

# 付 表



表 2.1.1 所得層別消費者物価指数  
及びインフレ率

Year	Lower income class	Middle income class	High income class	Inflation rate
Base: January-June 1975=100				
1972	70.6	70.8	73.9	
1973	82.2	79.5	85.1	9.18
1974	91.4	91.3	93.3	17.01
1975	108.2	105.1	109.3	19.06
1976	118.0	114.9	117.7	10.74
1977	142.8	130.4	134.0	14.08
1978	162.3	141.0	145.1	15.47
1979	177.1	155.7	163.8	7.74
1980	200.3	173.3	185.0	13.40
1981	239.0	216.3	185.0	12.12
1982	270.8	255.9	259.0	21.54
1983	297.9	281.7	285.7	12.30
1984	330.4	312.6	307.0	9.88
1985	364.6	348.4	333.3	12.61
1986	379.2	368.6	346.6	4.73
1987	400.5	405.5	382.4	8.71
1988	440.5	452.7	428.7	12.34
1989	483.1	505.8	475.0	13.46
Base: February-March 1986=100				
1990				15.68
March	151.2	170.5	166.2	-
June	157.0	176.3	171.6	-
September	164.0	182.7	178.8	-
December	175.0	196.0	192.9	-
1991	190.2	211.7	208.7	19.62
March	183.7	202.9	199.5	-
June	189.8	211.9	211.1	-
September	197.8	221.8	215.0	-
December	200.2	224.8	221.5	-
1992	246.4	256.6	242.8	27.50
March	224.2	250.8	234.0	-
June	265.7	259.9	244.3	-
September	267.0	266.3	250.8	-
December	275.1	276.3	262.9	-
1993	359.2	374.3	372.1	46.00
March	305.7	318.3	309.9	58.10
June	363.3	380.1	385.3	101.08
September	405.9	423.1	431.9	55.40
December	418.6	449.0	446.3	16.01
1994	463.5	478.8	485.8	
March	473.2	476.4	481.6	53.91
June	470.0	481.3	493.5	-0.98
September	457.3	479.1	496.0	-8.28
December	-	-	-	-
1995	467.1	498.0	504.5	1.6
1996	508.3	546.6	549.4	9.0
January	482.0	522.4	522.5	-
March	491.4	534.8	540.3	-
June	510.7	549.9	550.7	-
September	524.0	555.9	556.4	-
December	528.5	566.1	576.6	-
1997	-	-	-	-
January	-	-	-	-
March	-	-	-	-
June	-	-	-	-
July	-	-	-	-

Sources:

Quarterly Economic Review, Vol. XXVI No. III, January-March 1994, Central Bank of Kenya.  
 Unofficial Report on Consumer Price Index for 1993 and 1994, Central Bureau of Statistics.  
 Leading Economic Indicators, September 1994, Central Bureau of Statistics.  
 National Development Plan for the Period 1994 - 1996, Republic of Kenya.  
 Economic Survey 1997, Central Bureau of Statistics.

Note: -Lack of data.

表 2.1.2 為替交換率 (中値)

Year	US\$1	Yen100
1972	7.143	2.365
1973	6.900	2.464
1974	7.143	2.374
1975	8.250	2.700
1976	8.310	2.840
1977	7.947	3.310
1978	7.404	3.825
1979	7.328	3.046
1980	7.568	3.737
1981	10.286	4.685
1982	12.725	5.440
1983	13.796	5.958
1984	15.781	6.306
1985	16.284	8.120
1986	16.042	10.030
1987	16.515	13.394
1988	18.599	14.800
1989	21.601	15.032
1990	24.084	17.860
March	22.977	14.697
June	23.130	15.108
September	23.334	16.915
December	24.084	17.860
1991	28.074	22.352
March	26.596	19.061
June	28.655	20.795
September	28.664	21.528
December	28.074	22.352
1992	36.216	29.066
March	30.028	22.818
June	32.308	25.696
September	33.536	28.130
December	36.216	29.066
1993	68.163	60.914
March	45.528	39.060
June	65.142	61.178
September	66.962	63.713
December	68.163	60.914
1994		
March	64.858	63.030
June	55.959	56.479
September	48.007	48.750
December	-	-
1995	-	-
1996	-	-
January	56.700	53.700
March	58.400	55.200
June	58.000	45.100
September	56.400	51.400
December	55.200	48.400
1997	-	-
January	54.700	46.500
March	54.900	44.800
June	54.200	47.500
July	57.400	49.800

Sources:

Quarterly Economic Review, Vol. XXVI No. III, January-March 1994, Central Bank of Kenya.  
 Leading Economic Indicators, September 1994, Central Bureau of Statistics.  
 Monthly Economic Review, Central Bank of Kenya, August 1997.

表 2.2.1 想定人口増加率 (2010年 - 2020年)

Province/ District	2010 - 2015			2015 - 2020		
	Total	Urban	Rural	Total	Urban	Rural
Nairobi	4.57%	4.57%	-	4.56%	4.56%	-
Nairobi	4.57%	4.57%	-	4.56%	4.56%	-
Central	2.34%	6.37%	1.65%	2.34%	6.20%	1.66%
Kiambu	2.47%	6.35%	1.69%	2.47%	6.16%	1.70%
Kirinyaga	2.15%	6.81%	1.76%	2.13%	6.58%	1.74%
Muranga	1.93%	5.34%	1.52%	1.93%	5.19%	1.54%
Nyandarua	2.53%	6.89%	2.30%	2.46%	6.60%	2.22%
Nyeri	2.70%	6.81%	1.26%	2.77%	6.64%	1.41%
Coast	2.76%	4.23%	1.92%	2.74%	4.17%	1.90%
Kilifi	2.90%	7.37%	2.07%	2.86%	7.10%	2.04%
Kwale	2.18%	7.66%	1.81%	2.15%	7.34%	1.78%
Lamu	3.49%	6.73%	2.18%	3.46%	6.50%	2.18%
Mombasa	3.19%	3.19%	-	3.15%	3.15%	-
Taita T.	2.20%	4.98%	1.63%	2.21%	4.85%	1.65%
Tana R.	2.68%	7.27%	1.90%	2.66%	7.03%	1.88%
Eastern	2.70%	7.00%	1.96%	2.66%	6.76%	1.94%
Embu	2.41%	7.05%	1.97%	2.37%	6.79%	1.93%
Isiolo	5.22%	7.87%	2.43%	5.16%	7.52%	2.57%
Kitui	2.22%	7.60%	1.96%	2.17%	7.35%	1.92%
Machakos	2.77%	6.86%	1.90%	2.76%	6.65%	1.89%
Marsabit	3.38%	6.35%	1.80%	3.34%	6.06%	1.85%
Meru	2.66%	7.06%	2.04%	2.62%	6.83%	2.00%
North Eastern	3.11%	6.37%	1.56%	3.18%	6.23%	1.66%
Garissa	3.91%	7.47%	1.60%	3.98%	7.26%	1.74%
Mandera	2.21%	4.59%	1.53%	2.26%	4.59%	1.58%
Wajir	3.08%	6.10%	1.58%	3.13%	5.94%	1.71%
Nyanza	2.04%	5.85%	1.41%	2.07%	5.72%	1.45%
Kisii	1.66%	5.80%	1.31%	1.69%	5.70%	1.33%
Kisumu	3.43%	5.98%	1.77%	3.47%	5.84%	1.88%
Siaya	1.61%	5.22%	1.39%	1.63%	5.12%	1.40%
S. Nyanza	1.67%	5.67%	1.38%	1.68%	5.49%	1.40%
Rift Valley	3.51%	7.76%	2.40%	3.47%	7.57%	2.37%
Baringo	2.62%	6.58%	2.03%	2.60%	6.46%	2.00%
E. Marakwet	2.31%	6.03%	2.16%	2.25%	5.85%	2.10%
Kajiado	4.10%	8.49%	3.06%	4.00%	8.21%	2.96%
Kericho	2.36%	6.50%	1.95%	2.33%	6.40%	1.92%
Laikipia	4.13%	7.60%	2.85%	4.06%	7.41%	2.79%
Nakuru	4.95%	8.21%	2.76%	4.92%	7.98%	2.78%
Nandi	2.49%	7.40%	2.21%	2.43%	7.29%	2.15%
Narok	3.97%	9.27%	3.54%	3.81%	8.92%	3.38%
Samburu	3.83%	7.25%	2.39%	3.83%	7.12%	2.39%
Trans-Nzoia	3.46%	7.79%	2.29%	3.43%	7.60%	2.26%
Turkana	2.16%	7.52%	1.66%	2.16%	7.43%	1.65%
Uasin Gishu	3.95%	7.33%	1.79%	4.02%	7.18%	1.91%
West Pokot	2.53%	7.13%	2.09%	2.49%	6.99%	2.05%
Western	2.59%	7.27%	2.04%	2.55%	6.99%	2.00%
Bungoma	3.12%	7.80%	2.29%	3.05%	7.47%	2.23%
Busia	2.77%	8.70%	2.37%	2.69%	8.27%	2.29%
Kakamega	2.23%	6.45%	1.81%	2.21%	6.23%	1.79%
Total of Kenya	2.89%	5.88%	1.93%	2.87%	5.77%	1.92%

Source: The Study on the National Water Master Plan,  
 TI Sectoral Report (A) Socio-Economy, July 1992  
 15 Ministry of Water Development of the Republic of Kenya, JICA

表 2.2.2 人口预测 (1995年 - 2020年)

(thousand persons)

Province/ District	1995			2000			2005			2010			2015			2020		
	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural	Total	Urban	Rural
Nairobi	1,780	1,780	0	2,260	2,260	0	2,785	2,785	0	3,465	3,465	0	4,333	4,333	0	5,416	5,416	0
Nairobi	1,780	1,780	0	2,260	2,260	0	2,785	2,785	0	3,465	3,465	0	4,333	4,333	0	5,416	5,416	0
Central	3,696	457	3,239	4,178	691	3,487	4,678	873	3,805	5,249	1,099	4,150	5,892	1,497	4,395	6,616	2,022	4,889
Kilambu	1,093	156	937	1,249	242	1,007	1,405	302	1,103	1,583	376	1,207	1,788	511	1,312	2,021	690	1,427
Kirinyaga	464	30	434	519	45	474	574	58	516	633	74	559	704	103	610	782	141	665
Muranga	983	90	893	1,088	129	959	1,195	156	1,039	1,315	189	1,126	1,447	245	1,214	1,592	316	1,311
Nyandarua	450	19	431	518	32	486	575	39	536	633	48	585	717	67	655	810	92	732
Nyero	706	162	544	804	243	561	929	318	611	1,085	412	673	1,239	573	716	1,421	790	768
Coast	2,274	769	1,505	2,631	985	1,646	2,993	1,183	1,810	3,390	1,409	1,981	3,885	1,734	2,179	4,446	2,126	2,395
Kitifi	773	103	670	897	159	738	1,025	209	816	1,167	270	897	1,346	385	994	1,550	543	1,100
Kwale	461	22	439	523	43	480	576	53	523	632	65	567	704	94	620	783	134	677
Lamu	73	19	54	87	28	59	102	36	66	120	46	74	142	64	82	169	87	92
Mombasa	570	570	0	673	673	0	784	784	0	904	904	0	1,057	1,057	0	1,235	1,235	0
Taita T.	239	37	202	265	49	216	297	60	237	332	73	259	370	93	281	413	118	305
Tana R.	158	18	140	186	33	153	209	41	168	235	51	184	268	72	202	306	102	222
Eastern	4,629	571	4,058	5,328	879	4,449	6,037	1,135	4,902	6,813	1,446	5,367	7,782	2,028	5,915	8,876	2,812	6,512
Embu	440	32	408	501	51	450	559	65	494	619	82	537	697	115	592	784	160	651
Isiolo	100	50	50	129	79	50	167	106	61	210	136	74	271	199	83	348	285	95
Kitui	784	27	757	884	46	838	976	60	916	1,070	77	993	1,194	111	1,094	1,330	158	1,204
Machakos	1,721	260	1,461	1,986	395	1,591	2,264	510	1,754	2,577	652	1,925	2,955	909	2,115	3,385	1,253	2,322
Marsabit	168	57	111	196	79	117	230	99	131	270	123	147	319	167	161	376	225	176
Meru	1,416	145	1,271	1,632	229	1,403	1,841	295	1,546	2,067	376	1,691	2,357	529	1,870	2,682	736	2,066
North Eastern	424	118	306	514	196	318	597	242	355	697	300	397	813	409	429	950	553	466
Garissa	144	47	97	195	96	99	230	118	112	272	145	127	330	208	137	401	295	150
Mandera	138	27	111	154	37	117	173	44	129	196	54	142	219	68	153	245	85	166
Wajir	142	44	98	165	63	102	194	80	114	229	101	128	267	136	138	311	181	151
Nyanza	4,064	489	3,575	4,517	716	3,801	5,008	891	4,117	5,577	1,110	4,467	6,170	1,475	4,792	6,836	1,948	5,148
Kisii	1,279	80	1,199	1,401	126	1,275	1,523	154	1,369	1,662	189	1,473	1,805	251	1,572	1,962	331	1,679
Kisumu	817	301	516	971	434	537	1,156	547	609	1,381	689	692	1,635	921	755	1,939	1,224	829
Siaya	726	36	690	788	50	738	856	62	794	930	76	854	1,008	98	915	1,092	126	981
S. Nyanza	1,242	72	1,170	1,357	106	1,251	1,473	128	1,345	1,604	156	1,448	1,742	206	1,551	1,894	269	1,662
Rift Valley	6,345	1,053	5,292	7,628	1,755	5,873	9,007	2,390	6,617	10,532	3,139	7,393	12,513	4,562	8,323	14,843	6,570	9,355
Baringo	353	37	316	405	57	348	458	74	384	516	95	421	587	131	466	668	179	514
E. Marakwet	264	8	256	301	14	287	332	17	315	363	20	343	407	27	382	455	36	424
Kajiado	373	58	315	461	98	363	554	138	416	652	183	469	797	275	545	970	408	631
Kericho	1,043	72	971	1,187	118	1,069	1,323	151	1,172	1,467	190	1,277	1,648	260	1,406	1,849	355	1,546
Laikipia	289	65	224	358	105	253	434	143	291	518	188	330	634	271	380	774	388	436
Nakuru	1,197	421	776	1,545	705	840	1,970	981	989	2,464	1,305	1,159	3,137	1,936	1,328	3,989	2,842	1,523
Nandi	555	21	534	637	38	599	711	50	661	784	64	720	846	91	803	999	130	893
Narok	574	33	541	702	58	644	830	84	746	954	113	841	1,159	176	1,001	1,397	270	1,181
Samburu	148	37	111	181	59	122	217	79	138	261	104	157	315	148	177	380	208	199
Trans-Nzoia	507	85	422	616	150	466	723	200	523	842	260	582	998	378	652	1,182	546	729
Turkana	209	12	197	239	25	214	263	31	232	290	39	251	323	56	273	359	80	296
Uasin Gishu	545	185	360	666	297	369	822	401	421	1,009	525	484	1,225	748	529	1,491	1,058	582
West Pokot	288	19	269	330	31	299	370	41	329	412	53	359	467	75	398	528	105	441
Western	3,177	278	2,899	3,656	449	3,207	4,105	576	3,529	4,582	729	3,853	5,208	1,035	4,263	5,906	1,451	4,708
Bungoma	959	123	836	1,130	197	933	1,297	259	1,038	1,476	334	1,142	1,721	486	1,279	2,000	697	1,428
Busia	546	27	519	639	52	587	718	68	650	796	86	710	913	131	798	1,042	194	893
Kakamega	1,672	128	1,544	1,887	200	1,687	2,090	249	1,841	2,310	309	2,001	2,579	422	2,188	2,877	571	2,391
<b>Total of Kenya</b>	<b>26,389</b>	<b>5,515</b>	<b>20,874</b>	<b>30,712</b>	<b>7,931</b>	<b>22,781</b>	<b>35,210</b>	<b>10,075</b>	<b>25,135</b>	<b>40,305</b>	<b>12,697</b>	<b>27,608</b>	<b>46,469</b>	<b>16,897</b>	<b>30,382</b>	<b>53,541</b>	<b>22,371</b>	<b>33,415</b>

Source: The Study on the National Water Master Plan, Sectoral Report (A) Socio-Economy, July 1992, Ministry of Water Development of the Republic of Kenya, JICA.



表 3.3.1 グランドフォールズダムサイト基礎の岩盤風化度

Line DA-DB-DC (upstream)				
Depth of moderately - slightly weathered rock (CM-CH class rock) surface (m)				
Left abutment	4.20	- 9.00	- 3.00	(G95-1, G95-2 & G95-3)
River bed	10.00	approx.		(94-3)
Right abutment	4.05	- 14.05	- 17.80	(BH-3, BH-2, BH-1 & BH-4)
	6.75	- 11.20	- 5.50	(94-2, G95-4, 94-1 & G95-5)
Line DD-DB-DC (midstream)				
Depth of moderately - slightly weathered rock (CM-CH class rock) surface (m)				
Left abutment	1.50	- 7.00		(G95-6 & G95-7)
River bed	2.00			(G95-8)
Right abutment	14.30	- 10.60	- 14.05	(G95-9, G95-10 & BH-2)
	11.20	- 5.50	- 2.40	(G95-4, 94-1 & G95-5)
Line DD-DE (downstream)(River bed: No drill hole)				
Depth of moderately - slightly weathered rock (CM-CH class rock) surface				
Left abutment	1.50	- 7.00		(G95-6 & G95-7)
Right abutment	16.00	- 12.20	- 15.00	(G95-11, G95-12, G95-13 & G95-14)

Source: JICA Study Team

表 3.3.2 グランドフォールズダムサイトの表土の深さ  
(Depth and St. length: approximately)

Line DA-DB-DC (upstream)		
	Line	Depth of more than 2.8-3.0km/sec(m)
Left abutment	G95-C	5 - 10m
Right abutment	G95-D	10 - 15m, partly 20 - 25m (near G95-9, between G95-10 and GH-2)
	G95-B	5 - 10m between the river and St. 700m 15 - 25m between St. 700m and 1,250m 10 - 15m between St. 1,250m and the end of the line
Line DD-DB-DC (midstream)		
	Line	Depth of more than 2.8-3.0km/sec(m)
Left abutment	G95-C	5 - 10m
Right abutment	G95-D	10 - 15m, partly 20 - 25m (near G95-9, between G95-10 and GH-2)
	G95-B	5 - 10m between the river and St. 700m 15 - 25m between St. 700m and 1,250m 10 - 15m between St. 1,250m and the end of the line
Line DD-DE (downstream)		
	Line	Depth of more than 2.8-3.0km/sec (m)
Left abutment	G95-E	5 - 15m
Right abutment	G95-F	10 - 20m between the river and St. 300m 5 - 10m between St. 300m and the end of the line
	G95-F	5 - 10m

Source: JICA Study Team

表 3.3.3 低透水性岩盤の深さ

(Unit: m)

<b>Line DA-DB-DC (upstream)</b>				
Left abutment	6.05	- 17.35	-30.20	(G95-1, G95-2 & G95-3)
River bed	10.00	approx.		(94-3)
Right abutment	9.00	- 6.00	-23.50 - 18.55	(BH-3, BH-2, BH-1 & BH-4)
	13.50	- 19.60	-14.55 - 12.00	(94-2, G95-4, 94-1 & G95-5)
<b>Line DD-DB-DC (midstream)</b>				
Left abutment	13.00	- 9.40		(G95-6 & G95-7)
River bed	35.10			(G95-8)
Right abutment	26.00	- 19.10	- 6.00	(G95-9, G95-10 & BH-2)
	19.60	- 14.55	-12.00	(G95-4, 94-1 & G95-5)
<b>Line DD-DE (downstream)</b>				
				(River bed: No drill hole)
Left abutment	13.00	- 9.40		(G95-6 & G95-7)
Right abutment	9.00	- 19.75	-19.20 - 32.30	(G95-11, G95-12, G95-13 & G95-14)



