

KENYA POPULATION STATISTICS
(Extracted from 1979 Census Volume II - Analytical Report)

Table 1 Distribution of urban centres with population of over
2,000 by province 1969, 1979

PROVINCE	No. of urban centres		1969		1979	
	1969	1979	Total Population	Percent of total	Total Population	Percent of total
NAIROBI	1	1	509,286	47.2%	827,775	35.9%
CENTRAL	6	13	45,955	4.3%	128,932	5.6%
COAST	8	11	283,652	26.3%	406,991	17.6%
EASTERN	7	15	37,965	3.5%	233,316	10.1%
NORTH EASTERN	-	7		0.0%	60,139	2.6%
NYANZA	4	7	43,829	4.1%	207,757	9.0%
RIFT VALLEY	19	31	148,576	13.8%	338,141	14.6%
WESTERN	2	6	10,645	1.0%	105,743	4.6%
KENYA	47	91	1,079,908	100.0%	2,308,794	100.0%
TOTAL POPULATION			10,942,705		15,327,065	
URBAN AS % OF TOTAL			9.9%		15.1%	

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Table 2 Area Population and Density by Province and District
1969 and 1979

PROVINCE & DISTRICT	Area sq. km	1969			1979		
		Population	percent of total	density No./sq km	Population	percent of total	density No./sq km
NAIROBI	684	509,286	4.7%	745	827,775	5.4%	1,210
CENTRAL							
Kiambu	2,448	475,576	4.3%	194	686,290	4.5%	280
Kirinyaga	1,437	216,988	2.0%	151	291,431	1.9%	203
Muranga	2,476	445,310	4.1%	180	648,333	4.2%	262
Nyeri	3,284	360,845	3.3%	110	486,477	3.2%	148
Nyandarua	3,528	176,928	1.6%	50	233,302	1.5%	66
TOTAL IN CENTRAL	13,173	1,675,647	15.3%	127	2,345,833	15.3%	178
COAST							
Kilifi	12,414	307,568	2.8%	25	430,986	2.8%	35
Kwale	8,257	205,602	1.9%	25	288,363	1.9%	35
Lamu	6,506	22,401	0.2%	3	42,299	0.3%	7
Mombasa	210	247,073	2.3%	1,177	341,148	2.2%	1,625
Taita/Taveta	16,959	110,742	1.0%	7	147,597	1.0%	9
Tana River	38,694	50,696	0.5%	1	92,401	0.6%	2
TOTAL IN COAST	83,040	944,082	8.6%	11	1,342,794	8.8%	16
WESTERN							
Bungoma	3,077	345,226	3.2%	112	503,935	3.3%	164
Busia	1,626	200,486	1.8%	123	297,841	1.9%	183
Kakamega	3,495	782,586	7.2%	224	1,030,882	6.7%	295
TOTAL IN WESTERN	8,198	1,328,298	12.1%	162	1,832,658	12.0%	224
TOTAL COUNTRY	564,163	10,942,705	100.0%	19	15,327,065	100.0%	27

Table 2 contd. Area Population and Density by Province and District
1969 and 1979

PROVINCE & DISTRICT	Area sq. km	1969			1979		
		Population	percent of total	density No./sq km	Population	percent of total	density No./sq km
EASTERN							
Embu	2,714	178,912	1.8%	66	263,173	1.7%	97
Isiolo	25,605	30,135	0.3%	1	43,478	0.3%	2
Kitui	29,368	342,953	3.1%	12	464,283	3.0%	16
Machakos	14,178	707,214	6.5%	50	1,022,522	6.7%	72
Marsabit	73,952	51,581	0.5%	1	96,216	0.6%	1
Keru	9,922	596,506	5.5%	60	830,179	5.4%	84
TOTAL IN EASTERN	155,759	1,907,301	17.4%	12	2,719,851	17.7%	17
NORTH EASTERN							
Garissa	43,931	64,521	0.6%	1	128,867	0.8%	3
Mandera	26,470	95,006	0.9%	4	105,609	0.7%	4
Wajir	56,501	86,230	0.8%	2	139,319	0.9%	2
TOTAL IN NORTH EASTERN	126,902	245,757	2.2%	2	373,795	2.4%	3
NYANZA							
Kisii	2,196	675,041	6.2%	307	869,512	5.7%	396
Kisumu	2,093	400,643	3.7%	191	482,327	3.1%	230
Siaya	2,522	383,188	3.5%	152	474,516	3.1%	188
South Nyanza	5,714	663,173	6.1%	116	817,601	5.3%	143
TOTAL IN NYANZA	12,525	2,122,045	19.4%	169	2,643,956	17.3%	211
RIFT VALLEY							
Baringo	9,885	161,741	1.5%	16	203,793	1.3%	21
Elgeyo Marakwet	2,279	159,265	1.5%	70	148,868	1.0%	65
Kajiado	19,605	85,903	0.8%	4	149,005	1.0%	8
Kericho	3,931	479,135	4.4%	122	633,348	4.1%	161
Laikipia	9,718	66,506	0.6%	7	134,524	0.9%	14
Nakuru	5,769	290,853	2.7%	50	522,709	3.4%	91
Nandi	2,745	209,068	1.9%	76	299,319	2.0%	109
Narok	16,115	125,219	1.1%	8	210,306	1.4%	13
Samburu	17,521	69,519	0.6%	4	76,908	0.5%	4
Trans Nzola	2,078	124,361	1.1%	60	259,503	1.7%	125
Turkana	61,768	165,225	1.5%	3	142,702	0.9%	2
Uasin Gisbu	3,378	191,036	1.7%	57	300,766	2.0%	89
West Pokot	9,090	82,458	0.8%	9	158,652	1.0%	17
TOTAL IN RIFT VALLEY	163,882	2,210,289	20.2%	13	3,240,403	21.1%	20

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Table 3 PROJECTION OF TOTAL POPULATION 1980-2000
(Extracted from Population Projections for Kenya, 1980-2000)

YEAR	POPULATION (MILLIONS)	ANNUAL GROWTH (%)
1980	16.667	
1981	17.342	
1982	18.035	
1983	18.748	
1984	19.482	
1985	20.241	
1986	21.021	
1987	21.846	
1988	22.657	
1989	23.513	
1990	24.397	3.88
1991	25.308	
1992	26.247	
1993	27.214	
1994	28.211	
1995	29.237	
1996	30.292	
1997	31.375	
1998	32.487	
1999	33.626	
2000	34.972	3.67

*'89 Census to be conducted in August 1989

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GROSS NATIONAL PRODUCT AT CURRENT PRICES, 1985-1988

Table 2.8 KEmillion (1KE=20Ksh)

	1985	1986	1987	1988*
FACTOR INCOMES—				
A. Non-Monetary Economy	245.94	281.45	332.79	394.85
B. 1. Remuneration of Employees:				
Enterprises	1,132.20	1,277.07	1,485.04	1,725.38
Private Households	51.78	62.94	70.59	79.23
Producers of Government Services	610.98	750.91	840.44	936.83
TOTAL	1,794.96	2,090.92	2,396.07	2,791.44
2. Rental Surplus (including depreciation)	239.90	258.23	303.89	355.93
3. Other Operating Surplus (including depreciation)	2,093.82	2,453.38	2,617.15	3,009.98
TOTAL MONETARY ECONOMY	4,128.68	4,802.53	5,317.11	6,157.35
TOTAL FACTOR INCOMES=GROSS DOMESTIC PRODUCT (AT FACTOR COST)	4,374.62	5,083.98	5,649.90	6,552.20
Add: Indirect Taxes	619.65	759.79	911.57	1,081.92
Deduct: Subsidies	0.99	0.58	0.67	0.15
GROSS DOMESTIC PRODUCT AT MARKET PRICES	4,993.28	5,843.19	6,560.80	7,633.97
Add: FACTOR INCOMES RECEIVED FROM ABROAD	35.62	29.99	30.75	17.85
Deduct: FACTOR INCOMES PAID ABROAD	218.86	239.15	282.24	327.81
GROSS NATIONAL PRODUCT	4,810.04	5,634.03	6,309.31	7,324.01

*Provisional.

Economic Survey 1989

Table 1.1: Growth Rates of Real Gross Domestic Product (GDP), 1964-87*

Year	Agriculture	Manufacture	Government Services	Others	Total GDP
1964-71**	4.2	8.2	9.8	5.9	6.5
1972	7.6	7.3	12.8	3.6	6.8
1973	4.4	14.4	6.3	1.0	4.1
1974	-0.2	5.9	6.8	4.0	3.1
1975	4.6	4.0	8.5	-0.01	3.1
1976	3.7	14.0	5.1	2.0	4.2
1977	9.5	16.0	5.1	5.1	8.2
1978	8.9	12.5	6.4	8.4	7.9
1979	-0.3	7.6	7.1	7.7	5.0
1980	0.9	5.2	5.6	5.2	3.9
1981	6.1	3.6	5.3	6.9	6.0
1982	11.2	2.2	3.8	1.4	4.8
1983	1.6	4.5	4.2	1.5	2.3
1984	-3.9	4.3	2.9	2.7	0.8
1985	3.7	4.5	4.2	1.5	4.8
1986	4.9	5.8	6.3	5.4	5.5
1987	3.8	5.7	5.7	4.9	4.8

* 1964 prices for 1964 to 1971 and 1982 prices for 1972 onwards.

** There were extensive revisions in major series affecting GDP calculations in 1972. Any linkages between 1964 and 1982 based series should therefore be interpreted with these revisions in mind.

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GROSS DOMESTIC PRODUCT, 1984-1988

Kilillion

Table 21

	CURRENT PRICES					CONSTANT (1982) PRICES				
	1984	1985	1986	1987	1988*	1984	1985	1986	1987	1988*
A. NON-MONETARY ECONOMY										
Forestry	28.36	32.01	34.19	40.38	45.45	23.21	23.34	24.88	25.70	26.55
Fishing	1.25	1.45	1.80	1.55	2.11	1.29	1.66	1.45	1.50	1.54
Building and Construction	62.65	75.97	78.76	88.91	99.19	54.01	64.11	56.80	58.01	59.60
Water Collection	24.89	25.04	29.83	32.52	34.38	20.34	21.14	21.95	22.80	23.69
Ownership of Dwellings	99.34	107.45	135.87	169.13	213.69	79.55	82.65	86.07	89.33	92.89
TOTAL NON-MONETARY ECONOMY	216.49	245.94	281.45	332.79	394.85	178.40	192.90	191.15	197.34	204.27
B. MONETARY ECONOMY										
1. Enterprises and Non-Profit Institutions										
Agriculture	1,244.34	1,357.17	1,598.05	1,669.26	1,902.67	941.05	975.59	1,020.39	1,062.57	1,109.26
Forestry	27.99	27.35	30.65	34.65	41.22	24.84	23.69	24.04	26.18	29.37
Fishing	10.34	12.09	15.09	17.50	17.94	8.05	9.43	9.59	10.93	12.27
Mining and Quarrying	8.51	9.97	11.45	13.27	13.69	7.41	8.11	8.40	9.12	10.15
Manufacturing	450.56	518.40	608.23	690.14	797.56	405.84	424.07	445.67	474.34	502.80
Building and Construction	132.55	161.41	176.19	212.93	302.36	105.72	110.19	114.72	120.26	126.51
Electricity and Water**	33.57	44.53	48.87	58.26	66.66	26.21	26.16	28.37	31.18	33.88
Trade, Restaurants and Hotels**	439.67	511.84	559.44	628.25	714.58	332.60	355.22	369.98	412.53	436.27
Transport, Storage and Communications	235.85	264.11	303.23	345.70	366.96	202.29	206.54	215.42	224.90	234.02
Finance, Insurance, Real Estate and Business Services	269.00	314.85	365.22	418.65	501.83	222.50	244.51	261.02	274.52	291.27
Ownership of Dwellings**	218.31	239.90	258.23	303.89	355.93	187.98	191.20	199.25	205.63	212.20
Other Services**	107.27	129.58	153.72	181.66	197.92	94.20	99.10	104.05	111.74	119.72
Less: Imputed Bank Service Charges	-120.18	-130.64	-150.24	-172.83	-195.79	-99.40	-102.97	-105.94	-113.43	-121.81
TOTAL	3,068.19	3,460.56	3,983.14	4,400.58	5,083.93	2,459.29	2,572.84	2,720.96	2,850.47	2,995.91
2. PRIVATE HOUSEHOLDS (DOMESTIC SERVICES)	44.83	51.78	62.94	70.59	79.23	37.16	39.74	41.32	47.82	52.11
3. PRODUCERS OF GOVERNMENT SERVICES										
Public Administration	101.01	117.96	143.79	166.24	209.85	..	..	..	..	..
Defence	17.42	16.35	13.17	25.48	27.91	..	..	..	..	..
Education	240.12	292.78	373.26	412.19	481.61	..	..	..	..	..
Health	56.56	65.85	77.51	85.45	93.73	..	..	..	..	..
Agricultural Services	37.29	42.03	43.21	44.31	48.44	..	..	..	..	..
Other Services	67.82	81.37	100.51	111.27	132.65	..	..	..	..	..
TOTAL	522.22	616.34	756.45	845.94	994.19	473.13	497.26	528.70	554.13	588.16
TOTAL MONETARY ECONOMY	3,635.29	4,128.68	4,802.53	5,317.11	6,157.35	2,969.58	3,109.84	3,293.01	3,452.42	3,634.18
TOTAL NON-MONETARY AND MONETARY ECONOMY	3,851.78	4,374.62	5,083.93	5,649.90	6,552.20	3,147.93	3,302.74	3,484.16	3,649.76	3,838.45
GROSS DOMESTIC PRODUCT PER CAPITA	197.73	216.14	241.86	288.81	329.15	161.60	163.18	165.75	167.19	169.39

*Provisional.

