
APPENDIX-D

**FUTURE POPULATION
FORECAST**

APPENDIX D
FUTURE POPULATION FORECAST

- D1** Planning Area and Land Use on Master Plan
- D2** Land Use Requirements from Kisumu Structure Plan
- D3** Population Projection
- D4** Comparison of Population Census Results; Kisumu Municipal Council
- D5** Population Projection Classified by Sub-Location
- D6** Population Projection Classified by the Year from 1997 to 2015

D1 Planning Area and Land Use on Master Plan

sub location		sub location area km ²	residential		commercial		industrial		aguncultural		wet and open		hilly		air port		Total		
			Total	Service	Total	Service	Total	Service	Total	Service	Total	Service	Total	Service	Total	Service	Total	Service	
			km ²	km ²	km ²	km ²	km ²	km ²	km ²	km ²	km ²	km ²	km ²	km ²	km ²	km ²	km ²	km ²	km ²
1	Kibuye	Urban	11.5	4.7	4.7	1.3	1.3	4.1	4.1							1.4	1.4	11.5	11.5
2	Milmani	Urban	5.5	3.8	3.8	1.7	1.7							1.9				10.4	8.5
23	Kanyakwar	Urban	10.4	8.1	8.1	0.4	0.4											6.8	6.8
3	Nyalenda	Pen-urban	6.8	6.8	6.8													7.3	7.3
5	Manyata	Pen-urban	7.3	7.3	7.3													17.5	9.6
11	Kasule	Pen-urban	17.5	8.9	8.9			0.7	2	0.7		7.9						7.6	7.6
15	Wathorego	Pen-urban	7.6	7.2	7.2	0.4	0.4											20.2	12.1
19	Korando	Pen-urban	20.2	10.2	10.2	0.4	0.4	1.5	1.5	2.8		1.8		3.7				12.8	10.3
22	Koqony	Pen-urban	12.8	7.2	7.2			1.3	1.3			1.3		1.2		1.8	1.8	12.8	10.3
16	Konya	Rural	13.3	2.8	2.8	0.2	0.2			5.6				4.9				12.3	2.8
7	Chiga	Rural	24.5			0.2	0.2	0.2	2	0.2	24.1							24.5	0.4
8	Mayenya	Rural	11.6							11.6								11.6	0.0
9	Buoye	Rural	23.6							18.8		8.8						23.6	0.0
10	Nyalunya	Rural	17.4					1.3	2	1.3	13.4		2.7					17.4	1.3
12	Kadero	Rural	8.9	3.3	3.3					3.8								6.9	3.3
13	Otok	Rural	4.0	0.7	0.7					3.3								4.0	0.7
14	Got Nyabondo	Rural	4.5							4.5								4.5	0.0
17	Bar	Rural	12.1							11.4				0.7				12.1	0.0
18	Nyahera	Rural	16.7							14.0				2.7				16.7	0.0
20	Dago	Rural	11.0			0.3				7.9				2.8				11.0	0.0
21	Mkendwa	Rural	1.1	1.1														1.1	0.0
24	Ojolla	Rural	17.5	1.9		0.2				14.4		0.9		0.1				17.5	0.0
25	Kanyagwegi	Rural	32.7							30.8		1.9						32.7	0.0
Total			296.5	73.8	70.8	5.1	4.6	9.1	9.1	164.0	0.0	23.3	0.0	18.0	0.0	3.2	3.2	296.5	87.7

D-1

D2 Land Use Requirements from Kisumu Structure Plan

Additional Population by the year 2113 = 697,000

Residential

Income group	Gross density	Percentage (%)	Additional population	Area neighborhood (ha)	No. of neighborhood	Land requirements (ha)
Low income	300	60	418,000	17	82	1,393
Middle income	150	30	209,000	33	41	1,393
high income	40	10	70,000	125	14	1,750

Total 4,536

Industrial

837

Educational

	Catchment Population	No. of units required	Existing units	Proposed units	Area per units (ha)	Land requirement (ha)
Nursery School	2,500	352	93	269	0.3	81
Primary School	5,000	176	91	85	3.0	255
Secondary School	12,000	74	15	59	7.0	413

Recreational

Open space	5,000				0.8	112
Park & major open space						

Public purposes

Health center	20,000	44	6.0	38	0.5	19
Community center	20,000	44	5.0	39	0.6	27
Police station	80,000	8		8	1.0	8