表 4.2.1 ムトンガ貯水池により影響を受ける人口と家屋

Census ID	Village	1989 Pop	1989 H/h	Area (km <sup>2</sup> )	1996 Pop	1996 H/h
1989 Census District: EMBU, Siakago Division						
41311011	Ngiri	9	3	0.28626	7	1
41322011	Kienire	42	7	0.75446	32	5
41322021	Mangote	46	9	1.53377	37	6
41323021	Kamwaa A	2	0	0.08589	5	1
41323031	Kamwaa B	20	4	0.98017	24	4
41323041	Ngariwereri	20	4	1.36138	30	5
41332031	Muthanthara A	27	4	0.99429	42	7
41332041	Muthanthara B	166	27	2.74424	173	29
41332051	Kogari B	56	11	1.65073	80	13
41332061	Kogari A	23	5	0.54028	33	6
1989 Census District: Kitui, Kyuso Division						
43464011	Mugwuni	39	6	0.89180	48	8
43464021	Mukindu	120	22	3.43765	113	19
43464041	Kithyoko	63	11	2.17211	81	14
43464051	Ikongo	32	5	1.41188	49	8
43464061	Kangomo	17	2	0.31107	20	3
43464081	Kikumini	18	3	0.67857	22	3
46332071	Kyungu	21	4	1.96751	41	7
46332081	Mpunja	1	0	0.01766	1	1
<b>Total:</b>		<b>722</b>	<b>127</b>	<b>21.82</b>	<b>838</b>	<b>140</b>

Source: CBS, 1989 Census; Field Survey 95/96 data

表 4.2.2 低グランドフォールズガ貯水池により影響を受ける人口と家屋

Sublocation	Census ID	Village	Pop 1989	House 1989	Area (km <sup>2</sup> )	Pop 1996	House 1996
Mukonga/Ikonga	43464011	Mugwuni	29	5	0.6600	36	6
Mukonga/Ikonga	43464021	Mukindu	6	1	0.1719	6	1
Gakombe	43472011	Gakombe	228	36	4.8516	281	45
Gakombe	43472021	Nkoru	109	17	11.0268	135	21
Gakombe	43472051	Ciaikuru	165	29	6.3817	204	36
Gakombe	43472061	Kurundu	210	34	6.6532	260	41
Kanthingu/Kamaindi	43473011	Gaciongo K	139	23	3.1285	172	28
Kanthingu/Kamaindi	43473071	Konyo	45	7	1.7394	56	9
Kanthingu/Kamaindi	43473081	Kamatumo K	66	12	2.5734	35	5
Gatue	46312131	Mukengu	14	3	0.4137	17	3
Gatue	46312141	Nduruku/Ndiuni	246	40	10.1510	216	36
Kamanyaki	46332011	Kirukuma	519	75	9.0794	713	119
Kamanyaki	46332021	Kathirani	177	29	1.6316	366	61
Kamanyaki	46332031	Karie/Kanjeru	107	21	1.9399	133	26
Kamanyaki	46332041	Kamuthanga	108	18	1.9265	134	22
Kamanyaki	46332051	Kamanyaki/Karungaru	165	31	4.4133	278	46
Kamanyaki	46332061	Kathandeni	174	31	1.9114	153	26
Kamanyaki	46332071	Kyungu	20	4	1.9079	40	7
Marimanti	46342071	Kaiga Kamwe/Nkomaru	49	9	1.9141	60	11
Marimanti	46342081	Kathengesa	234	39	7.5465	289	49
Marimanti	46342091	Makomango	13	2	0.3476	16	3
Kanyuru	46343061	Mutuguni	138	24	4.4062	170	29
		<b>TOTAL</b>	<b>2961</b>	<b>490</b>	<b>84.7763</b>	<b>3770</b>	<b>630</b>

Source: CBS, 1989 Census; Field Survey 95/96 data

表 5.2.1 既存および計画中の発電所(1/2)

(A) EXISTING

(A-1) HYDROPOWER STATION

Name of Station	River	No. of Unit	Year Installed	Type of Turbine	Station Capa. (MW)	Effect. Capa. (MW)	Ann. Prod. (GWh) in 1996/97
Tana (KPC)	Maragua & Tana	3	1932/52	Francis	14.4	10.0	83.9
		2	1954/55				
Wanjii (KPC)	Maragua	4	1952	Francis	7.4	7.4	48.1
Sagana Falls (KPLC)	Tana	3	1954/55/60	Francis	1.5	1.1	9.6
Mesco (KPLC)	Maragua	1	1933	Francis	0.4	0.3	2.4
Ndula (KPLC)	Thika	2	1925	Francis	2.0	0.9	5.3
Selby Falls (KPLC)	Sosiani	2	1952	Pelton	0.4	0.4	0.6
Gogo Falls (KPLC)	Kuja	2	1958	Kaplan	2.0	1.0	5.6
Masinga (TARDA)	Tana	2	1981	Kaplan	40.0	40.0	214.6
Kamburu (TRDC)	Tana	3	1974/76	Francis	94.2	84.0	448.3
Gitaru (TRDC)	Tana	2	1978	Francis	145.0	144.0	926.0
Kindaruma (TRDC)	Tana	2	1968	Kaplan	44.0	40.0	230.3
Kiambere (TARDA)	Tana	2	1968	Francis	144.0	136.0	1027.9
Turkwel (KVDA.)	Turkwel	2	1991	Francis	106.0	106.00	353.0
Imported from UGANDA					30.0	0	143.8
Total Existing Power Station					601.3	571.1	3353.8
(including Imports)					631.3	571.1	3497.4

(A-2) THERMAL POWER STATION

Name of Station	Location	No. of Unit	Year Installed	Type of Plant	Station Capa. (MW)	Effect. Capa. (MW)	Ann. Prod. (GWh) in 1996/97
Kipevu (Steam)	Coast	3	1964-1976	Steam	75.50	46.0	200.3
Kipevu (GT)	Coast	1	1987	Gas	30.00	30.0	167.7
Nairobi South (GT)	Nairobi	1	1973	Gas	13.50	10.0	5.7
Total Existing Thermal					119.00	86.0	373.7

(A-3) INTERCONNECTED DIESELS

Name of Station	Location	No. of Unit	Year Installed	Type of Plant	Station Capa. (MW)	Effect. Capa. (MW)	Ann. Prod. (GWh) in 1996/97
Ruiru	Kiambu	2*	1948/49	Diesel	1.00	0.70	2.6
Nairobi South	Nairobi	8	1954-57	Diesel	11.33	11.33	7.0
Total Existing Thermal					12.33	12.03	9.6

\* Both units were retired in March 1997.

\*\* Only 2 units were commissioned and generated for 1 months during 1996/97.

Total station capacity when all 8 units are installed is expected to be 44.5 MW.

表 5.2.1 既存および計画中の発電所 (2/2)

(A-4) GEOTHERMAL POWER STATION

Name of Station	Location	No. of Unit	Year Installed	Type of Plant	Station Capa. (MW)	Effect. Capa. (MW)	Ann. Prod. (GWh) in 1996/97
Olkaria Nairobi	Rift Valley	3	1981-85		45.00	45.00	392.80
Total Existing Thermal					45.00	45.00	392.80

(A-5) ISOLATED POWER STATION

Name of Station	Location	No. of Unit	Year Installed	Type of Plant	Station Capa. (MW)	Effect. Capa. (MW)	Ann. Prod. (GWh) in 1996/97
Wajir	Central	4	1982, 96	Diesel	1.019		2.5
Mandera	N East	3	1989, 96	Diesel	0.788		2.1
Garissa	N East	4	1994	Diesel	2.634		7.2
Lodwar	N.Rift	4	1985, 90, 91, 94	Diesel	0.771		1.7
Moyale	East	2	1990, 95	Diesel	0.639		1.3
Marsabit	East	6	1978-84	Diesel	1.966		3.4
Lamu	Coast	4	1989	Diesel	1.156		3.8
Total Existing Power Station					8.973	0.000	22.0

(A-6) PLANTS PLANNED OR HAVING BEEN STUDIED (PREFEASIBILITY)

Name of Station	River or Location	No. of Unit	Year Installed	Type of Plant	Station Capa. (MW)	Effect. Capa. (MW)	Ann. Prod. (GWh) in 1996/97
Sondu/Miriu (D/D)	Sondu	2		Hydro	60.0	60.0	330.8 *
Magwagwa (F/S)	Sondu	2		Hydro	120.0	120.0	510.9 *
Mutonga and	Tana			Hydro	60.0	59.0	338.0 *
Low Grand Falls	Tana			Hydro	140.0	135.0	715.0 *
or High Grand Falls	Tana			Hydro	200.0	197.0	1108.0 *
Arror (F/S)	Arror	2		Hydro	35.2	35.2	157.0 *
Ewaso A (F/S)				Hydro	90.0	90.0	273.0
Ewaso B (F/S)				Hydro	90.0	90.0	281.0
Gitaru 3rd Unit	Tana			Hydro	72.5	55.0	-
Olkaria II (N.E)	Rift Valley			Geo	64.0	64.0	-
Olkaria III	Rift Valley			Geo	64.0	64.0	-
Kipevu I	Coast			Steam	75.0	75.0	-
Kipevu II	Coast			Steam	75.0	75.0	-
N.E. Olkaria	Rift Valley	2		Geo	61.4	61.4	-
Total					1007.1 (high Grand Falls)		
					1147.1 (low Grand Falls)		

Sources: KPLC Annual Report of the year ended 30th June, 1993, Kenya National Power Development Plan 1991-2010 of ACRES, and KPLC's information

Note: (1) \* are shown Table 5 of the Acres Report.

表 5.2.2 運転中の変圧器および合計設備容量

Station & Voltage	AS OF 31ST DECEMBER (MVA)								AS OF 30TH JUNE (MVA)							
	1978	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	
<b>(A-1) Generation Step-up Station</b>																
11/220KV									170	170	170	288	288	288	288	
11/132KV	331	331	397	397	397	397	417	417	417	417	417	417	417	417	417	
11/66KV	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
11/33KV	137	137	137	137	137	137	178	217	217	217	217	217	217	217	217	
11/40KV	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
3.3/11/40KV	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	
3.3/33KV	2.3	2.3	2.3	2.3	3	3	4	4	4	4	4	4	4	4	4	
3.3/40KV	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
132/220KV					270	540	540	540	540	540	540	690	690	690	690	
<b>Total</b>	517.3	517.3	583.3	583.3	854	1124	1145	1145	1186	1395	1395	1663	1663	1663	1663	
(Average Annual Growth Rate 1988-1993: 3.6%)																
<b>(A-2) Distribution Substation</b>																
220/132KV					180	580	580	580	580	580	580	580	580	580	580	
132/66KV	195	195	195	195	195	195	195	195	210	270	270	330	330	330	330	
132/33KV	180	180	180	180	239	239	285	285	285	308	308	349	349	349	372	
66/11KV	323	323	323	323	323	346	369	369	369	441	441	441	470	470	470	
66/40KV	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	
40/11KV	15.5	15.5	15.5	15.5	15.5	16	16	16	16	19	19	24	24	24	24	
33/11KV	223	237	262	270	286	294	302	325	333	358	356	375	392	392	400	
<b>Total</b>	951.5	965.5	990.5	998.5	1253.5	1685	1762	1785	1808	1862	1989	2294	2340	2340	2371	
(Average Annual Growth Rate 1988-1993: 5.0%)																
<b>(A-3) Distribution Transformer</b>																
11KV/415V & 33KV/415V	649	726	789	871	931	1005	1056	1092	1173	1300	1376	1448	1510	1557	1615	
(Average Annual Growth Rate 1988-1993: 4.4%)																

Source : KPLC Annual Report

表 5.2.3 既存送電線

## A. Transmission lines

As of:	220kV. (km)	132kV. (km)	66kV. (km)	40kV (km)	33kV (km)			
					1 cct	2-wire	SWER	U.G.
1980	217.0	1,959	368.0	113.3	1,723.3	11.1	72.7	1.3
1981	217.0	1,959	368.0	113.3	1,954.6	11.2	75.2	1.3
1982	217.0	1,959	368.0	113.3	2,128.3	11.2	75.2	1.3
1983	633.0	1,959	385.0	113.3	2,266.0	12.6	75.2	1.3
1984	633.0	1,975	396.0	113.3	2,284.2	12.6	75.2	1.3
1985	633.0	1,975	398.0	113.3	2,426.3	12.6	75.2	1.3
1986	633.0	1,975	398.0	113.3	2,554.4	12.6	75.2	1.3
1987	633.0	1,975	398.0	113.3	2,606.0	32.9	75.2	1.3
1988	633.0	1,977	400.0	113.3	2,845.0	34.3	75.2	1.4
1989	633.0	1,977	408.0	113.3	2,950.0	36.4	-	1.4
1990	657.0	1,980	444.0	113.3	3,342.0	37.8	-	1.4
1991	877.0	1,980	451.0	113.3	3,451.0	100.3	-	1.4
1992	877.0	1,980	451.0	126.1	2,585.0	116.4	-	1.4
1993	877.0	1,980	451.0	126.1	3,461.5	120.0	-	1.4
1994	877.0	1,980	573.0	126.0	3,686.0	-	-	-
1995	877.0	1,980	573.0	126.0	3,876.0	-	-	-
1996	877.0	1,980	573.0	126.0	3,969.0	-	-	-
Annual growth rate for last 10 years (%)	3.31	0.03	3.71	1.07	4.30	-	-	-

表 5.2.4 既存配電線

## B. Distribution Line

As of:	11kV (km)						L.V. (km)			
	6-Wires	3-Wires	2-Wires	SWER	U.G. Cable	Arial Cable	Total	O.H.	U.G. Cable	Total
1980	7.7	4,849	358.3	74.4	170.9	1.3	5,461.6	2,160	103.7	2,263.8
1981	7.7	5,096	367.8	49.4	181.4	1.6	5,704.1	2,307	123.0	2,429.8
1982	7.7	5,388	392.0	49.4	186.2	1.6	6,025.1	2,452	128.1	2,579.9
1983	7.7	5,616	424.4	49.4	196.1	2.3	6,295.9	2,591	217.1	2,808.0
1984	7.7	5,770	446.7	49.4	215.5	2.7	6,492.0	2,696	229.1	2,925.1
1985	7.7	6,048	481.1	49.4	254.1	3.2	6,843.5	3,006	240.7	3,247.0
1986	7.7	6,048	489.7	49.6	229.0	3.2	6,827.2	3,263	250.5	3,513.2
1987	7.7	6,146	547.0	49.6	230.0	3.2	6,983.8	3,322	254.0	3,575.8
1988	7.7	6,281	601.0	49.6	236.4	3.2	7,179.1	3,555	263.5	3,818.8
1989	7.7	6,389	617.4	51.3	244.2	3.2	7,312.9	3,827	297.4	4,124.3
1990	7.7	6,527	625.3	51.3	248.2	3.2	7,462.3	3,997	306.1	4,302.6
1991	10.7	6,957	639.7	51.3	254.9	3.2	7,916.3	4,248	329.1	4,576.9
1992	10.7	7,150	639.7	51.3	256.4	3.2	8,110.9	4,467	339.4	4,806.2
1993	10.7	7,436	734.1	51.3	263.2	3.2	8,498.0	4,512	339.4	4,851.7
1994							8,838.0			
1995							9,250.0			
1996							9,372.0			
Annual growth rate for years 1984 -	3.34	2.57	5.09	0.38	2.02	1.60	2.73	5.29	4.01	5.19

Source : KPLC Data and KPLC Annual Report

Note : SWER - Single wire earth return

U.G. - Underground

表 5.2.5 電力供給の合計とKPLCの販売電力

Source of Supply (GWh)	1978	1979	1980	1981	1982	1983	1984	1985	1986	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94	Average Growth Rate		
	(1-6)																	78-85	86-90	91-95
Hydro	1,063	1,288	1,040	1,362	1,377	1,458	1,471	1,060	828	1,792	2,038	2,449	2,517	2,760	2,776	2,974	3,163	6.72%	11.40%	6.52%
Oil Thermal	252	205	333	283	260	114	174	83	59	188	208	25	97	74	75	50	224	-14.67%	-18.53%	3.25%
Geothermal	-	-	-	260	114	174	83	144	179	374	348	322	336	298	272	272	390	-	-5.52%	0.47%
Diesel	5	1	22	1	1	-	1	2	1	5	3	2	3	3	3	1	1	-12.27%	-11.99%	-16.37%
Gas Turbine	2	1	25	-	-	-	-	4	3	53	65	21	21	21	21	21	192	10.41%	-20.95%	15.38%
Net Imports	217	160	315	194	212	179	215	269	115	211	154	112	174	134	240	273	149	3.12%	-10.75%	-3.79%
(ratio to total supply)	(14.2)	(9.7)	(18.2)	(10.3)	(10.9)	(9.9)	(10.3)	(9.3)	(10.8)	(10.1)	(4.3)	(5.9)	-	-	-	-	-	-	-	-
Uncounted	0	0	0	0	0	0	0	0	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-	-	-
Total Supply Generated	1,529	1,655	1,795	1,879	1,946	2,013	2,094	2,300	1,183	2,603	2,816	2,931	3,148	3,290	3,387	3,600	4,119	6.01%	6.03%	5.23%
Station Use	25	22	29	29	31	29	28	27	16	28	43	27	33	33	30	29	52	1.11%	4.19%	7.12%
Net Generation	1,504	1,633	1,766	1,850	1,915	1,984	2,066	2,273	1,167	2,575	2,773	2,904	3,115	3,257	3,357	3,571	4,067	6.06%	6.05%	5.21%
Growth in Net generation (%)	9.2	8.6	4.5	8.4	3.5	3.6	4.1	10	-	-	7.7	4.7	7.9	4.6	3.1	6.4	13.9	-	-	-
T & D Losses (GWh)	203	224	234	255	280	302	282	317	127	347	407	448	453	484	510	566	660	6.57%	8.67%	7.40%
% of Net Generation	13.5	13.5	13.7	13.8	14.6	15.2	13.6	13.9	17.4	17.4	17.4	15.4	14.5	14.9	15.2	15.8	16.2	-	-	-
% of Sales	15.6	15.6	15.9	16	17.1	17.9	15.9	16.2	17.4	17.4	18.5	17.4	17.4	17.9	18.5	19.5	20.2	-	-	-
Total KPLC Sales (GWh)	1,301	1,405	1,468	1,603	1,631	1,677	1,775	1,944	1,038	2,203	2,340	2,418	2,596	2,708	2,760	2,901	3,269	5.91%	5.30%	4.48%
Interconnected KPLC System	-	-	-	1,590	1,628	1,673	1,771	1,940	1,038	2,203	2,340	2,418	2,596	2,708	2,760	2,901	3,269	-	-	-
Isolated KPLC Load Centres	-	-	-	3	2	4	4	4	-	-	-	-	-	-	-	-	-	-	-	-
Total REF Sales (GWh)	2	2	4	6	7	10	15	19	10	25	36	49	66	76	85	104	138	-	32.04%	20.90%
REF Sales from Interconnected System	-	-	-	5	6	9	13	16	10	25	36	49	66	76	85	104	138	-	-	-
REF Sales at Isolated Load Centres	-	-	-	1	1	1	2	3	-	-	-	-	-	-	-	-	-	-	-	-
Total Sales (GWh)	1,301	1,407	1,472	1,599	1,638	1,687	1,790	1,963	1,048	2,228	2,376	2,467	2,662	2,784	2,845	3,005	3,407	6.05%	5.73%	4.83%
Growth in Sales (%)	8.1	8.1	4.6	8.6	2.4	3.0	6.1	9.7	-	-	6.6	3.8	7.9	4.5	2.2	5.6	13.4	-	-	-
Max. Demand, General	256	269	290	313	317	334	349	367	400	430	461	480	520	560	566	596	648	6.08%	6.35%	4.66%
Load Factor (%)	68.2	70.2	68.1	68.5	70.1	68.6	69.3	67.8	68.2	68.9	69.7	69.7	68.9	68.2	68	68.6	72.2	-0.08%	-0.25%	0.52%

Sources: Acres Report, Table 4.1 & KPLC Information

Note:

- (1) Maximum demand (MW) is for integrated system only and includes station power use.
- (2) Load factor is based on total supply generated for integrated system divided by maximum demand.
- (3) REF means Rural Electrification Fund.