**Estimates have been revised. These revisions, however, have had minimal impact on the annual growth rates.

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TOTAL EXPORTS* BY BROAD ECONOMIC CATEGORY, 1984-1988

Table 7.5 K£million

	1984	1985	1986	1987	1988**
1. Food and Beverages	467.06	492.71	646.77	451.85	546.36
Primary	420.70	446.17	598.61	402.81	492.57
For Industry	203.58	233.25	391.88	196.97	248.00
For Household Consumption	212.12	212.92	206.73	205.84	244.58
Processed	46.37	46.54	48.16	49.04	53.78
For Industry	3.79	1.66	2.11	3.03	5.49
For Household Consumption	42.58	44.88	46.05	46.01	48.30
2. Industrial Supplies (Non-Food)	113.21	128.14	146.71	147.20	194.38
Primary	58.68	64.05	78.01	85.04	113.71
Processed	54.53	64.08	68.70	62.16	80.66
3. Fuel and Lubricants	142.19	126.51	106.85	101.20	118.34
Primary	0.01	0.01	0.02	0.03	—
Processed	142.18	126.50	106.82	101.18	118.34
Motor Spirit	31.91	27.05	24.39	24.56	25.45
Other	110.26	99.45	82.43	76.62	92.89
4. Machinery and other Capital Equipment	2.16	2.63	4.17	4.06	5.61
Machinery and Other Capital Equipment	1.85	2.16	3.16	3.36	4.55
Parts and Accessories	0.30	0.48	1.01	0.70	1.06
5. Transport Equipment	1.24	1.57	3.23	4.14	5.34
Passenger Motor Vehicles	—	—	0.27	0.38	0.09
Other	0.14	0.37	0.72	0.89	1.63
Industrial	0.14	0.34	0.68	0.78	1.61
Non-Industrial	—	0.03	0.04	0.11	0.02
Parts and Accessories	1.10	1.19	2.24	2.87	3.63
6. Consumer Goods not elsewhere specified	28.42	33.37	49.95	44.72	47.52
Durable	0.53	0.64	5.13	1.30	1.36
Semi-Durable	7.11	10.37	12.40	9.13	12.71
Non-Durable	20.78	22.36	32.42	34.29	33.45
7. Goods not elsewhere Specified	0.54	0.17	0.29	0.24	0.18
TOTAL	754.81	785.10	957.97	753.41	917.72
PERCENTAGE SHARES:					
1. Food and Beverages	61.9	62.8	67.5	60.0	59.5
2. Industrial Supplies (Non-Food)	15.0	16.3	15.3	19.5	21.2
3. Fuel and Lubricants	18.8	16.1	11.2	13.4	12.9
4. Machinery and other Capital Equipment	0.3	0.3	0.5	0.6	0.6
5. Transport Equipment	0.1	0.2	0.3	0.6	0.6
6. Consumer Goods not elsewhere specified	3.8	4.3	5.2	5.9	5.2
7. Goods not elsewhere specified	0.1	—	—	—	—
TOTAL	100.0	100.0	100.0	100.0	100.0

*Excluding Re-exports.

**Provisional.

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BALANCE OF TRADE, 1984-1988

Table 7.1 K£million

	1984	1985	1986	1987	1988*
EXPORTS—					
Domestic Exports	754.81	785.10	957.97	753.41	917.72
Re-exports	22.09	26.33	28.88	36.45	34.16
Total	776.91	811.43	986.85	789.86	951.88
IMPORTS—					
Commercial	1,050.22	1,153.98	1,276.03	1,346.33	1,654.45
Government	46.99	42.02	61.87	84.56	110.70
TOTAL	1,097.21	1,196.00	1,337.89	1,430.88	1,765.15
BALANCE OF TRADE	-320.30	-384.57	-351.04	-641.02	-813.27

*Provisional.

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TOTAL IMPORTS BY BROAD ECONOMIC CATEGORY, 1984-1988

Table 7.9 K\$million

	1984	1985	1986	1987	1988*
1. Food and Beverages	127.58	109.00	116.21	98.10	100.97
<i>Primary</i>	83.41	50.74	37.01	35.34	28.82
For Industry	77.06	34.49	21.50	21.63	13.95
For Household Consumption	6.35	16.25	15.51	13.71	14.87
<i>Processed</i>	44.18	58.26	79.20	62.76	72.14
For Industry	37.89	45.13	42.02	40.68	60.21
For Household Consumption	6.29	13.13	37.18	22.07	11.93
2. Industrial Supplies (Non-Food)	289.14	353.33	407.97	468.97	641.60
<i>Primary</i>	15.30	13.59	14.70	16.51	21.86
<i>Processed</i>	273.84	339.73	393.27	452.46	619.74
3. Fuel and Lubricants	332.43	376.19	238.55	282.42	245.91
<i>Primary</i>	295.78	347.96	210.45	248.27	215.75
<i>Processed</i>	36.65	28.23	28.07	34.15	30.17
Motor Spirit	4.05	4.69	5.81	3.15	5.93
Other	32.59	23.55	22.27	31.00	24.24
4. Machinery and other Capital Equipment	184.89	180.19	254.46	319.67	414.27
<i>Machinery and Other Capital Equipment</i>	129.14	124.44	181.00	214.76	259.57
<i>Parts and Accessories</i>	55.75	55.76	73.46	104.91	154.70
5. Transport Equipment	113.46	122.16	259.61	190.72	267.19
<i>Passenger Motor Vehicles</i>	13.21	19.35	28.94	34.61	43.24
<i>Other</i>	59.52	56.60	164.84	90.84	137.98
Industrial	58.40	55.39	162.50	87.93	132.44
Non-Industrial	1.13	1.21	2.35	2.86	5.54
<i>Parts and Accessories</i>	40.73	46.20	65.83	65.27	85.98
6. Consumer Goods not elsewhere specified	47.40	53.96	59.79	70.60	93.91
<i>Durable</i>	9.90	10.60	10.03	12.22	20.96
<i>Semi-Durable</i>	8.77	10.61	9.44	11.76	16.66
<i>Non-Durable</i>	28.74	32.76	40.32	46.63	56.29
7. Goods not elsewhere Specified	2.30	1.18	1.30	0.41	1.30
TOTAL	1,097.21	1,196.00	1,337.89	1,430.88	1,765.14
PERCENTAGE SHARES:					
1. Food and Beverages	11.6	9.1	8.7	6.9	5.7
2. Industrial Supplies (Non-Food)	26.4	29.5	30.5	32.8	36.4
3. Fuel and Lubricants	30.3	31.5	17.8	19.7	13.9
4. Machinery and other Capital Equipment	16.9	15.1	19.0	22.4	23.5
5. Transport Equipment	10.3	10.2	19.4	13.3	15.1
6. Consumer Goods not elsewhere specified	4.3	4.5	4.5	4.9	5.3
7. Goods not elsewhere specified	0.2	0.1	0.1	—	0.1
TOTAL	100.0	100.0	100.0	100.0	100.0

*Provisional.

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SELECTED IMPORTS, 1984-1988

Table 7.10 K\$million

	1984	1985	1986	1987	1988*
Crude Petroleum	292.42	344.12	207.83	245.06	210.43
Industrial Machinery (including Electrical)	173.58	164.64	236.68	278.21	395.45
Iron and Steel	62.98	64.77	64.44	84.49	120.64
Motor Vehicle and Chassis	55.08	63.78	88.01	107.77	138.06
Petroleum Products refined	35.74	27.88	27.89	33.78	30.02
Artificial Resins and Plastic Materials, and Cellulose Esters and Ethers	33.01	37.41	41.42	56.36	80.92
Pharmaceuticals	19.96	23.31	32.67	38.22	43.73
Fertilizers	13.89	52.03	50.01	38.96	49.18
Agricultural Machinery and Tractors	11.04	13.80	19.66	26.70	29.48
Wheat	20.81	19.07	12.06	17.51	10.00
Paper and Paper Products	9.36	15.73	20.93	21.84	36.22
Rice	0.05	0.10	12.31	5.33	2.71

*Provisional.

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QUANTITY AND VALUE OF IMPORTS AND EXPORTS OF PETROLEUM PRODUCTS, 1984-1988

Table 101

	QUANTITY (000 TONNES)					VALUE (KES/M)				
	1984	1985	1986	1987	1988*	1984	1985	1986	1987	1988*
IMPORTS—										
Crude Petroleum	1,874.3	1,980.7	2,006.0	2,130.5	2,041.8	292.42	349.27	207.83	248.52	217.94
Petroleum Fuels	100.6	51.9	105.4	92.3	106.8	21.12	12.57	15.89	14.39	18.43
Lubricating Oils	33.4	35.0	26.0	46.0	38.2	12.54	13.41	9.64	15.41	12.77
Lubricating Greases	0.1	0.1	0.5	2.3	0.1	0.09	0.14	0.46	2.38	0.95
TOTAL	2,010.4	2,067.7	2,137.9	2,271.1	2,186.9	326.17	375.39	233.82	280.70	250.09
EXPORTS—										
Petroleum Fuels	685.3	596.8	804.5	571.9	689.9	131.71	108.58	116.94	95.43	109.16
Lubricating Oils	15.7	14.8	11.0	6.5	6.9	9.43	9.12	7.01	4.88	5.38
Lubricating Greases	0.4	0.3	0.3	0.4	0.5	0.30	0.33	0.26	0.43	0.51
TOTAL	702.4	611.9	815.8	578.8	697.3	141.50	118.03	124.21	101.74	115.05
NET BALANCE	1,308.0	1,455.8	1,322.1	1,692.3	1,489.6	184.67	257.36	109.61	178.96	135.04

*Provisional.

Economic Survey 1989

Appendix-7

PERCENTAGE INCREASES IN NAIROBI CONSUMER PRICES*, 1985/84-1988/87

Table 4.15

Income Group	1985/84	1986/85	1987/86	1988/87
Nairobi Lower Income Index	13.0	4.0	5.1	8.3
Nairobi Middle Income Index	11.1	7.7	8.3	12.0
Nairobi Upper Income Index	8.0	5.3	7.2	11.8
Average Increases for 12 Months	10.7	5.7	7.1	10.7

*For the purpose of the index:

1. The lower income group comprises households with monthly earnings below KSh. 699.
2. The middle income group comprises households with monthly earnings between KSh. 700-KSh. 2,479
3. The upper income group comprises households with monthly earnings of KSh. 2,500 and above.

Economic Survey 1989

NAIROBI CONSUMER PRICE INDICES, 1984-1988

Table 4.16

Income Group/Year	Food	Rent	Others	All Groups
LOWER INCOME—				
1984	283.2	365.8	290.9	315.2
1985	337.6	413.6	326.7	356.3
1986	348.4	429.9	344.5	370.4
1987	361.5	452.1	369.7	389.4
1988	388.9	489.7	402.9	421.8
MIDDLE INCOME—				
1984	269.8	332.7	299.4	295.4
1985	306.3	369.6	327.0	328.2
1986	311.8	398.0	359.4	353.5
1987	326.4	431.3	394.9	383.0
1988	356.3	482.8	443.6	428.8
UPPER INCOME—				
1984	283.4	299.3	309.8	298.9
1985	317.2	323.2	331.2	322.8
1986	324.2	340.1	354.4	339.8
1987	348.8	366.6	375.7	366.2
1988	374.1	409.9	425.4	409.5

Economic Survey 1989

CONSUMER PRICE INDICES* FOR MOMBASA, KISUMU AND NAKURU, 1984-1988

Table 4.17

1976=100

Year		Mombasa	Kisumu	Nakuru
1984	Annual Average	268.6	261.2	257.0
1985	Annual Average	283.8	286.3	276.0
1986	Annual Average	291.9	295.5	282.9
1987	Annual Average	316.5	327.2	301.6
1988	March	333.5	342.0	320.0
	June			
	September	355.7	361.5	334.0
	December	369.2	365.5	341.1
	Annual Average	352.2	356.1	331.6

*These indices refer to households in the lower/middle income groups and exclude rent.

