

(2) ドラフト説明

順日	月日	曜	調査・打合せ等
1	11・24	日	成田発 → (金井団長 11/23 ナイロビ着)
2	25	月	
3	26	火	← ナイロビ着 JICA事務所, 日本大使館表敬
4	27	水	MENR表敬, ドラフト説明
5	28	木	MENRと打合せ
6	29	金	Minutes署名 市場調査
7	30	土	資料整理 市場調査
8	12・1	日	ナイロビ発 →
9	2	月	
10	3	火	← 成田着

9-1-3 面談者リスト

(1) 基本設計現地調査

Ministry of Environment & Natural Resources (MENR)

Planning Division

W. Maluki	Head
O. Okoiti	Senior Planning Officer
N. Ndugire	Planning Officer
D. Oichoe	Planning Officer

Forest Department

O. Mburu	Chief Conservator
J. Onyango	Deputy Chief Conservator
C. Serrem	Forest Soil Research Officer
D. Maingi	Asst. Conservator
D. Mbugua	Forest Officer
S. Kaumi	Research Officer Silviculture

Kenya Agriculture Research Institute (KARI)

Forest Research Department

J. Odera	Director
C. Kirunya	Silviculturist
J. Karanja	Senior Maintenance Superintendent
P. Kokonya	Senior Engineer

Kitui District Officer

J. Maghasi	District Commissioner
G. Mallombe	Town Council Officer
J. Kaburo	District Surveyor
M. Muoyoka	Agriculture Clerk
D. Mwaura	Information Dept.
E. Mugeru	District Water Engineer
M. Kingori	District Water Engineer
M. Kamau	Ministry of Agriculture & Livestock Development
K. Waluka	District Officer
P. Macharia	Forest Dept.

Ministry of Works, Housing & Physical Planning (MOW)

Dunn	Senior Superintendent Architect
M. Ayugi	Acting Chief Architect
I. Mwiroti	Acting Chief Quantity Surveyor
M. Kinanja	Architect, Group V
M. Iida	Co-ordinator of Volunteers

Chartered Quantity Surveyor, Barker & Barton

A. Levitan	Quantity Surveyor
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Kenya Drilling Ltd.

F. Mureithi	General Manager
N. Joroge	Engineer

Ministry of Water Development

K. Nakanosono Planning & Design Div., JICA Expert
S. Sasaki Water Supply Engineer

ILRAD (International Laboratory for Research on Animal Disease)

H. Hirumi

在ケニア日本大使館

中 野 修 一等書記官
西 谷 嘉 光 二等書記官

JICA ナイロビ事務所

高 橋 昭 所 長
下 村 紀 夫
末 森 みつる

JKCAT (Jomo Kenyatta College of Agriculture and Technology)

T. Nakano Asst. Team Leader/Coordinator, JICA

National Horticultural Research Station

M. Tsuyuki Resident Engineer, Chuo Kaihatsu Corp.
T. Iwasaki Ministry of Agriculture and Livestock
Development, Macadamia Nut Project

(2) ドラフト説明

Ministry of Environment & Natural Resources

E.C. arap Lang'at	Permanent Secretary
J.M.G. Mahoro	Deputy Permanent Secretary

Planning Division

W. Maluki	Head
O. Okoiti	Senior Planning Officer
N. Ndugire	Planning Officer
D. Oichoe	Planning Officer

Forest Department

S. Mbisa	Acting Chief Conservator of Forest
Z. Amahwa	Assistant Chief Conservator of Forest

Kenya Agricultural Research Institute

Forest Research Department

J. Odera	Director
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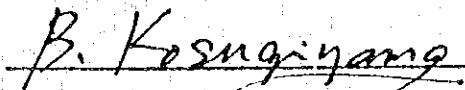
Minutes of Discussion
on
Basic Design Study on the Establishment Project
of
Nursery Training Centre for Social Forestry
in
The Republic of Kenya

In response to the request made by the Government of Republic of Kenya for Basic Design Study on the Establishment Project of Nursery Training Centre for Social Forestry (hereinafter referred to as "the Project"), the Government of Japan has sent, through the Japan International Cooperation Agency (hereinafter referred to as "JICA") which is an official agency implementing the technical cooperation of the Government of Japan, a team headed by Mr. Bun-emon Kosugiyama, head of Afforestation Div., Project Management Dept., Forest Corporation, to conduct the survey for 17 days from 14th to 30th August, 1985.

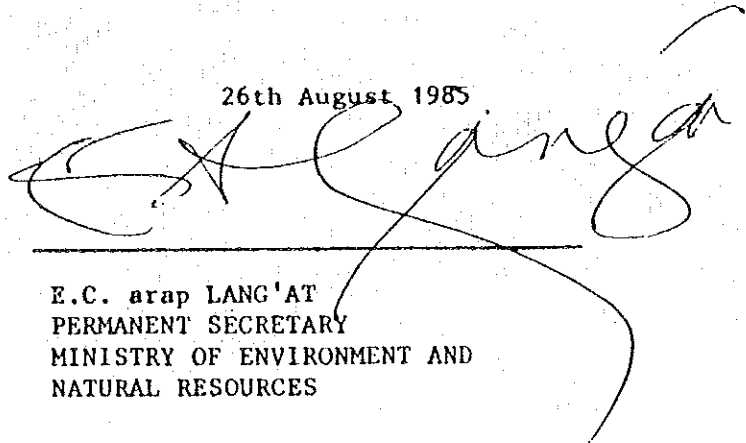
The team carried out a field survey, held a series of discussions and exchanged views with the authorities concerned of the Government of Kenya.

Both parties have agreed to recommend to their respective Governments and the authorities concerned to examine the result of the survey attached herewith toward the realisation of the Project.