表 5.2.10 各変電所における電力需要予測 (基準ケース)

Substation	Peak Demand in 1996	Peak Demand in 1997	Peak Demand in 2000	Peak Demand in 2008	Peak Demand in 2012
<b>Nairobi Region</b>					
Ruaraka	85	78	94	152	193
North Nairobi			103	168	213
Embakasi	146	135	120	195	248
Jura Road	170	157	124	202	256
Kitui	1	1	1	2	2
Sultan Hamud	2	2	2	3	4
Kiboko	1	0	1	1	1
Mulia Andel	2	2	2	4	5
Thika	22	20	24	40	50
Sub-total	429	395	471	767	972
<b>Coast Region</b>					
Voi	5	4	5	8	11
Maugu	2	1	2	3	3
Mariakani	7	6	7	12	15
Kipevu	105	95	62	100	127
Bamburi	40	36	47	76	97
Kilif	14	12	15	15	15
Rabai	0	0	48	78	99
Sub-total	173	154	186	292	367
<b>Central Rift Region</b>					
Lanet	44	47	50	80	102
Naivasha	9	10	10	17	21
Sub-total	53	57	60	97	123
<b>Western Kenya Region</b>					
Musaga	15	14	16	26	33
Webuye	17	15	18	30	38
Kisume	24	22	26	42	53
Chemosit	26	23	28	45	57
Muhoroni	0	0	0	0	0
Sub-total	82	74	88	143	181
<b>Mt. Kenya Region</b>					
Nanyuki	21	21	25	40	51
Kiganjau	20	20	24	39	49
Kiambere	1	1	1	2	3
Sub-total	42	42	50	81	103
<b>North rift Region</b>					
Lessos	7	8	9	15	19
Eldoret	23	25	31	49	63
Sub-total	30	33	40	64	82
<b>Total Power Demand</b>	<b>809</b>	<b>755</b>	<b>895</b>	<b>1,444</b>	<b>1,828</b>

表 5.3.1 地域別国内総生産

Industry of origin	(KJmillion)													Growth rate(%)
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	
<b>INCURRENCY</b>														
<b>A. Non-Monetary Economy</b>														
Forestry	21.01	21.71	22.48	24.51	26.86	27.72	28.62	29.53	30.46	31.37	32.19	33.04	33.90	4.55%
Fishery	0.82	1.03	1.19	1.29	1.66	1.45	1.50	1.53	1.51	1.49	1.39	1.27	1.15	6.86%
Building/construction	48.02	48.96	50.58	59.09	70.60	65.33	67.65	68.24	71.50	72.93	74.39	75.45	75.84	-4.75%
Water collection	19.00	19.29	19.58	20.15	20.66	21.13	21.72	22.56	23.44	24.14	24.87	25.33	25.51	2.70%
Ownership of dwelling	70.74	73.59	76.52	80.55	82.65	86.07	89.33	92.89	96.41	99.71	101.70	102.34	103.18	3.89%
Total	159.59	164.58	170.35	185.69	202.43	201.70	208.82	214.75	223.35	229.64	234.54	237.43	239.58	-4.13%
<b>B. Monetary Economy</b>														
<b>1. Enterprises and Non-profit Institutions</b>														
Agriculture	867.33	964.06	979.09	941.05	975.59	1,023.39	1,062.57	1,109.25	1,152.51	1,192.04	1,178.93	1,134.83	1,088.30	3.60%
Forestry	21.97	32.81	23.67	26.44	27.95	29.37	33.69	38.14	40.62	42.65	46.23	48.16	47.58	7.65%
Fishery	6.40	8.33	8.85	8.50	9.43	9.59	10.93	12.27	12.83	13.39	13.10	12.19	11.33	8.55%
Mining/quarrying	5.45	6.61	6.69	7.41	8.11	8.40	9.12	10.15	10.62	11.25	11.97	11.01	11.23	8.39%
Manufacturing	364.13	372.32	389.07	405.84	424.07	448.67	474.34	502.80	532.47	560.34	581.63	588.61	599.21	-4.91%
Building/construction	136.73	135.82	114.54	104.53	108.07	112.06	116.68	121.68	131.40	134.30	129.30	122.20	114.01	-0.20%
Electricity/water	45.30	23.72	25.07	26.76	29.03	31.22	33.61	36.47	39.53	43.69	45.97	45.11	45.52	-0.40%
Trade/restaurant/hotel	322.56	306.67	315.26	332.60	355.22	389.98	412.53	436.27	455.47	473.69	472.05	478.94	479.56	-4.36%
Transport/storage/communication	185.06	195.87	201.51	202.29	206.54	215.42	224.90	234.02	241.06	249.74	259.10	263.60	265.71	3.39%
Finance/insurance/real estate/business services	191.88	209.74	226.04	222.50	244.51	261.02	274.52	291.27	313.11	333.15	353.47	377.94	406.19	6.32%
Ownership of dwelling	135.84	187.78	187.92	184.55	190.34	196.53	205.63	212.20	220.63	229.35	235.31	238.98	239.46	5.99%
Other services	59.32	82.45	86.26	94.20	99.10	104.05	111.74	119.72	127.86	135.93	141.41	144.50	145.68	9.65%
Less imputed bank serv	-80.94	-87.29	-104.10	-99.40	-102.97	-105.94	-113.43	-121.81	-129.12	-134.03	-138.59	-142.03	-148.09	5.76%
Total	2,261.03	2,438.89	2,459.87	2,457.27	2,574.99	2,723.76	2,856.83	3,002.43	3,148.99	3,285.49	3,329.58	3,324.04	3,305.79	4.24%
<b>2. Private Households (Domestic Services)</b>														
Services	415.20	441.35	459.89	473.13	497.26	528.73	554.13	586.16	618.40	645.72	669.10	685.43	699.14	4.75%
Total of Monetary Economy	2,716.90	2,912.99	2,954.64	2,967.62	3,112.05	3,296.49	3,459.67	3,643.89	3,829.75	4,001.73	4,076.96	4,094.73	4,098.03	4.40%
<b>Total Gross Domestic Product at Factor Cost (Non-Monetary and Monetary Economy)</b>														
Gross Domestic Product per Capita	165.88	170.69	166.67	162.38	164.61	167.62	169.66	172.34	189.04	190.63	188.31	188.09	177.40	1.56%
<b>COMPOSITE RATE</b>														
<b>A. Non-Monetary Economy</b>														
Forestry	0.73%	0.71%	0.72%	0.78%	0.81%	0.79%	0.78%	0.77%	0.75%	0.74%	0.75%	0.76%	0.78%	
Fishery	0.03%	0.03%	0.04%	0.04%	0.05%	0.04%	0.04%	0.04%	0.04%	0.04%	0.03%	0.03%	0.03%	
Building/construction	1.67%	1.59%	1.62%	1.87%	2.13%	1.87%	1.84%	1.77%	1.76%	1.72%	1.73%	1.74%	1.75%	
Water collection	0.66%	0.63%	0.63%	0.64%	0.62%	0.60%	0.59%	0.58%	0.58%	0.57%	0.58%	0.58%	0.59%	
Ownership of dwelling	2.46%	2.39%	2.45%	2.55%	2.49%	2.46%	2.44%	2.41%	2.38%	2.36%	2.36%	2.36%	2.38%	
Total	5.55%	5.35%	5.45%	5.89%	6.11%	5.77%	5.69%	5.57%	5.51%	5.43%	5.44%	5.48%	5.52%	
<b>B. Monetary Economy</b>														
<b>1. Enterprises and Non-profit Institutions</b>														
Agriculture	30.15%	31.33%	31.33%	29.84%	29.43%	29.25%	28.96%	28.75%	28.44%	28.17%	27.34%	26.20%	25.09%	
Forestry	0.76%	1.07%	0.76%	0.84%	0.84%	0.84%	0.92%	0.99%	1.00%	1.01%	1.07%	1.11%	1.10%	
Fishery	0.22%	0.27%	0.28%	0.27%	0.28%	0.27%	0.30%	0.32%	0.32%	0.32%	0.30%	0.28%	0.26%	
Mining/quarrying	0.19%	0.21%	0.21%	0.23%	0.24%	0.24%	0.25%	0.26%	0.26%	0.27%	0.28%	0.25%	0.26%	
Manufacturing	12.66%	12.10%	12.45%	12.87%	12.79%	12.83%	12.93%	13.03%	13.14%	13.24%	13.49%	13.59%	13.81%	
Building/construction	4.75%	4.41%	3.67%	3.31%	3.26%	3.20%	3.18%	3.15%	3.24%	3.17%	3.00%	2.82%	2.63%	
Electricity/water	1.57%	0.77%	0.80%	0.85%	0.88%	0.89%	0.92%	0.95%	0.98%	1.03%	1.07%	1.04%	1.05%	
Trade/restaurant/hotel	11.21%	9.96%	10.09%	10.55%	10.72%	11.15%	11.25%	11.31%	11.24%	11.19%	10.95%	11.06%	11.06%	
Transport/storage/communication	6.43%	6.36%	6.45%	6.42%	6.23%	6.16%	6.13%	6.06%	5.95%	5.90%	6.01%	6.08%	6.13%	
Finance/insurance/real estate/business services	6.67%	6.82%	7.13%	7.06%	7.38%	7.46%	7.48%	7.55%	7.73%	7.87%	8.20%	8.72%	9.37%	
Ownership of dwelling	4.72%	6.10%	6.01%	5.85%	5.74%	5.61%	5.61%	5.50%	5.44%	5.42%	5.46%	5.52%	5.52%	
Other services	2.06%	2.68%	2.76%	2.99%	2.99%	2.97%	3.05%	3.10%	3.15%	3.21%	3.27%	3.34%	3.36%	
Less imputed bank serv	-2.81%	-2.84%	-3.33%	-3.15%	-3.11%	-3.03%	-3.09%	-3.16%	-3.19%	-3.17%	-3.21%	-3.28%	-3.41%	
Total	78.60%	79.25%	78.72%	77.93%	77.69%	77.86%	77.87%	77.81%	77.69%	77.65%	77.23%	76.73%	76.21%	
<b>2. Private Households (Domestic Services)</b>														
Services	1.07%	1.06%	1.12%	1.18%	1.20%	1.26%	1.33%	1.43%	1.54%	1.67%	1.82%	1.97%	2.15%	
<b>3. Procedures of Government</b>														
Services	14.78%	14.34%	14.72%	15.00%	15.00%	15.11%	15.11%	15.19%	15.26%	15.26%	15.52%	15.82%	16.12%	
Total of Monetary Economy	94.45%	94.65%	94.55%	94.11%	93.89%	94.23%	94.31%	94.43%	94.49%	94.57%	94.56%	94.52%	94.48%	
<b>Total Gross Domestic Product at Factor Cost</b>														
	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	

Sources:

Statistical Abstract 1986, 1989 and 1991, Central Bureau of Statistics.  
Economic Survey, 1994, Central Bureau of Statistics.

表 5.3.2 輸出品の合計

Category of goods	(KLmillion)					Growth rate(%)
	1989	1990	1991	1992	1993	
Food and Beverages	598.19	744.06	817.73	929.12	1,986.09	34.99%
Primary	525.16	637.74	678.06	758.14	1,608.12	32.28%
For industry	208.70	226.27	228.93	210.51	559.74	27.97%
For household consumption	316.46	411.47	449.13	547.63	1,048.38	34.91%
Processed	73.03	106.32	139.67	170.98	377.97	50.83%
For industry	4.98	4.41	9.26	10.14	21.91	44.83%
For household consumption	68.05	101.91	130.41	160.84	356.06	51.24%
Industrial Supplies (Non-food)	219.49	245.59	320.58	371.51	877.60	41.41%
Primary	110.47	118.59	121.46	127.99	224.60	19.41%
Processed	109.02	127.00	199.12	243.52	653.00	56.44%
Fuel and Lubricants	114.48	150.42	266.09	246.50	353.85	32.59%
Primary	0.03	0.03	0.01	0.02	0.01	-24.02%
Processed	114.45	150.39	266.08	246.48	353.84	32.60%
Motor spirit	9.06	18.24	28.82	34.09	57.04	58.40%
Others	105.39	132.15	237.26	212.39	296.80	29.54%
Machinery and Others Capital Equipm	6.53	6.90	10.52	13.77	23.43	37.63%
Machinery & other capital equipme	5.94	5.79	9.34	12.14	18.74	33.27%
Parts and accessories	0.59	1.11	1.18	1.63	4.69	67.91%
Transport Equipment	4.52	2.61	4.35	8.06	30.59	61.29%
Passenger motor vehicles	0.06	0.15	0.40	0.08	12.42	279.31%
Others	2.12	0.39	0.26	1.44	8.34	40.83%
For industry	2.07	0.36	0.20	1.39	8.31	41.55%
Non-industrial	0.05	0.03	0.06	0.05	0.03	-11.99%
Parts and accessories	2.34	2.07	3.69	6.54	9.83	43.16%
Consumer Goods Not Elsewhere Spec	56.53	82.22	113.44	139.14	353.56	58.14%
Durable	1.31	9.11	1.68	2.07	5.04	40.05%
Semi-durable	12.15	18.54	28.61	35.76	115.17	75.47%
Non-durable	43.07	54.57	83.15	101.31	233.35	52.57%
Goods Not Elsewhere Specified	0.10	0.56	1.11	0.00	0.00	-
<b>TOTAL</b>	<b>999.84</b>	<b>1,232.36</b>	<b>1,533.82</b>	<b>1,708.10</b>	<b>3,625.12</b>	<b>37.99%</b>
Percentage Shares:	1989	1990	1991	1992	1993	
Food and Beverages	598.19	744.06	817.73	929.12	1986.09	
Industrial Supplies (Non-foods)	219.49	245.59	320.58	371.51	877.6	
Fuel and Lubricants	114.48	150.42	266.09	246.5	353.85	
Transport Equipment	4.52	2.61	4.35	8.06	30.59	
Others	63.16	89.68	125.07	152.91	376.99	
	999.84	1232.36	1533.82	1708.1	3625.12	

Total

Source:

Economic Survey, 1994, Central Bureau of Statistics.



表 5.3.3 1992年の県別作物生産高

	EMBU		GARUSSA		ISIKOLO		KIAMBU		KILIFI		KITUI		LAMU		MERU		MURANGA		TANA RIVER		THARAKA-NITHI		
	Area Production (ha)	(tonnes)	Area Production (ha)	(tonnes)	Area Production (ha)	(tonnes)	Area Production (ha)	(tonnes)	Area Production (ha)	(tonnes)	Area Production (ha)	(tonnes)	Area Production (ha)	(tonnes)	Area Production (ha)	(tonnes)	Area Production (ha)	(tonnes)	Area Production (ha)	(tonnes)	Area Production (ha)	(tonnes)	
<b>FOOD CROPS</b>																							
Maize	51,419	49,157	324	2,592	34,859	56,472	37,336	85,115	2,174	2,584	76,068	83,864,970	71,929	1,353	1,353	1,353	1,353	1,353	1,353	1,353	1,353	1,353	14,780
Sorghum	8,792	2,371	156	820	4,510	18	18	22,936															2,907
Millet	8,720	3,890							25,617														7,752
Rice	24,912	19,596		284	17,104	9,507	59	16,222				54,908	29,642,220	18,778	154	123	123	123	123	123	123	123	3,076
Cow-peas	9,035	3,277	41						1,490														
Chick-peas	3,200	1,728																					
Pigeon-peas	4,676	2,173		18	63	28		18,791															
Green Grams	6,100	2,934						835	21,038			3,372	5,690	263	210	210	210	210	210	210	210	210	1,606
Irish Potatoes	1,607	10,735			14,618	131,562						16,075	144,675	37,223									500
Cassava	500	6,000		80	590	2,950		186,120				860	8,170										
Sweet Potatoes	743	13,250		100				680				253	2,532										
Arrow Root	120	1,380																					
<b>FRUITS</b>																							
Bananas	3,082	151,615	1,092	3,440	3,087	29,346																	9,628
Passion Fruits	164	2,463		245	2,450																		
Pawpaw	296	10,343																					
Avocado	289	5,784			240	2,400																	
Guavas				160																			432
Cashewnuts																							
Citrus	71	1,780		36	162																		
Mangoes	354	3,535		255	75	1,125																	
<b>VEGETABLES</b>																							
Cabbages	142	2,840			4,600	82,800																	
Kales	237	3,585		180	6,250	78,125																	
Vegetables					219	1																	
Onions	63	945			265	1,988																	
Carrots	59	590			2,355	35,325																	
Tomatoes	249	9,960	480	560				121															
French Beans	203	1,015			378	1,701																	
<b>CASH CROPS</b>																							
Coffee	617	4,189			36,959	24,109					19												29,970
Tea	3	21,055			9,525	78,051																	3,180
Cotton	2,000	328,746		14				85	4,711	1,380	1,641												2,000
Tobacco	900	1,000			2,350	43,475																	
Coconut (Nut)																							
Sunflower	910	850																					
Custar	250	1,000																					
Sisal																							
Pyralis																							
Macedonia	560	2,650			118	236																	
Groundnuts	12																						

Source: District Development Plan, MOPND

表 5.3.4 タナ川流域内灌漑計画のリスト (U/10)