Economic Survey 1989

CIVIL ENGINEERING—COST INDEX
DECEMBER, 1972 = 100

BUILDING

Table 116 (d)

INPUT	1984			1985			1986			1987			
	Dec.	March	June	Sept.	Dec.	March	June	Sept.	Dec.	March	June	Sept.	Dec.
	1. Sand	384.6	384.6	384.6	384.6	384.6	384.6	384.6	384.6	384.6	384.6	384.6	384.6
2. Aggregate	323.5	323.5	352.9	352.9	441.2	441.2	441.2	441.2	441.2	441.2	441.2	441.2	441.2
3. Cement	481.8	616.3	616.3	616.3	616.3	616.3	616.3	616.3	616.3	616.3	616.3	616.3	616.3
4. Hydrated Lime	405.1	405.1	405.1	405.1	405.1	405.1	405.1	405.1	405.1	405.1	405.1	405.1	405.1
5. Timber	435.0	435.0	538.6	538.6	538.6	538.6	538.6	538.6	538.6	538.6	538.6	538.6	538.6
6. (a) Concrete Pipes	573.5	645.2	645.2	645.2	645.2	645.2	645.2	645.2	645.2	645.2	645.2	645.2	645.2
6. (b) Concrete Precast Products	400.0	440.0	440.0	440.0	440.0	440.0	440.0	440.0	440.0	440.0	440.0	440.0	440.0
7. Concrete Products	547.5	614.4	614.4	614.4	614.4	614.4	614.4	614.4	614.4	614.4	614.4	614.4	614.4
8. (i) Explosives	1,034.8	1,053.0	945.8	1,090.7	1,090.7	1,090.7	1,090.7	1,090.7	1,090.7	1,090.7	1,090.7	1,090.7	1,090.7
8. (ii) Fuel	753.8	753.8	753.8	753.8	753.8	753.8	753.8	753.8	753.8	753.8	753.8	753.8	753.8
8. (iii) Bitumen	932.0	932.0	932.0	932.0	932.0	932.0	932.0	932.0	932.0	932.0	932.0	932.0	932.0
8. (iv) Lubricants	485.0	485.0	485.0	485.0	485.0	485.0	485.0	485.0	485.0	485.0	485.0	485.0	485.0
9. Fuels, Bitumen and Lubricants	733.2	733.2	733.2	733.2	733.2	733.2	733.2	733.2	733.2	733.2	733.2	733.2	733.2
9. (i) Reinforcement Steel	539.7	539.7	539.7	539.7	539.7	539.7	539.7	539.7	539.7	539.7	539.7	539.7	539.7
9. (ii) Structural Steel	1,347.8	1,347.8	1,347.8	1,347.8	1,347.8	1,347.8	1,347.8	1,347.8	1,347.8	1,347.8	1,347.8	1,347.8	1,347.8
9. (iii) Corrugated Steel Pipes	202.8	202.8	202.8	202.8	202.8	202.8	202.8	202.8	202.8	202.8	202.8	202.8	202.8
9. (iv) Guard Rails	234.1	234.1	234.1	234.1	234.1	234.1	234.1	234.1	234.1	234.1	234.1	234.1	234.1
9. (v) Gabion Mesh	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0	500.0
10. Steel Products	637.9	637.9	637.9	637.9	637.9	637.9	637.9	637.9	637.9	637.9	637.9	637.9	637.9
10. Hardware	467.7	467.7	549.1	554.1	554.1	554.1	554.1	554.1	554.1	554.1	554.1	554.1	554.1
All Materials	554.4	566.4	572.4	580.8	596.3	596.3	596.3	596.3	596.3	596.3	596.3	596.3	596.3
11. (i) Unskilled Labour	458.2	458.2	520.0	520.0	520.0	520.0	520.0	520.0	520.0	520.0	520.0	520.0	520.0
11. (ii) Semi-Skilled Labour	408.9	408.9	434.9	434.9	434.9	434.9	434.9	434.9	434.9	434.9	434.9	434.9	434.9
11. (iii) Skilled Labour	250.3	250.3	283.0	283.0	283.0	283.0	283.0	283.0	283.0	283.0	283.0	283.0	283.0
Labour	353.5	353.5	391.5	391.5	391.5	391.5	391.5	391.5	391.5	391.5	391.5	391.5	391.5
CIVIL ENGINEERING INDEX	460.0	466.4	487.4	491.9	500.1	500.1	500.1	500.1	500.1	500.1	500.1	500.1	500.1

Appendix-8

EXCHANGE RATE OF ONE US DOLLAR TO KENYA SHILLINGS

Year	Rate	Remark
1980	7.568	As on 31st December
1981	10.286	"
1982	12.725	"
1983	13.796	"
1984	15.781	"
1985	16.284	"
1986	16.432	As on 30th June 1986
1986/87	16.449	As on 30th June 1987
1987/88	18.085	As on 30th June 1988
1988/89	21.066	As on 30th June 1989

Appendix-9

KENYA NATIONAL ENERGY DEMAND AND PRODUCTION

TABLE 1 PROJECTED ENERGY DEMAND BY SOURCE
(EXTRACTED FROM DEVELOPMENT PLAN 1989-1993)

(In Million Tonnes of Oil Equivalent)

Energy Source	1988	% of Total	1990	% of Total	1993	% of Total
Woodfuel	27.80	93.35%	30.30	93.43%	35.30	93.93%
Petroleum Fuels	1.70	5.71%	1.81	5.58%	1.90	5.06%
Electricity	0.20*	0.67%	0.23	0.71%	0.28	0.75%
Coal	0.08	0.27%	0.09	0.28%	0.10	0.27%
Total	29.78	100.0%	32.43	100.0%	37.58	100.0%

Annual Growth Rate - 4.35% 5.04%

*The order of this figure not matching the figure in Table 1 of Appendix-10 from which the order should come to 0.55 to 0.65.

Appendix-9

TABLE 2 PRODUCTION, TRADE AND CONSUMPTION OF ENERGY EXPRESSED
IN TERMS OF PRIMARY SOURCES, 1974-1980
(EXTRACTED FROM ECONOMIC SURVEYS)

(In Thousand Tonnes of Oil Equivalent)

	1974	1975	1980	1981	1982	1983	1984	1985	1986	1987	1988*
COAL & COKE CONSUMPTION:	59.0	60.0	60.0	91.2	52.5	63.7	82.7	59.9	67.9	82.2	79.0
OIL-											
Imports of crude oil	2,369.2	2,471.5	3,075.5	2,611.1	2,165.5	1,910.2	1,932.7	1,910.7	2,006.0	2,130.5	2,041.8
Net exports of petroleum	515.0	713.4	1,415.3	1,084.4	769.4	434.9	584.7	544.9	699.0	478.6	583.0
Stock changes & balancing item	205.7	(18.8)	101.0	145.6	177.2	(62.9)	205.5	129.0	347.1	180.7	350.4
TOTAL CONSUMPTION OF LIQUID FUELS	1,659.9	1,669.3	1,760.2	1,672.3	1,573.3	1,442.4	1,553.5	1,565.6	1,654.1	1,831.5	1,809.7
HYDRO AND GEOTHERMAL ENERGY:											
Local production of hydro power	257.5	314.0	254.4	331.4	358.3	351.7	357.8	403.2	416.7	435.1	552.5
Local production of geothermal power	0.0	0.0	0.0	0.0	23.0	62.9	55.9	10.6	88.6	89.1	77.3
Imports of hydro power	52.1	38.4	75.6	46.6	58.9	43.0	51.6	51.6	56.4	58.6	26.4
TOTAL CONSUMPTION OF HYDRO AND GEOTHERMAL ENERGY	309.6	352.4	330.0	378.0	409.2	406.6	465.3	535.4	561.7	573.5	661.1
TOTAL LOCAL ENERGY PRODUCTION	257.5	314.0	254.4	331.4	358.3	417.6	413.7	403.8	505.3	524.9	635.8
TOTAL NET IMPORTS	1,556.3	1,856.5	1,395.8	1,664.5	1,439.5	1,612.0	1,402.3	1,547.3	1,431.3	1,703.7	1,564.2
TOTAL ENERGY CONSUMPTION	2,019.5	2,001.7	2,150.2	2,141.5	2,035.0	1,966.7	2,101.5	2,160.9	2,283.7	2,409.3	2,569.6
LOCAL PRODUCTION AS PERCENTAGE OF TOTAL	12.8%	15.3%	11.8%	15.5%	17.6%	21.2%	19.7%	22.4%	22.1%	21.7%	24.3%
PER CAPITA CONSUMPTION IN TERMS OF KILOGRAMS OF OIL EQUIVALENT	135.0	136.0	135.0	126.0	113.0	105.0	108.0	107.0	108.0	113.0	115.0

(otes: * Provisional)

** Modern sector only, excludes fuel wood and charcoal

Appendix-9

PETROLEUM SUPPLY AND DEMAND BALANCE, 1984-1988

Table 10.4

'000 Tonnes

	1984	1985	1986	1987	1988*
DEMAND—					
Liquefied petroleum gas	21.6	22.4	21.1	25.3	26.9
Motor spirit premium and regular	257.7	267.8	295.1	321.8	325.0
Aviation spirit	5.6	5.9	6.1	6.3	6.5
Jet/turbo fuel	259.4	261.0	263.4	249.5	254.6
Illuminating kerosene	81.4	90.9	109.1	133.7	154.7
Light diesel oil	420.1	447.7	481.0	572.7	537.3
Heavy diesel oil	25.2	25.1	26.1	27.7	32.7
Fuel oil	411.4	376.5	378.3	410.8	392.7
TOTAL	1,482.4	1,497.3	1,583.2	1,747.8	1,730.4
Refinery usage	71.1	68.3	70.9	83.8	78.7
TOTAL DOMESTIC DEMAND	1,553.5	1,565.6	1,654.1	1,831.6	1,809.1
Exports of petroleum fuels	685.3	596.8	804.5	571.9	689.9
TOTAL DEMAND**	2,238.8	2,162.4	2,458.6	2,403.5	2,499.0
SUPPLY—					
Imports:					
Crude oil	1,874.3	1,980.7	2,006.0	2,130.5	2,041.8
Petroleum fuels	100.6	51.9	105.4	92.3	106.8
TOTAL	1,974.9	2,032.6	2,111.4	2,222.8	2,148.6
Adjustment***	263.9	129.8	347.2	180.7	350.4
TOTAL SUPPLY**	2,238.8	2,162.4	2,458.6	2,403.5	2,499.0

*Provisional.

**Difference is due to rounding.

***Adjustment for inventory changes and losses in production.

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NET DOMESTIC SALE OF PETROLEUM FUELS BY CONSUMER CATEGORY, 1984-1988

Table 10.5

'000 Tonnes

User	1984	1985	1986	1987	1988*
Agriculture	44.0	48.9	61.2	71.2	72.7
Retail pump outlets and road transport	568.7	616.6	676.8	762.2	781.0
Rail Transport	42.5	35.0	29.4	31.1	22.2
Tourism**	9.3	9.4	9.9	11.0	11.6
Marine (excl. Naval Forces)	158.9	147.1	177.0	168.5	106.3
Aviation (excl. Government)	258.8	260.4	263.0	249.5	255.1
Power Generation	54.5	27.4	34.3	87.2	50.1
Industrial, Commercial and Other	452.6	452.7	455.8	483.4	489.8
Government	51.8	46.7	52.3	127.7	47.7
Balancing Item	-158.7	-146.9	-176.6	-244.0	-106.1
TOTAL	1,482.4	1,497.3	1,583.2	1,747.8	1,730.4

*Provisional.