26th August 1985



Bun-emon KOSUGIYAMA
Leader, Japanese Basic
Design Study Team

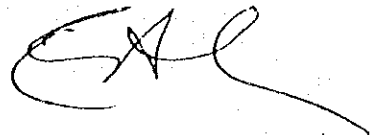


E.C. arap LANG'AT
PERMANENT SECRETARY
MINISTRY OF ENVIRONMENT AND
NATURAL RESOURCES

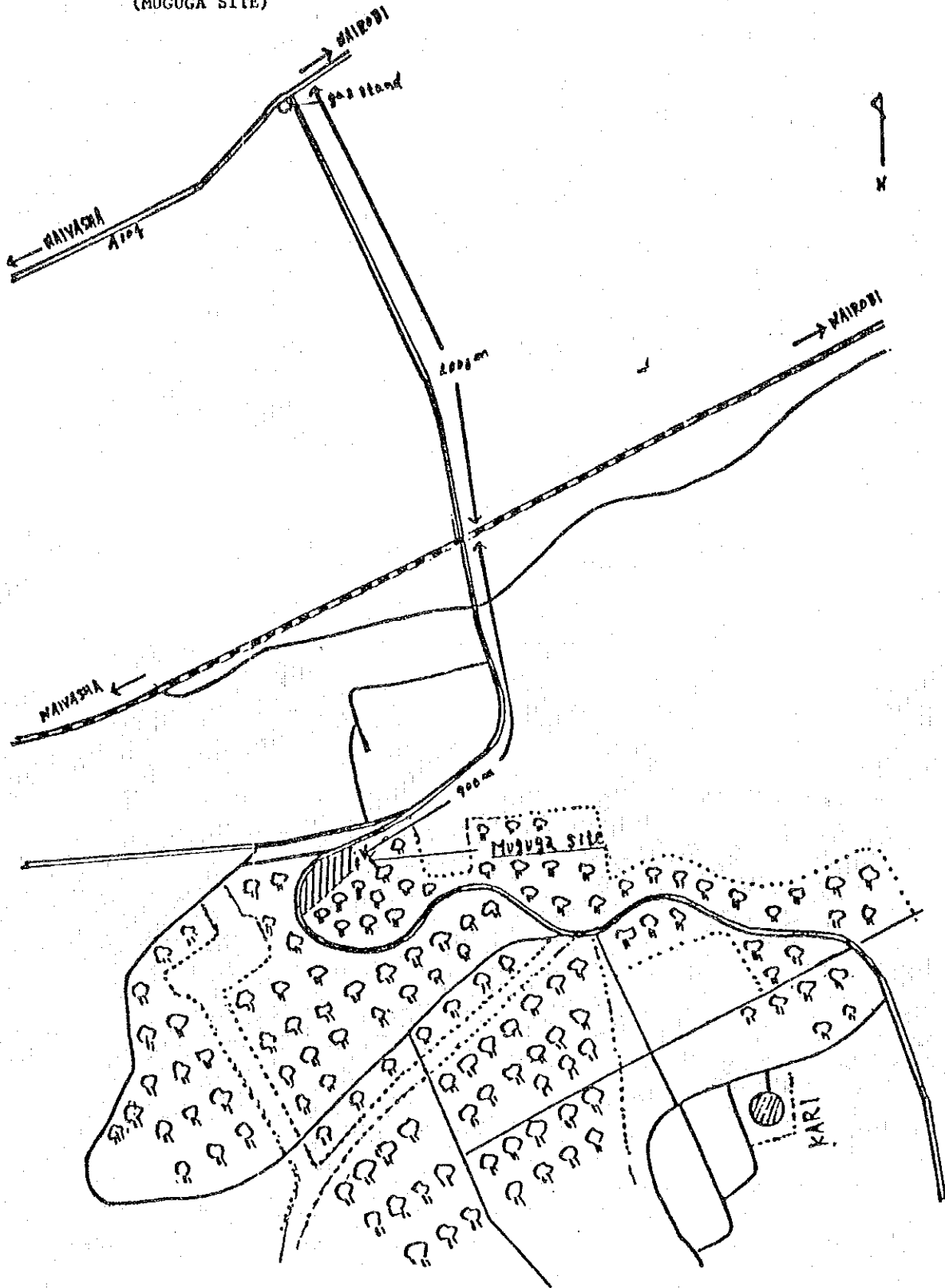
Attachments

1. The objective of the Project is to provide necessary facilities and equipment for the establishment of the Nursery Training Centre at Muguga and Kitui (hereinafter referred to as "the Centre").
2. The proposed sites for the Project are located in Muguga and Kitui shown in Annex I.
3. The basic concept for the Centre is as follows:
 - 1) The objectives of the Centre are to provide facilities and equipment for training the government staff of the Forestry Department who are expected to play a leading role in the development of "Social Forestry", and for conducting research in the development of nursery technology which is required in the course of the training activities carried out on the Centre.
 - 2) The outline of the possible training courses required for the Centre is shown in Annex II.
4. The Japanese Study Team will convey the desire of the Government of Kenya to the Government of Japan that the latter will extend Grant Aid for provision of facilities and other items as listed in Annex III within the scope of Japanese economic cooperation in grant form.
5. The Government of Kenya will take the necessary measures listed in Annex IV on condition that the Grant Aid by the Government of Japan is extended to the Project.
6. Both sides confirmed that the Japanese Study Team explained Japan's Grant Aid Programme and that the Kenyan side understood it.

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(MUGUGA SITE)