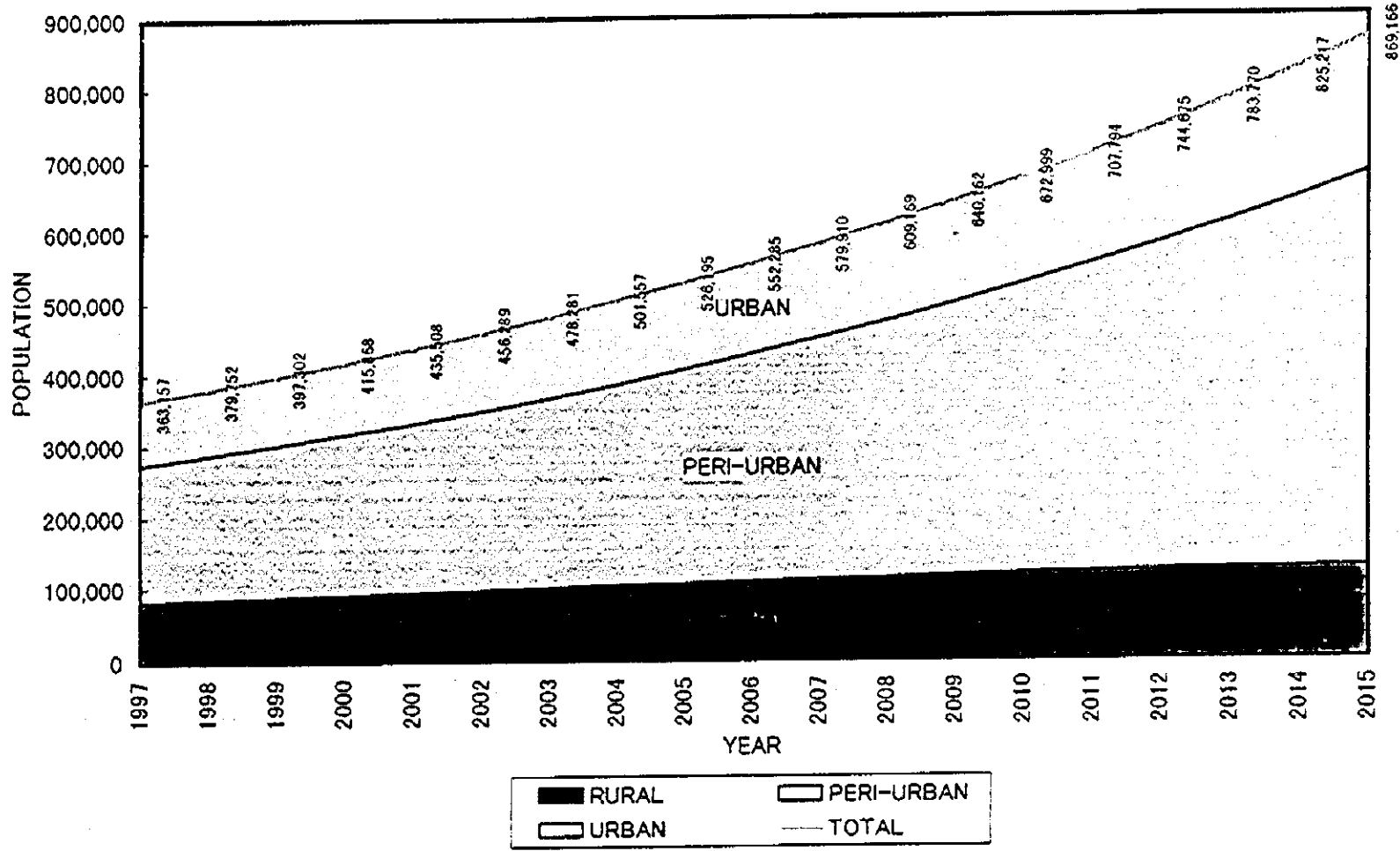
Commercial

Local shopping centers	5,000	138		138	1.0	138
District center	80,000	8		8	7.8	62

Total (Educational -- Commercial) 1,115

D3 Population Projection

D - 3



D4 Comparison of Population Census Results; Kisumu Municipal Council

1969 Census Sub-location			Area km ²	Population density Person / km ²	Rate of increase 1979-1989 %	1979	Population density	Rate of increase 1969-1979 %	1969	Population density
No.	Sub-location	Population				Population	Person / km ²		Population	Person / ha
1	Kibuye	30,074	11.5	2,615	1.34	40,188	2,364	1.55	32,431	2,027
2	Milimani	15,856	5.5	2,893						
3	Nyalenda B	17,276	4.6	3,756	5.83	21,788	4,737	10.34	12,046	1,771
4	Nyalenda A	21,109	2.2	9,595						
5	Manyatta A	37,913	3.3	11,489	8.52	23,008	6,972	20.41	7,942	1,088
6	Manyatta B	14,225	4.0	3,556						
7	Chiga	6,571	24.7	266	1.64	5,582	226	-1.23	6,680	270