**Comprises sales to tour operators.

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Appendix-10

TABLE 1: GROSS GENERATION AND CONSUMPTION OF ELECTRICITY FOR INTERCONNECTED AND ISOLATED SYSTEM

LOCATION	Installed Capacity as at 30.6.88	Effective Capacity (MW)	ENERGY(GWh)						Average Annual Growth Over the Last 4 Years
			1983	1984	1985	1986	1986/87	1987/88	
			Jan-June						
HYDRO									
Tana (KPC)	14.4	12.4	65	59	67	33	77	82	
Wanjii (KPC)	7.4	7.4	32	34	39	18	55	46	
Kamburu (TRDC)	91.5	84.0	357	337	398	184	415	432	
Gitaru (TRDC)	145.0	145.0	723	687	776	400	836	841	
Kindaruma (TRDC)	44.0	44.0	187	172	202	102	191	223	
K.P. & L.C.	6.2	6.2	24	16	17	6	20	21	
UEB (Imports)	30.0	0.0	179	215	215	113	211	154	
Masinga (TARDA)	40.0	40.0	70	166	161	85	199	182	
Kiambere (TARDA)	144.0	140.0						211	
TOTAL HYDRO INCLUDING IMPORTS	522.5	479.0	1,637	1,686	1,875	942	2,004	2,192	6.7%
THERMAL									
Kipevu	98.0	4.0	114	174	83	59	168	208	
GEOTHERMAL									
Olkaria	45.0	43.0	262	233	336	179	374	348	
GAS TURBINE									
Fiat - Nbi South	17.9	13.8			4	3	17	13	
JBE - Kipevu	30.0	30.0					27	52	
DIESEL									
Interconnected Diesel Stations	18.3	8.0		1	2	1	5	3	
INTERCONNECTED SYSTEM	731.7	577.8	2,013	2,094	2,300	1,185	2,596	2,816	7.7%
ISOLATED DIESELS	3.9	3.9	5	5	7	4	9	10	
GROSS GENERATION	735.6	581.7	2,018	2,099	2,307	1,189	2,605	2,827	7.8%
AUX CONSUMPTION			29	28	27	16	28	43	
SYSTEM LOSSES			299	281	316	127	347	412**	
SALES -- KPLC SYSTEM			1,676	1,775	1,944	1,035	2,205	2,337	7.7%
-- RES SYSTEM			13	15	19	11	25	35	25.2%
TOTAL SALES			1,689	1,790	1,963	1,046	2,230	2,372	7.8%
SYSTEM PEAK DEMAND MW			334	366	387	418	430	461	7.4%
System Load Factor			68.8%	65.1%	67.8%	65.3%	68.9%	69.7%	
Sales % of Net Gen.			84.9%	86.4%	86.1%	89.2%	86.5%	85.2%	
Annual growth-Gen.			3.7%	4.0%	9.9%		8.4%	8.5%	
-- SALES			3.6%	6.0%	9.7%		8.9%	6.4%	

NOTE: **Includes energy exports to UEB system estimated at 3 GWhr

*Average Annual Growth over one and a half years.

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Appendix-10

TABLE 3: SALE OF ELECTRICITY IN GWH/ SHOWN IN DIFFERENT CATEGORIES OF CONSUMERS

TARIFF	MAIN TYPE OF CONSUMER COVERED BY THIS TARIFF	1983	1984	1985	1986 Jan-June	1986/87	1987/88	Average Annual Growth Over the Last 4½ Years
A	Domestic, small commercial and small industrial	483	514	545	292	634	678	7.8%
B	Commercial (Medium) and industrial (medium)	415	455	472	252	536	555	6.7%
C	Commercial (large) and Industrial (large)	659	681	812	434	916	982	9.3%
D	Off-peak	109	116	106	53	111	110	0.2%
E	Street lighting	10	9	9	4	9	12	5.0%
	TOTAL	1,676	1,775	1,944	1,035	2,205	2,337	7.7%
	% INCREASE P.A.	2.8%	5.9%	9.5%		8.8%*	6.0%	

NOTE: Units sold to Rural Electrification Schemes not included

*Average Annual Growth over one and half years.

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INSTALLED CAPACITY AND GENERATION OF ELECTRICITY, 1984-1988

Table 10.8

Year	INSTALLED CAPACITY* MW**				GENERATION* GWH***			
	Hydro	Thermal Oil	Geothermal	Total	Hydro	Thermal Oil	Geothermal	Total
1984	353.5	169.2	30.0	543.7	1,491.0	225.0	233.0	1,949.0
1985	353.5	160.2	45.0	558.7	1,690.0	139.0	336.0	2,155.0
1986	353.5	160.2	45.0	558.7	1,736.0	202.0	369.0	2,307.0
1987	353.5	176.2	45.0	574.7	1,813.0	267.0	374.0	2,454.0
1988†	353.5	176.2	45.0	574.7	2,323.0	198.0	323.0	2,844.0

*Includes estimates for industrial establishment with generation capacity.

**1 megawatt=million watts=1,000 kilowatts.

***gigawatt hour=1,000,000 kilowatt hours.

†Provisional.

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ELECTRICITY ENERGY SUPPLY AND DEMAND BALANCE, 1984-1988

Table 10.9

Million KWH

	1984	1985	1986	1987	1988*
DEMAND—					
Domestic and Small Commercial	514	545	600	616	709
Large Commercial and Industrial .. .	1,206	1,354	1,441	1,580	1,574
Off-peak	116	106	109	162	110
Street Lighting	9	9	8	14	14
TOTAL	1,845	2,014	2,158	2,372	2,407
Transmission losses and unallocated demand	276	310	335	367	475
TOTAL DEMAND=TOTAL SUPPLY	2,121	2,324	2,493	2,739	2,882
of which imports from Uganda	215	215	235	176	110
Net generation	1,906	2,109	2,258	2,563	2,772

*Provisional.

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TABLE 2: AREA TOTAL MAXIMUM DEMAND (MW)

AREA	1983	1984	1985	1986 Jan-June	1986/87	1987/88	Average Annual Growth Over the Last 4½ Years
Nairobi	191	192	206	223	223	231	4.3%
Coast	69	74	78	82	89	107	10.2%
Western Kenya	41	49	60	75	77	79	15.8%
Rift Valley	19	20	23	26	26	30	10.4%
Mt. Kenya	16	16	18	19	21	22	7.0%
TOTAL SYSTEM (SIMULTANEOUS)	334	366	387	418	430	461	7.4%
% INCREASE P.A.	5.4%	9.6%	5.7%		7.3*	7.2%	

NOTE: Intermediate loads on Nairobi-Mombasa line are not included

* Average Annual Growth over one and a half years.

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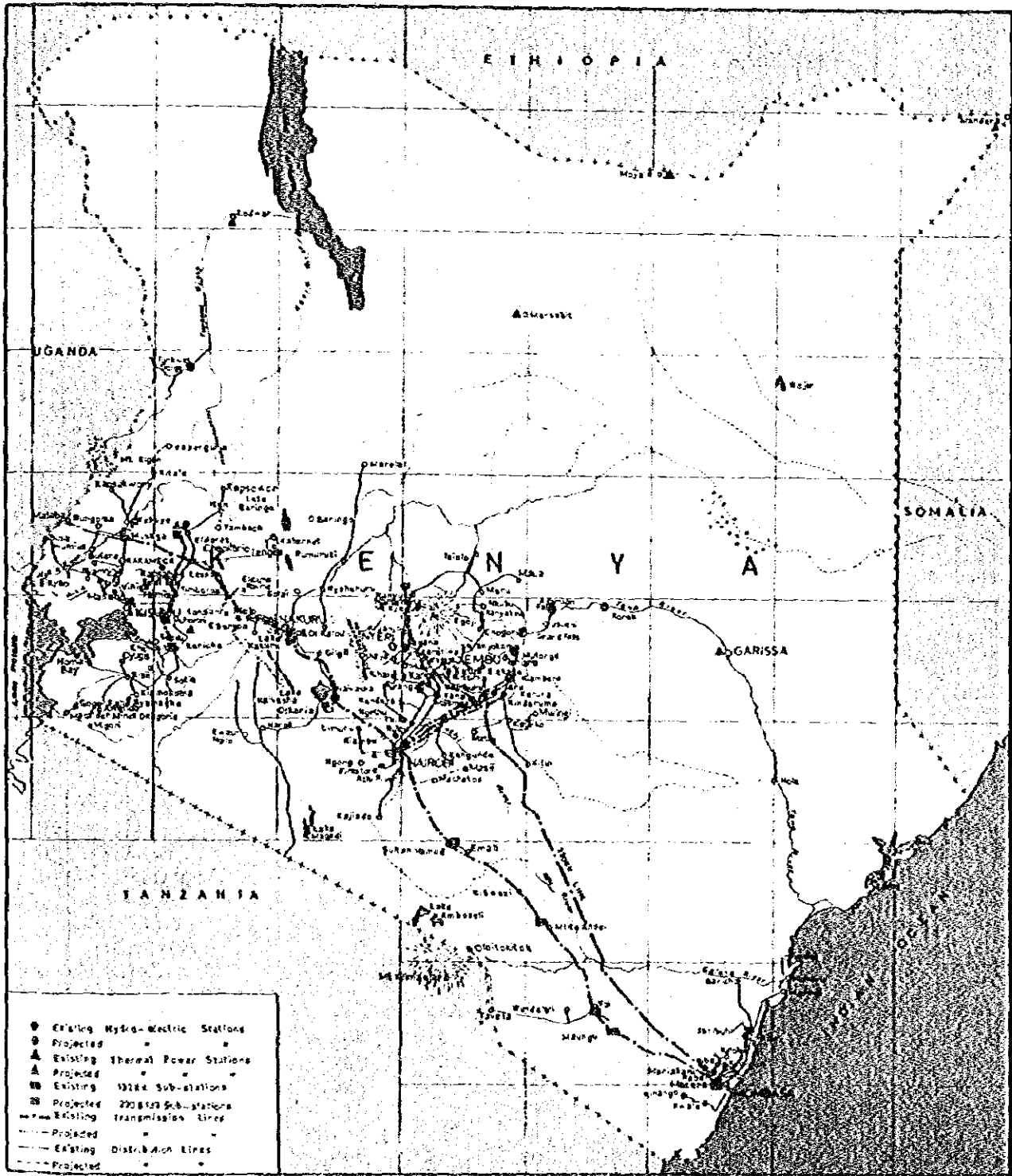
TABLE 4: AREA TOTAL UNIT SALES (GWHr)

AREA	1983	1984	1985	1986 Jan-June	1986/87	1987/88	Average Annual Growth Over the Last 4½ Years
Nairobi	930	986	1,049	554	1,188	1,242	6.6%
Coast	400	411	440	245	499	536	6.7%
Western Kenya	206	220	269	138	306	338	11.6%
Rift Valley	85	92	99	53	117	126	9.1%
Mt. Kenya	55	66	87	45	95	95	12.9%
KPLC sales	1,676	1,775	1,944	1,035	2,205	2,337	7.7%
R.E.S. Sales	13	15	19	10	25	35	23.7%
TOTAL SALES	1,689	1,790	1,963	1,045	2,230	2,372	7.8%
% INCREASE P.A.		6.0%	9.7%		8.9*	6.3%	

* Average Annual Growth over one and a half years.

Annual Report 1988 KPLC

Appendix-11 KPLC NATIONAL GRID SYSTEM



Appendix-11

TABLE 6: TRANSMISSION AND DISTRIBUTION LINES

VOLTAGE	TOTAL CIRCUIT LENGTH (KM)						Average Annual Growth Over the Last 4½ Years
	AS AT 31st DECEMBER			AS AT 30TH JUNE			
	1983	1984	1985	1986	1987	1988	
220kv	633	633	633	633	633	633	0.0%
132kv	1,959	1,975	1,975	1,975	1,975	1,977	0.2%
66kv	385	396	398	398	398	400	0.9%
40kv	113	113	113	113	113	113	0.0%
33kv	2,356	2,429	2,567	2,610	2,813	3,194	7.0%
11kv	6,306	6,601	6,747	6,811	7,152	7,252	3.2%
TOTAL	11,752	12,147	12,433	12,540	13,084	13,569	3.2%
% INCREASE P.A.	11.1%	3.4%	2.4%		3.5%*	3.7%	

*Average Annual Growth over one and a half years.