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ANNEX II

Outline of the possible training courses

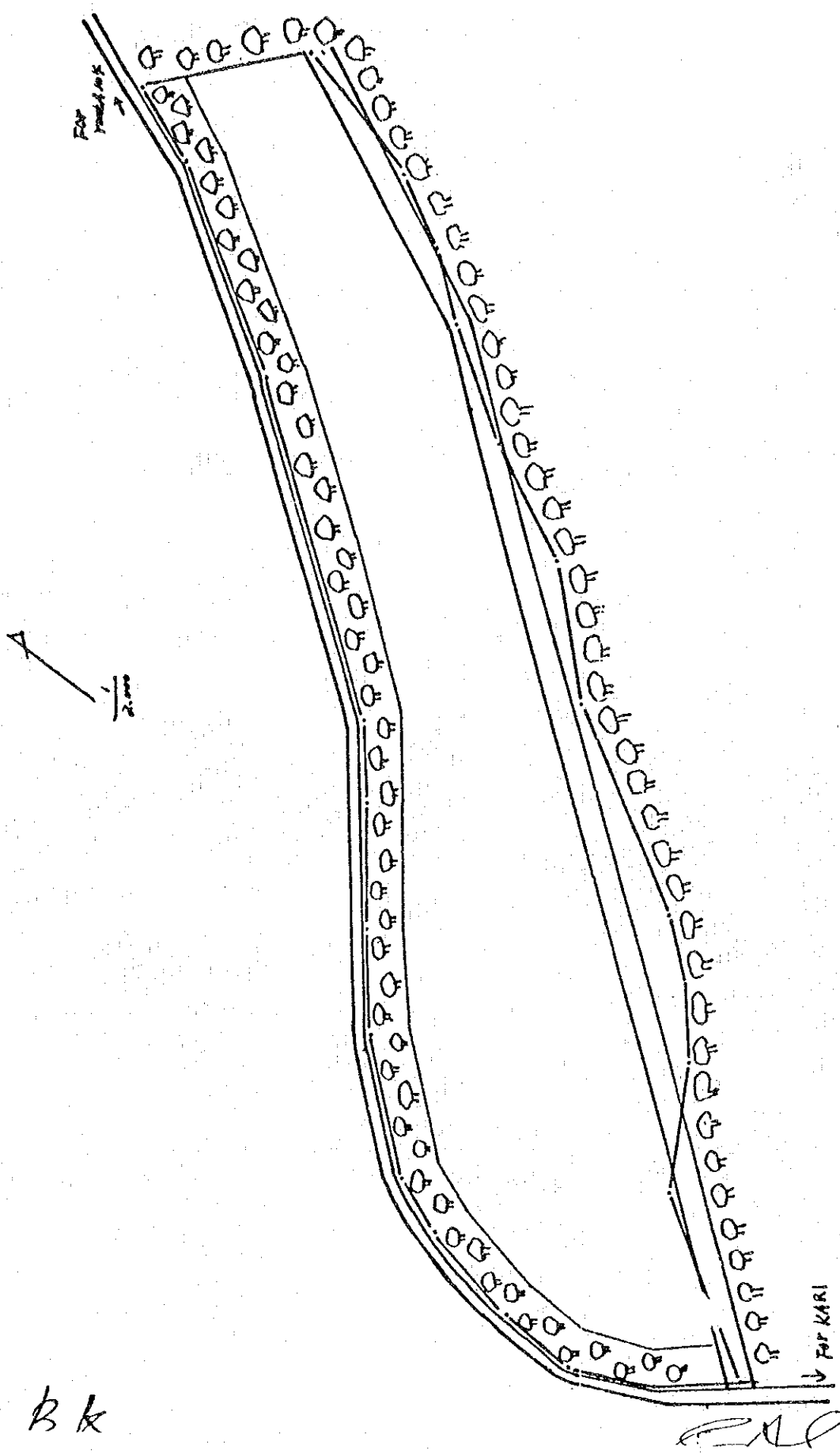
Course	The 1st quarter of year	The 2nd quarter of year	The 3rd quarter of year	The 4th quarter of year
1. Course I (Manager Level)				
2. Course II (Senior Technician)				
3. Course III (Technician)				
4. Probable Other activities				

Ref. 1.

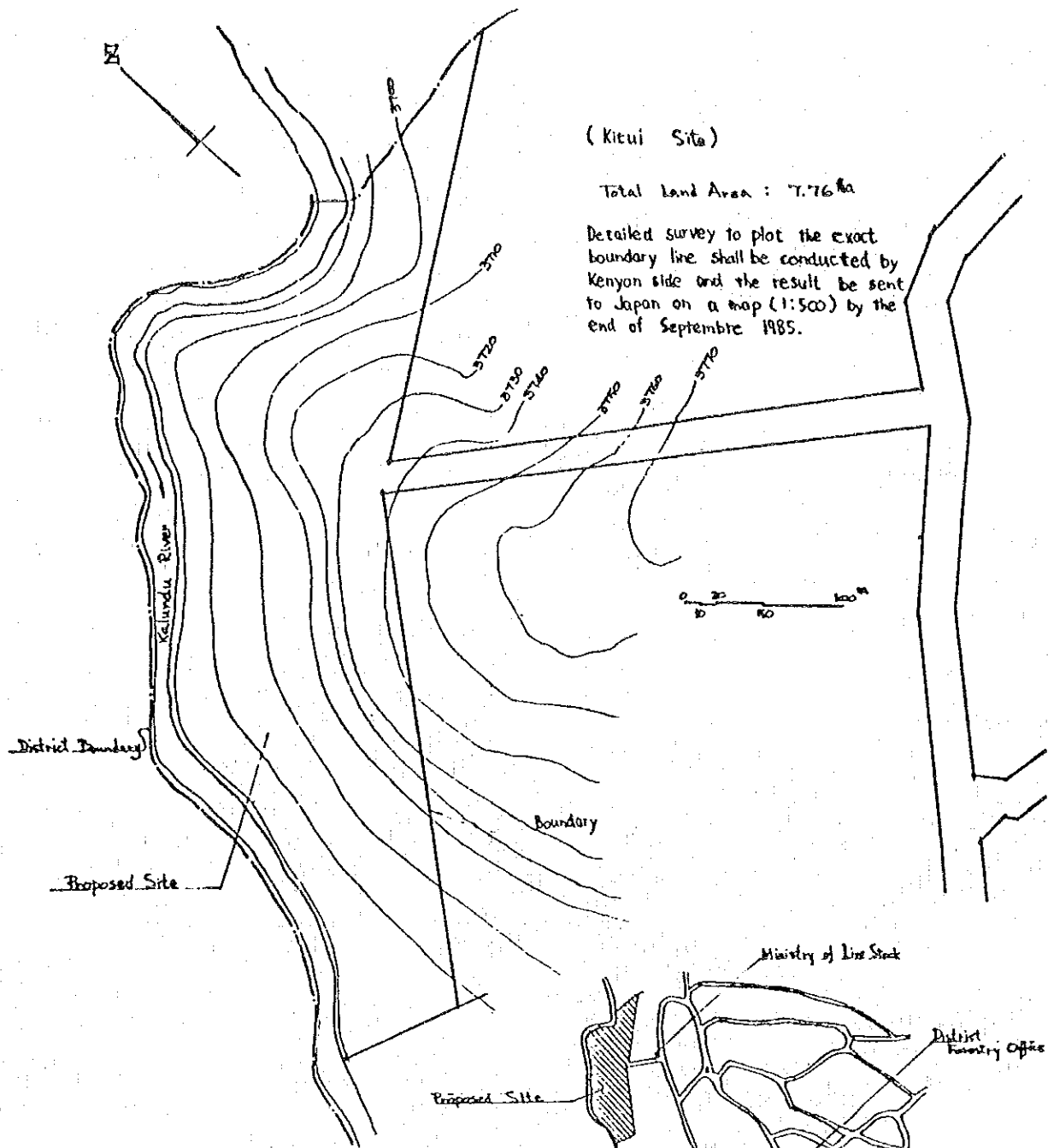
Ref. 2.. >40-----mx. 40 trainees

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(MUGUGA SITE)