8	Mayenya	4,168	11.6	359	4.78	5,084	148	2.55	3,949	115
9	Buoye	3,942	23.6	167						
10	Nyalunya	7,656	17.4	440	6.30	4,155	239	0.22	4,070	234
11	Kasule	5,230	17.5	299	1.94	4,317	247	0.91	3,949	226
12	Kadero	2,951	6.9	428	-1.06	8,800	476	1.38	7,676	415
13	Okok	2,719	4.0	680						
15	Wathorego	4,951	7.6	651						
14	Got Nyabondo	2,726	4.5	606	-6.60	5,397	1,199	4.75	3,393	754
16	Konya	7,045	13.3	530	5.04	4,309	324	5.03	2,637	198
17	Bar	6,075	12.1	502						
18	Nyahera	7,717	16.7	462						
19	Korando	13,382	20.2	662	7.14	6,708	332	-1.67	7,934	393
20	Dago	3,558	11	323	2.74	2,711	246	4.90	1,677	152
21	Mkendwa	591	1.1	537	3.32	426	387	2.99	317	288
22	Kogony	10,879	12.8	850	4.66	6,897	539	5.83	3,913	306
23	Kanyakwar	17,215	10.4	1,655	9.19	7,147	687	3.60	5,014	482
24	Ojolla	5,221	17.5	298	2.61	4,031	230	2.09	3,274	187
25	Kanyagwegi	9,873	32.7	302	2.78	7,505	230	2.79	5,711	175
Total		258,923	236.7	873	4.49	158,053	533	3.45	112,613	380