TABLE 7: TRANSFORMERS IN SERVICE: TOTAL INSTALLED CAPACITY IN MVA

	AS AT 31st DECEMBER			AS AT 30TH JUNE			Average Annual Growth Over the Last 4½ Years
	1983	1984	1985	1986	1987	1988	
	Generation S/Stns						
11/220kv						170	
11/132kv	397	397	417	417	417	417	1.1%
11/66kv	30	30	30	30	30	30	—
11/33kv	137	137	137	137	178	217	10.8%
11/40kv	5	5	5	5	5	5	—
3.3/11/40kv	8	8	8	8	8	8	—
3.3/40kv	4	4	4	4	4	4	—
3.3/33kv	3	3	4	4	4	4	6.6%
132/220kv	270	540	540	540	540	540	16.7%
TOTAL	854	1,124	1,145	1,145	1,186	1,395	11.5%
Distribution S/Stns							
220/132kv	180	580	580	580	580	580	29.7%
132/66kv	195	195	195	195	210	210	1.7%
132/33kv	239	239	285	285	285	285	4.0%
66/11kv	323	346	369	369	369	395	4.6%
66/40kv	15	15	15	15	15	15	—
40/11kv	16	16	16	16	16	19	4.0%
33/11kv	286	294	302	326	333	358	5.1%
TOTAL	1,254	1,685	1,762	1,785	1,807	1,862	9.2%
Distribution TXS							
11/0.415kv							
33/0.415kv	931	1,005	1,056	1,092	1,173	1,300	7.7%
% INCREASE OF DISTBN TXS	6.9%	7.9%	5.1%	6.6%	11.1%	10.8%	

Appendix-12

1987/88 MONTHLY PRODUCTION EXISTING HYDRO PLANT , KPLC
Cross Generation(GWh)

Hydro Plant	Installed Capacity (MW)	Effective Capacity (MW)	MONTHLY PRODUCTION (GWh)												ANNUAL PRODUCTION AVERAGE (GWh)	
			JULY	AUG	SEPT	OCT	NOV	DEC	JAN	FEB	MAR	APRIL	MAY	JUNE		
Masinga R	40.0	40.0	24.155	18.796	20.291	19.482	14.400	17.926	19.062	16.045	8.793	8.326	6.725	7.731	181.672	15.139
Kiambere R	144.0	140.4						4.577	2.959	15.227	56.643	37.849	47.751	45.581	210.587	30.084
Kindarum RP	44.0	44.0	18.137	19.464	19.369	19.984	19.986	19.500	19.249	17.908	15.415	16.301	18.251	19.709	223.273	18.606
Kamburu R	91.5	84.0	35.131	38.357	36.654	38.952	39.026	35.646	37.365	36.955	28.954	33.172	36.561	37.364	432.337	36.028
Gitaru RP	145.0	145.0	69.687	75.416	72.771	75.690	76.741	73.710	73.720	67.266	56.937	63.767	67.765	67.865	841.335	70.111
Ngula ROR	2.0	2.0	0.641	0.588	0.170	0.064	0.581	0.550	0.148	0.953	0.172	0.419	0.539	0.090	4.015	0.335
Segana ROR	1.5	1.5	0.863	0.751	0.414	0.424	0.945	0.890	0.700	0.358	0.775	0.977	1.107	1.076	9.280	0.773
Mesco ROR	0.4	0.4	0.245	0.240	0.251	0.248	0.248	0.268	0.262	0.222	0.238	0.215	0.221	0.233	2.891	0.241
Selby ROR	0.3	0.3	0.096	0.098	0.040	0.002	0.090	0.019	0.007	0.004	0.001	0.029	0.091	0.098	0.505	0.042
Wanjii ROR	7.4	7.4	5.324	3.519	3.114	2.958	3.231	3.803	4.820	3.426	3.566	3.498	3.543	5.049	45.651	3.804
Goso ROR	2.0	2.0	0.022	0.930	0.693	0.879	0.377	0.300	0.290	0.193	0.184	0.085	0.000	1.132	4.985	0.415
Tana RP	12.4	12.4	9.314	8.531	6.348	5.842	8.297	8.726	7.396	4.843	6.075	5.232	4.738	5.579	82.001	6.833
TOTAL RP	490.5	479.4	163.615	166.590	160.115	164.525	163.862	165.915	165.778	161.600	176.793	170.980	187.312	191.497	2038.532	

R :Reservoir Type

RP :Reservoir Pondage Type

ROR:Run-off River Type

Source=KPLC

YEARLY LOAD FACTOR OF EXISTING POWER PLANTS

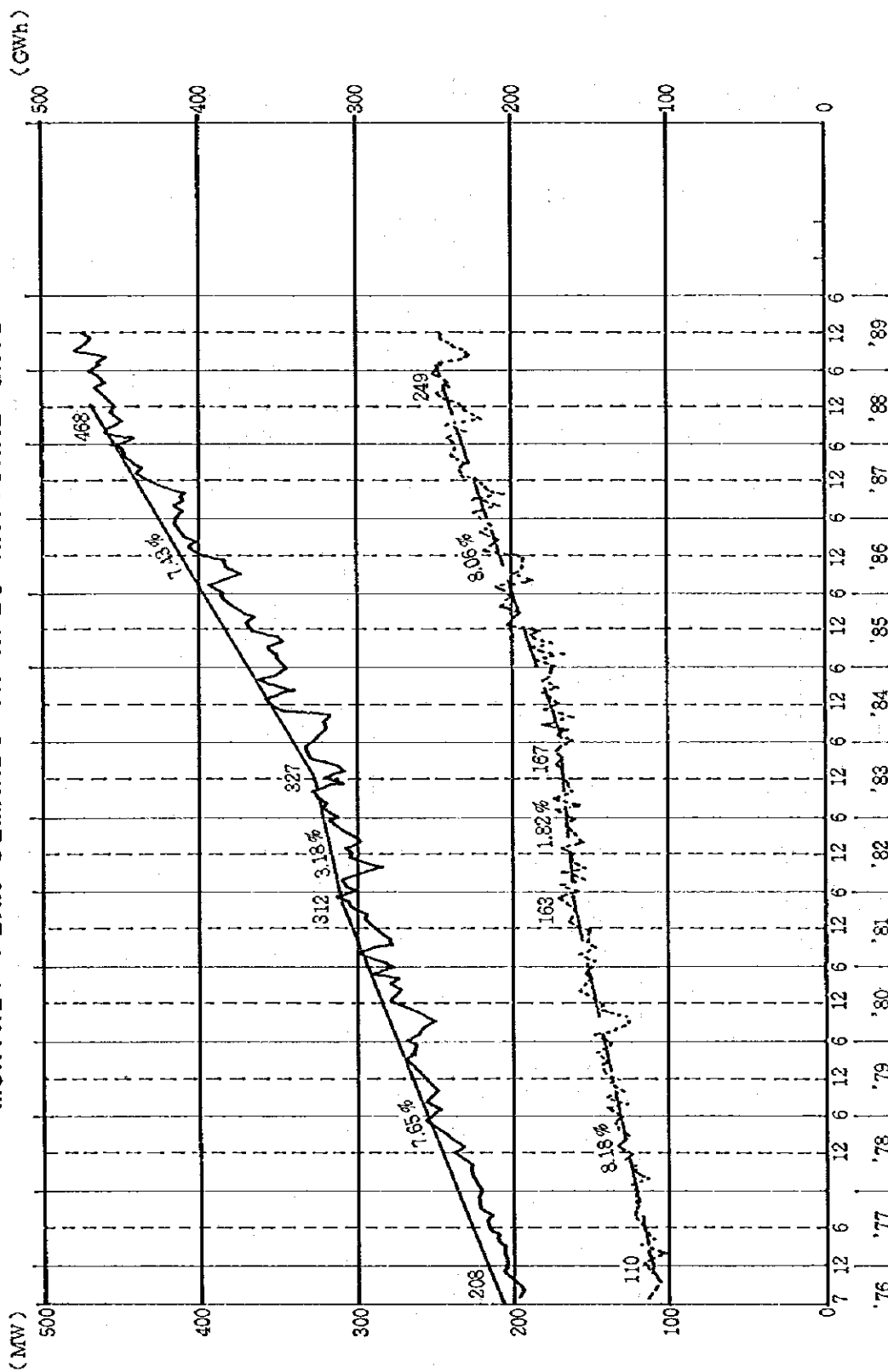
unit: percent

plant	Effective Capacity (MW)	1983	1984*	1985	1986	1986/87	1987/88
Hydro							
Tana	12.4	59.8	54.3	61.7	60.8	70.9	75.5
Wanji	7.4	49.4	52.4	60.2	55.5	84.8	71.0
Kamburu	84.0	48.5	45.8	54.1	50.0	56.4	58.7
Gitaru	145.0	56.9	54.1	61.1	63.0	65.8	66.2
kindarum	44.0	48.5	44.6	52.4	52.9	49.6	57.9
KPLC's Small hydros	6.2	44.2	29.5	31.3	22.1	36.8	38.7
UEB	(30.0)	68.1	81.8	81.8	86.0	80.3	58.6
Masinga	40.0	20.0	47.4	45.9	48.5	56.8	51.9
Kiambere	(140.0)	—	—	—	—	—	17.2
Excluding UEB & Kiambere	339 (479)	49.1	49.5	55.9	55.8	60.4	61.5
Geothermal							
Olkaria	43.0	69.6	61.9	89.2	95.0	99.3	92.4
Gas-turbine							
Fiat	13.8	—	—	3.3	5.0	14.1	10.8
JBE	30.0	—	—	—	—	10.3	19.8

Source=KPLC

*This year fell on an extreme drought year.

Fig. 1 MONTHLY PEAK DEMANDS IN KPLC NATIONAL GRID



Source=KPLC

— MONTHLY DEMAND(MW)
 - - - - MONTHLY GENERATION(GWh)

Appendix-14

26-Jul-89

Filename FOR88APR

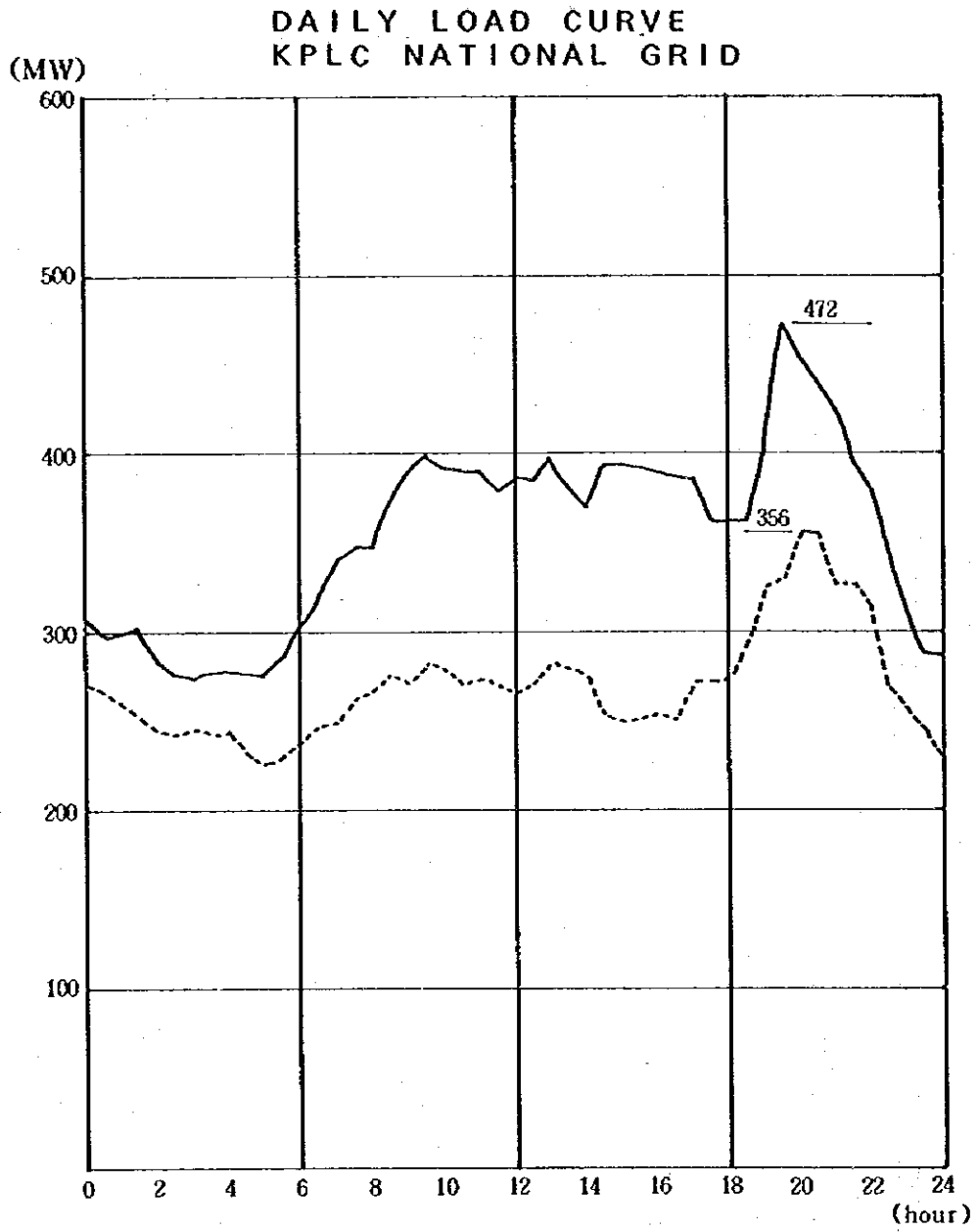
TABLE 1 ACTUAL INTERCONNECTED SYSTEM MONTHLY DEMANDS MW