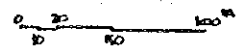
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(Kitui Site)

Total Land Area : 7.76 Ha

Detailed survey to plot the exact boundary line shall be conducted by Kenyan side and the result be sent to Japan on a map (1:500) by the end of September 1985.



Proposed Site

District Boundary

Boundary

Kallandu River

Proposed Site

Ministry of Live Stock

District Executive Office

Kanga Police Gas Station

Riverside Motel

KITUI TOWN

770 Emba
SRT
National
PP

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Annex III

Main items required by the Government of Kenya whose costs will be borne by the Government of Japan

1. Facilities

(1) Muguga

- Training facilities
- Dormitory for trainees (max. 40) and lecturers
- Laboratory
- Nursery Facilities

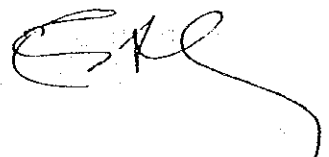
(2) Kitui

- Training facilities
- Dormitory for trainees (max. 30) and lecturers
- Nursery Facilities (including field garage)

2. Equipment

- Training equipment
- Laboratory equipment
- Others

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Annex IV

Required Arrangements to be undertaken by the Government of the Republic of Kenya

NO.	Items	Kenya	(Grant)
1	To secure the lots of land for the two sites	0	
2	To clear, level and reclaim the sites for buildings and nursery beds	0	
3	To construct the gate and fence around the site	0	
4	To construct the parking lot		(0)
5	To construct the road		
	1) Within the site		(0)
	2) Outside of the site	0	
6	To construct the building for the centre		(0)
7	To provide facilities for distribution of of electricity, water supply, drainage and other incidental facilities		
	1) Electricity		
	a. Distributing line to the site	0	
	b. Internal wiring within the site		(0)
	c. The main circuit breaker and transformer		(0)
	2) Water Supply		
	a. City water distribution main on the site	0	
	b. Supply system within the site		(0)
	3) Drainage		
	a. Drainage City main to the site	0	
	b. Drainage system within the site		(0)

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E. K

No.	Items	Kenya	(Grant)
	4) Telephone Systems		
	a. Telephone trunk line to the main distribution frame/panel (MDF) of the building	0	
	b. MDF and the extension after the frame/panel		(0)
	5) Furnitures and Equipment		
	a. General furniture	0	
	b. Training equipment for the project		(0)
	c. To install major training equipment		(0)
8	To ensure temporary electric power, water power supply and telephone available for the construction and incidental activities related to the project	0	
9	To bear the following commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement (B/A)		
	1) Advising commission of Authorization to pay (A/P)	0	
	2) Payment commission	0	
10	To ensure tax exemption prompt unloading and customs clearance at port of disembarkation in Kenya		
	1) Marine (Air) transportation of the products from Japan to Kenya		(0)
	2) Tax exemption and custom clearance of the products at the port of disembarkation	0	
	3) Internal transportation from the port of disembarkation to the project site		(0)

Bk

Signature

No.	Items	Kenya	(Grant)
11	To accord Japanese nationals whose service may be required in connection with the the supply of the products and the services under the verified contract such facilities as may be necessary for their entry into Kenya and stay therein for the performance of their work.	0	
12	To maintain and use properly and effectively the facilities constructed and equipment purchased under the Grant	0	
13	To bear all the expenses other than those to be borne by the Grant, necessary for construction of the facilities as well as for the transportation and the installation of the equipment	0	

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MINUTES OF DISCUSSIONS

ON

THE DRAFT FINAL REPORT OF THE BASIC DESIGN STUDY

ON

THE ESTABLISHMENT PROJECT OF THE NURSERY TRAINING AND
TECHNICAL DEVELOPMENT CENTRE

FOR

SOCIAL FORESTRY IN THE REPUBLIC OF KENYA

The Government of Japan has sent, through Japan International Cooperation Agency (JICA), a Basic Design Study Team to the Government of the Republic of Kenya from 26th of November to 30th of December, 1985 for the purpose of presenting and explaining the Draft Final Report of the Basic Design Study (The Report) on the Establishment Project of the Nursery Training and Technical Development Centre for Social Forestry in the Republic of Kenya (The Project).

The Team held meetings with the Kenyan Counterpart's party headed by Mr. William K. Maluki to explain and to discuss the Report.

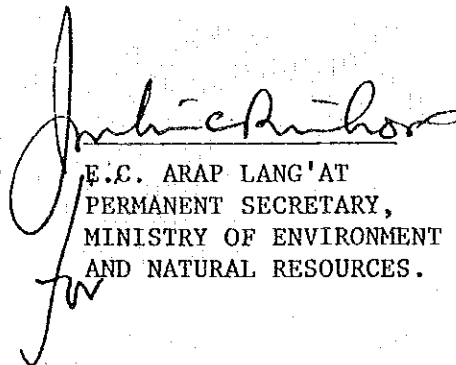
The main items which were discussed and understood by both parties at the meetings are as follows:

1. The Kenyan side principally approved the Report and alterations requested in the design (as shown in the appendix) during discussions will be considered in the Final Report.
2. The Final Report (10 copies in English) on the Project will be submitted to the Government of the Republic of Kenya by the end of January, 1986.
3. Both sides confirmed that the Kenyan side understood the System of Grant Aid Programme to be extended by the Government of Japan, especially the arrangements to be taken by the Government of the Republic of Kenya (as agreed in the Minutes of discussions on the Project dated August 26th, 1985).



