10 Years.	117	10 Years.	117
Total No. Passengers 4 line 2000 x 4	Eleventh Class 2000 Tickets 40000 miles	Total No. Passengers 4 line 2000 x 4	Eleventh Class 2000 Tickets 40000 miles
15 Years.	78	15 Years.	78
10 Years.	58	10 Years.	58
Total No. Passengers 4 line 2000 x 4	Twelfth Class 2000 Tickets 40000 miles	Total No. Passengers 4 line 2000 x 4	Twelfth Class 2000 Tickets 40000 miles
15 Years.	39	15 Years.	39
10 Years.	29	10 Years.	29
Total No. Passengers 4 line 2000 x 4	Thirteenth Class 2000 Tickets 40000 miles	Total No. Passengers 4 line 2000 x 4	Thirteenth Class 2000 Tickets 40000 miles
15 Years.	19	15 Years.	19
10 Years.	14	10 Years.	14
Total No. Passengers 4 line 2000 x 4	Fourteenth Class 2000 Tickets 40000 miles	Total No. Passengers 4 line 2000 x 4	Fourteenth Class 2000 Tickets 40000 miles
15 Years.	9	15 Years.	9
10 Years.	7	10 Years.	7
Total No. Passengers 4 line 2000 x 4	Fifteenth Class 2000 Tickets 40000 miles	Total No. Passengers 4 line 2000 x 4	Fifteenth Class 2000 Tickets 40000 miles
15 Years.	4	15 Years.	4
10 Years.	3	10 Years.	3
Total No. Passengers 4 line 2000 x 4	Sixteenth Class 2000 Tickets 40000 miles	Total No. Passengers 4 line 2000 x 4	Sixteenth Class 2000 Tickets 40000 miles
15 Years.	2	15 Years.	2
10 Years.	1	10 Years.	1

NATIVE PASSENGER TRAFFIC.

601

Railway figures show 4,074 in 1 month = {48,888 in 1 year
(48,500

Providing for 5 fold increase in 3 years.

do. do. 10 do. do. 10 do.

(92 miles).

New

No. of
Singles

are. 24,783

72,369

INWARD TRAFFIC.Abstract - Uganda Railway Report 1919 - 1920.

Inward to Thika 6612 tons valued at Fls. 54347.

(6500)

(54000).

Providing for threefold increase 3 years after,
do. do. tenfold do. 10 do. do.

Thika - Nyeri. 92 miles.

New Line.		Existing Railway.		Less.	
Quantity.	Earnings over 50 miles.	Quantity.	Earnings over 362 miles.	Quantity.	Earnings over 362 miles.
Tons.	Fls.	Tons.	Fls.	Tons.	Fls.
19,500 390,000 cwt.	27,771	19,500 7,612 11,888	162,000 52,036 99,434	7,612	62,566
65,000 1,300,000 cwt.	92,571	65,000 8,612 56,388	540,000 10,786 461,214	8,612	10,786

INWARD TRAFFIC.Extract - Uganda Railway Report 1919 - 1920.

Inward to Thika 6612 tons valued at Fls. 54347.

(6609)

□ (54000).

Providing for threefold increase 3 years after.

do. do. tenfold do. 10 do. do.

Thika - Nyeri. 92 miles.

New Line.		Existing Railway.		Less.	
Quantity.	Earnings over 60 miles.	Quantity.	Earnings over 362 miles.	Quantity.	Earnings over 362 miles.
Tons.	Fls.	Tons.	Fls.	Tons.	Fls.
19,800 390,000 cwts.	27,771	19,800 7,612 11,688	162,000 52,836 99,434	7,612	62,566
55,000 1,300,000 cwts.	92,571	55,000 8,612 55,388	540,000 10,786 461,214	8,612	70,766