MONTH	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89
JUL	197	217	233	259	278	295	310	308	353	373	407	442	458
AUG	191	214	238	268	274	293	299	313	340	365	400	437	463
SEP	197	221	246	269	280	303	304	329	356	376	409	444	467
OCT	201	223	253	264	275	306	311	333	356	384	414	449	469
NOV	207	223	256	262	290	313	317	334	349	387	418	451	464
DEC	204	220	254	268	279	300	313	330	344	386	417	453	475
JAN	204	226	247	262	285	308	323	328	349	391	411	442	464
FEB	207	225	255	260	301	310	319	320	352	386	417	461	460
MAR	206	226	253	251	277	299	326	322	357	373	412	457	480
APR	210	225	249	258	279	285	328	318	347	383	410	449	474
MAY	209	230	254	267	284	304	308	349	352	383	418	457	470
JUN	215	239	258	279	291	302	321	356	369	400	430	454	475
Fiscal year	215	239	259	279	301	313	328	356	368	400	430	461	490
Annual growth %		11.2%	7.9%	8.1%	7.9%	4.8%	4.8%	8.5%	3.4%	8.7%	7.4%	7.2%	6.2%
Average 3yr - % annual growth				9.1%	8.0%	6.7%	5.5%	5.8%	5.5%	6.8%	6.5%	7.8%	6.3%

TABLE 2 ACTUAL INTERCONNECTED SYSTEM MONTHLY GENERATION GWh

MONTH	1976/77	1977/78	1978/79	1979/80	1980/81	1981/82	1982/83	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89
JUL	113	120	134	141	158	164	169	169	178	204	218	235	245
AUG	110	122	130	143	155	162	157	172	182	202	212	236	249
SEP	107	121	127	139	151	162	160	169	172	196	212	231	241
OCT	110	123	133	147	153	165	166	171	182	207	220	240	242
NOV	112	122	135	139	149	162	165	171	178	201	214	237	251
DEC	110	120	130	139	148	159	161	161	174	198	211	236	244
JAN	114	124	138	148	158	169	172	171	185	210	224	241	247
FEB	104	114	126	132	147	153	157	164	168	188	208	239	227
MAR	118	124	141	126	153	169	174	180	191	199	225	244	250
APR	110	122	130	127	145	154	163	162	175	195	213	222	241
MAY	115	128	137	144	152	163	166	180	189	196	219	231	248
JUN	115	127	135	143	152	161	166	172	186	197	221	233	247
Fiscal year	1338	1467	1596	1668	1821	1913	1977	2042	2160	2392	2596	2816	2931
Annual growth %		9.6%	8.8%	4.5%	9.2%	6.7%	3.7%	3.3%	5.8%	10.8%	8.5%	8.5%	4.1%
Average 3yr - % annual growth				7.6%	7.5%	6.8%	5.8%	3.9%	3.6%	6.6%	8.3%	9.2%	7.0%

Source=KPLC



—— 1988年3月18日 (金) PF = 75.1%

----- 1988年3月20日 (日) PF = 75.8%

Source ; KPLC

1988年3月9日(水)～3月15日(火)

(MW)

TIME	WED. 9TH	THUR. 10TH	FRI. 11TH	SAT. 12TH	SUN. 13TH	MON. 14TH	TUE. 15TH
00.30	276	282	279	277	266	247	286
01.00	282	281	279	291	268	252	271
01.30	283	287	275	283	270	248	296
02.00	266	285	284	286	256	245	297
02.30	267	287	286	270	303	235	271
03.00	265	269	277	271	238	257	264
03.30	264	270	278	269	245	235	261
04.00	262	275	280	267	251	234	258
04.30	262	272	271	271	249	234	266
05.00	259	265	270	263	248	229	259
05.30	259	283	266	261	247	240	273
06.00	314	301	297	261	247	267	305
06.30	318	338	338	288	249	256	322
07.00	338	354	332	281	258	315	347
07.30	339	344	331	313	263	308	352
08.00	332	358	345	311	274	311	364
08.30	356	375	355	338	286	343	354
09.00	391	394	377	346	311	369	366
09.30	385	385	380	351	310	371	392
10.00	384	378	387	354	297	382	389
10.30	389	380	384	249	383	384	384
11.00	392	279	388	343	285	383	379
11.30	384	386	394	345	241	380	382
12.00	384	390	389	352	280	357	382
12.30	403	399	393	348	291	392	387
13.00	387	380	397	348	281	398	391
13.30	396	385	374	344	275	373	377
14.00	369	366	367	324	259	365	362
14.30	367	362	371	304	257	356	358
15.00	383	373	387	324	254	380	384
15.30	374	380	380	325	260	394	378
16.00	372	374	374	318	214	380	380
16.30	373	377	379	312	258	388	372
17.00	373	377	375	304	265	374	384
17.30	355	360	351	309	255	383	354
18.00	329	355	343	306	267	354	354
18.30	346	355	348	324	277	384	357
19.00	370	371	366	344	304	383	397
19.30	444	416	418	400	341	403	455
20.00	442	437	427	412	374	401	454
20.30	428	433	431	412	371	401	443
21.00	403	411	411	393	360	404	411
21.30	389	391	390	365	348	400	396
22.00	376	362	368	336	324	371	376
22.30	337	325	343	309	305	350	333
23.00	314	321	326	276	278	330	306
23.30	273	303	292	272	255	308	299
M.N.	278	275	281	266	244	300	289

1988年3月16日(水)～3月22日(火)

(MW)

TIME	WED. 16・3・88	THUR. 17・3・88	FRI. 18・3・88	SAT. 19・3・88	SUN. 20・3・88	MON. 21・3・88	TUE. 22・3・88
00.30	277	281	299	294	266	229	218
01.00	284	285	300	296	259	239	221
01.30	275	295	302	291	254	234	221
02.00	273	300	283	287	244	232	209
02.30	284	291	275	279	243	202	205
03.00	284	281	273	276	245	204	202
03.30	283	262	277	275	243	203	201
04.00	280	265	278	270	244	202	201
04.30	275	268	277	266	232	204	199
05.00	274	274	274	267	226	208	207
05.30	283	286	285	270	230	208	216
06.00	299	317	303	281	239	218	243
06.30	327	341	316	282	246	222	273
07.00	342	364	340	296	249	215	305
07.30	342	368	347	314	262	226	312
08.00	338	358	345	334	267	223	318
08.30	356	389	371	353	276	220	328
09.00	381	393	388	361	271	223	356
09.30	394	399	397	362	282	218	362
10.00	389	391	391	362	279	221	375
10.30	392	395	390	358	270	219	370
11.00	395	393	391	351	273	219	354
11.30	395	389	378	356	269	217	355
12.00	396	411	385	366	266	232	357
12.30	391	394	384	356	272	222	364
13.00	377	393	396	358	282	236	370
13.30	368	387	379	354	280	227	358
14.00	373	372	369	357	274	230	348
14.30	377	363	393	326	253	221	328
15.00	385	383	394	324	249	219	348
15.30	383	388	392	323	250	213	360
16.00	382	394	390	314	253	216	354
16.30	397	395	387	315	250	228	374
17.00	391	386	386	319	271	241	363
17.30	363	364	362	318	271	250	349
18.00	355	367	361	337	273	264	331
18.30	369	356	362	337	294	267	346
19.00	425	400	402	368	324	300	398
19.30	440	445	472	392	330	337	434
20.00	456	454	454	404	356	349	425
20.30	449	442	440	389	355	341	408
21.00	435	445	425	369	326	325	397
21.30	421	406	395	356	325	310	391
22.00	383	389	378	348	313	259	357
22.30	363	354	341	306	267	241	336
23.00	319	324	306	291	255	237	302
23.30	293	316	288	274	244	225	271
M.N.	295	307	286	271	228	218	269

1988年3月23日(水)～29日(火)

(MW)

TIME	WED. 23・3・88	THUR. 24・3・88	FRI. 25・3・88	SAT. 26・3・88	SUN. 27・3・88	MON. 28・3・88	TUE. 29・3・88
00.30	236	272	378	276	248	234	271
01.00	250	263	353	274	249	235	290
01.30	257	263	241	277	265	234	280
02.00	255	280	230	274	261	232	279
02.30	253	278	236	266	251	221	269
03.00	252	272	232	252	247	218	265
03.30	264	266	253	249	247	219	264
04.00	265	270	269	254	238	220	256
04.30	●●●	270	269	250	236	220	255
05.00	●●●	268	262	248	237	220	261
05.30	282	270	242	259	230	231	275
06.00	296	274	289	260	241	247	302
06.30	326	299	312	271	240	270	311
07.00	352	337	345	273	242	298	322
07.30	351	363	384	283	257	318	339
08.00	345	358	375	312	265	338	332
08.30	358	364	378	319	283	349	356
09.00	381	379	382	342	265	368	373
09.30	372	391	384	352	276	376	377
10.00	397	397	367	348	277	374	381
10.30	392	394	372	352	278	382	374
11.00	385	391	367	344	274	382	369
11.30	378	395	385	343	273	378	376
12.00	372	394	377	346	236	383	373
12.30	366	394	359	345	266	375	367
13.00	328	387	359	341	237	368	362
13.30	379	337	346	314	284	357	339
14.00	353	323	347	302	257	336	327
14.30	354	340	319	293	236	345	333
15.00	376	344	325	289	227	348	344
15.30	363	345	324	288	276	348	359
16.00	384	330	331	296	243	365	356
16.30	374	324	327	292	250	349	367
17.00	374	323	332	295	259	353	358
17.30	372	307	336	292	258	341	351
18.00	363	302	329	288	257	336	338
18.30	382	309	327	299	264	335	352
19.00	395	356	377	341	315	337	387
19.30	433	376	416	384	357	427	427
20.00	456	415	438	403	374	440	435
20.30	431	419	420	384	368	421	427
21.00	408	409	403	385	354	418	421
21.30	400	375	385	352	335	398	379
22.00	381	380	361	341	316	355	372
22.30	335	337	335	306	281	322	348
23.00	306	325	325	276	256	295	302
23.30	295	281	297	263	239	280	296
M.N.	259	259	280	246	232	264	272

1988年3月30日(水)～4月5日(火)

(MW)