Embu District

Division	Slakago	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Ishiam/Kathigi Irr	Evurore	55	50	25	Thuchi River	4EB
	Kathiga-Gaccru Irr	Kiangombe	100	100	0	Ena River	4EC
	Karerema Iri Scheme	Kiangombe	65	50	0	Ena River	4EC
	Ena Iri Project	Nharwa	180	180	175	Ena River	4EC
Division	Runyenjes	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Kamiugu	Kagaari Nort	28	28	4	Kamiugu Stre	4EC
	Ena Irrigation Schem	Kagaari Sout	160	160	3	Ena River	4EC
	Gacenga Iri Scheme	Kyeni S & N	50	75	75	Gacenga Rive	4EB
	Casafari	Kyeni South	350	142	1	Itimbogo Riv	4EB
	Kareru Iri Project	Kyeni South	126	126	0	Gitwa River	4EB
Division	Manyatta	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Kevote Iri Project	Gaturi North	35	38	0	Kirurumwe Ri	4EC
	Kianjuki Iri Projec	Gaturi North	30	30	0	Kirurumwe	4EC
	Makengi Iri Project	Gaturi North	40	40	0	Kirurumwe Ri	4EC
	Ikindu Iri Project	Gaturi South	10	14	0	Ena River	4EC
	Kiaragana Iri Proje	Gaturi South	80	600	0	Ena River	4EC
	Kiandundu	Gaturi South	40	45	0	Ena River	4EC
	Gicangai Iri Scheme	Mgimos	0	115	50	Gicangai Riv	4DC
	Kanyange Iri Projec	Ngandori	30	25	5	Kanyange Spr	4DC
	Riamaciri Iri Proje	Ngandori	10	5	5	Kathigari Sp	4DC
	Thambana Ngandori Pj	Ngandori	80	80	0	Thambana Riv	4DC
	Kithanje Kavingazi V	Ngandori	10	60	0	Kapingazi Ri	4DC
	Kivoo Iri Project	Ngandori	13	14	1	Kivoo Spring	4DC
	Kantogondu Iri Proj	Ngandori	5	30	1	Kantogondu	4DC
	Mwina Irrigation Sc	Nginda	30	30	0	R.Rupingazi	4DC
	Kii Iri Scheme	Nginda	20	20	0	Kii River	4DC
	Kamavindi/Gatunduri	Nginda	0	63	63	Kii River	4DC
	Kathigari/ Kithangan	Nginda	36	38	0	Nyanjara Spr	4DC
	Karingi Iri Project	Nginda	18	20	10	Larangi Spri	4DC
	Rupingazi Iri Schem	Nginda	40	50	15	Rupingazi Ri	4DC
	Kiandari Iri Projec	Nginda	30	40	10	Nyanjara Riv	4DC
	Gituri Iri Project	Nginda	5	7	0	Nyajara Rive	4DC
	Kaguma Iri Project	Nginda	30	30	0	Thambana Riv	4DC
	Kambevu	Nginda	10	10	3	Nyanjara Riv	4DC
	Ndaari Iri Project	Nginda	20	20	0	Nyanjara Riv	4DC
	Karau Iri Project	Nginda	6	28	4	Thambana Riv	4DC
	Kiensha	Nginda	14	13	0	Nyanjara Riv	4DC
	Inari	Nginda	0	18	0	Thambana Riv	4DC
	Kathumiri	Nginda	15	17	5	Thambana Ri	4DC
	Kiambutu	Nginda	8	50	2	Nyanjara Riv	4DC
	Rwanyaga/ Gikago	Nginda	32	34	0	Rwanyaga Spr	4DC
	Mukongoro	Nginda	10	10	0	Rupingazi Ri	4DC
	Irati	Nginda	4	4	0	Nyanjara Riv	4DC
	Kiambuigi	Nginda	28	28	0	Kamwangi Riv	4DC
	Kanyiriri	Nginda	30	30	3	Kanyiriri	4DC
Division	Gachoka	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Gategi(Karunguru) Sc	Karaba	50	50	0	Thiba River	4DA
	Wachoro/Inaitune Pj	Karaba	50	50	0	Thiba River	4DA

表 5.3.4 タナ川流域内灌漑計画のリスト (2/10)

Karaba Irr	Karaba	1,000	500	10 Masinga Dam	4DA
Karura	Kiambere	40	40	0 Gitary Dam	4FD
Mashamba Irr Scheme	Makima	200	200	0 Thiba River	4DA
Mbondoni Irr Scheme	Makima	100	80	0 Masinga Dam	4DA
Machan'Ga	Mavuria	50	50	5	4DD
Machanga	Mavuria	50	50	5 Thiba/Tana	4DD
Kangaru Irr Scheme	Mbeti North	60	60	50 Kapingazi Ri	4DD
Rianjeru Cluster	Mbeti South	100	50	15 Rupingazi Ri	4DC
Majimbo Irr Scheme	Municipalit	30	30	1 Kapingazi Ri	4DC

**Garissa District**

Division	Mbalambala	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Jara Jara	130 Km North Of Gsa	40	4	4		4GB
	Mbalambala Women	131 Km North Of Gsa	12	4	4		4GB
	Galana Male Women	132 Km North Of Gsa	40	4	4		4GB
	Nys Scheme			20	20		4GB
	Saka		40				4GC
	Kori		20	2			4GC
	Burandasa		40	1			4GB
	Maradafa		40	2			4GB
	Debi		40	1			4GB
	Koldere		20	4			4GB
	Gabobe		24	10			4GB
	Sigale		32				4GB
Division	Masalani	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Masalani	Masalani	60	10			4GE
	Kofite		1,000	8			4GF
	Gabohey						4GF
Division	Central	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Maendefeo Farm	C/Division	36	36	36		4GC
	Nep Farm	C/Division	4	4	4		4GC
	Halima	C/Division	10	4	4		4GC
	Mp	C/Division	8	5	5		4GC
	Gamadia	C/Division	40	10	10		4GC
	Captain Musa	C/Division	30	5	5		4GC
	Sai Son I Farm	C/Division	2.5	2.5	2.5		4GC
	A.D.C	D-Central	240	20	20		4GC
	Hodan	Central township 3 Km	70	4	4		4GC
	Young Muslim	Central township 3 Km	64	10	10		4GC
	Gk Demonstration	Central township 1/2	40	10	10		4GC
	Muslim Welfare Farm	Central raya Loc 10 Km	40	10	10		4GC
	Pe'S Farm	Central township next	3	3	3		4GC
	Nys-School	D-Mbalambala	32	12	12		4GC
	Gk Prison	D-Central-Township	40	4	4		4GC
	Manyatta Women	Cental	2.3	1.4	1.4		4GC
	Jamhuri	Cental	40	40	40		4GC
	Iftin	Cental	40	14	14		4GC
	Bouralgi Women	Cental	30	4	4		4GC
	Cymis	Cental	10	1.6	1.6		4GC
	Korakora li	Cental	40	8	8		4GC
	Umoja	Cental	10	14	14		4GC

表 5.3.4 タナ川流域内灌漑計画のリスト (3/10)

Sankuri	Cental	10	12	12	4GC	
Holwadag li	Cental	20	5	5	4GC	
Raya	Cental	10	6	6	4GC	
Ladgera	Cental	15	12	12	4GC	
Bakuyu	Cental	30	13	13	4GC	
Tawakal	Cental	30	25	25	4GC	
Qahira	Cental	40	14	14	4GC	
Wathajir	Cental	40	6	6	4GC	
Korakora I	Cental	30	12	12	4GC	
Segley	Cental	40	2	2	4GC	
Maramtu li	Cental	60	9	9	4GC	
Nasib	Cental	60	11	11	4GC	
Dashey	Cental	12	8	8	4GC	
Dolal	Cental	8	2.4	2.4	4GC	
First Farm	Cental	30	42	42	4GC	
Busmillah	Cental	30	11	11	4GC	
Holwadag	Cental	40	40	40	4GC	
Korane Farm	Central	8			4GC	
Hussein Farm(Ministe	Central	8			4GC	
Haji Gure	Central	10			4GC	
Riziki					4GC	
Dolotomide	Central	40	4.6		4GC	
Medina	Centralbouralgi	60	60		4GC	
Asl-Kheriya	Centralbouralgi	4	4		4GC	
Manidadi	Centralbouralgi	16	16		4GC	
Qabobey	Sarah	40	30		4GC	
Taksoy	Sankuriraya	10	10		4GC	
Khadijah	Sankuriraya	60	30		4GC	
Fortowes	Centralkorakora	60	60		4GC	
Janbu	Korakora	60	25		4GC	
Buthaya	Korakora	65	50		4GC	
Chinki	Korakora	45	25		4GC	
Bara	***Sankuri*	40	8		4GC	
Wathajir South	Korakora	50	50		4GC	
Barara	Korakora	60	40		4GC	
Dekabur	Township	42	15		4GC	
Najar	Township	40	24		4GC	
Bahbey	Township	35	14		4GC	
Ali Shuria	Township	50	20		4GC	
Ziwani	Township	32	8		4GC	
Barwako	Korakora	60			4GC	
Bathiya	Township	40	8		4GC	
Aloley	Central Div.raya Loc.	40	22		4GC	
Chinki	Central Div. Bouralgi	10	10		4GC	
Kulmis	Central bouralgi	50	35		4GC	
Banane	Central Raya	20	14		4GC	
Yarabi	Central Raya	40	24		4GC	
Degaley	Central Township	10	10		4GC	
Baraka	Central Township	15	15		4GC	
Division Bura	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
Nanighi	Bura	14	12			4GC
Bura I	Bura	15	5			4GD

表 5.3.4 タナ川流域内灌漑計画のリスト (4/10)

Masababu	Bura		10		4GD
Bura li	Bura	6	6		4GD
Guyo	Bura	20			4GD
Kamuthe	Bura	40	8		4GD
Janibu	Bura	12	2		4GD
Hidaya	Bura	20	2		4GD
Ataqjera	Bura	24	2		4GD
Galbet	Bura	20	4		4GD

**Isiolo District**

Division	Garbatulla	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Kinna Irr Scheme	Kinna	234	184	50	Kinna Spring	4GA
	Rapsu Irr Scheme	Kinna	0	0	0	Bisandi Spr	4GA

**Kirinyaga District**

Division	Ndla	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Mbeti Irr Project	Inoi	68	68	0	Mukengeria R	4DA
	Kibirigwi Irr Scheme	Kiine North	114	114	90	Ragati River	4BB
	Kimucu Irr Project	Kiine North	0	246	0	Rwaitanga R	4BB
	Baricho Mutithi Furr	Mwerua	80	45	45	Rwamuthambi	4BC
	Gctuya Irr Project	Mwerua	40	20	0	Rundu River	4BC

Division	Mwea	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Togonye Furrow	Murinduko	0	20	20	Kiye River	4DB
	Mitooini Kombuni Pj	Mutithi	70	70	0	Thiba River	4DA
	Karikoini Irr. Schem	Mutithi	60	60	30	Thiba River	4DA
	Gitooini Irr Project	Mutithi	22	24	0	Nyaikungu Ri	4DA
	Rukanga Irr Project	Mutithi	0	0	0	Rwamuthambi	4BC
	Mithuthi-Ini Imgat	Tebere	69	69	32	Murubara Riv	4DB

Division	Gichugu	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Gatu S.H Water Proje	Baragwi	24	24	14	Kaboyo River	4DA
	Gatugura Furrow	Baragwi	70	70	40	Kiringa Rive	4DA
	Thimu Gatu Furrow	Baragwi	60	60	25	Mukindu Rive	4DA
	Gikumbo Kirerembe	Baragwi	65	35	30	Thiba River	4DA
	Kaguma Women Group	Katare	14	14	6	Kiringa Rive	4DA
	Uceumbuga Irr Projec	Ngariana	0	80	0	Kii River	4DB
	Kii Murinduko Irr Pj	Njukinia	200	170	30	Kii River	4DB

**Meru District**

Division	Tigania East	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Kionimba	Mbeu	300	200	120	Thanantu	4FA
	Machogene	Mbeu	300	300	150	Thanantu	4FA
	Kaburu	Mbeu	35	3	1	Chou Stream	4FA
	Muiitha Water Project	Thangaiha	40	135	95	Thanga	4FB
	Mwiricha Water Proj.	Thangaiha	65	65	8	Ciamatha Spr	4FB
	Kiambara Water Proj.	Thangaiha	90	90	15	Ciamatha Spr	4FB
	Ithaariu Water Proj.	Thangata	70	70	12	Ithariu Spr	4FB
	Itutha Water Project	Thangata	70	170	120	Thangatha	4FB
	Amugaa Initiative Pro	Thangatha	160	60	13	Muumba Sprin	4FB
	Mutine Water Project	Thangatha	60	60	10	Thanga Sprin	4FB
	Kunati	Thangatha	420	210	60	Thangatha	4FB

表 5.3.4 タナ川流域内灌漑計画のリスト (5/10)

Division	Kamujine Y. Farmers South Imenti	Thangatha Location	280 Potential	250 Area in ha Proposed	50 Present	Kitihia Water Source	4FA Basin Code
	Nyomba Ya Kagia	Abogeta	30	30	0	frimbene	4FA
	Mara Karia Water Pro	Igoji	300	200	0	Mara River	4FB
	Mutunguru Water Proj	Igoji	60	40	10	Mutonga Rive	4EA
	Gikoi Mweru Irr Sche	Igoji	3,000	2,400	0	Mutonga Rive	4EA
	Kariigi Water Projec	Igoki	20	5	3	Kariigi Stre	4FA
	Kirie Water Project	Igoki	200	150	60	Kitihino Rive	4FA
	Baranga Water Projec	Igoki	220	150	30	Kitihino Rive	4FA
	Gianturwara Water Fu	Igoki	0	100	60	Mukuo Stream	4FA
	Gitinda Water Projec	Igoki	100	50	15	Gakoo Stream	4FA
	Kangochine Water Fur	Igoki	200	150	60	Kitihino	4FA
	Kitihino Mari Wat Pro	Igoki	320	216	60	Kitihino Rive	4FA
	Kirambini Water Proj	Igoki	360	200	100	Kitihino Rive	4FA
	Kathuku Water Furrow	Igoki	0	60	60	Kitihino Rive	4FA
	Mutwatine Water Proj	Igoki	150	100	60	Kitihino Spri	4FA
	Mburi Water Project	Igoki	150	100	50	Kirogiwe Fur	4FA
	Mitunguu Irr Proj	Igoki	500	400	400	Thingithu Rv	4FA
	Nyombayathi Water Pj	Kanyakine	300	260	0	Kitihino Rive	4FA
	Lower Kithangari	Kanyakine	1,500	1,200	160	Kitihino Rive	4FA
	Muruine Water Proj	Kanyakine	300	260	0	Iraru River	4EA
	Gitine Water Project	Kanyakine	250	120	0	Mathanjiri R	4FA
	Igokine Water Associ	Kanyakine	360	280	0	Kitihino Rive	4FA
	Gatankene Water Proj	Kanyakine	120	80	30	Keaje Stream	4FA
	Mutonga Water Furrow	Kioji	0	6	6	Mutonga Riv	4EA
	Kathigu M.C.K Wat Pj	Mitine	200	140	100	Nthinkwe Riv	4FA
	Nkui Water Project	Mitunguu	200	150	60	Kitihino Riv	4FA
	Muguru Water Project	Mitunguu	50	5,070	0	Thingithu Ri	4FA
	Thingithu Water Proj	Mitunguu	100	80	0	Thingithu Ri	4FA
	Kithare Water Projec	Mitunguu	100	80	30	Thingithu Ri	4FA
	Njurene Water Projec	Mkuene	400	300	80	Marimba Rive	4FA
	Ngonyi Water Project	Nkuene	150	120	10	Kitihino Rive	4FA
	Kaguru-Kirogine Furr	Nkuene	0	100	30	Kitihino Rive	4FA
	Magundu Water Projec	Nkuene	160	144	10	Thingithu Ri	4FA
	Ithambara Water Proj	Nkuene	250	150	60	Kitihino Rive	4FA
	Kitharu Water Projec	Nkuene	0	20	20	Tharu Stream	4FA
	Mutonge Mutune Water	Nkuene	280	80	80	Spring	4FA
	Kitihino Green Water	*Nkuene,Igoki*	350	300	100	Thagara Riv	4FA
Division	North Imenti	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Tuti Water Project	Giaki	700	400	80	Kuuru River	4FA
	Kioru Rungene W.Proj	Giaki	2,600	600	200	Riiji River	4FA
	Kianjagi Water Proj	Giaki	300	300	250	Riiji River	4FA
	Kathilune Mujogia Wp	Giaki	600	500	50	Kinyariba R	4FA
	Kiburine Furrow I.Pr	Giaki	200	200	50	Kuuru River	4FA
	Muguna/Igori	Ntima	450	220	0	Kabita	4FA
	Kiriungi W.G.Water.P	Ntima	100	98	0	Riiji River	4FA
	Mariara	Ntima	1,100	30	0	Mariara Rive	4FA
	Mworosa	Ntima	280	206	25	Kabita	4FA
	Gatmana Water Proje	Ntima	300	225	0	Riiji River	4FA
	Magundu	Ntima	350	300	150	Wabita	4FA
	Gakumbo	Ntima	2,010	1,340	150	Nkurune	4FA
	Ngachuma	Ntima	80	25	25	Ngachuma	4FA

表 5.3.4 タナ川流域内灌漑計画のリスト (6/10)

Kiringa Wendo W.Proj	Ntima	3	180	0	Kathita River	4FA
Mwiteña Kithiu W.P	Ntima	210	180	0	Kathita River	4FA
Kiambogo Factory W.P	Ntima	30	30	0	Kathita River	4FA
<b>Division Igembe</b>	<b>Location</b>	<b>Potential</b>	<b>Area in ha Proposed</b>	<b>Present</b>	<b>Water Source</b>	<b>Basin Code</b>
Ura Swamp	Akachiu	25	25	5	Swamp	4FB
Antuhochiu	Akachiu	40	20	15	Mboone	4FB
Gakui	Akachiu	150	60	2	Gakui	4FB
Kindani/Kilili	Akachiu	300	300	0	Kindani	4FB
Kanjoo	Maua	600	400	100	Rujwero	4FB
Nhambiro	Maua	200	150	10	Muthucine	4GA
Gakunku	Maua	100	70	15	Gakunku	4GA
Kitheo	Maua	750	280	30	Kitheo	4GA
Kithetu	Maua	30	30	0	Kathima	4GA
<b>Division C. Imenti</b>	<b>Location</b>	<b>Potential</b>	<b>Area in ha Proposed</b>	<b>Present</b>	<b>Water Source</b>	<b>Basin Code</b>
Kairebi S.H.Group	Gatimbi	50	50	5	Gauri River	4FA
Nkuu-Njumo W. Assoc.	Gatimbi	75	80	0	Mariara Rive	4FA
Ciontare Water Proj.	Gatimbi	2,100	1,000	40	Mariara Rive	4FA
Kieguchia Gatimbi Pr	Gatimbi	4,000	3,600	600	Thingithu R.	4FA
Nkuene-Kathai W.Proj	Gatimbi	600	500	0	Mariara Rive	4FA
Kathenju S.H/W/Proj	Gatimbi	90	80	0	Gasongi R.	4FA
Kithambaru S.H.Group	Gatimbi	440	160	3	Thamba Ngomb	4FA
Tabata Water Project	Gatimbi	75	60	0	Kagumba Rive	4FA
Kamenya Water Proj.	Gatimbi	250	200	2	Gatimbi Riv.	4FA
Mukika Water Project	Gatimbi	300	200	2	Gatimbi Rive	4FA
Muguna Mbajone W.Pro	Mwangathia	200	150	0	Guatu	4FA
Gaitu-Kaguma W.Proj	Mwangathia	1,280	1,000	0	Mariara Rive	4FA
Kiiga Water Project	Mwangathia	225	180	0	Rwa-Iri Riv.	4FA
Mutura Women W. Pro	Mwangathia	600	400	30	Mariara Riv.	4FA
Ndamene Water Proj.	Mwangathia	200	200	0	Kauga-Ngogo	4FA
Muongano Women Wat P	Mwangathia	600	500	0	Guatu River	4FA
Maringarino Water As	Mwangathia	680	600	0	Kathita Riv	4FA
Igane Kathigau W.Pr.	Mwangathia	800	320	0	Thingithu R.	4FA
Mujwa-Mututa W. Sche	Mwangathia	2,900	440	2	Thingithu R.	4FA
Kanja Se.H.Women Gr.	Mwangathia	840	750	0	Mariara Rive	4FA
Ihuri Water Project	Mwangathia	220	180	8	Mariara Rive	4FA
Kamene Water Proj.	Mwangathia	800	600	0	Mariara Riv	4FA
Ngonga-Makandune	Mwangathia	2,000	400	0	Thingithu Ri	4FA