SEIICHI KANAI
LEADER
JAPANESE STUDY TEAM

29TH NOVEMBER, 1985
NAIROBI, KENYA.



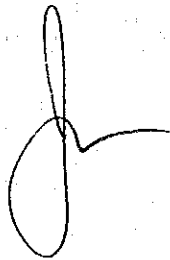
E.C. ARAP LANG'AT
PERMANENT SECRETARY,
MINISTRY OF ENVIRONMENT
AND NATURAL RESOURCES.

APPENDIX I

ADDITIONAL REQUEST FROM THE KENYAN SIDE

- (a) Conversion of the terraces (Muguga and Kitui) into recreation rooms.
- (b) General items of furniture for the laboratories, dormitories, offices, stores and the training facilities.
- (c) Additional laboratory equipments:
- (i) Ultra-violet spectrophotometer
 - (ii) Flame photometer
 - (iii) Deioniser
 - (iv) Shakers (2) glass and plastic bottle shakers.
 - (v) Makham still for Nitrogen (semi-automatic nitrogen analyser)
 - (vi) Magnetic hot stirrer
 - (vii) Heating units for nitrogen digestion.
 - (viii) Gas chromatographs
 - (ix) Pesticide analyser for analysing pesticide residues.
 - (x) Electronic stencil cutter
 - (xi) Thin layer chromatography.

S. K. ...



9-2 一般情報

9-2-1 経済データ

(1) GDPの伸び(1978~83年)

	1978	1979	1980	1981	1982	1983*
G D P (at market price)	2,049,81	2,271,85	2,632,45	3,038,58	3,399,46	3,808,72

出典 STATISTICAL ABSTRACT 1984 Central Bureau of Statistics,
Ministry of Finance and Planning Republic of Kenya.

* 予想

(2) GDP分野別シェア(1976年価格, 1980~83, 抜粋, %)

	1980	1981	1982	1983*
A 伝統経済				
林業	0.7	0.7	0.7	0.7
建設	1.6	1.5	1.5	1.5
B 貨幣経済				
農業	32.8	33.1	33.4	33.5
林業	0.5	0.5	0.5	0.5
漁業	0.2	0.2	0.3	0.3
鉱業	0.3	0.2	0.2	0.2
製造業	13.4	13.2	13.0	13.1
電気・水道	1.3	1.4	1.4	1.4
建設	4.0	4.1	3.5	3.2
商業(Trade), レストラン ホテル	10.8	10.2	9.7	9.6
輸送, 倉庫 コミュニケーション	5.9	5.7	5.7	5.9

出典 ECONOMIC SURVEY 1984. Central Bureau of Statistics, Ministry
of Finance and Planning.

* 予想

(3) 消費者物価上昇率 (ナイロビ, 1980/79~1983/82, %)

	1980/79	1981/80	1982/81	1983/82
低所得	11.8	11.7	20.6	11.6
中 "	11.6	13.8	25.9	15.1
高 "	13.0	12.3	20.3	17.0
平均	11.8	12.6	22.3	14.6

(注) 低所得グループ Ksh 699/月以下の所得
 中所得 " Ksh 700~2,499/月の所得
 上所得 " Ksh 2,500/月以上の所得

出典 ECONOMIC SURVEY 1984.

(4) 財政状態 (1979/80~1983/84,)

KEmillion

	1979/80	1980/81	1981/82	1982/83**	1983/84**	Increase 1979/80 1983/84
Current Revenue	611.0	701.5	763.1	823.2	905.9	48
Current Expenditure	546.4	685.1	825.8	975.1	990.1	81
Current Surplus	64.6	16.4	-62.7	-151.9	-84.2	-
Development Expenditure	171.9	205.2	218.5	185.5	269.5	57
External Grants	19.1	19.6	19.8	23.2	40.5	112
DEFICIT	-88.1	-169.2	-261.4	-314.3	-313.2	255
INVESTMENT EXPENDITURE—						
PURCHASE OF EQUITY ETC....						
Financial Enterprises	4.0	1.0	0.5	0.5	2.0	
Non-Financial Enterprises	5.5	4.2	6.8	5.5		
LOANS TO—						
Financial Enterprises	24.2	14.0	19.8	10.8		
Non-Financial Enterprises	14.5	47.0	30.8	10.9		
General Government	11.2	11.0	14.6	4.5	34.9	
Other	3.6	4.6	5.5	4.5		
Increase in Investment Claims	63.0	81.8	78.0	36.7	36.9	-41
TOTAL DEFICIT	-151.2	-250.9	-339.4	-351.0	-350.1	132
FINANCING OF THE DEFICIT—						
External Loans						
Long-Term Domestic Borrowing	74.7	126.8	159.6	165.4	199.8	167
SHORT-TERM BORROWING—	48.6	66.4	44.0	272.2	50.0	3
Cereals and Sugar Finance Corporation	+14.4	-17.9	-47.8	+6.6	-	
Tax Reserve Certificates	-0.2	-0.6	-	+1.2	+0.9	
Treasury Bills	-47.7	+16.1	+171.7	-36.4	+42.1	
IMF Trust Fund	8.9	3.4	-	-	-	
Advance from Central Bank	-	-	-	-	-	
NET SHORT-TERM BORROWING	-24.7	+1.1	+123.9	-28.5	+43.0	
CHANGES IN CASH BALANCES:						
INCREASE=+	-52.5	-56.7	-11.9	+58.1	-57.2	

出典 ECONOMIC SURVEY 1984.

(5) 貿易バランス

KEmillion

	1979	1980	1981	1982	1983*
EXPORTS—					
To Markets outside E. Africa	351.9	428.6	462.5	485.0	562.4
Re-exports	19.1	15.5	15.8	18.3	11.9
To Uganda and Tanzania	41.8	71.6	58.9	65.3	74.8
TOTAL	412.8	515.7	537.2	568.6	649.1
IMPORTS—					
From outside E. Africa ..	619.3	957.5	931.1	898.1	923.5
Commercial	581.8	887.6	848.1	841.1	807.1
Government	37.5	69.9	83.0	57.0	53.4
From Uganda and Tanzania	0.9	1.5	1.3	2.2	1.9
TOTAL	620.2	959.0	932.4	900.3	925.4
BALANCE OF TRADE—					
With Markets outside E. Africa	-248.3	-513.4	-452.8	-394.8	-349.2
With Uganda and Tanzania	+40.9	+70.1	+57.6	+63.1	+72.9
TOTAL	-207.4	-443.3	-395.2	-331.7	-276.3

*Provisional.