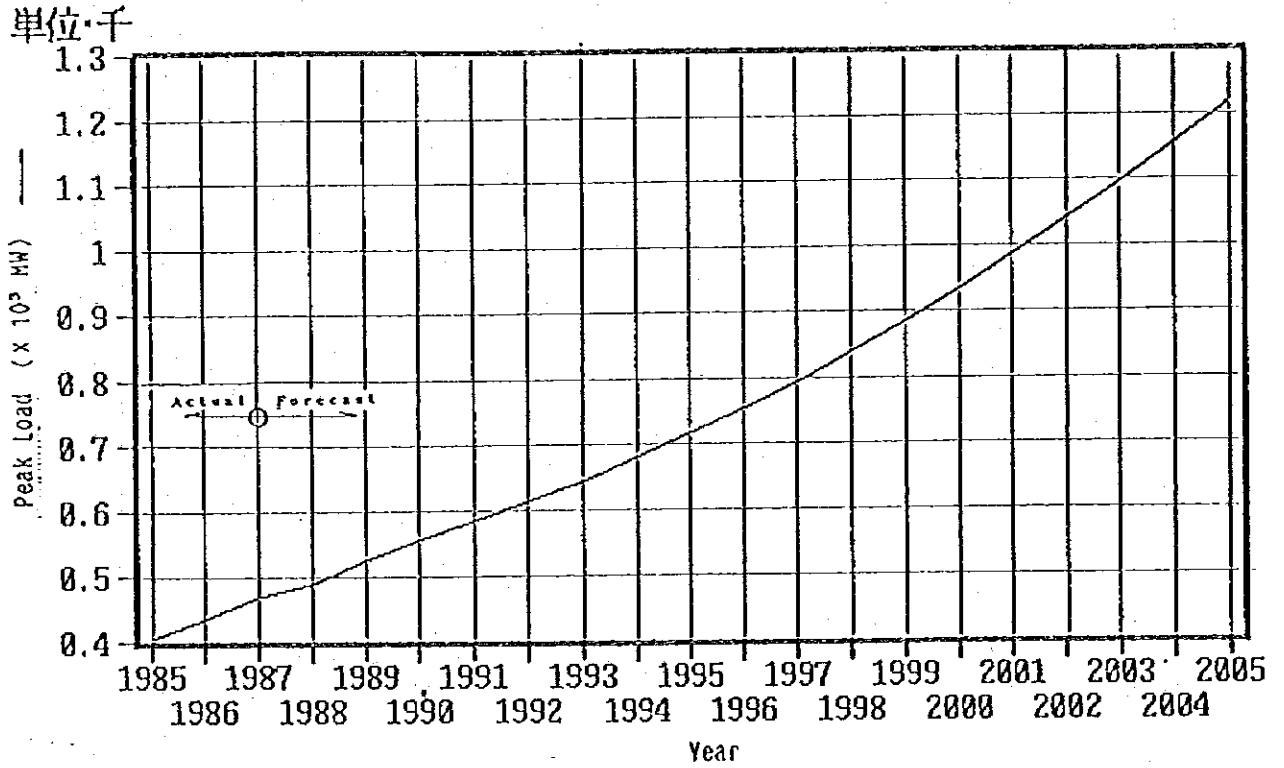
TIME	WED. 30・3・88	THUR. 31・3・88	FRI. 1・4・88	SAT. 2・4・88	SUN. 3・4・88	MON. 4・4・88	TUE. 5・4・88
00.30	281	277	256	225	216	251	212
01.00	283	286	268	226	224	210	204
01.30	280	287	277	226	233	254	206
02.00	279	288	272	221	222	213	217
02.30	276	277	269	219	221	208	211
03.00	266	273	267	215	208	198	205
03.30	265	255	250	213	195	191	199
04.00	259	259	243	212	203	208	195
04.30	262	258	243	210	200	210	201
05.00	265	258	253	199	200	210	201
05.30	267	273	246	203	219	218	205
06.00	295	300	249	215	208	201	215
06.30	322	315	262	222	201	206	258
07.00	335	344	267	226	212	210	271
07.30	337	350	268	237	231	212	301
08.00	338	334	266	255	260	221	297
08.30	366	356	259	256	265	200	329
09.00	379	383	270	276	247	218	353
09.30	378	386	261	272	235	235	342
10.00	376	379	255	273	230	232	347
10.30	388	372	257	271	226	221	354
11.00	382	382	251	267	231	210	358
11.30	373	385	246	267	218	221	348
12.00	379	380	250	264	220	218	352
12.30	386	373	246	267	237	232	362
13.00	364	376	271	281	234	221	358
13.30	345	393	274	280	250	221	345
14.00	349	344	255	253	238	233	338
14.30	347	326	252	255	228	230	348
15.00	359	353	244	249	221	215	336
15.30	362	336	235	248	213	216	339
16.00	359	337	243	248	215	204	332
16.30	369	348	238	242	221	210	351
17.00	363	344	238	248	216	215	350
17.30	349	334	244	245	216	221	331
18.00	339	323	238	251	220	235	335
18.30	338	326	254	257	231	252	334
19.00	375	356	283	294	268	286	380
19.30	434	402	337	359	325	337	433
20.00	438	422	355	351	301	340	423
20.30	425	416	350	332	315	328	407
21.00	410	394	352	326	308	312	393
21.30	394	389	313	314	289	300	360
22.00	373	363	289	294	260	277	329
22.30	346	327	270	270	241	260	321
23.00	311	294	256	245	234	218	303
23.30	285	269	238	233	217	208	272
M.N.	273	262	223	231	215	215	259

1988年4月6日(水)～4月12日(火)

(MW)

TIME	WED. 6・4・88	THUR. 7・4・88	FRI. 8・4・88	SAT. 9・4・88	SUN. 10・4・88	MON. 11・4・88	TUE. 12・4・88
00.30	262	275	279	277	228	203	267
01.00	284	279	284	289	224	157	277
01.30	276	285	283	288	226	196	275
02.00	268	275	279	284	229	194	230
02.30	266	271	268	269	232	192	260
03.00	253	266	261	260	234	202	262
03.30	253	254	256	261	228	188	266
04.00	250	252	255	253	243	184	264
04.30	248	256	256	254	234	186	261
05.00	248	262	265	252	237	187	255
05.30	261	266	261	258	226	192	255
06.00	277	282	284	259	225	214	289
06.30	304	314	303	267	227	249	326
07.00	329	320	330	274	226	276	345
07.30	323	320	339	293	246	302	350
08.00	339	347	368	303	261	306	351
08.30	347	364	380	323	286	329	371
09.00	370	383	379	349	279	347	386
09.30	381	382	385	355	282	305	384
10.00	386	380	380	353	278	367	383
10.30	369	384	379	339	274	354	377
11.00	378	381	379	344	274	360	383
11.30	376	381	381	347	277	363	375
12.00	378	376	384	346	267	362	382
12.30	374	379	375	318	269	374	388
13.00	373	363	372	326	285	365	369
13.30	349	358	361	253	292	323	349
14.00	345	356	356	252	278	324	347
14.30	348	359	353	275	270	332	349
15.00	348	368	371	257	267	331	347
15.30	352	361	351	275	247	333	346
16.00	354	365	353	280	260	331	359
16.30	357	358	361	284	250	336	359
17.00	347	356	358	279	260	339	357
17.30	338	339	341	277	248	333	343
18.00	340	339	345	290	259	337	332
18.30	337	331	349	293	278	339	343
19.00	396	377	379	342	306	395	379
19.30	430	435	417	358	368	426	411
20.00	449	426	429	358	373	424	437
20.30	421	417	417	357	352	408	425
21.00	400	396	393	356	330	392	417
21.30	390	387	386	349	321	379	387
22.00	381	363	357	339	302	344	377
22.30	346	342	324	308	289	321	352
23.00	324	316	308	282	254	304	325
23.30	282	295	298	259	224	260	291
M. N.	278	279	283	237	213	258	276

Fig. 1 latest load forecast of KPLC National Grid



Source:KPLC

Table 1 Latest Load Forecast of NPCC National Grid

REGIONAL FORECASTS NATROBI REGION	ESTIMATE FORECAST																				
	85-86	86-87	87-88	88-89	89-90	90-91	91-92	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	00-01	01-02	02-03	03-04	04-05	05-06
Domestic Sales, GWh	368.8	405.9	449.9	485.2	489.9	510.9	532.0	555.2	577.7	602.4	628.4	655.8	684.5	714.6	747.0	781.1	816.5	851.2	890.6	929.2	968.5
Commercial Sales, GWh	635.4	679.8	691.3	721.7	775.2	818.1	857.0	898.3	942.1	988.3	1036.9	1088.1	1141.3	1197.4	1257.2	1319.6	1384.2	1451.2	1519.3	1589.2	1662.2
Off-Peak Sales, GWh	98.1	100.8	101.1	99.4	99.3	100.1	102.0	104.1	106.2	108.6	111.0	113.8	116.1	119.5	124.8	130.6	137.4	145.2	152.1	159.2	166.2
Total NPCC Sales, GWh	1102.1	1186.5	1242.3	1288.3	1364.4	1431.1	1493.0	1553.6	1626.0	1699.3	1776.3	1857.7	1941.8	2031.5	2128.0	2231.5	2343.7	2465.1	2595.1	2735.9	2772.3
Regional Load Factor	0.575	0.607	0.614	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Peak Load, MW	218.9	223.0	231.0	245.3	260.1	272.5	284.3	296.8	310.0	324.0	338.7	354.2	370.2	387.4	405.8	424.4	444.6	464.8	485.3	506.4	528.0
Peak Load growth(%)	-	2	4	6	6	5	4	4	4	4	4	5	5	5	5	5	5	5	4	4	4
SOUTHERN REGION																					
Domestic Sales, GWh	102.0	112.9	98.8	119.1	114.6	120.4	126.3	132.3	139.1	146.2	153.6	161.5	169.9	178.8	188.3	198.5	209.2	220.3	231.8	243.7	256.2
Commercial Sales, GWh	356.9	382.6	404.7	436.8	486.0	510.8	528.8	549.3	570.3	592.8	615.6	639.3	663.7	689.2	715.9	743.6	771.9	800.8	829.8	859.3	889.8
Off-Peak Sales, GWh	3.9	3.6	2.8	2.8	2.8	2.8	2.9	2.9	3.0	3.0	3.1	3.2	3.2	3.3	3.5	3.6	3.7	3.7	3.8	3.8	3.9
Total NPCC Sales, GWh	462.8	499.1	506.3	559.7	603.4	634.0	658.0	683.5	713.0	742.0	772.3	804.0	836.8	871.3	907.7	945.7	984.8	1024.8	1065.4	1106.8	1149.9
Regional Load Factor	0.644	0.640	0.640	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60
Peak Load, MW	82.0	89.0	107.0	107.1	114.8	120.6	125.4	130.4	135.7	141.2	146.9	153.0	159.2	165.8	172.7	179.9	187.4	195.0	202.7	210.6	218.8
Peak Load growth(%)	-	9	9	20	0	7	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4
MTR REGION																					
Domestic Sales, GWh	35.5	37.8	40.5	44.6	47.1	50.1	53.2	56.5	60.1	64.0	68.1	72.0	77.4	82.5	88.2	94.3	100.8	107.6	114.8	122.3	130.4
Commercial Sales, GWh	69.2	77.7	83.7	92.5	99.2	104.1	108.5	113.1	118.1	123.2	128.6	134.3	140.1	146.2	152.7	159.5	166.4	173.6	180.8	188.1	195.8
Off-Peak Sales, GWh	1.5	1.9	1.8	1.8	1.8	1.8	1.8	1.9	1.9	2.0	2.0	2.0	2.1	2.1	2.2	2.2	2.3	2.4	2.4	2.5	2.5
Total NPCC Sales, GWh	106.2	117.4	126.0	138.9	148.1	156.0	163.0	171.0	180.1	189.1	198.7	208.9	219.6	230.8	243.1	256.1	269.5	283.6	298.0	312.9	328.7
Regional Load Factor	0.501	0.516	0.478	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
Peak Load, MW	24.2	26.0	30.0	31.8	33.9	35.7	37.4	39.3	41.2	43.3	45.5	47.8	50.3	52.9	55.7	58.6	61.7	64.9	68.2	71.6	75.2
Peak Load growth(%)	-	7	15	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
EASTERN REGION																					
Domestic Sales, GWh	59.1	56.6	65.4	71.5	75.0	80.7	85.8	91.2	97.1	103.4	110.2	117.6	125.4	133.9	143.2	153.2	163.8	175.1	187.0	199.4	212.7
Commercial Sales, GWh	225.6	247.7	269.9	281.6	311.6	336.5	360.8	387.3	416.1	447.2	480.8	517.0	555.7	597.6	643.4	692.6	745.0	800.5	858.6	919.9	985.5
Off-Peak Sales, GWh	3.5	3.1	2.9	3.0	2.9	2.9	3.0	3.1	3.1	3.2	3.3	3.4	3.4	3.5	3.6	3.8	3.8	3.9	4.0	4.1	4.1
Total NPCC Sales, GWh	288.2	307.4	338.2	356.1	390.3	420.1	449.6	481.6	516.3	553.8	594.4	638.0	684.5	735.0	790.2	849.6	912.6	979.5	1049.6	1123.4	1202.3
Regional Load Factor	0.519	0.456	0.489	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49	0.49
Peak Load, MW	62.0	77.0	79.0	83.9	91.3	98.3	105.2	112.7	120.6	129.6	139.0	149.2	160.1	172.0	184.9	199.8	219.5	229.2	245.5	262.8	281.3
Peak Load growth(%)	-	24	3	5	10	8	7	7	7	7	7	7	7	7	7	8	8	8	9	9	9
M-T, MSAVA																					
Domestic Sales, GWh	30.3	31.7	34.7	37.8	41.1	44.4	47.8	51.6	55.7	60.2	65.1	70.4	76.3	82.6	89.8	97.5	106.0	115.0	124.7	135.0	146.2
Commercial Sales, GWh	58.5	61.6	58.2	58.7	65.7	73.0	80.3	88.6	97.8	108.1	119.5	132.2	146.1	161.6	179.1	198.4	218.6	242.7	267.6	294.6	324.4
Off-Peak Sales, GWh	1.9	1.7	2.0	2.1	2.1	2.1	2.1	2.2	2.2	2.2	2.3	2.4	2.4	2.5	2.6	2.6	2.7	2.8	2.8	2.8	2.9
Total NPCC Sales, GWh	90.7	95.0	94.9	98.6	108.9	119.5	130.2	142.4	155.7	170.5	186.9	205.0	224.8	246.7	271.5	298.5	328.3	360.5	395.1	432.4	473.5
Regional Load Factor	0.552	0.516	0.492	0.48	0.46	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45	0.45
Peak Load, MW	18.8	21.0	22.0	23.4	27.0	30.3	33.0	36.1	39.5	43.3	47.4	52.0	57.0	62.6	68.8	75.7	83.3	91.4	100.2	109.7	120.1
Peak Load growth(%)	-	12	5	7	15	12	9	9	9	9	10	10	10	10	10	10	10	10	10	10	10
KENYA NATIONAL																					
Domestic Sales, GWh	589.5	644.9	689.3	732.2	768.5	808.5	845.1	886.0	929.7	978.2	1025.4	1077.9	1133.4	1193.4	1260.4	1330.6	1404.2	1471.2	1548.9	1629.6	1715.0
Commercial Sales, GWh	1345.6	1449.4	1537.8	1601.1	1727.7	1842.5	1936.4	2037.2	2145.0	2259.5	2381.1	2510.9	2649.6	2798.0	2956.2	3124.3	3302.3	3488.6	3685.1	3891.1	4097.9
Off-Peak Sales, GWh	108.9	111.1	110.6	109.1	108.9	109.7	111.8	114.2	116.4	118.9	121.7	124.8	127.2	130.9	135.7	139.7	143.1	148.1	148.2	150.7	159.0
Total NPCC Sales, GWh	2044.0	2205.4	2337.7	2442.6	2605.1	2754.8	2895.3	3037.4	3191.1	3354.7	3528.5	3713.6	3907.5	4115.3	4340.5	4578.0	4836.1	5086.1	5353.2	5631.4	5926.7
Peak Load, MW	405.9	436.0	468.0	490.9	527.1	557.4	595.3	635.3	677.2	721.1	767.0	815.3	866.2	919.8	977.8	1040.3	1104.5	1171.9	1241.9	1314.1	1388.0
Peak Load growth(%)	0.0	7.4	7.4	4.7	7.4	5.7	5.0	5.1	5.2	5.3	5.3	5.4	5.4	5.5	5.6	5.6	5.6	5.6	5.4	5.4	5.4