**Muranga District**

<b>Division Makuyu</b>	<b>Location</b>	<b>Potential</b>	<b>Area in ha Proposed</b>	<b>Present</b>	<b>Water Source</b>	<b>Basin Code</b>
Punda Mulia Ph 1	Makuyu	76	76	35	R. Athara	4BF
Punda Mulia Ph 2	Makuyu	336	336	0	R. Thara	4BF
<b>Division Kiharu</b>	<b>Location</b>	<b>Potential</b>	<b>Area in ha Proposed</b>	<b>Present</b>	<b>Water Source</b>	<b>Basin Code</b>
Kamkaye (Gitori)	Mugoiri	50	80	12	River	4BD
Muthithu (Kaga Kiagu	Mugoiri	60	100	8	River	4BD
Karuru/ Mbari Ya Hit	Mugoirini	70	120	10	River	4BD
<b>Division Kigumo</b>	<b>Location</b>	<b>Potential</b>	<b>Area in ha Proposed</b>	<b>Present</b>	<b>Water Source</b>	<b>Basin Code</b>
Kanyariri	Nginda	200	300	50		4BE
Ikindu Drainage	Nginda	60	80	20		4BE
Ikuyu Drainage	Nginda	60	80	0		4BE

表 5.3.4 タナ川流域内灌漑計画のリスト (7/10)

Kianjiruini Drainage		Nginda	350	400	100		4BF
Division	Kangema	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Mukangae	Ivego & Kany	60	160	0		4BA
	Ihigaini Irr.	Kamacharia	100	100	3	R. Karuma	4AD
	Gathambiro	Kanyenyaini	4	4	0		4AD
	Kagumoini Irr	Kiru	90	96	0	R. Gatuambug	4AD
Division	Kandara	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Nginyi/ Githanji	Gaichanjiru	90	180	0		4BF
	Ngumbo Valley	Gaichanjiru	60	85	40	River	4BF
	Muruka Valley	Muruka	50	50	40	River	4BF
	Makindi Valley	Muruka	45	45	38		4BF
	Thamuru Valley	Muruka	30	30	25	River	4BF
	Kahuma (Naaru) Dr	Muruka	6	6	2	Wells	4BF
	Ngararia Drainage	Muruka	26	26	0		4BF
	Kabuku Valley	Muruka	60	65	45		4BF
	Nguthuru Drainage	Muruka	8	8	3		4BF
Division	Galanga	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Thuita/ Mukurve Irr	Kibumbuini	150	650	15	River	4BF

**Nyeri District**

Division	Tetu	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Kagumo	Aguthi	12	12	0	River Kagumo	4AC
	Kiahiti Irr Scheme	Aguthi	0	8	8	River Sagana	4AA
	Gikaka Irr Wat Assoc	Aguthi	6	8	4	R. Kanyirini	4AB
	Gikumbo	Aguthi	0	0	0	River Gura	4AB
	Nyeri Hill S.H.P	Muboya	0	80	0	R. Muriwato	4AB
	Kihora Irr S.H.P	Thegenge	100	250	0	River Kagumo	4AB
	Kagumo Irr Project	Thegenge	390	463	20	River	4AB
	Kiunyu Irr Scheme	Thegenge	80	125	2		4AB
Division	Othaya	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Karithi	Chinga	0	0	0	River	4AC
	Nduye Valley	Inai-Ini	45	60	0		4AC
	Gikeu S.H. Hort Proj	Karima	0	48	24	River Thuti	4AC
	Kamoko Irr Project	Mahiga	0	0	0	River Mumwe	4AC
Division	Municipality	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Thuta (Kiamwathi)	Mukaro	34	18	18		4AB
	Njengu Scheme	Mukaro	24	10	10		4AB
Division	Mukurweini	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Thiha Sagana Irr Sch	Rutaac	120	128	0		4BB
Division	Mathira	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Itoga Farmers		80	80	40	River	
	Ihwagi Green Land	Iriaini	400	500	60		4BB
	Kangocho Water Furro	Iriaini	95	102	40	River	4BB
	Muteithia Irr Wat Pj	Kirimkuyu	350	380	0	River Ragati	4AA
	Hohwe Drainage Proje	Kirimkuyu	24	50	0		4AA
	Rathithi Drainage	Kirimkuyu	55	100	5		4AA
	Karithi Irr Proj	Kouyu	260	800	0	River Ragati	4BB
	Kimbiria Kagonyo Wat	Magutu	0	100	45	River	4AA
	Kanjuri Water Projec	Magutu	0	600	60	River	4AA



表 5.3.4 タナ川流域内灌漑計画のリスト (8/10)

Gikore Water Project	Magutu	100	200	0	River	4AA
Gitunduli Water Proj	Magutu	0	500	0	River	4AA
Upper Magutu Water	Magutu	330	1,232	0	River	4AA
Gaikunu/Kiangima Wat	Magutu	300	400	0	River	4AA
Ruturu	Ruguru	300	500	0		4AA
Sagana Scheme	Ruguru	0	600	300	River Sagana	4AA
Ruiruiru	Ruguru	0	100	40	R. Ruiruiru	4AA
<b>Division Kieni West</b>	<b>Location</b>	<b>Potential</b>	<b>Area in ha Proposed</b>	<b>Present</b>	<b>Water Source</b>	<b>Basin Code</b>
Ruricho	Gataragwa	250	600	36	R. Uasonyiro	4AA
Rurichu	Gataragwa	250	600	36	R. Uasonyiro	4AA
Kiugu Water Project	Mugunda	76	103	40	River	4AA
Kariguini Irr Scheme	Mugunda	0	124	0	R. Kariguini	4AA
Honi Ruhotie	Mweiga	68	172	44	R. Ruhotie	4AB
Kinyaiti Water Proje	Mwiyo	0	0	0	R. Thuruthuru	4AB
Mithuni Irr Profil	Mwiyo	74	296	0	River Moyo	4AB
<b>Division Kieni East</b>	<b>Location</b>	<b>Potential</b>	<b>Area in ha Proposed</b>	<b>Present</b>	<b>Water Source</b>	<b>Basin Code</b>
Maragima & Tagwa	Thego	900	1,840	0		4AA
Ngogithi(Mathina)I.S	Thego	160	200	200	R. Nairobi	4AA

## Tana River District

<b>Division Madogo</b>	<b>Location</b>	<b>Potential</b>	<b>Area in ha Proposed</b>	<b>Present</b>	<b>Water Source</b>	<b>Basin Code</b>
Anoie			20			4GC
Koroso			25	5		4GC
Madogo	Madogo		53	53	Tana	4GC
Madogo Self Help	Madogo		12	10	Tana	4GC
Mulanjo			24			4GC
Sombo	Madogo		10	10	Tana	4GC
<b>Division Garsen</b>	<b>Location</b>	<b>Potential</b>	<b>Area in ha Proposed</b>	<b>Present</b>	<b>Water Source</b>	<b>Basin Code</b>
Golbanti			40		Tana	4GG
Hewani	Salama		32	32	Tana	4GG
Mnazini	Ndera		33	0	Tana	4GG
Ngao	Ngao		200	71	Tana	4GG
Oda	Ngao		24	24	Tana	4GG
Semikaro	Chara		40		Tana	4GF
Wema	Salama		59	59	Tana	4GG
<b>Division Galole</b>	<b>Location</b>	<b>Potential</b>	<b>Area in ha Proposed</b>	<b>Present</b>	<b>Water Source</b>	<b>Basin Code</b>
Chanani			25	2	Tana	4GE
Chewani			15		Tana	4GE
Ghalamani		10	40	4	Tana	4GF
Laza Minor		100	45	40		4GF
Lenda			40		Tana	4GE
Mkwajuni			25		Tana	4GE
Ndura			40	10	Tana	4GE
Rhoka	Milalulu		60	39	39 Tana	4GE
<b>Division Bura</b>	<b>Location</b>	<b>Potential</b>	<b>Area in ha Proposed</b>	<b>Present</b>	<b>Water Source</b>	<b>Basin Code</b>
Chewe Self Help	Chewe		10	1.5	Tana	4GE
Hida			25			4GD
Mkomani	Chewe		25	3	Tana	4GE
Murokani			25		Tana	4GG
Nanighi	Nanighi	100	25	2	Tana	4GD

表 5.3.4 タナ川流域内灌漑計画のリスト (9/10)

Shikadabu		10	1.5	Tana	4GC		
Division	Bangall	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Amukram			50			4GC
	Gubatu			40			4GC
	Mbalambala		40	20		Tana	4GC
Division		Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Bangale		40	40			
	Chende			20	20		
	Korocho 1st Farm			40	40		
	Mango			15	15		
	Mikomani		40	40			
	Milindani		40	40			
	Mkwajin			10	10		
	Wanje Bububu		100	100		Tana	
	Wayu			40			

### Tharaka-Nith District

Division	Tharaka	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Thanantu	Gikiogo	3,000	3,000	0	Thangatha	4FB
	Ura/Runkunu	Kanjoru	800	800	0	Runkunu Rive	4FB
	Ruungu Prop Irr Proj	Marimanti	400	250	0	Thingithu Ri	4FA
	Nthikuru	Marimanti	80	80	0	Thanantu	4FA
	Nkondi Proposed Sche	Marimanti	400	365	0	Kathitha Riv	4FA
	N'Guuru Gakirwe Ph 1	South Tharak	260	260	260	Kithihu Riv	4FA
	N'Guuru Gakirwe Ph 3	Tunyai	400	400	0	Kithihu Rive	4FA
	N'Guuru Gakirwe Ph 2	Tunyai	600	600	0	Kithihu Rive	4FA
	Nkarini Prop Project	Tunyai	300	300	0	Thingithu	4FA
	Tumbura	Turima	500	250	0	Kathitha Riv	4FA
Division	Nithl	Location	Potential	Area in ha Proposed	Present	Water Source	Basin Code
	Gitombani Water Proj	Chogoria	150	70	0	Kauji Stream	4EA
	Nnumbara	Kajuka	20	20	0	Ruguti River	4EB
	Kandondo	Kajuka	26	26	0	Thuci River	4EB
	Nithini	Kajuki	40	40	0	Mara River	4EB
	Mugere	Kajuki	30	30	0	Mara River	4EB
	Ndeetha Proposed Pj	Kajuki	20	20	0	Naka River	4EB
	Kithinge	Kajuki	10	10	0	Mara River	4EB
	Kiamuramba	Kajuki	30	30	0	Mara River	4EB
	Kigatunii	Kajuki	19	18	0	Thuci River	4EB
	Nkarambatu	Kajuki	20	20	0	Mara River	4EB
	Mpangua	Kajuki	18	18	0	Mutonga Rive	4EA
	Kiaritha Women Group	Kamwimbi	20	54	0	Tbuchi River	4EB
	Muthuari	Kamwimbi	140	140	0	Thuci	4EB
	Ntuntuni Irr Project	Karingani	100	60	0	Tungu River	4EB
	Iruua Magutini Proj	Kiera	400	365	12	N/Mara River	4EA
	Kieni	Kiera	80	80	2	N/Mara River	4EA
	Maara	Kiera	5	5	2	N/Maara	4EA
	Thigaa	Kiera	70	70	12	Kirurumwe Ri	4EA
	Kamuu	Magumoni	13	13	0	Kamuu River	4EB
	Nthambo	Magumoni	40	25	15	Kathithuku	4EB
	Inamakithi	Magumoni	28	28	0	Mwirithie Riv	4EB
	Mwirithie	Magumoni	10	10	7	Mwirithie	4EB

表 5.3.4 タナ川流域内灌漑計画のリスト (10/10)

Kamugoro Iri Projec	Magumoni	10	10	0		4EB
Gatwoni Water Scheme	Mugwe	14	40	40	Kathera Rive	4EB
Kamagutu Water Furro	Mugwe	30	20	0	Irigu River	4EB
Mbaraga Irrigation	Mugwe	40	40	0	Ruguti River	4EB
Kathima Muchege	Mugwe	38	20	0	Kathima Rive	4EB
Katheru Water Farrow	Mugwe	15	10	0	Katheru Rive	4EB
Irigu Water Farrow	Mugwe	50	40	10	Irigu	4EB
Miigi Womens Group	Mwonge	15	7	0	Miigi Stream	4EB

表 5.3.5 各分割流域における水取水量

BasinCode	Number	NORMAL						FLOOD						Unit:m3/day	
		Public	Domestic	Minor Jr.	Industry	Power	Gen Jr	Other	Public	Domestic	Minor Jr.	Industry	Power		Gen Jr
4	123	122.34	1,033.53	0.00	321.57	0.00	0.00	12,062.91	267.14	0.00	0.00	12.61	0.00	0.00	22,188.80
4A	4	4.78	0.00	4.78	6.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4AA	278	14,221.64	30.83	0.45	3.72	1.92	1.26	3,447.41	3,447.85	0.00	0.00	0.00	0.00	0.00	8.38
4AB	222	2,709.85	19.33	24.23	4,004.04	0.00	0.00	5.82	58,975.03	0.83	506.49	86,995.41	0.00	0.00	7.33
4AC	151	512,770.71	0.00	1.85	246.92	0.00	0.00	12.64	284.53	0.00	1,956.73	337.27	0.00	0.00	7.79
4AD	96	30.01	6.46	0.52	20.16	0.00	0.13	3.26	81.36	0.00	0.00	4.31	0.00	0.51	1.32
4AG	2	1.52	2.56	0.00	0.00	0.00	0.00	0.00	0.00	25.42	0.00	0.00	0.00	0.00	0.00
4B	12	0.59	32.64	0.00	130.58	0.00	0.00	0.00	3.33	0.00	0.00	12.23	0.00	0.00	1.41
4BA	74	34.40	0.00	0.00	31.84	0.00	0.00	8.16	56.89	0.00	0.00	0.00	0.00	0.00	0.00
4BB	302	874.25	586.09	0.89	149.74	72.02	0.51	44.40	2,152.76	0.00	0.00	3.16	0.25	10.00	17.20
4BC	242	114.64	0.14	4.85	19.80	7.52	0.64	180.50	1,766.05	7.69	0.00	18.13	0.00	0.00	0.55
4BD	145	32.83	102.10	0.00	102.61	0.00	0.11	1.32	434.60	0.00	0.00	26.35	0.00	0.00	7.28
4BE	245	118.58	561.29	0.00	104.18	0.00	0.00	16.52	817.22	41.81	0.00	44.16	0.00	0.00	0.00
4BF	86	62.94	2.82	0.27	55.22	69.28	0.00	41.95	26.41	0.00	0.00	0.00	0.00	0.00	1.75
4BG	45	23.68	0.00	0.00	1.28	0.00	19.19	1.46	1,417.43	0.00	0.00	0.00	0.00	0.00	0.00
4C	13	9.53	0.00	0.00	0.00	0.00	0.00	0.00	20.51	0.00	0.00	0.00	0.00	0.00	0.00
4CA	216	134.26	78.24	4.17	62.68	1,960.84	2.95	0.13	571.77	0.00	5.68	183.54	0.57	0.90	0.21
4CB	277	422.51	2.78	0.01	207.93	69.28	0.00	3.84	245.43	0.14	0.00	264.03	0.00	0.00	0.00
4CC	310	94.54	3,182.61	2.28	884.73	0.00	2.69	66.95	780.83	0.00	0.01	2,262.75	0.00	22.78	333.70
4CD	2	0.01	0.00	0.00	2.56	0.00	0.00	0.00	1.28	0.00	0.00	0.00	0.00	0.00	0.00
4D	9	0.52	0.00	0.00	1.29	0.00	0.00	0.00	91.32	0.00	0.00	242.75	0.00	0.00	0.00
4DA	370	74.18	25.30	2.56	70.06	51.27	0.00	152.67	607.95	0.00	0.26	216.15	0.00	0.00	6.66
4DB	152	81.51	0.00	0.52	33.64	0.00	0.02	5.26	408.92	0.00	0.35	626.66	0.00	2.56	365.94
4DC	183	140.56	99.32	0.00	69.49	431.50	0.00	107.69	645.42	0.59	0.00	33.25	386.37	0.00	290.09
4DD	81	9.13	0.00	0.00	0.00	0.00	0.00	0.24	26.91	0.00	0.00	0.00	0.00	0.00	0.41
4DE	4	0.04	0.00	0.00	0.00	0.00	0.00	0.00	2.56	0.00	0.00	0.00	0.00	0.00	0.00
4DF	3	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.77	0.00	0.00	0.00	0.00	0.00	0.00
4E	1	2.05	0.00	0.00	0.00	0.00	0.00	0.00	0.44	0.00	0.00	0.00	0.00	0.00	0.00
4EA	97	145.28	110.95	0.53	228.17	0.00	0.00	20.01	211.72	630.07	5.78	11.93	0.23	0.00	153.97
4EB	288	1,819.64	476,964.56	0.67	6,458.28	0.39	0.00	601.13	15,933.89	16.13	2.30	10.67	0.00	0.00	13.22
4EC	100	91.97	0.25	0.00	60.96	0.00	0.00	3.55	176.13	2.56	0.00	0.00	0.00	0.00	0.00
4ED	2	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4E	934	701.97	203.31	0.57	118.55	33.32	0.00	325.27	3,548.05	70.35	2.02	108.78	18.47	0.00	416.97
4FB	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4G	32	42.83	2.56	0.00	0.00	0.00	0.00	0.00	25.57	0.00	0.00	0.00	0.00	0.00	0.00
4GA	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4GB	2	0.08	0.00	0.00	0.00	0.00	0.00	0.00	8.97	0.00	0.00	0.00	0.00	0.00	0.00
4GC	1	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.32	0.00	0.00	3.27	0.00	0.00	0.00
4H	54	45.73	0.00	0.00	0.00	0.00	0.00	0.06	269.26	0.00	0.00	0.00	0.00	0.00	0.31
4C	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4KA	1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4LB	2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4S	1	0.17	0.00	0.00	0.00	0.00	0.00	0.00	3.59	0.00	0.00	0.00	0.00	0.00	0.00
Total	5,163.00	534,939.57	483,067.67	49.15	13,396.39	2,697.34	27.50	14,013.15	93,312.21	795.59	2,479.62	91,448.17	544.41	36.75	23,829.04