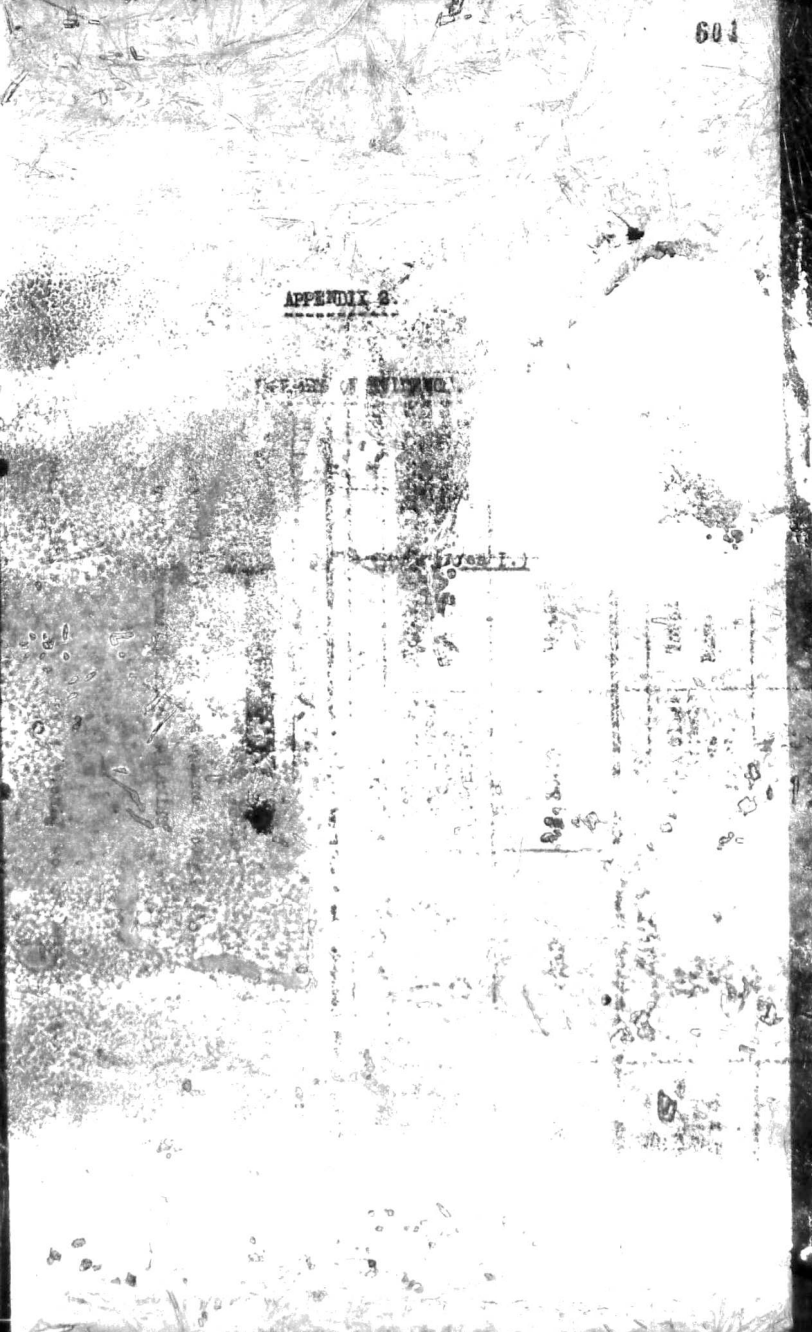
Summary of Produce and Earnings in Proposed Thika - Nyeri Railway Extension
and Estimates of Goods and Passenger Traffic, three years
and ten years after completion of line.