出典 ECONOMIC SURVEY 1984

(6) 対外債務の状況 (Central Government Debt Servicing Charges, 1979~83)

KEmillion

Year ending 30th June	ANNUAL DEBT SERVICING CHARGES			INTEREST AND LOAN REPAYMENT RECEIPTS			NET SERVICING CHARGES		
	Ex- ternal	In- ternal	Total*	Ex- ternal	In- ternal	Total	Ex- ternal	In- ternal	Total
1979	31.25	34.18	65.43	—	14.41	14.41	31.25	19.77	51.02
1980	41.94	36.84	78.78	—	10.65	10.65	41.94	26.19	68.13
1981	70.68	51.23	121.91	—	12.96	12.96	70.68	38.27	108.95
1982	107.58	77.21	184.79	—	12.17	12.17	107.58	65.04	172.62
1983	130.92	160.47	291.39	—	17.32	17.32	130.92	143.15	274.07

*Includes interest payments of KEmillion—
1979—42.50; 1980—48.05; 1981—68.68; 1982—118.54; 1983—145.93.

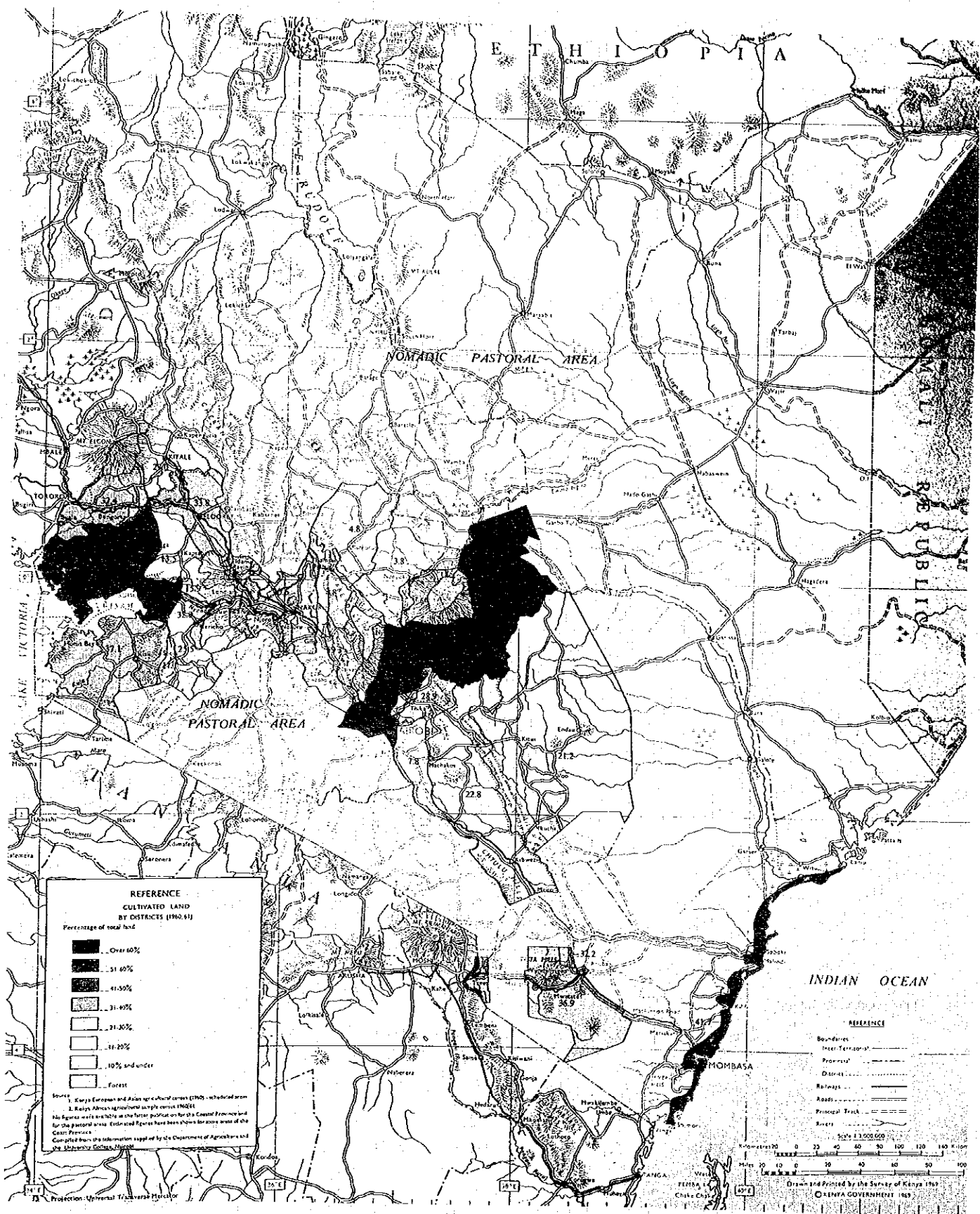
出典 ECONOMIC SURVEY 1984

(7) 替為レート

UNIT OF CURRENCY	MEAN RATES IN KENYA SHILLINGS, AS AT END OF								
	1975 December	1976 December	1977 December	1978 December	1979 December	1980 December	1981 December	1982 December	1983 December
U.S. Dollar ..	8.260	8.310	7.947	7.404	7.328	7.568	10.286	12.725	13.760
Sterling Pound	16.720	14.150	15.207	15.059	16.355	18.081	19.677	20.627	19.996
Deutschemark	3.150	3.530	3.785	4.060	4.249	3.859	4.576	5.344	5.062
French Franc ..	1.850	1.680	1.697	1.771	1.823	1.672	1.788	1.889	1.653
Swiss Franc ..	3.150	3.400	3.967	4.565	4.600	4.258	5.727	6.356	6.331
Japanese Yen	0.027	0.028	0.033	0.038	0.030	0.037	0.047	0.054	0.060

出典 STATISTICAL ABSTRACT 1982, 1984.