Source : MoWTD

表 5.3.6 流量の指標

Basin	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4AA	1	0	0	1	1	1	1	1	1	1	1	1
4AB	0	0	0	1	1	1	1	1	1	1	1	1
4AC	1	1	1	1	1	1	1	1	1	1	1	1
4AD	1	1	1	1	1	1	1	0	1	1	1	1
4BA	1	1	1	1	1	1	1	1	1	1	1	1
4BB	1	1	1	1	1	1	1	1	1	1	1	1
4BC	1	1	1	1	1	1	1	1	1	1	1	1
4BD	1	1	1	1	1	1	1	1	1	1	1	1
4BE	1	1	1	1	1	1	1	1	1	1	1	1
4BF	1	1	1	1	1	1	1	1	1	1	1	1
4BG	1	1	1	1	1	1	1	1	1	1	1	1
4CA	1	1	0	1	1	1	1	1	1	1	1	1
4CB	1	1	0	1	1	1	1	1	1	1	1	1
4CC	1	1	0	1	1	1	1	1	1	1	1	1
4DA	1	1	1	1	1	1	1	1	1	1	1	1
4DB	1	1	0	1	1	1	1	1	1	1	1	1
4DC	1	0	0	1	1	1	1	1	1	1	1	1
4DD	1	1	1	1	1	1	1	1	1	1	1	1
4DE	1	1	0	1	1	1	1	1	1	1	1	1
4EA	1	1	1	1	1	1	1	1	1	1	1	1
4EB	1	1	1	1	1	1	1	1	1	1	1	1
4EC	1	1	1	1	1	1	1	1	1	1	1	1
4ED	1	0	0	1	1	1	1	0	0	0	1	1
4FA	1	1	1	1	1	1	1	1	1	1	1	1
4FB	1	1	1	1	1	1	1	1	1	1	1	1
4GA	1	1	1	1	1	1	1	1	1	1	1	1
4GB	1	1	1	1	1	1	1	1	1	1	1	1
4GC	1	1	1	1	1	1	1	1	1	1	1	1
4GD	1	1	1	1	1	1	1	1	1	1	1	1
4GE	1	1	1	1	1	1	1	1	1	1	1	1
4GF	1	1	1	1	1	1	1	1	1	1	1	1
4GG	1	1	1	1	1	1	1	1	1	1	1	1
4HA	1	1	1	1	1	1	0	0	1	0	1	1
4HB	1	1	1	1	1	1	1	1	1	1	1	1
4HC	1	1	1	1	1	1	1	1	1	1	1	1
4JA												
4JB												
4KA												
4KB												

Note: 1=Flood 0=Normal

Source : National Water Master Plan 1992, JICA

表 5.3.7 作物の水必要量

(Unit : mm)

Station	Crop Type	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Annual
Garissa	Type I	67		256	304	342	87		167	86	332	273	212	1820
	Type II	286	259	278	250	278	235	262	263	279	292	211	226	2772
Hoi	Type I	21		379	319	335	52		233	145	338	307	271	2021
	Type II	310	311	315	243	264	223	255	281	300	282	237	291	2745
Kabondori	Type I		116	192	113	191	45	67	29	237	237	99	97	1105
	Type II	264	226	194	71	153	129	183	163	245	209	73	135	1638
Kiiakia	Type I			74										74
	Type II	111	128	72						25	23		27	294
Kitui	Type I	85	132		7	197	258	157		163	310	82	148	1213
	Type II	259	283	225	82	190	221	228	251	285	293	24	79	1946
Lamuria	Type I	2	28	127	128	88		58	134	240	218	51	53	749
	Type II	187	157	138	131	211	178	208	180	247	161	91	133	1379
Meru	Type I		26	133		65	99	22	24	232	144		8	639
	Type II	97	187	192		14	127	156	229	225	132			1059
Mwea	Type I		185	247	152	130	17		39	247	276	142	124	1198
	Type II	280	275	228	89	92	153	164	224	264	235	110	198	1839
Mwingi	Type I	100	167	24	88	234	245	135		181	299	145	214	1562
	Type II	284	276	255	138	228	210	205	268	278	281	84	159	2279
Nanyuki	Type I	7	81	159	74	141	403	94		31	125	112	85	694
	Type II	231	216	189	71	85	129	158	158	182	148	100	150	1382
Ngao	Type I	71		288	281	254	33	0	167	87	309	254	286	1554
	Type II	299	283	320	225	196	177	235	264	291	300	225	300	2475
Nyeri	Type I	0	86	168	57	47	68	16	9	63	202	119	40	686
	Type II	278	229	185	63		88	66	165	215	224	107	139	1387
Thika	Type I	127	272	253	57	83	21	16	115	215	296	155	16	1215
	Type II	283	280	208	40	114	132	133	151	242	227	116	185	1592
Yatta	Type I	206		124	147	249	224	25	183	10	253	200	255	1484
	Type II	293	267	234	156	185	185	172	231	268	277	161	216	2095

Type I : specific crops

Type II : Green gram

Source : Water Requirements for Irrigation in Kenya 1985 (Sep.), MOWD

表 5.3.8 1995年の各分割流域における月別灌漑需要量

Unit: m3/sec

Basin	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4AA	0.000	0.274	0.483	0.169	0.135	0.202	0.046	0.026	0.187	0.581	0.354	0.115
4AB	0.000	0.035	0.062	0.028	0.023	0.032	0.012	0.009	0.030	0.080	0.051	0.021
4AC	0.023	0.031	0.038	0.028	0.027	0.029	0.024	0.023	0.029	0.041	0.034	0.026
4AD	0.000	0.001	0.002	0.001	0.001	0.001	0.000	0.000	0.001	0.002	0.001	0.000
4BA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4BB	0.000	0.068	0.119	0.042	0.033	0.050	0.011	0.007	0.046	0.143	0.087	0.029
4BC	0.000	0.034	0.042	0.026	0.022	0.003	0.000	0.007	0.043	0.046	0.025	0.021
4BD	0.000	0.011	0.019	0.007	0.005	0.008	0.002	0.001	0.007	0.023	0.014	0.004
4BE	0.000	0.000	0.047	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4BF	0.115	0.273	0.230	0.053	0.075	0.020	0.015	0.104	0.202	0.269	0.145	0.015
4BG	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4CA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4CB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4CC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4DA	0.722	3.107	2.429	1.049	1.644	1.247	0.586	3.270	4.220	2.821	1.426	1.689
4DB	0.448	1.464	2.069	0.558	0.680	0.756	0.351	0.975	2.875	1.845	0.609	0.975
4DC	0.000	0.148	0.178	0.113	0.094	0.013	0.000	0.028	0.184	0.199	0.106	0.089
4DD	0.000	0.029	0.043	0.026	0.043	0.010	0.015	0.006	0.055	0.053	0.023	0.022
4DE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4EA	0.000	0.010	0.047	0.000	0.023	0.036	0.008	0.008	0.084	0.051	0.000	0.003
4EB	0.000	0.019	0.086	0.000	0.042	0.066	0.014	0.016	0.155	0.093	0.000	0.005
4EC	0.000	0.087	0.130	0.079	0.130	0.032	0.046	0.020	0.166	0.161	0.070	0.066
4ED	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4FA	0.000	0.577	2.667	0.000	1.303	2.051	0.441	0.481	4.806	2.887	0.000	0.160
4FB	0.000	0.049	0.226	0.000	0.110	0.174	0.037	0.041	0.407	0.245	0.000	0.014
4GA	0.000	0.011	0.052	0.000	0.025	0.040	0.009	0.009	0.094	0.056	0.000	0.003
4GB	0.008	0.000	0.031	0.038	0.041	0.011	0.000	0.020	0.011	0.040	0.034	0.025
4GC	0.133	0.000	0.508	0.623	0.678	0.178	0.000	0.331	0.176	0.658	0.559	0.420
4GD	0.001	0.000	0.002	0.002	0.003	0.001	0.000	0.001	0.001	0.002	0.002	0.002
4GE	0.065	0.072	0.066	0.053	0.055	0.048	0.053	0.059	0.065	0.059	0.051	0.061
4GF	0.051	0.057	0.052	0.041	0.043	0.038	0.042	0.046	0.051	0.046	0.040	0.048
4GG	0.210	0.220	0.225	0.163	0.138	0.128	0.165	0.185	0.211	0.211	0.163	0.211
4HA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4HB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4HC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4JA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4JB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4KA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4KB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Source : JICA Study Team

表 5.3.9 2005年の各分割流域における月別灌漑需要量

Unit: m3/sec

Basin	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4AA	0.000	1.701	3.002	1.052	0.840	1.256	0.286	0.161	1.163	3.610	2.197	0.715
4AB	0.000	0.368	0.648	0.233	0.187	0.277	0.068	0.041	0.257	0.785	0.480	0.160
4AC	0.023	0.048	0.068	0.039	0.035	0.042	0.027	0.025	0.040	0.077	0.056	0.033
4AD	0.000	0.036	0.064	0.022	0.018	0.027	0.006	0.003	0.025	0.077	0.047	0.015
4BA	0.000	0.057	0.100	0.035	0.028	0.042	0.010	0.005	0.039	0.121	0.073	0.024
4BB	0.000	0.414	0.730	0.256	0.204	0.305	0.070	0.039	0.283	0.877	0.534	0.174
4BC	0.217	0.695	0.603	0.325	0.462	0.362	0.175	0.842	1.141	0.757	0.399	0.496
4BD	0.000	0.090	0.159	0.056	0.045	0.067	0.015	0.009	0.062	0.192	0.117	0.038
4BE	0.000	0.000	0.238	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4BF	0.577	1.368	1.150	0.268	0.377	0.099	0.073	0.523	1.009	1.345	0.728	0.073
4BG	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4CA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4CB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4CC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4DA	1.049	5.023	4.502	1.843	2.570	1.858	0.846	4.494	6.982	4.887	2.320	2.726
4DB	0.448	1.630	2.269	0.685	0.785	0.771	0.351	1.007	3.082	2.068	0.728	1.075
4DC	0.000	0.492	0.594	0.378	0.313	0.042	0.000	0.094	0.614	0.664	0.353	0.298
4DD	0.000	0.055	0.082	0.050	0.082	0.020	0.029	0.012	0.105	0.102	0.044	0.042
4DE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4EA	0.000	0.223	1.030	0.000	0.504	0.793	0.171	0.186	1.857	1.116	0.000	0.062
4EB	0.000	0.098	0.453	0.000	0.221	0.348	0.075	0.082	0.816	0.490	0.000	0.027
4EC	0.000	0.419	0.627	0.381	0.623	0.152	0.219	0.095	0.799	0.773	0.334	0.317
4ED	0.000	0.010	0.014	0.009	0.014	0.003	0.005	0.002	0.018	0.018	0.008	0.007
4FA	0.000	2.980	13.770	0.000	6.730	10.591	2.278	2.485	24.820	14.909	0.000	0.828
4FB	0.000	0.318	1.470	0.000	0.718	1.131	0.243	0.265	2.649	1.591	0.000	0.088
4GA	0.000	0.051	0.237	0.000	0.116	0.182	0.039	0.043	0.427	0.256	0.000	0.014
4GB	0.010	0.000	0.039	0.048	0.052	0.014	0.000	0.026	0.014	0.051	0.043	0.032
4GC	0.236	0.000	0.900	1.105	1.203	0.316	0.000	0.587	0.313	1.168	0.992	0.746
4GD	0.762	0.000	2.911	3.572	3.889	1.022	0.000	1.899	1.011	3.776	3.208	2.411
4GE	0.011	0.000	0.201	0.175	0.178	0.028	0.000	0.124	0.079	0.179	0.168	0.144
4GF	1.586	0.392	2.841	4.280	2.902	3.086	1.480	0.443	2.611	4.646	3.250	3.299
4GG	0.340	0.357	0.364	0.265	0.223	0.208	0.268	0.301	0.342	0.342	0.265	0.342
4HA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4HB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4HC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4JA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4JB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4KA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4KB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Source: JICA Study Team



表 5.3.10 2020年の各分割流域における月別灌漑需要量

Unit: m<sup>3</sup>/sec

Basin	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
4AA	0.000	2.928	5.167	1.811	1.445	2.161	0.492	0.277	2.002	6.212	3.782	1.230
4AB	0.000	0.506	0.892	0.319	0.256	0.379	0.091	0.054	0.352	1.079	0.659	0.219
4AC	0.023	0.065	0.098	0.049	0.044	0.054	0.030	0.027	0.052	0.113	0.078	0.041
4AD	0.000	0.071	0.125	0.044	0.035	0.052	0.012	0.007	0.049	0.151	0.092	0.030
4BA	0.000	0.057	0.100	0.035	0.028	0.042	0.010	0.005	0.039	0.121	0.073	0.024
4BB	0.000	0.672	1.186	0.416	0.332	0.496	0.113	0.064	0.460	1.426	0.868	0.282
4BC	0.217	0.695	0.603	0.325	0.462	0.362	0.175	0.842	1.141	0.757	0.399	0.496
4BD	0.000	0.107	0.188	0.066	0.053	0.079	0.018	0.010	0.073	0.226	0.138	0.045
4BE	0.000	0.000	0.238	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4BF	0.738	1.751	1.471	0.342	0.482	0.126	0.093	0.669	1.291	1.721	0.931	0.093
4BG	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4CA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4CB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4CC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4DA	1.049	5.382	4.935	2.118	2.798	1.889	0.846	4.562	7.430	5.372	2.578	2.943
4DB	0.448	1.660	2.306	0.709	0.805	0.773	0.351	1.012	3.120	2.109	0.750	1.094
4DC	0.000	0.741	0.894	0.568	0.470	0.064	0.000	0.141	0.923	0.999	0.531	0.449
4DD	0.000	0.077	0.115	0.070	0.114	0.028	0.040	0.017	0.146	0.142	0.061	0.058
4DE	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4EA	0.000	0.383	1.770	0.000	0.865	1.361	0.293	0.319	3.190	1.916	0.000	0.107
4EB	0.000	0.142	0.657	0.000	0.321	0.506	0.109	0.119	1.185	0.712	0.000	0.040
4EC	0.000	0.616	0.921	0.560	0.916	0.223	0.321	0.139	1.175	1.137	0.491	0.465
4ED	0.000	0.019	0.029	0.017	0.029	0.007	0.010	0.004	0.037	0.035	0.015	0.014
4FA	0.000	4.142	19.136	0.000	9.352	14.719	3.165	3.453	34.493	20.719	0.000	1.151
4FB	0.000	0.587	2.714	0.000	1.326	2.087	0.449	0.490	4.892	2.938	0.000	0.163
4GA	0.000	0.077	0.355	0.000	0.173	0.273	0.059	0.064	0.639	0.384	0.000	0.021
4GB	0.013	0.000	0.048	0.059	0.064	0.017	0.000	0.031	0.017	0.062	0.053	0.040
4GC	0.338	0.000	1.293	1.587	1.728	0.454	0.000	0.844	0.449	1.677	1.425	1.071
4GD	2.023	0.000	7.731	9.487	10.329	2.715	0.000	5.044	2.684	10.027	8.520	6.403
4GE	0.265	0.294	0.269	0.215	0.226	0.197	0.218	0.240	0.265	0.241	0.209	0.249
4GF	5.010	0.563	9.063	14.554	9.477	10.163	4.217	0.505	8.906	16.389	11.461	11.609
4GG	0.472	0.495	0.505	0.367	0.310	0.289	0.371	0.417	0.475	0.474	0.367	0.474
4HA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4HB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4HC	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4JA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4JB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4KA	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
4KB	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000

Source : JICA Study Team

表 5.4.1 都市/工業用水の水需要の予測(1/3)

	Rural		Urban		Rural Demand		Urban Demand		Livestock		Indust.		Total		Per	
	Popul.	Urban Popul.	Resid. (m <sup>3</sup> /d)	Non-res. (m <sup>3</sup> /d)	Total (m <sup>3</sup> /d)	Resid. (m <sup>3</sup> /d)	Non-res. (m <sup>3</sup> /d)	Total (m <sup>3</sup> /d)	Water (m <sup>3</sup> /d)	Water (m <sup>3</sup> /d)	Water Demand (m <sup>3</sup> /d)	Total Demand (m <sup>3</sup> /d)	Capita Demand (l/d/c)	Capita Demand (m <sup>3</sup> /s)		
<b>Nairobi</b>																
1990	0	1,413,100	0	0	0	175,048	29,286	204,334	192	128,300	332,826	236	3.85			
1995	0	1,780,000	0	0	0	220,498	36,891	257,388	225	167,417	425,030	239	4.92			
2000	0	2,260,000	0	0	0	286,173	46,839	333,011	257	218,953	552,221	244	6.39			
2005	0	2,785,000	0	0	0	352,651	57,719	410,370	301	249,690	660,361	237	7.64			
2010	0	3,465,000	0	0	0	448,284	71,812	520,097	345	281,668	802,110	231	9.28			
2015	0	4,333,000	0	0	0	560,582	89,801	650,383	389	318,681	969,454	224	11.22			
2020	0	5,416,000	0	0	0	700,695	112,247	812,942	433	360,559	1,173,933	217	13.59			
<b>Kirinyaga</b>																
1990	413,000	19,400	7,641	3,428	11,068	2,403	402	2,805	2,764	457	17,095	881	0.20			
1995	434,000	30,000	12,152	3,602	15,754	3,716	622	4,338	3,060	657	23,809	794	0.28			
2000	474,000	45,000	17,064	3,934	20,998	5,698	933	6,631	3,355	857	31,841	708	0.37			
2005	516,000	58,000	18,576	4,283	22,859	7,344	1,202	8,546	3,754	1,058	36,216	624	0.42			
2010	559,000	74,000	29,068	4,640	33,708	9,574	1,534	11,107	4,152	1,258	50,225	679	0.58			
2015	610,000	103,000	31,720	5,063	36,783	13,326	2,135	15,460	4,551	1,423	58,217	565	0.67			
2020	665,000	141,000	34,580	5,520	40,100	18,242	2,922	21,164	4,949	1,610	67,823	481	0.78			
<b>Muranga</b>																
1990	833,776	65,000	15,425	6,920	22,345	8,052	1,347	9,399	4,709	673	37,126	571	0.43			
1995	893,000	90,000	25,004	7,412	32,416	11,149	1,865	13,014	5,022	965	51,416	571	0.60			
2000	959,000	129,000	34,524	7,960	42,484	16,335	2,674	19,008	5,334	1,257	68,083	528	0.79			
2005	1,039,000	156,000	37,404	8,624	46,028	19,754	3,233	22,987	5,879	1,545	76,438	490	0.88			
2010	1,126,000	189,000	58,552	9,346	67,898	24,452	3,917	28,369	6,424	1,833	104,524	553	1.21			
2015	1,214,000	245,000	63,128	10,076	73,204	31,697	5,078	36,775	6,969	2,074	119,022	486	1.38			
2020	1,311,000	316,000	68,172	10,881	79,053	40,883	6,549	47,432	7,514	2,346	136,345	431	1.58			

表 5.4.2 都市/工業用水の水需要の予測(2/3)

	Rural Demand		Urban Demand			Livestock		Indust.		Total Demand (m <sup>3</sup> /d)	Per Capita Demand (l/d/c)	
	Popul.	Resid. (m <sup>3</sup> /d)	Non-res. (m <sup>3</sup> /d)	Total (m <sup>3</sup> /d)	Resid. (m <sup>3</sup> /d)	Non-res. (m <sup>3</sup> /d)	Total (m <sup>3</sup> /d)	Water (m <sup>3</sup> /d)	Water (m <sup>3</sup> /d)			
Nyeri												
1990	540,096	9,992	4,483	14,475	13,279	2,222	15,501	3,916	2,521	36,413	340	0.42
1995	544,000	15,232	4,515	19,747	20,068	3,357	23,425	4,172	3,546	50,889	314	0.59
2000	561,000	20,196	4,656	24,852	30,770	5,036	35,806	4,427	4,570	69,655	287	0.81
2005	611,000	21,996	5,071	27,067	40,267	6,591	46,857	5,208	5,489	84,621	266	0.98
2010	673,000	34,996	5,586	40,582	53,303	8,539	61,841	5,989	6,407	114,819	279	1.33
2015	716,000	37,232	5,943	43,175	74,132	11,875	86,007	6,770	7,249	143,201	250	1.66
2020	768,000	39,936	6,374	46,310	102,206	16,373	118,579	7,551	8,202	180,642	229	2.09
Embu												
1990	361,491	6,688	3,000	9,688	2,527	423	2,950	2,655	488	15,781	774	0.18
1995	408,000	11,424	3,386	14,810	3,964	663	4,627	2,907	694	23,039	720	0.27
2000	450,000	16,200	3,735	19,935	6,458	1,057	7,515	3,159	900	31,509	618	0.36
2005	494,000	17,784	4,100	21,884	8,231	1,347	9,578	3,469	1,095	36,026	554	0.42
2010	537,000	27,924	4,457	32,381	10,609	1,699	12,308	3,779	1,290	49,758	607	0.58
2015	592,000	30,784	4,914	35,698	14,878	2,383	17,262	4,089	1,460	58,508	509	0.68
2020	651,000	33,852	5,403	39,255	20,700	3,316	24,016	4,399	1,651	69,322	433	0.80
Meru												
1990	1,121,545	20,749	9,309	30,057	11,384	1,905	13,289	8,814	1,637	53,797	585	0.62
1995	1,271,000	35,588	10,549	46,137	17,962	3,005	20,967	9,867	2,331	79,302	547	0.92
2000	1,403,000	50,508	11,645	62,153	28,997	4,746	33,743	10,921	3,024	109,841	480	1.27
2005	1,546,000	55,656	12,832	68,488	37,354	6,114	43,468	12,283	3,685	127,924	434	1.48
2010	1,691,000	87,932	14,035	101,967	48,645	7,793	56,438	13,646	4,346	176,397	469	2.04
2015	1,870,000	97,240	15,521	112,761	68,439	10,964	79,403	15,008	4,917	212,089	401	2.45
2020	2,066,000	107,432	17,148	124,580	95,220	15,254	110,474	16,370	5,563	256,987	349	2.97