D5 Population Projection classified by Sub-Location

Sub location	Category	Growth Rate %	Living Area km ²	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	
				Population per ha	Population per ha	Population per ha	Population per ha	Population per ha	Population per ha	Population per ha	Population per ha	Population per ha	Population per ha	Population per ha	Population per ha	Population per ha	Population per ha	Population per ha	Population per ha	Population per ha
1 Kibuye	Urban	1.34	6.00	30,074	30,477	30,885	31,299	31,718	32,143	32,574	33,010	33,452	33,900	34,354	34,814	35,281	35,754	36,233	36,719	
2 Milimani	Urban	1.34	5.50	15,856	16,068	16,283	16,501	16,722	16,946	17,173	17,403	17,636	17,872	18,111	18,354	18,600	18,849	19,102	19,358	
23 Kanyakwar	Urban	7.35	8.50	17,215	18,480	19,838	21,296	22,861	24,541	26,345	28,281	30,360	32,474	34,645	36,850	39,068	41,278	43,459	45,588	
3 Nyalenda	Pen-urban	4.66	6.80	38,385	40,174	42,046	44,005	46,056	48,202	50,448	52,799	55,259	57,834	60,529	63,350	66,302	69,392	72,626	76,010	
5 Manyatta	Pen-urban	6.80	7.30	52,138	55,683	59,469	63,513	67,832	72,062	76,111	79,980	83,665	87,165	90,479	93,604	96,540	99,285	101,836	104,193	
11 Kasuie	Pen-urban	2.28	9.60	5,230	5,349	5,471	5,596	5,724	5,866	6,014	6,168	6,327	6,491	6,660	6,834	7,014	7,200	7,392	7,590	
15 Wathorego	Pen-urban	2.00	7.60	4,951	5,050	5,151	5,254	5,359	5,464	5,571	5,680	5,790	5,902	6,016	6,132	6,250	6,370	6,492	6,616	
19 Korando	Pen-urban	5.00	14.70	13,362	14,051	14,754	15,492	16,267	17,120	18,066	19,110	20,255	21,518	22,905	24,424	26,085	27,898	29,872	32,020	
22 Kogony	Pen-urban	6.00	8.50	10,879	11,532	12,224	12,957	13,734	14,596	15,554	16,617	17,787	19,083	20,511	22,080	23,800	25,683	27,739	29,982	
7 Chiga	Rural	1.64	24.50	6,571	6,679	6,789	6,900	7,013	7,128	7,245	7,364	7,485	7,608	7,733	7,860	7,989	8,120	8,253	8,388	
8 Mayenya	Rural	4.78	11.60	4,168	4,367	4,576	4,795	5,024	5,264	5,516	5,780	6,056	6,345	6,648	6,966	7,299	7,648	8,014	8,397	
9 Buoye	Rural	4.78	16.80	3,942	4,130	4,327	4,534	4,751	4,978	5,216	5,465	5,726	6,000	6,287	6,588	6,903	7,233	7,579	7,941	
10 Nyalunya	Rural	6.30	14.70	7,656	8,138	8,651	9,196	9,775	10,391	11,046	11,742	12,482	13,268	14,104	14,993	15,938	16,942	18,009	19,144	
12 Kadero	Rural	-1.06	6.90	2,951	2,920	2,889	2,858	2,828	2,798	2,768	2,739	2,710	2,681	2,653	2,625	2,597	2,569	2,542	2,515	
13 Okok	Rural	-1.06	4.00	2,719	2,690	2,661	2,633	2,605	2,577	2,550	2,523	2,496	2,470	2,444	2,418	2,392	2,367	2,342	2,317	
14 Got Nyabondo	Rural	-6.60	4.50	2,726	2,546	2,378	2,221	2,074	1,937	1,809	1,690	1,578	1,474	1,377	1,286	1,201	1,122	1,048	979	
16 Konya	Rural	5.03	8.40	7,045	7,399	7,771	8,162	8,573	9,004	9,457	9,933	10,433	10,958	11,509	12,088	12,696	13,335	14,006	14,711	
17 Bar	Rural	2.00	11.40	6,075	6,197	6,321	6,447	6,576	6,708	6,842	6,979	7,119	7,261	7,406	7,554	7,705	7,859	8,016	8,176	
18 Nyahera	Rural	2.00	14.00	7,717	7,871	8,028	8,189	8,353	8,520	8,690	8,864	9,041	9,222	9,406	9,594	9,786	9,982	10,182	10,386	
20 Dago	Rural	2.74	8.20	3,558	3,655	3,755	3,858	3,964	4,073	4,185	4,300	4,418	4,539	4,663	4,791	4,922	5,057	5,196	5,338	
21 Mkenywa	Rural	3.32	1.10	591	611	631	652	674	696	719	743	768	793	819	846	874	903	933	964	
24 Ojolla	Rural	2.61	16.50	5,221	5,357	5,497	5,640	5,787	5,937	6,091	6,249	6,411	6,577	6,747	6,921	7,099	7,281	7,467	7,657	
25 Kanyagwegi	Rural	2.78	30.80	9,873	10,147	10,429	10,719	11,017	11,323	11,638	11,962	12,295	12,637	12,988	13,349	13,720	14,101	14,493	14,896	
Total				247,803	258,923	269,571	280,824	292,717	305,287	318,571	332,613	347,461	363,157	379,752	397,302	415,868	435,508	456,289	478,281	501,557
Urban				20,000	63,145	65,025	67,008	69,096	71,301	73,630	76,092	78,694	81,448	84,246	87,110	90,018	92,949	95,881	98,794	101,685
Pen-urban				54,500	124,965	131,839	139,115	146,817	154,972	163,570	172,624	182,175	192,243	202,968	214,380	226,543	239,530	253,413	268,267	284,177
Rural				173,403	70,813	72,707	74,703	76,804	79,014	81,371	83,897	86,592	89,466	92,538	95,813	99,307	103,029	106,995	111,220	115,715