(8) 農耕地分布



9-2-2 林業関係データ

(1) 総エネルギー需要 (1,000 terajoules, and gigajoules per capita)

	Solids	Liquids	Gases	Primary Electricity	Traditional Fuels	Total	Per Capita
1980	1	61	—	14	251	327	20
1981	3	57	—	18	260	337	19
1982	1	47	—	18	289	355	20
1983	2	44	—	21	304	371	20

出典 Energy Statistics Yearbook 1983, U.N.

1 tera = 10¹², 1 giga = 10⁹

(2) 木炭小売価格及び他の日用品小売価格の推移 (ナイロビ 1977~1983)

Table 235

KSh./cts.

	Unit	1977		1978		1979		1980		1981		1982		1983	
		Sh.	cts.	Sh.	cts.	Sh.	cts.	Sh.	cts.	Sh.	cts.	Sh.	cts.	Sh.	cts.
Bread, white	½ kg. loaf	1	48	1	50	1	55	1	81	2	07	2	31	2	57
Butter	½ kg.	7	72	7	91	8	47	10	30	12	48	13	14	14	32
Coffee—Kenna	½ kg.	22	45	53	12	53	70	60	56	61	19	79	02	83	96
Tea Brooke Bond, Green Label	½ kg.	7	79	7	11	7	29	7	44	8	44	12	15	13	97
Sugar	1 kg.	4	50	4	50	4	50	4	50	4	84	5	75	6	30
Milk—Green Tetrapack	½ litre	1	24	1	30	1	30	1	38	1	63	1	95	2	13
Beef, Sirloin High Grade	1 kg.	15	32	19	47	19	73	25	46	25	49	32	88	39	45
Mutton, Leg "A" Grade	"	17	67	20	31	20	71	23	74	23	88	26	96	45	51
Potatoes	"	1	62	2	74	3	09	2	27	2	75	2	56	3	38
Cabbages	"	2	20	2	54	2	88	2	31	2	61	2	54	4	11
Eggs 1st Grade	1 dozen	6	35	7	43	8	02	10	71	11	58	11	98	13	78
Beer, East Africa (excluding bottle)	1 bottle	3	30	3	68	4	08	4	40	4	79	6	00	6	88
Cigarettes—Embassy	pkt. of 20	4	12	4	79	5	87	6	50	6	79	7	83	9	00
Paraffin	4 gal. tin	27	28	28	64	32	00	41	86	53	61	69	27	71	29
Petrol	1 litre	2	75	2	89	3	48	4	73	6	30	7	30	7	76
Sheets 62"×90"	1 pair	100	00	90	00	93	33	95	00	104	93	169	72	175	00
Towels 30"×60"	each	34	33	45	44	48	83	65	00	62	29	65	00	68	33
Dry Cleaning Charges:															
Gent's Suit, two pieces	1 suit	13	38	14	58	14	54	16	00	20	22	27	36	32	22
Ladies Costume†	each	9	00	11	50	14	50	16	50	21	25	30	00	40	83
Refrigerators:															
Kelvinator 77F***	each	3,791	04	4,014	17	4,216	67	5,154	17	6,338	33	8,500	00	1,200	00
Maize Flour (Posho), unsifted	1 kg.	1	51	1	45	1	46	1	65	1	65	1	92	2	30
Maize Grain	"	1	28	1	27	1	25	2	69	4	17	4	10	4	19
Wheat Flour	"	2	74	2	79	2	88	3	12	3	45	4	21	4	51
Rice, Local grade two	"	3	00	3	32	4	48	4	29	5	72	7	56	8	17
Beans mixed	"	3	79	3	37	3	59	4	99	7	57	7	58	7	15
Lake Fish, Tilapia	1 kg.*	14	54	15	69	14	65	15	92	21	75	34	99	31	97
Beef, Low Grade	1 kg.	8	20	10	13	10	52	13	00	13	22	15	60	18	44
Kimbo	250 gm.	2	87	3	10	3	36	3	50	3	57	4	35	4	77
Cigarettes—Sportsman	pkt. of 20	3	13	3	79	4	29	4	68	5	21	6	29	7	00
Printed Cotton	1 metre	15	19	19	19	22	67	24	00	24	00	29	17	39	50
Paraffin	½ litre	75		79		88		1	15	1	46	1	90	1	95
Charcoal	1 bag	16	94	18	08	24	74	28	00	37	15	53	03	56	00
Matches**	1 box	20		20		22		25		34		40		44	

Source: Central Bureau of Statistics.

*Before 1976 the unit was each.

**From 1972 onwards steamship matches.

***From 1975 onwards "Ignis".

†From 1975 onwards Ladies Dress.

出典 STATISTICAL ABSTRACT 1984

9-2-3 ケニア国側負担工事費明細

(1) 敷地整備		3,445,200円
		(Ksh)
ムグガ	$55,000 m^2 \times 2 Ksh/m^2 = 110,000$	
キツイ	$77,000 m^2 \times 2 Ksh/m^2 = 154,000$	
	計	264,000 (×13.05円/Ksh=3,445,200)

(2) ゲート、フェンス 7,386,300円

ムグガ・ゲート土工事	940
コンクリート工事	8,237
石工事	5,247
左官工事	108
門扉	52,060
	小計
	66,552

キツイ・ゲート土工事	1,024
コンクリート工事	13,450
石工事	5,777
左官工事	117
門扉	52,060
	小計
	72,428

ムグガ・フェンス	$1,200 m \times 160 Ksh/m$	192,000
キツイ・フェンス	$1,340 m \times 176 Ksh/m$	235,840
		427,840
		(566,860)

計 566,000 (×13.05円/Ksh=7,386,300)

(3) アプローチ道路 7,308,000円

キツイ	$10 m \times 280 m \times 200 Ksh/m = 560,000$
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(×13.05円/Ksh=7,308,000)

(4) 電気, 水道, 電話引込み 6,224,850円

ムグガ電気引込み	280 kVA	180,450
キツイ	”	180,450
ムグガ水道引込み		37,400
キツイ	”	69,540
ムグガ電話引込み		5,000
キツイ	”	5,000

計 477,840

→ 477,000 (×13.05円/Ksh=6,224,850)