表 5.4.3 都市/工業用水の水需要の予測(3/3)

	Rural		Rural Demand			Urban Demand			Livestock		Indust.		Total Demand (m3/d)	Per Capita Demand (l/d/c)
	Popul.	Urban Popul.	Resid. (m3/d)	Non-res. (m3/d)	Total (m3/d)	Resid. (m3/d)	Non-res. (m3/d)	Total (m3/d)	Water (m3/d)	Total (m3/d)	Water (m3/d)	Total (m3/d)		
Mackakos (Assuming that water to two thirds of area will be supplied from the other source.)														
1990	440,000	55,333	8,140	3,652	11,792	6,854	1,147	8,001	3,110	1,024	23,927	432	0.28	
1995	487,000	86,667	13,636	4,042	17,678	10,736	1,796	12,532	3,385	1,433	35,028	404	0.41	
2000	530,333	131,667	19,092	4,402	23,494	16,672	2,729	19,401	3,660	1,842	48,397	368	0.56	
2005	584,667	170,000	21,048	4,853	25,901	21,526	3,523	25,050	4,102	2,197	57,250	337	0.66	
2010	641,667	217,333	33,367	5,326	38,693	28,118	4,504	32,622	4,544	2,553	78,411	361	0.91	
2015	705,000	303,000	36,660	5,852	42,512	39,201	6,280	45,480	4,986	2,888	95,866	316	1.11	
2020	774,000	417,667	40,248	6,424	46,672	54,036	8,656	62,692	5,428	3,268	118,060	283	1.37	
Kiambu														
1990	866,000	105,500	16,021	7,188	23,209	13,069	2,186	15,255	4,827	9,405	52,696	499	0.61	
1995	937,000	156,000	26,236	7,777	34,013	19,325	3,233	22,558	5,248	12,884	74,702	479	0.86	
2000	1,007,000	241,538	36,252	8,358	44,610	30,585	5,006	35,591	5,669	16,362	102,232	423	1.18	
2005	1,103,000	302,000	39,708	9,155	48,863	38,241	6,259	44,500	6,407	19,006	118,775	393	1.37	
2010	1,207,000	376,000	62,764	10,018	72,782	48,645	7,793	56,438	7,144	21,649	158,013	420	1.83	
2015	1,312,000	511,000	68,224	10,890	79,114	66,111	10,590	76,701	7,882	24,494	188,190	368	2.18	
2020	1,427,000	690,000	74,204	11,844	86,048	89,269	14,300	103,569	8,619	27,713	225,949	327	2.62	
Isiolo														
1990	47,000	27,896	870	390	1,260	3,456	578	4,034	7,465	172	12,930	464	0.15	
1995	50,000	50,000	1,400	415	1,815	6,194	1,036	7,230	9,426	245	18,716	374	0.22	
2000	50,000	79,000	1,800	415	2,215	10,003	1,637	11,641	11,386	318	25,560	324	0.30	
2005	61,000	106,000	2,196	506	2,702	13,422	2,197	15,619	18,594	388	37,303	352	0.43	
2010	74,480	136,000	3,873	618	4,491	17,595	2,819	20,414	25,802	458	51,165	376	0.59	
2015	83,000	199,000	4,316	689	5,005	25,746	4,124	29,870	33,010	518	68,403	344	0.79	
2020	95,000	285,000	4,940	789	5,729	36,872	5,907	42,779	40,218	586	89,311	313	1.03	

表 6.2.1 タナ川主要水力発電所の基本諸元

Unit	Masinga		Kamburu		Gitaru		Kindaruma		Kiambere		Mutonga		Grand Falls		Grand Falls	
	1981	1974, 1976	1978	1968	1978	2053	2043	1968	1988	1978	2053	2043	1968	1988	1978	2053
Commissioning Year	1981	1974, 1976	1978	1968	1978	2053	2043	1968	1988	1978	2053	2043	1968	1988	1978	2053
Retirement Year	2056	2050	2053	2043	2053	2053	2043	2043	2063	2053	2053	2043	2043	2063	2053	2053
Hydrology																
Catchment Area (km <sup>2</sup> )	7,335	9,520	9,520	9,807	9,520	9,807	9,807	11,975	15,365	17,570	17,570	17,570	17,570	17,570	17,570	17,570
Average Flow (m <sup>3</sup> /s)	87.4	107.5	107.8	108.0	107.8	108.0	108.0	111.2	145.4	160.7	160.7	160.7	160.7	160.7	160.7	160.7
Design Flood (m <sup>3</sup> /s)	2,700	4,650	4,650	3,600	4,650	3,600	3,600	5,500	10,900	12,800	12,800	12,800	12,800	12,800	12,800	12,800
Dam and Reservoir																
Dam Volume (mil. m <sup>3</sup> )								8.75	0.81	5.56	22.32					
Dam Height (m)								110	47	83	121					
Dam Crest El. (m)								705	555	517	555					
Reservoir Area (km <sup>2</sup> )	116.0	15.2	3.1	2.5	3.1	2.5	2.5	25.0	10.9	65.7	163.3					
Dead Storage (mil. m <sup>3</sup> )	156.0	24.0	1.0	1.0	1.0	1.0	1.0	100.0	49.5	305.9	1,794.3					
Live Storage (mil. m <sup>3</sup> )	1,410.0	135.0	12.5	7.5	12.5	7.5	7.5	485.0	82.5	955.2	3,615.9					
Total Storage (mil. m <sup>3</sup> )	1,566.0	159.0	13.5	8.5	13.5	8.5	8.5	585.0	132.0	1,261.1	5,410.2					
Regulation Ratio(=Live S./Inflow)	0.512	0.040	0.004	0.002	0.004	0.002	0.002	0.138	0.018	0.188	0.713					
Head																
Reservoir FSL (m)	1,056.5	1,006.5	924.0	780.4	924.0	780.4	780.4	700.0	550.0	512.0	550.0					
Reservoir MCL (m)	1,031.0	990.0	922.0	776.8	922.0	776.8	776.8	663.5	538.5	491.4	518.2					
Average TWL (m)	1,006.0	953.3	780.0	743.4	780.0	743.4	743.4	542.0	510.6	441.1	441.0					
Gross Head (m)	50.5	71.2	144.0	37.0	144.0	37.0	37.0	158.0	39.4	70.9	109.0					
Net Rated Head (m)	49.0	66.6	141.7	36.5	141.7	36.5	36.5	148.8	39.0	69.1	105.1					
Power Plant																
Turbine Type	Kaplan	Francis	Francis	Kaplan	Francis	Francis	Kaplan	Francis	Francis	Francis	Francis					
Installed Capacity (MW)	40.0	94.2	145.0	44.0	145.0	144.0	44.0	144.0	60.0	140.0	200.0					
Maximum Output (MW)		84.0	145.0	44.0	145.0	140.0	44.0	140.0	60.0	140.0	200.0					
Firm Output (MW)	12.9	64.0	145.0	44.0	145.0	140.0	44.0	92.0	59.4	135.2	197.1					
Unit Nos.	2	3	2	2	2	2	2	2	2	2	2					
Plant Max. Discharge (m <sup>3</sup> /s)	91.8	142.5	113.4	137.7	113.4	137.7	137.7	104.4	174.0	227.0	211.0					
Revolving speed (rpm)	300.0	273.0	272.7	214.3	272.7	214.3	214.3	300.0								
Waterway																
Headrace Tunnel (nos.)	1	1	-	-	-	-	-	1	1	1	2					
Dia. x Length (m)	3.5 x 245	4.69x160	-	-	-	-	-	6.1x4,060	-	-	-					
Manning's coefficient	0.013							0.015								
Penstock																
Dia. x Length (m)	-	-	2.7x35	4.2 x 317	4.7x49	-	-	-	-	-	-					
Tailrace Tunnel (nos.)	-	-	1	1	(Open)	1										
Dia. x Length (m)	-	-	8.21x2900	8.8x4775	-	-	-	-	-	-	-					
Manning's coefficient	-	-						0.015								

表 6.3.1 開発計画案の比較

Work Item	Mutonga	Low G/F	(Unit: 1,000 US\$)	
			Low G/F + Mutonga	HGF
<b>I. PROJECT COST</b>				
1. Civil Works				
1.1 Preparatory Work	3,270	19,166	22,436	21,266
1.2 Diversion Tunnel	21,843	39,618	61,461	29,988
1.3 Main Dam and Cofferdam	13,248	82,186	95,434	289,032
1.4 Spillway	41,717	36,708	78,425	101,660
1.5 Power Tunnels/Shafts	4,512	8,683	13,195	4,820
1.6 Surge Tank and Penstock	506	4,716	5,222	0
1.7 Powerhouse	6,581	14,124	20,705	17,294
1.8 Tailrace and Outlet Channel	1,933	3,675	5,608	6,920
Total (1)	93,610	208,876	302,486	470,980
2. Metal Work	30,364	40,449	70,813	37,879
3. Generating and Substation Equipment	45,498	63,798	109,296	71,440
4. Transmission Line	1,481	9,707	11,188	9,707
Total of Direct Construction Cost (1 to 4)	170,953	322,830	493,783	590,006
5. Eng. Service and Administration	17,095	32,283	49,378	59,001
6. Land Aquisition/Compensation	4,942	15,169	20,111	30,969
7. Physical Contingency	17,909	37,029	54,938	76,598
Project Cost (1 to 7)	210,899	407,311	618,210	756,574
8. Economic Cost (89%)	187,700	362,507	550,207	673,351
<b>II. POWER OUTPUT</b>				
1. Installed Capacity (MW)	60	140	200	200
2. Firm Output (MW)	58	134	192	197
3. Average Energy (GWh/year)	337	715	1,052	1,108
<b>III. ECONOMIC EVALUATION</b>				
1. Power Benefit (x 10 <sup>6</sup> \$/year)	7.0	16.3	23.3	20.4
2. Energy Benefit (x 10 <sup>6</sup> \$/year)	23.8	50.4	74.2	78.1
3. Annual Benefit (x 10 <sup>6</sup> \$/year)	30.8	66.7	97.5	98.5
4. Present Worth of Cost (x 10 <sup>6</sup> \$/year)	161.9	297.8	385.9	514.1
5. Present Worth of Benefit (x 10 <sup>6</sup> \$/year)	182.1	351.8	455.6	414.4
6. Benefit/Cost	1.12	1.18	1.18	0.81
7. Net Present Worth (x 10 <sup>6</sup> \$)	20.2	54.0	69.7	-99.7
8. Internal Rate of Return (%)	13.4	13.8	13.9	10.1
9. Unit Generation Cost (¢/kWh)	9.1	7.9	6.9	8.8

表 6.3.2 ムトンガダムサイトにおける月平均流量 (1947年 - 1995年)

Unit: m<sup>3</sup>/s

Year	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Mean
1947	110.42	72.56	86.35	317.68	677.57	336.57	158.38	113.68	86.99	71.95	153.56	122.57	192.51
1948	58.96	42.82	51.78	151.87	224.03	150.36	98.12	75.89	62.49	83.76	201.34	233.36	119.73
1949	93.34	63.60	27.52	122.88	111.59	77.19	54.11	49.91	38.11	42.31	82.72	100.96	72.00
1950	65.06	39.80	70.12	315.24	337.99	172.54	104.29	105.94	119.99	77.89	145.17	106.26	138.36
1951	51.98	32.57	54.01	466.73	395.93	314.14	156.43	127.11	84.00	143.63	349.24	371.15	212.24
1952	178.32	96.61	48.83	101.07	314.13	128.23	84.61	75.59	65.19	92.06	139.56	87.19	117.63
1953	59.21	33.60	45.02	94.69	195.98	107.39	63.13	71.08	57.71	108.29	197.91	154.68	99.06
1954	74.49	40.62	29.70	166.99	465.86	280.20	136.53	109.46	78.95	82.09	131.06	126.13	143.51
1955	70.81	58.11	43.10	93.09	175.03	109.41	69.96	74.35	66.95	91.46	134.03	123.14	92.45
1956	167.38	104.03	79.79	330.28	475.06	231.05	122.08	96.86	78.27	83.36	181.61	116.09	172.20
1957	64.84	44.22	33.91	171.93	462.11	205.48	73.31	46.84	37.38	46.05	150.56	162.66	126.63
1958	81.52	67.18	65.21	104.57	563.08	283.74	149.05	99.77	60.45	49.15	96.98	182.88	148.61
1959	101.95	54.99	47.61	96.21	256.00	130.15	76.99	67.10	72.10	54.13	101.20	125.85	98.69
1960	66.03	44.61	55.56	169.78	179.42	89.81	61.42	47.00	47.25	78.72	159.45	82.00	90.09
1961	48.80	39.77	38.51	108.94	218.76	174.49	74.91	85.69	110.41	524.22	1516.60	736.46	298.85
1962	326.32	145.29	105.60	153.97	477.01	101.47	101.47	84.18	82.01	97.29	101.79	94.44	161.99
1963	89.23	65.92	68.23	402.71	673.60	294.89	127.95	90.24	69.61	61.90	149.83	315.32	200.79
1964	189.26	88.19	93.80	477.04	468.31	174.81	99.49	103.76	75.72	95.77	112.71	197.23	181.34
1965	125.08	70.99	57.40	106.31	220.43	104.29	66.34	60.14	48.29	67.95	293.43	105.52	114.93
1966	79.48	64.28	93.18	405.77	336.40	151.52	98.20	76.01	69.70	83.74	379.28	105.52	161.92
1967	64.15	50.44	43.86	113.65	753.65	316.79	143.28	113.32	102.37	191.88	418.27	289.20	216.74
1968	115.17	94.72	115.17	453.05	513.75	297.66	172.22	124.17	89.53	107.14	411.57	669.50	273.00
1969	192.55	143.07	145.46	122.26	254.70	120.37	81.27	75.76	71.64	69.84	115.35	111.71	125.33
1970	80.23	74.73	439.35	439.35	356.57	172.62	102.03	84.53	72.85	77.66	92.85	60.55	139.94
1971	50.56	38.78	31.61	119.86	347.15	154.66	101.03	83.45	68.36	61.78	70.18	184.59	100.77
1972	64.58	74.15	49.52	64.58	163.70	129.64	82.94	64.77	56.05	143.02	401.98	76.84	124.30
1973	116.50	85.56	61.51	131.98	183.98	154.87	78.63	70.79	63.06	71.91	135.63	90.42	101.63
1974	55.11	45.91	50.60	235.84	200.39	121.64	211.46	118.10	83.19	72.69	136.51	87.06	118.21
1975	58.81	45.68	42.05	152.62	203.76	112.87	76.18	70.46	62.99	84.10	109.46	81.29	91.69
1976	53.32	44.56	40.20	105.51	153.92	102.16	71.79	54.45	52.60	59.17	89.24	99.26	77.18
1977	78.10	57.16	60.22	445.03	637.68	231.61	110.00	82.85	63.35	67.85	399.49	289.61	210.24
1978	148.55	100.86	221.26	635.17	496.91	163.46	106.90	86.24	72.50	106.79	240.21	129.55	214.34
1979	145.01	219.65	150.47	343.93	511.06	381.89	153.19	97.94	75.96	86.12	340.21	129.55	210.50
1980	76.54	65.07	59.32	96.27	273.34	149.22	90.66	76.52	64.32	68.20	333.03	188.31	128.40
1981	87.35	63.45	126.42	520.38	508.62	226.37	107.35	79.89	67.76	83.62	141.47	112.29	177.08
1982	83.78	61.87	54.21	203.45	491.95	269.54	111.16	76.93	64.77	226.78	353.26	279.02	189.72
1983	126.47	81.36	63.65	172.60	464.37	171.82	98.50	72.29	61.60	69.12	133.62	96.14	134.29
1984	93.59	63.54	56.49	68.86	86.62	190.48	50.29	47.05	47.53	135.53	241.02	185.71	94.34
1985	89.03	69.67	72.71	342.93	464.79	190.48	99.10	72.48	59.83	61.74	116.17	97.66	144.72
1986	64.86	52.01	54.25	187.24	502.83	200.78	98.55	67.91	54.95	58.69	157.37	262.64	150.46
1987	114.34	68.88	56.08	130.06	206.02	200.78	98.35	84.98	68.06	52.45	134.04	127.12	111.76
1988	74.34	54.31	57.69	527.69	653.87	185.28	99.90	79.06	74.26	144.23	286.96	235.87	202.53
1989	173.74	96.61	79.98	212.97	344.12	166.72	90.38	68.85	62.71	111.62	417.59	260.25	187.26
1990	278.16	105.03	242.11	589.89	451.25	208.86	111.62	84.59	72.08	114.82	243.37	260.25	230.09
1991	204.68	110.01	146.28	227.23	463.03	263.21	153.45	115.92	78.03	105.01	205.96	112.36	182.10
1992	108.29	81.48	80.82	151.42	273.01	187.75	145.18	122.42	77.57	77.21	158.49	193.29	138.08
1993	153.33	220.63	148.38	141.21	308.28	188.65	121.27	85.71	63.40	46.02	96.68	129.27	141.90
1994	45.92	37.26	48.06	139.00	453.61	321.64	184.27	90.71	62.15	101.58	591.87	253.56	194.14
1995	114.00	81.81	89.73	237.91	373.98	189.24	106.97	83.70	69.27	97.46	233.91	187.52	95.18
Mean	106.41	74.46	78.29	237.91	373.98	189.24	106.97	83.70	69.27	97.46	233.91	187.52	152.03

表 6.3.3 グラントフォールズダムサイトにおける月平均流量 (1947年-1995年)