Population																
Sub location	Category	Growth Rate %	Living Area km ²	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015		
				Population per/ha	Population per/ha	Population per/ha	Population per/ha	Population per/ha	Population per/ha	Population per/ha	Population per/ha	Population per/ha	Population per/ha	Population per/ha	Population per/ha	
1	Kibuye	Urban	1.34	6.00	37,211	37,710	38,215	38,727	39,246	39,772	40,305	40,845	41,392	41,947	42,509	
					62	63	64	65	65	66	67	68	69	70	71	
2	Milimani	Urban	1.34	5.50	19,617	19,880	20,146	20,416	20,690	20,967	21,248	21,533	21,822	22,114	22,410	
					36	36	37	37	38	38	39	39	40	40	41	
23	Kanyakwar	Urban	7.35	8.50	47,645	49,608	51,455	53,165	54,717	56,089	57,260	58,208	58,911	59,349	59,500	
					56	58	61	63	64	66	67	68	69	70	70	
3	Nyasianda	Pen-urban	4.68	6.80	79,552	83,240	87,128	91,076	94,948	98,804	101,905	104,714	106,892	108,300	108,800	
					117	122	128	134	140	145	150	154	157	159	160	
5	Manyatta	Pen-urban	6.80	7.30	106,354	108,316	110,079	111,641	113,000	114,154	115,102	115,843	116,373	116,693	116,800	
					146	148	151	153	155	156	158	159	159	160	160	
11	Kasule	Pen-urban	2.28	9.60	34,409	40,183	46,658	53,966	62,239	71,615	82,233	94,239	107,777	123,000	140,063	
					36	42	49	56	65	75	86	98	112	128	146	
15	Wathorego	Pen-urban	2.00	7.60	14,135	15,799	17,656	19,741	22,092	24,745	27,739	31,113	34,906	39,161	43,919	
					19	21	23	26	29	33	36	41	46	52	58	
19	Korando	Pen-urban	5.00	14.70	34,352	36,882	39,619	42,591	45,826	49,357	53,211	57,424	62,026	67,051	72,535	
					23	25	27	29	31	34	36	39	42	46	49	
22	Kogony	Pen-urban	6.00	8.50	32,423	35,079	37,958	41,090	44,505	48,234	52,309	56,763	61,630	66,946	72,747	
					38	41	45	48	52	57	62	67	73	79	86	
7	Chiga	Rural	1.64	24.50	8,525	8,666	8,808	8,952	9,099	9,246	9,400	9,554	9,711	9,870	10,032	
					3	4	4	4	4	4	4	4	4	4	4	
8	Mayenya	Rural	4.78	11.60	8,798	9,219	9,660	10,122	10,606	11,113	11,644	12,201	12,784	13,395	14,035	
					8	8	8	9	9	10	10	11	11	12	12	
9	Buoye	Rural	4.78	16.80	8,321	8,719	9,136	9,573	10,031	10,510	11,012	11,538	12,090	12,668	13,274	
					5	5	5	6	6	6	7	7	7	8	8	
10	Nyaliunya	Rural	6.30	14.70	20,350	21,632	22,995	24,444	25,984	27,621	29,361	31,211	33,177	35,267	37,489	
					14	15	16	17	18	19	20	21	23	24	26	
12	Kadero	Rural	-1.06	6.90	2,488	2,462	2,436	2,410	2,384	2,359	2,334	2,309	2,285	2,261	2,237	
					4	4	4	3	3	3	3	3	3	3	3	
13	Okok	Rural	-1.06	4.00	2,292	2,268	2,244	2,220	2,196	2,173	2,150	2,127	2,104	2,082	2,060	
					6	6	6	6	5	5	5	5	5	5	5	
14	Got Nyabondo	Rural	-6.60	4.50	914	854	798	745	696	650	607	567	530	495	462	
					2	2	2	2	2	1	1	1	1	1	1	
16	Konya	Rural	5.03	8.40	15,451	16,228	17,044	17,901	18,801	19,747	20,740	21,783	22,879	24,030	25,239	
					18	19	20	21	22	24	25	26	27	29	30	
17	Bar	Rural	2.00	11.40	8,340	8,507	8,677	8,851	9,028	9,209	9,393	9,581	9,773	9,968	10,167	
					7	7	8	8	8	8	8	8	9	9	9	
18	Nyahera	Rural	2.00	14.00	10,594	10,806	11,022	11,242	11,467	11,696	11,930	12,169	12,412	12,660	12,913	
					8	8	8	8	8	8	9	9	9	9	9	
20	Dago	Rural	2.74	8.20	5,484	5,634	5,788	5,947	6,110	6,277	6,449	6,626	6,808	6,995	7,187	
					7	7	7	7	7	8	8	8	8	9	9	
21	Mkendwa	Rural	3.32	1.10	996	1,029	1,063	1,098	1,134	1,172	1,211	1,251	1,293	1,336	1,380	
					9	9	10	10	10	11	11	11	12	12	13	
24	Ojolla	Rural	2.61	16.50	12,633	13,828	15,152	16,627	18,278	20,127	22,203	24,527	27,129	30,033	33,267	
					8	8	9	10	11	12	13	15	16	18	20	
25	Kanyagwegi	Rural	2.78	30.80	15,310	15,736	16,173	16,623	17,085	17,560	18,048	18,550	19,066	19,596	20,141	
					5	5	5	5	6	6	6	6	6	6	7	
Total					247,901	526,195	552,285	579,910	609,169	640,162	672,999	707,794	744,675	783,770	825,217	869,166
Urban					20,000	104,473	107,198	109,816	112,308	114,653	116,828	118,813	120,586	122,125	123,410	124,419
Pen-urban					54,501	301,225	319,499	339,098	360,105	382,610	406,709	432,499	460,095	489,604	521,151	554,864
Rural					173,401	120,497	125,588	130,996	136,755	142,899	149,462	156,482	163,994	172,041	180,656	189,883