Products	THREE YEARS AFTER COMPLETION OF LINE			TEN YEARS AFTER COMPLETION OF LINE			
	Total Produce etc for rail	Estimated earnings on New line	Estimated earnings on increased traffic on existing line	Total Earnings	Total Produce & for rail	Estimated earnings on New line	Estimated earnings of increased traffic on existing line
Sisal	88,000 cwt	5,913	29,030	34,943	120,000	9,064	50,864
Coffee	50,000 cwt	10,281	4,456	54,737	82,000	15,598	122,081
Flax	8,000 cwt	1,745	3,530	5,276	15,000	3,492	7,250
Maize & Beans	256,714 cwt	17,534	26,116	43,750	314,018	22,002	30,180
Wheat	35,714 cwt	10,200	2,700	12,900	89,256	25,500	7,200
General Crops	100,480 cwt	8,096	27,698	35,794	168,580	15,732	55,149
Timber	10,000 tons	57,120	228,480	285,600	207,000	114,240	456,960
Cattle	1,000 No.	3,488	1,550	5,038	2,000	6,975	3,100
Sheep	10,000 No.	5,560	2,480	8,060	20,000	11,150	4,960
Hogs	3,000 No.	667	0	667	3,000	667	0
Bacon & Bacon Products	10,000 cwt	3,790	24,416	28,196	16,250	7,860	39,676
Butter	4,464 cwt	1,275	5,100	6,375	8,926	2,550	10,200
Cheese	11,161 cwt	3,188	12,750	15,938	22,322	6,375	25,500
Wool	4,464 cwt	675	7,580	8,255	8,928	1,350	15,465
Inward Traffic tons	11,868	46,326	160,384	132,664	56,386	74,376	469,214
European Traffic No.	8,000	46,666	86,200	134,366	12,000	27,666	132,300
Native Traffic No.	242,500	46,666	145,000	602,666	485,800	437,666	327,375
Total Value	Fls.	545,667	799,150	1,344,874	-	634,836	1,757,384
							4,900,250
							8,544,795

APPENDIX B.

TABLES OF RESULTS

(Year 1.)



Thika District (Area I).

Witness: Com. Lawford, R.N., Hon. Secy., and
Members of Thika District Association.

1. Soil, type and fertility.

The general line of the Railway extension lies through a country the soil of which is for the most part rich brown loam, with intervening patches of a small proportion of black soil. The portion of good land in the immediate area is of unprecedented abundance and fertility.

2. Percentage cultivated.

33% including land under native cultivation.

3. Proportion cultivable.

Estimated at from 66% to 76% but a higher figure of 80% for European and 90% native areas ^{was} afterwards agreed to. These estimates cover a belt of 20 miles each side of the proposed Railway. The red soil is all suitable for coffee and sisal while nearly all the remaining portion of black soil will grow sugar cane etc.

The native tills the whole of his cultivable land over a period of three seasons.

4. Proportion likely to be cultivated by present occupiers on advent of Railway.

The advent of the Railway will undoubtedly stimulate increased cultivation and the consensus of opinion is that the present occupiers could and would increase the cultivation as early as possible to the extent of a further 50%, but it must be remembered that the growing fact of the increased cultivation is labour and however close the railway may be, the "labour factor" must be considered unless the railway solves the problem (which it probably would) by bringing labour to its vicinity.

In the general area 50% over present production plus areas of land at present in bearing with a general figure of fivefold increase three years after completion of rail was agreed to, but no estimate given for ten years after completion of Railway.

5. Probable rate of influx of New Settlers on advent of Railway.

Before the existing Thika railway was finished all the adjoining land available was taken up and mostly cultivation started.

The present extension will pass through a much more attractive and fertile country than that between Nairobi - Thika.

How much more certain is it, therefore, that the available land will obtain occupation in a district which has now emerged from the experimental stage.

There is little doubt existing that applications for land in the Thika - Fort Hall District will in the near future be very numerous and in excess of the land available.

Large holdings would probably be subdivided to meet this contingency, a farm with an area of 500 acres being considered suitable for settlement.

6. Kinds of crops grown.

Sisal.	Coffee.
Maize.	Beans.
Flax.	Sugar Cane.
Citrus.	Wheat.

7. Probable main crops.

Sisal.	Coffee.
Maize.	Beans.
Citrus.	Wheat.

Such crops may be dealt with under 2 heads -

- (a) Red Soil.
- (b) Black Soil, and grown in the following proportions.