Source=NPCC

Appendix - 17 POWER DEVELOPMENT PROGRAMME, KPLC

Generation

<u>Year</u>	<u>Plant Name</u>	<u>Type</u>	<u>Capacity (MW)</u>
1991	Turkwel	Hydro	106 (2 x 53)
1992/93	Olkaria	Geothermal	60 (2 x 30)
1994/95	Sondu/Miriu	Hydro	48 (2 x 24)
1996/97	Eburru or Bursotkaria	Geothermal	55 (1 x 55)

Note - No combined cycle planned

- If dry climate encountered, supplementary plants (gas-turbines) may be required between Olkaria and Sondu/Miriu and between Sondu/Miriu and Eburru or Bursotkaria.

Transmission

- Olkaria-Nairobi 220 kV +100 km long, under study
- Kiambere-Nairobi 220 kV, +160 km F/S completed
- Rabai-Nairobi 220 kV, planned but no study yet
- Turkwel-Lessos 220 kV, under construction
- No immediate new 132 kV line planned

KPLC'S EXPENDITURE FOR RURAL ELECTRIFICATION

unit: million Ksh.

<u>Year</u>	<u>Amount</u>	<u>Increasing Rate at Current Price %</u>	<u>Cumulative</u>
1978	15.06	-	15.06
1979	9.57	-46.5	24.63
1980	7.59	-20.7	32.22
1981	16.30	114	48.52
1982	36.76	126	85.28
1983	6.96	-81.1	92.24
1984	18.89	171	111.13
1985	66.00	249	177.13
1986	108.40	64.2	285.53
1987	125.50	15.8	411.03
1988	284.58	127	695.61

"Kenya National Power Development Plan 1986-2006"

Appendix-19 June 1987 UNDP/IBRD, Acres International Ltd.

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- APPENDIX I - FINANCIAL FORECAST

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- ① OLKARIA GEOTHERMAL 60MW POWER STATION FEASIBILITY STUDIES
- ② TRANSMISSION INTERCONNECTION STUDIES (KIMSURI - MAFISOI LINE)
 1. Existing Arrangements
 2. Present Power Station
 3. Present Transmission
 4. Line Ratings
 5. Transmission Network Design Criteria
 6. Basis for System Studies
 7. Interconnection Options
 8. Load Flow Study Results
 9. Fault Levels
 10. Conclusions

Appendix-21

FUEL AND O&M COSTS FOR THE FISCAL YEAR 1987/88

STATION	UNITS GENERATED (KWh)	FUEL COST KShs.	O&M COSTS KShs.	FUEL COST IN UNITS/KWh/Yr	O&M COST IN UNITS/KWh/Y
HYDRO					
Kindaruma	223,273,221	0	2,810,400	0.0000	0.0126
Kamburu	432,337,000	0	2,046,722	0.0000	0.0047
Gitaru	841,335,019	0	977,799	0.0000	0.0012
Masinga	181,671,455	0	841,413	0.0000	0.0046
Kimbere	210,587,000	0	1,315,327	0.0000	0.0062
Ndula	4,593,370	0	636,774	0.0000	0.1386
Mesco	2,890,690	0	77,517	0.0000	0.0268
Sagana	9,284,220	0	924,448	0.0000	0.0996
Selby	504,221	0	47,140	0.0000	0.0935
Gogo	3,984,830	0	752,960	0.0000	0.1890
Wanjii	45,650,900	0	2,261,031	0.0000	0.0495
Tana	82,001,100	0	4,273,832	0.0000	0.0521
TOTAL HYDRO	2,038,113,026	0	16,965,363	0.0000	0.0083 ✓
THERMAL					
Kipevu					0.0992
Thermal	207,936,700	187,437,036.09	25,291,940	0.9014	0.1206
Kipevu G.T	52,323,840	83,351,855.91		1.5930	
Nairobi					
South TH	1,819,280	7,868,705.00	2,860,140	4.3252	0.1989
Nairobi				0.0440	
South G.T	12,708,600	25,513,880		2.0076	
TOTAL THERMAL	209,755,980	195,305,741		0.9311	0.0000
TOTAL G.T	65,032,440	108,865,736		1.6740	0.0000
DIESEL					
Mbaraki	479,770	437,000	125,840	0.9109	0.2623
Ruiru	422,600	796,074	455,019	1.8838	1.0767
TOTAL DIESEL	902,370	1,233,074	580,859	1.3665	0.6437 ✓
GEOHERMAL	347,980,600	0	10,760,557	0.0000	0.0309 ✓
TOTAL INT.	2,661,784,416	305,404,551	28,306,779	0.1147	0.0106 ✓

* The basis of this figure is unclear.

Source=KPLC

Appendix - 22 SAMPLE RATES OF CIVIL CONSTRUCTION WORKS IN KENYA
 (July 1989)

Earth Work

- Common excavation by hand	35 Ksh/m ³
- " by machine	100 Ksh/m ³
- Rock excavation by blasting	500 - 1,500 Ksh m ³

Concrete Work

- Concrete for foundation and structure (210 kg/cm ²)	1,800 Ksh/m ³
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Form Work

- Form work for foundation and structure	120 Ksh/m ²
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Steel Reinforcement

- Deformed bar	18,000 Ksh/ton
- Round bar	17,000 Ksh/ton

Structural Steel

- Supply, fabrication and erection	36,000 Ksh/ton
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Worker per day

- Earth worker	120 Ksh/day
- Concrete placer	180 "
- Form worker	180 "
- Re-bar placer	180 "
- Erection worker for structural steel	250 "
- Carpenter	280 "
- Electrician	280 "
- Driver	220 "
- Crane operator	350 "
- Dozer operator	350 "

Office Staff per month

- Civil engineer	60,000 Ksh/month
- Foreman	18,000 "
- Clerk	12,000 "
- Secretary	10,000 "
- Watchman	3,000 "
- House boy	1,800 "
- Cook	1,800 "
- Explosive handler with licence	6,000 "

Materials

- Sand ex-quarry		250 Ksh/ton
- Gravel ex-quarry		250 "
- Transportation of sand/gravel		
distance \leq 20 km		3.00 Ksh/ton-km
distance $>$ 20 km		2.25 "
- Cement ex-factory		1,750 Ksh/ton
- Re-bar ex-factory		
D-bar		7,940 Ksh/ton
R-bar		7,630 "
- Fuel/lubricant		
Petrol regular	bulk-1,000ℓ	8,342 Ksh
Petrol super	"	9,022 "
Gasoil	"	5,503 "
Lubricant (210ℓ)		3,609 "
Transportation for bulk		2.5 Ksh/1,000ℓ-km
- Explosive		120 - 250 Ksh/kg
- Detonator		30 - 45 Ksh/each
- Hired truck up to 7 ton		4,500 Ksh/day
- Timber		3,000 - 5,000 Ksh/m ³

第Ⅶ章 収集資料リスト

第Ⅶ章 収集資料リスト

事前調査団がK P C等ケニア側関係機関より収集した資料・地形図等は以下の通り。

番号	資料の名称	形態	版型	ページ数	オリジナル、コピーの別	部数	収集先名称又は発行機関
1	Report and Accounts for the Year ended 30th June, 1988	小冊子	A 4	34	オリジナル	1	The Kenya Power and Lighting Co., Ltd. (KPLC)
2	Report and Accounts for the Year ended 30th June, 1988	小冊子	A 4	15	オリジナル	1	The Kenya Power Co., Ltd. (KPC)
3	Environmental Management Report July, 1978 Revised(1982)	本	A 4	51	オリジナル	1	The National Environment Secretariat
4	Environmental Activities for Schools and Colleges in Kenya June 1987	パンフレット	A 5	23	オリジナル	1	The National Environment Secretariat
5	Kenya Infoterra National Focal Point	パンフレット	A 5	5	オリジナル	1	The National Environment Secretariat
6	Economic Survey 1989	本	A 4	157	オリジナル	1	Central Bureau of Statistics, Ministry of Planning and National Development
7	Development Plan 1989-1993	本	A 4	262	オリジナル	1	The Government Printer
8	Statistical Abstract 1988	本	A 4	275	オリジナル	1	Central Bureau of Statistics, MOPND
9	The East African Rift System	本	B 5	71	コピー	1	Mines and Geological Department
10	The Geology and Mineral Resources of Kenya	本	B 5	42	コピー	1	Mines and Geological Department
11	Geology of the Kericho Area (with coloured geological map)	本	B 5	67	コピー	1	Mines and Geological Department
12	Catalogue of Maps	小冊子	A 4	19	オリジナル	1	Survey of Kenya
13	Kenya Administrative Boundaries S = 1 : 1,000,000	地形図	—	1	オリジナル	1	Survey of Kenya
14	Topographic Map (Nisumu) S = 1 : 250,000	地形図	—	1	オリジナル	1	Survey of Kenya
15	Topographic Map (117/1~117/4, 118/1~118/2, 131/1~131/2, 132/1)	地形図	—	—	オリジナル	9	Survey of Kenya
16	Land Use Map S = 1 : 1,000,000	図面	—	1	コピー	1	Survey of Kenya
17	Design Drawings Kisii-Chemosit(c21) Road Plan and Profile	図面	A 1	8	コピー	8	Otieno Odongo & Partners Consulting Engineer
18	KPLC Transmissin System (Kenya Route Map) S = 1:1,000,000	地形図	—	1	オリジナル	1	KPLC
19	Kenya National Power Development Plan 1986-2006 (Executive Summary)	本	A 4	27	コピー	1	UNDP/World Bank/Acres International Ltd.
20	National Energy Policy (April 1986)	本	A 4	—	コピー	1	Ministry of Energy & Regional Development
21	Memorandum and Articles of Association The Kenya Power Co., Ltd.	本	A 4	42	コピー	1	—

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