(5) 外 灯 3,340,800円

ムグガ	10ヶ所×10,300 Ksh/ea	103,000
	(電灯, ポスト, 基礎)	
	電気工事 350 m×72 Ksh/	25,200
キツイ	10ヶ所×10,300 Ksh/ea	103,000
	(電灯, ポスト, 基礎)	
	電気工事 350 m×72 Ksh/ea	25,200

計 256,400

→ 256,000 (×13.05円/Ksh=3,340,800)

(6) ランドスケイプ 14,302,800円

ムグガ		
土工事	55,000 m ² ×5 Ksh/m ²	275,000
芝貼	16,500 m ² ×10 Ksh/m ²	165,000
植栽	200本×90 Ksh/本	18,000
キツイ		
土工事	77,000 m ² ×5 Ksh/m ²	385,000
芝貼	23,100 m ² ×10 Ksh/m ²	231,500
植栽	250本×90 Ksh/本	22,500

計 1,096,500

→ 1,096,000 (×13.05円/Ksh=14,302,800)

9-2-4 運営管理費明細

(1) 人件費の算定

	数量(名)	単 価(Ksh)	小 計(Ksh)
所 長	2	91,680	183,360
副 所 長	1	76,080	76,080
秘 書	3	13,800	41,400
主 任 研 究 員	8	68,160	545,280
研 究 員	7	43,080	301,560
研 究 助 手	24	13,800	331,200
事 務 主 任	2	43,080	86,160
事 務 員 (ドキュメント・オフィサー)	3	43,080	129,240
事 務 員 (クラーク)	4	13,800	55,200
タイピスト	5	10,620	53,100
運 転 手	5	10,620	53,100
ワーカー	78	8,700	417,600
夜 警	25	8,700	217,500
苗畑管理者	2	10,620	21,240
計			2,512,020

(2) 電気料金の算定

1年間に消費される電力について

MUGUGAの消費量		(KWH)
電灯・コンセント	$94 \text{ KVA} \times 10 \text{ H/DAY} \times 5/7 \times 365 \text{ DAY} \times 0.7$	171,550
実験用機器	$75 \text{ KVA} \times 5 \text{ H/DAY} \times 5/7 \times 365 \text{ DAY} \times 0.3 \times 1.1$	32,263
建物用設備	$110 \text{ KVA} \times 10 \text{ H/DAY} \times 365 \text{ DAY} \times 0.6 \times 1.2$	289,080
小 計		492,893

KITUIの消費量		(KWH)
電灯・コンセント	$51 \text{ KVA} \times 10 \text{ H/DAY} \times 5/7 \times 365 \text{ DAY} \times 0.7$	93,075
実験用機器	$10 \text{ KVA} \times 3 \text{ H/DAY} \times 5/7 \times 365 \text{ DAY} \times 0.3 \times 1.1$	2,581
建物用設備	$99 \text{ KVA} \times 10 \text{ H/DAY} \times 365 \text{ DAY} \times 0.6 \times 1.2$	260,172
小 計		355,828

MUGUGAの電気料

- 1) $492,893 \text{ KWH} \times 0.66 \text{ Ksh} = 325,309 \text{ Ksh}$
 - 2) fixed charge $720 \text{ Ksh} \times 12 = 8,640 \text{ Ksh}$
 - 3) demand charge $280 \text{ KVA} \times 45 \text{ Ksh} \times 12 = 151,200 \text{ Ksh}$
- ∴小計 $485,149 \text{ Ksh/YEAR}$

KITUIの電気料

- 1) $355,828 \text{ KWH} \times 0.66 \text{ Ksh} = 234,846 \text{ Ksh}$
 - 2) fixed charge $720 \text{ Ksh} \times 12 = 8,640 \text{ Ksh}$
 - 3) demand charge $160 \text{ KVA} \times 45 \text{ Ksh} \times 12 = 86,400 \text{ Ksh}$
- ∴小計 $329,886 \text{ Ksh/YEAR}$

(3) 水道料金の算定

	MUGUGA	KITUI
飲料水	$22 \text{ m}^3/\text{日} \times 365 \text{ 日} \times 5/7 \times 0.7 = 4,015 \text{ m}^3$	$17 \text{ m}^3/\text{日} \times 365 \text{ 日} \times 5/7 \times 0.7 = 3,103 \text{ m}^3$
Nursery用水	$12 \text{ m}^3/\text{日} \times 365 \text{ 日} \times 0.9 = 3,942 \text{ m}^3$	$12 \text{ m}^3/\text{日} \times 365 \text{ 日} \times 0.9 = 3,942 \text{ m}^3$
使用水量累計	$7,957 \text{ m}^3/\text{年}$	$7,045 \text{ m}^3/\text{年}$
	Nurseryで使用する水の内、上水を使用する分は、30日/年とすると、 $30 \text{ 日} \times 12 \text{ m}^3/\text{日} = 360 \text{ m}^3$	
水道料金	KARIの井戸であるため無料	$(3,103 + 360) \text{ m}^3 \times 2 \text{ Ksh} = 6,926 \text{ Ksh/年}$

(4) 発電機用油（軽油）

<MUGUGA> $5 \text{ H/月} \times 12 \text{ 月} \times 50 \text{ KVA} \times 0.7 \times 0.35 \text{ ℓ/KW} \times 5.94 \text{ Ksh} = 4,365 \text{ Ksh/年}$

(5) プロパンガス (12,000 Kcal/Kg)

<MUGUGA> 器具：オープン $47,200 \text{ Kcal/H}$
 その他 $12,000 \text{ Kcal/H}$ } $59,200 \text{ Kcal/H}$

$59,200 \text{ Kcal/H} \times 4 \text{ H} \div 12,000 \text{ Kcal/Kg} \times 365 \text{ 日} \times 0.7 \times 8 \text{ Kcal/Kg}$
 $= 40,334 \text{ Ksh/年}$

<KITUI> 器具：オープン $47,200 \text{ Kcal/H}$

$47,200 \text{ Kcal/H} \times 3.5 \text{ H} \div 12,000 \text{ Kcal/Kg} \times 365 \text{ 日} \times 0.7 \times 8 \text{ Kcal/Kg}$
 $= 28,139 \text{ Ksh/年}$

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