Under (a).	Sisal...	...	40%
	Coffee & Flax.	...	40%
	other crops...	...	20%
			<u>100%</u>
Under (b).	Maize & Beans.	...	75%
	Flax	10%
	Sugar Cane	5%
	Cereal (grain) crops.	...	10%
			<u>100%</u>

(a). Sisal would probably figure as the main crop. Larger areas under sisal are desirable in order that economy may be obtained in production.

(b). Cultivation on this type of soil would appeal to the smallholder. The large estates would give attention to it only the red soil.

8. Yield (over a period of 9 years).
- Size ave. ...
 - Beans 40 ...
 - Coffee 8 Swts. .../annum.
 - Flax 4 cwts. fl ...
 - Sugar Cane 25 Tons cane.

9. No doubt is expressed that in the areas served by the railway land is suitable for cattle raising save in the very small and isolated districts where "fly" is believed to exist.

If compulsory dipping is enforced on farms and in Reserves and "cattle running" stopped, this district offers one of the finest cattle countries in the world.

It is, however, unlikely that Stock breeding either for Dairying or Beef production will receive much attention in this district in the near future.

10. Traffic in stock for Breeding and Slaughter purposes and in Dairy Produce.

At present, for the above reasons the trade has been comparatively small.

The white settler has not, on the whole, been attracted, by reasons of Stock disease, but this is a factor which with the advent of the Railway is bound to disappear, and there is no person who cannot be sanguine of the cattle industry in this neighbourhood in the future.

Stock production will probably receive more attention on advent of the railway especially with the pig-breeder.

On an average the smaller holdings could produce 10 pigs each per annum.

Dairying would also be pursued to a small extent to supply local demands.

11. Estimates of Traffic etc.

A heavy increase in general inland traffic can be estimated.

In creased acreage under cultivation will tend to increase native passenger traffic.

An average of 1 boy to 2 acres or 3 boys to 7 acres for sisal and 3 boys to 2 acres for coffee is estimated, and that 20% of the population would travel by rail is quoted in the report.

12. Factors affecting production are mainly rainfall, labour, soil. All these are, in the main, good and therefore production is good.

Capital.

Given a climate pleasant and healthy, a good soil of high fertility, a firm rate of production and capital will come. One need only look

to the growth of B.E.A. to be assured of the influx of capital. The present owners have sufficient capital to carry out prospective development or the means of raising same provided the railway is constructed.

The opinion is expressed that the incoming partner has money or is well backed with means. The pound is affected by demand, partly by the rise and partly by the fall in the attitude of the Government. The Labour of East Africa is a wild beast to be tamed. The Government is a wild beast to be tamed. The Governor is a wild beast to be tamed. Therefore we may be assured that the pound will improve as the back of the pound market and the opening of the Tanganyika market assists our needs.

The position of the district is a favourable one in respect of labour. The prices are finally swayed by all that comprise the factors of production of the country. Save the element of deal, which opinion is qualified, successful competition in the world's markets is probable.

Nine years ago or roughly so, the Thika Tramway was completed. Many of us were in the country at the time and some shook their heads as to the advisability of such a rash and expensive step. The Thika Tramway as it is now called has only to be seen to be believed in. The Railway authorities cannot even now with a daily service and many extra goods trains deal expeditiously with what is given them to carry, whilst the

the Native passenger traffic is the not edifying sight of a wild rush to find room in the insufficient space available.

It must not be forgotten that many of these natives have walked many miles practically along the traverse of the new Railway all of whom are potential passengers for the future.

Thika District (Donya Sabuk, Area IV)

Witness: Sir Northrup McMillan on behalf of Messrs. Clay Bros., T. Deacon, Major J. O. K. Delip, Messrs. Holland & Bunderly, C. F. McCray, E. Oakley, J. T. Oulton, G. Stuart-Watt & Mrs. C. M. Vetter.

Basis of Report & Locality covered.

This report is based on the results of a circular sent to 13 of the largest land holders in the Donya Sabuk District. The land is represented by that area approximately north of Donya Sabuk between the Athi and Thika Rivers, and the land West of and bordering the Athi River immediately West and North West of Donya Sabuk.