Unit: m<sup>3</sup>/s

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Mean
1947	125.15	83.72	100.70	347.14	708.01	352.70	169.56	123.18	94.41	80.20	163.46	141.22	207.45
1948	68.96	53.14	68.23	177.02	246.87	169.57	107.86	86.95	69.22	96.50	227.73	110.08	137.20
1949	112.63	80.03	28.44	154.92	125.05	86.85	61.39	55.79	43.44	45.74	87.93	110.08	81.02
1950	62.23	39.08	66.59	352.29	503.97	186.78	114.25	115.42	127.07	82.65	160.88	421.38	153.23
1951	197.17	111.62	52.04	113.74	328.94	138.21	91.82	82.15	92.10	157.79	386.08	421.38	233.05
1952	69.69	41.40	59.24	114.11	209.18	116.59	69.94	79.57	62.78	116.71	229.39	180.93	112.46
1953	88.01	48.84	33.60	183.16	488.82	293.99	146.14	117.99	85.54	90.05	157.90	148.55	156.88
1954	84.59	69.08	52.13	107.75	192.64	120.62	78.16	81.00	72.90	98.98	145.18	128.92	102.66
1955	185.20	117.52	100.65	359.92	509.94	248.88	134.88	107.60	86.65	94.10	200.57	220.82	189.33
1956	75.89	51.64	40.62	181.20	490.48	217.01	80.60	53.27	43.21	52.67	182.70	220.82	140.84
1957	93.45	79.06	74.04	119.78	594.64	295.18	157.48	107.36	67.36	55.82	112.50	185.84	161.86
1958	114.38	64.35	55.00	104.34	278.70	139.69	84.15	73.59	78.14	59.96	117.35	154.48	110.54
1959	76.73	51.89	66.75	204.17	197.65	98.55	68.86	53.69	53.40	38.28	179.30	94.28	102.80
1960	348.80	160.41	118.70	172.82	242.19	92.51	81.77	91.75	115.94	561.57	1648.18	796.94	325.78
1961	100.35	75.81	77.79	428.46	519.19	191.39	113.80	95.40	92.53	109.81	115.87	108.35	178.92
1962	221.77	102.49	106.36	511.84	497.70	188.36	111.12	114.42	79.23	71.09	135.92	363.23	220.16
1963	148.74	84.96	68.95	122.00	238.80	115.42	76.28	69.44	85.69	108.48	176.37	238.89	201.92
1964	89.77	73.97	105.17	469.08	382.75	167.55	109.57	84.32	76.21	92.65	447.30	176.37	130.50
1965	74.19	57.84	50.01	128.55	820.96	339.78	156.38	124.74	112.75	210.52	476.56	126.91	185.44
1966	131.06	106.74	258.16	503.16	801.67	324.27	191.30	140.38	103.07	122.39	452.57	738.36	240.49
1967	221.18	164.02	170.17	151.35	288.36	138.17	94.64	86.90	80.53	80.20	134.37	129.36	303.01
1968	91.61	75.10	85.10	468.05	571.48	183.91	110.95	92.04	79.73	84.27	105.08	87.88	151.33
1969	56.92	44.13	36.18	140.27	361.67	163.03	106.07	94.53	74.62	69.77	82.46	206.93	109.96
1970	71.73	80.41	57.57	59.29	181.98	164.70	89.81	69.65	60.26	159.03	445.32	97.48	137.22
1971	130.35	92.35	67.82	142.61	191.60	135.74	83.57	75.12	67.11	76.13	148.74	109.05	109.05
1972	59.15	49.57	59.03	265.86	217.46	130.84	218.29	123.67	87.80	77.29	154.96	105.04	129.08
1973	65.17	50.40	46.09	178.00	212.62	118.71	80.55	74.23	66.22	88.32	127.74	91.15	99.93
1974	59.47	49.40	43.25	113.51	162.29	108.37	76.13	58.26	55.55	62.37	97.29	113.58	83.29
1975	87.19	63.87	68.83	472.09	668.55	248.84	125.04	95.36	74.16	76.42	432.19	331.75	228.69
1976	172.84	116.43	272.39	708.35	544.06	186.01	122.04	98.46	82.88	131.95	245.37	257.38	244.85
1977	177.74	251.86	181.70	372.40	550.22	402.00	167.29	109.69	84.95	95.23	271.48	135.06	233.30
1978	86.14	73.45	66.09	106.66	285.17	157.33	97.54	82.13	69.84	73.69	354.11	200.95	137.76
1979	96.38	70.30	140.18	547.17	542.37	243.67	120.78	90.29	75.42	95.44	157.80	124.95	192.06
1980	95.31	71.73	61.95	222.23	516.21	284.65	122.08	101.94	69.45	76.02	389.07	312.08	207.98
1981	145.88	69.98	73.80	187.28	486.74	183.52	108.19	80.34	51.37	153.02	149.71	107.35	105.10
1982	98.67	78.21	82.45	374.67	495.02	205.75	109.71	81.76	68.16	69.93	132.26	119.04	159.63
1983	74.58	59.48	61.38	209.51	527.08	251.38	115.67	76.06	62.70	55.37	147.78	142.01	166.67
1984	128.79	78.54	64.50	151.19	218.22	210.80	106.20	91.46	66.16	108.17	323.28	269.43	220.22
1985	82.90	59.84	70.80	565.54	685.84	199.94	108.61	87.61	71.02	157.52	457.53	206.12	252.21
1986	196.94	106.76	92.46	236.64	365.32	181.68	102.03	78.56	81.20	129.93	282.66	289.21	204.01
1987	303.02	121.19	266.14	627.79	475.79	225.25	127.73	96.63	81.20	113.78	245.13	208.34	151.37
1988	125.18	93.81	100.42	176.34	296.81	286.67	173.70	132.19	90.15	113.78	171.21	208.34	151.37
1989	167.29	235.20	158.26	154.07	323.10	203.48	131.28	128.98	70.68	52.28	109.13	142.35	153.46
1990	57.24	46.46	55.99	150.26	467.37	332.00	193.18	98.46	68.54	120.10	634.57	281.48	208.90
1991	129.67	93.92	117.59	262.15	399.20	202.62	116.96	92.69	76.45	107.81	261.46	212.12	167.80
1992	85.12	85.12	90.82	262.15	399.20	202.62	116.96	92.69	76.45	107.81	261.46	212.12	167.80
Mean	120.66	85.12	90.82	262.15	399.20	202.62	116.96	92.69	76.45	107.81	261.46	212.12	167.80



表 6.3.4 4F13における月平均流量  
(グラントドウォーターズ計画がなく2020年の水需要を控除した場合)

(Unit:m<sup>3</sup>/s)

	Monthly												Daily				
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Min.	Avg.	Max.	Min.	Max.
1957	128.48	111.40	105.51	112.58	212.68	177.82	70.58	81.13	88.39	87.90	131.74	156.05	70.58	122.02	212.68	60.40	380.46
1958	106.72	79.52	69.23	92.32	246.00	255.44	128.78	116.00	104.93	105.27	114.36	194.75	69.23	131.11	255.44	62.63	440.50
1959	102.02	74.83	65.36	75.69	116.70	75.98	68.31	65.25	67.79	65.87	103.10	131.65	65.25	84.38	131.65	60.45	153.22
1960	85.89	67.74	69.56	138.90	93.25	67.35	66.97	64.77	60.26	70.50	113.12	90.45	60.26	82.40	138.90	60.25	149.98
1961	76.94	65.40	62.16	117.10	127.50	77.50	68.62	64.83	60.22	210.80	1293.22	764.99	60.22	249.11	1293.22	60.20	2077.11
1962	320.99	147.40	119.29	158.59	384.48	146.86	89.33	113.58	107.64	118.02	109.65	83.91	83.91	158.48	384.48	80.78	664.72
1963	77.34	71.38	77.89	173.86	598.40	268.52	111.49	116.21	107.45	108.53	147.67	187.35	71.38	170.51	598.40	67.63	854.92
1964	173.57	132.54	118.96	296.13	458.10	146.71	85.24	115.50	108.18	110.05	118.01	165.51	85.24	169.04	458.10	75.93	897.09
1965	126.09	102.94	110.97	95.75	117.37	77.66	74.37	71.34	63.66	67.35	165.24	118.97	63.66	99.31	165.24	63.62	185.07
1966	84.54	76.71	93.01	232.24	246.01	125.26	90.72	112.32	112.48	128.42	314.05	114.94	76.71	144.22	314.05	69.08	470.56
1967	93.23	79.32	71.62	102.99	459.60	297.19	128.00	132.72	120.05	168.08	352.59	277.54	71.62	190.24	459.60	66.21	733.60
1968	159.15	138.74	190.26	359.98	523.07	281.51	162.88	152.96	119.54	130.18	298.84	645.74	119.54	263.49	645.74	115.97	1224.42
1969	216.44	173.32	159.57	174.93	165.01	95.26	88.73	85.11	78.04	94.01	120.12	110.91	78.04	130.12	216.44	71.77	301.36
1970	99.35	88.76	84.24	230.92	187.71	105.16	89.76	106.80	113.87	118.46	104.25	80.59	80.59	117.49	230.92	73.16	428.41
1971	74.45	66.45	63.60	114.63	127.48	88.85	80.69	78.08	70.29	72.48	90.29	90.19	63.60	84.79	127.48	62.48	230.75
1972	80.21	70.33	66.04	74.80	99.05	83.02	78.89	70.47	62.77	79.20	181.63	127.08	62.77	89.46	181.63	61.36	327.42
1973	121.08	91.94	79.61	91.53	88.46	92.82	76.05	80.52	69.76	76.86	102.14	82.75	69.76	97.77	121.08	66.50	272.73
1974	71.17	77.67	80.32	156.32	108.03	77.61	95.97	95.08	73.54	79.13	120.65	98.06	71.17	94.46	156.32	65.28	334.45
1975	77.42	67.22	70.36	133.94	129.53	92.89	77.05	81.43	67.16	73.19	110.83	85.28	67.16	88.86	133.94	61.85	331.07
1976	71.78	65.07	18.12	64.07	84.71	78.56	72.05	67.88	30.04	24.93	68.03	86.93	18.12	61.01	86.93	5.56	154.14
1977	64.85	30.05	27.72	168.19	190.31	206.83	100.80	118.83	108.89	110.99	236.02	230.64	27.72	132.84	236.02	12.67	342.28
1978	172.88	134.72	194.35	612.58	504.46	144.04	100.44	123.47	114.89	142.63	185.82	188.80	100.44	218.26	612.58	88.48	1126.82
1979	170.75	198.50	155.89	213.03	449.18	359.32	138.69	126.85	114.00	118.95	193.57	112.90	112.90	195.99	449.18	89.89	732.85
1980	106.05	88.74	79.32	91.60	108.63	83.59	76.86	72.56	70.23	76.08	200.37	134.25	70.23	99.02	200.37	66.92	304.57
1981	104.69	86.09	131.23	297.62	464.49	201.02	102.08	119.15	115.96	117.78	119.35	99.84	86.09	163.28	464.49	76.47	666.71
1982	87.49	80.09	76.46	137.61	198.85	224.01	102.28	132.88	114.80	173.46	269.74	220.97	76.46	151.55	269.74	73.54	371.95
1983	164.06	131.66	114.44	162.47	248.30	132.42	90.72	110.84	112.18	110.14	120.44	101.10	90.72	133.23	248.30	81.94	456.33
1984	94.69	78.59	79.59	81.73	75.73	67.61	67.30	65.71	63.94	98.27	159.29	126.55	63.94	88.25	159.29	60.94	266.52
1985	99.39	92.80	89.89	184.13	193.67	114.85	94.18	88.93	72.84	80.48	108.37	110.35	72.84	110.91	193.67	70.51	328.26
1986	85.58	71.79	73.59	118.57	209.19	130.46	94.32	109.73	105.39	101.15	153.39	186.05	71.79	119.93	209.19	64.88	334.21
1987	126.48	92.90	87.59	101.10	88.79	108.30	85.08	94.17	75.75	71.95	108.55	93.38	71.95	94.50	126.48	65.64	193.19
1988	78.67	71.40	85.73	272.48	532.36	159.03	87.61	114.61	113.25	137.27	227.53	208.85	71.40	174.07	532.36	67.47	875.59
1989	174.85	115.70	125.51	159.25	145.18	107.69	91.44	96.26	109.19	161.38	322.91	293.15	91.44	159.13	322.91	81.51	628.75
1990	255.03	138.17	205.78	540.29	436.19	184.20	108.82	119.72	111.91	142.33	222.12	246.42	108.82	225.92	540.29	95.94	669.07
Min.	64.85	30.05	18.12	64.07	75.73	67.61	66.97	64.77	30.04	24.93	68.03	80.59	18.12	61.01	86.93		
Avg.	121.55	95.88	97.14	180.53	247.57	145.21	92.50	98.99	90.86	106.83	199.84	176.67	74.28	137.80	220.12		
Max.	320.99	198.50	205.78	612.58	598.40	359.52	162.88	152.96	120.05	210.80	1293.22	764.99	119.54	263.49	1293.22		
Daily																	
Min.	46.20	22.20	5.56	15.17	66.01	63.05	64.16	62.44	10.99	9.64	22.37	57.56				5.56	
Max.	559.14	341.47	427.59	1126.82	898.82	630.87	212.65	162.04	131.61	759.90	2077.11	1438.09					2077.11

表 6.3.5 4F13における月平均流量

(低GPF計画があり、灌漑への水供給を考慮し2020年の水需要を控除した場合)

(Unit:m3/s)

													Daily				
	Jan.	Feb.	Mar.	Apr.	May.	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.	Min.	Avg.	Max.	Min.	Max.
1957	145.45	130.42	136.00	119.00	169.00	128.74	66.85	113.00	80.68	159.00	102.00	72.00	66.85	118.51	169.00	38.00	233.86
1958	121.62	98.26	136.00	119.00	169.00	183.94	125.03	127.65	117.20	159.00	102.00	72.00	72.00	127.56	183.94	38.00	318.12
1959	116.45	93.85	136.00	119.00	169.00	38.00	15.00	113.00	52.00	159.00	102.00	72.00	15.00	98.78	169.00	15.00	169.00
1960	38.00	23.00	136.00	119.00	169.00	38.00	15.00	113.00	52.00	159.00	102.00	72.00	15.00	86.33	169.00	15.00	169.00
1961	38.00	23.00	136.00	119.00	169.00	38.00	15.00	113.00	52.00	159.00	102.00	761.91	15.00	220.59	1023.18	15.00	2073.53
1962	323.02	182.94	137.60	122.54	349.30	145.39	85.74	125.52	119.92	159.00	102.00	72.00	72.00	160.41	349.30	54.51	661.40
1963	38.00	80.64	136.00	119.00	542.03	265.30	107.64	128.16	119.72	159.00	102.00	137.48	38.00	161.25	542.03	23.00	791.62
1964	190.52	151.49	136.02	228.38	454.78	143.70	81.21	127.44	120.46	159.00	102.00	72.00	81.21	165.30	454.78	68.71	825.71
1965	143.14	121.73	136.00	119.00	169.00	38.00	15.00	113.00	52.00	159.00	102.00	72.00	15.00	103.32	169.00	15.00	169.00
1966	38.00	66.31	136.00	161.87	225.21	115.86	87.12	124.27	124.74	159.00	244.14	108.10	38.00	132.55	244.14	23.00	380.91
1967	110.46	97.81	136.00	119.00	328.73	294.90	124.68	143.30	132.28	172.08	306.09	274.72	97.81	186.67	328.73	27.53	631.32
1968	175.92	157.18	207.47	292.55	518.75	278.03	159.61	164.71	131.72	159.00	226.80	642.66	131.72	259.53	642.66	71.01	1221.34
1969	233.41	187.71	180.48	143.42	169.45	48.31	84.87	113.00	74.01	159.00	102.00	72.00	48.31	130.64	233.41	38.00	298.17
1970	64.34	107.82	136.00	149.40	195.25	69.13	85.75	118.74	126.17	159.00	102.00	72.00	64.34	115.47	195.25	38.00	227.00
1971	38.00	63.75	136.00	119.00	169.00	38.00	15.00	113.00	52.00	159.00	102.00	72.00	15.00	89.73	169.00	15.00	169.00
1972	38.00	23.00	136.00	119.00	169.00	38.00	15.00	113.00	52.00	159.00	102.00	72.00	15.00	86.46	169.00	15.00	169.00
1973	38.00	24.53	136.00	119.00	169.00	38.00	15.00	113.00	52.00	159.00	102.00	72.00	15.00	86.33	169.00	15.00	169.00
1974	38.00	23.00	136.00	119.00	169.00	38.00	15.00	113.00	52.00	159.00	102.00	72.00	15.00	86.33	169.00	15.00	169.00
1975	38.00	23.00	136.00	119.00	169.00	38.00	15.00	113.00	52.00	159.00	102.00	72.00	15.00	86.33	169.00	15.00	169.00
1976	38.00	23.00	136.00	119.00	160.25	38.00	15.00	113.00	52.00	70.55	63.12	71.64	15.00	74.96	160.25	7.52	169.00
1977	38.00	23.00	72.58	102.57	169.00	38.00	15.00	113.00	74.28	159.00	144.25	227.76	15.00	98.04	227.76	10.79	300.41
1978	189.67	153.84	207.12	549.03	501.14	140.70	96.71	135.41	127.20	159.00	128.85	183.86	96.71	214.38	549.03	70.86	1123.08
1979	182.46	223.20	172.34	170.61	421.84	356.25	135.73	137.98	126.29	159.00	115.61	104.49	104.49	192.15	421.84	69.06	729.53
1980	123.08	107.45	136.00	119.00	169.00	38.00	15.00	113.00	52.00	159.00	102.00	72.00	15.00	100.46	169.00	15.00	169.00
1981	62.22	104.84	148.08	230.18	461.17	197.55	98.48	131.10	123.30	159.00	102.00	72.00	62.22	157.91	461.17	38.00	663.39
1982	64.24	99.03	136.00	119.00	169.00	156.62	97.85	144.80	127.00	181.77	221.43	215.88	64.24	144.39	221.43	38.00	283.34
1983	180.66	150.36	136.39	123.65	216.78	124.51	87.23	122.72	124.42	159.00	102.00	72.00	72.00	133.31	216.78	38.00	227.00
1984	66.24	97.50	136.00	119.00	169.00	38.00	15.00	113.00	52.00	159.00	102.00	72.00	15.00	94.90	169.00	15.00	169.00
1985	38.00	23.00	136.00	119.00	169.00	98.73	90.29	113.00	72.68	159.00	102.00	72.00	23.00	95.39	169.00	23.00	169.00
1986	38.00	77.47	136.00	119.00	169.00	51.37	90.35	121.60	118.00	159.00	102.00	134.21	38.00	109.67	169.00	23.00	213.16
1987	143.71	111.38	136.00	119.00	169.00	38.00	15.00	113.00	52.00	159.00	102.00	72.00	15.00	102.51	169.00	15.00	227.00
1988	38.00	23.00	136.00	151.64	529.03	155.79	83.82	126.55	125.69	159.00	102.00	205.94	23.00	158.09	529.03	23.00	872.27
1989	192.11	134.36	142.48	127.77	169.00	40.23	87.78	113.00	116.63	170.59	278.00	290.72	40.23	155.22	290.72	38.00	465.61
1990	263.49	165.94	196.49	499.55	432.87	180.73	105.42	131.50	123.81	159.00	164.29	242.02	105.42	222.10	499.55	85.96	665.33
Min.	38.00	23.00	72.58	102.57	160.25	38.00	15.00	113.00	52.00	70.55	63.12	71.64	15.00	74.96	160.25		
Avg.	106.59	94.02	143.09	159.80	256.40	109.05	64.48	121.92	90.80	157.79	156.54	148.76	45.58	134.11	298.26		
Max.	323.02	223.20	207.47	549.03	542.03	356.25	159.61	164.71	132.28	181.77	1023.18	761.91	131.72	259.53	1023.18		
Daily																	
Min.	38.00	23.00	10.79	47.81	63.82	38.00	15.00	113.00	52.00	7.52	20.88	65.63				7.52	2073.53
Max.	555.95	227.00	227.00	1123.08	895.50	627.39	209.05	200.76	151.51	227.00	2073.53	1435.01					