While only ten replies have so far been received it is my opinion that a consensus of opinion is expressed as given in the following analysis.

(1) Kind of Soil and their fertility.

Black & red sand	11,200
Black sandy	6,300
Red Sandy	3,600
Grazing or Native Cultivation	26,000
Black Plain or 'Ilei' Soil	12,100

(in respect of 10 Farms) Total 59,300

(2) Proportion & Area at present cultivated.

Fruit	Acres
Coffee	79
Planted Timber	530
Meaties, Wheat &c	20
Sisal	730
Sugar	1,320
	97

(3) Proportion cultivable. 30,660 acres.

(4) Proportion likely to be cultivated by present occupiers on advent of Railway.

IF RAILWAY IS CONSTRUCTED AS NOW SURVEYED.

Likely increase of acreage of each crop within first three years after railway is completed.	Fruit	168
	Coffee	1290
	Wheat)	
	Maize)	1430
	Sisal	2100
	Sugar	1100
	(irrigable)	

likely increase of crop within 10 years.	Fruit Coffee Wheat etc. Sisal Sugar (1000 irrigable).	Acres. 200. 2500. 3200. 4200. 2400.
--	--	--

addition increase of each crop if railway is built to S.E. side of Colton's Farm.	Wheat Sugar	600. 6640. (dry)
---	----------------	------------------------

6. Probable rate of influx of new settlers on advent of railway.

on the completion of the railway other all be a very large influx of new settlers for the following reasons:

a. The distance between the Athi Hills and on the order of the Yatta Plain is placed within reasonable distance of the railway and thus occupied.

b. These soldier farms on the Yatta Plain are only suitable for Stock raising close to the railway to permit of transport and a large proportion should be reserved.

c. The Yatta Plains are of excellent soil and should be broken up into smaller holdings of 200 to 600 acres.

d. The Yatta Plains will be brought within reasonable distance of the railway and fully settled.

7. Kinds of Crops grown, or prospective, and probable main crops.

Sisal.	Coffee.	Sugar Cane.
Maize.		

7. Yield of Crops per Acre.

Sisal	1 ton per annum.
Coffee	9 cwt. do.
Sugar Cane	25 to 30 Tons (dry land).
	50 to 60 Tons (irrigated).
Maize	Bags.
Wheat	Bags.

9. Suitability for Live Stock.

The pasture in the area is excellent and there is an abundant supply of water. The grazing is good and the farms already settled should

be carrying 10,000 head of stock in addition. Bordering the Reserve, a large cattle

will arise as a result of the traffic from the Reserve to Machakos, a large number of

all of which is available for the railways. It is stated that an average of 100 trucks may pass through one station on the way. In addition there is a large proportion of which will be diverted to Kenya Sabuk on the railway.

The native passenger traffic should be estimated to be 20,000 per annum. The traffic would pass within the Railway's sphere of influence.

10. Estimates of Traffic.

No figures are given but it is stated under this heading that on the whole of the railway a great proportion of the traffic will be into the sphere of influence. At present the Reserve grows grain for purposes of home consumption seeing that the distance for marketing purposes is too great to make export worth while. If this is remedied however, it is estimated that the Reserve which comprises extremely fertile land will be cultivated to an extent as is the Kikuyu Reserve.

Many enquiries have been made by influential Indian Firms for Duka Sites on the commencement of the Railway construction and a very large grain trade is bound to spring up. The Reserve is notoriously rich in stock and the hide and stock trade would become one of great importance. The W'Kamba Reserve is a potential source of future labour especially that of skilled labour and the railway should help to advance the day when the W'Kamba takes his place with the Indian Artisan.

Effecting Production etc.

The land in the District is extremely fertile and is represented by the best soil. The soil is good, the climate healthy and labour fairly abundant while it is doubtful if a better watered tract can be found where the proportion of cultivable land is so high. The rich Yatta Plains, probably the least known and most pleasant and fertile district of the Highlands are well adapted for settlers for soil will grow almost anything except flax and sheep offers no trouble. The depletion of the soil is no doubt that the soil will be very quickly.