D6 Population Projection classified by the year from 1997 to 2015

Sub location	1997 Category	Growth %	R/Living Area km ²	Total pop. ave. density pe/ha	residential		commercial		industrial		agricultural		wet and open		hilly		air port		Total	
					Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha
1 Kibuye	Urban	1.34	6	33,452	25,116	25,116	8,336	8,336	0	0	0	0	0	0	0	0	0	0	33,452	33,452
				56	53	53	64	64	0	0	0	0	0	0	0	0	0	0	56	29
2 Milimani	Urban	1.34	5.5	17,636	11,475	11,475	6,161	6,161	0	0	0	0	0	0	0	0	0	0	17,636	17,636
				32	30	30	36	36	0	0	0	0	0	0	0	0	0	0	32	32
23 Kanyakwa	Urban	7.35	8.5	30,360	28,662	28,662	1,698	1,698	0	0	0	0	0	0	0	0	0	0	30,360	30,360
				36	35	35	42	42	0	0	0	0	0	0	0	0	0	0	36	36
3 Nyalenda	Peri-urban	4.66	6.8	55,259	55,259	55,259	0	0	0	0	0	0	0	0	0	0	0	0	55,259	55,259
				81	81	81	0	0	0	0	0	0	0	0	0	0	0	0	81	81
5 Manyatta	Peri-urban	6.8	7.3	83,665	83,665	83,665	0	0	0	0	0	0	0	0	0	0	0	0	83,665	83,665
				115	115	115	0	0	0	0	0	0	0	0	0	0	0	0	115	115
11 Kasule	Peri-urban	2.28	9.6	8,788	8,392	8,392	0	0	396	396	0	0	0	0	0	0	0	0	8,788	8,788
				9	9	9	0	0	6	6	0	0	0	0	0	0	0	0	9	9
15 Wathoregi	Peri-urban	2	7.6	6,489	5,990	5,990	499	499	0	0	0	0	0	0	0	0	0	0	6,489	6,489
				9	8	8	12	12	0	0	0	0	0	0	0	0	0	0	9	9
19 Korando	Peri-urban	5	14.7	20,255	15,892	15,892	935	935	1,402	1,402	2,026	0	0	0	0	0	0	0	20,255	18,230
				14	16	16	23	23	9	9	8	0	0	0	0	0	0	0	14	15
22 Kogony	Peri-urban	6	8.5	17,787	16,048	16,048	0	0	1,739	1,739	0	0	0	0	0	0	0	0	17,787	17,787
				21	22	22	0	0	13	13	0	0	0	0	0	0	0	0	21	17
7 Chiga	Rural	1.64	24.5	7,485	0	0	192	192	60	60	7,233	0	0	0	0	0	0	0	7,485	252
				3	6	0	10	10	3	3	3	0	0	0	0	0	0	0	3	6
8 Meyonya	Rural	4.78	11.6	6,056	0	0	0	0	0	0	6,056	0	0	0	0	0	0	0	6,056	0
				5	10	0	0	0	0	0	5	0	0	0	0	0	0	0	5	0
9 Buoye	Rural	4.78	16.8	5,726	0	0	0	0	0	0	5,726	0	0	0	0	0	0	0	5,726	0
				3	7	0	0	0	0	0	3	0	0	0	0	0	0	0	3	0
10 Nyalunya	Rural	6.3	14.7	12,482	0	0	0	0	1,104	1,104	11,378	0	0	0	0	0	0	0	12,482	1,104
				8	17	0	0	0	8	8	8	0	0	0	0	0	0	0	8	8
12 Kadero	Rural	-1.06	6.9	2,710	1,754	1,754	0	0	0	0	956	0	0	0	0	0	0	0	2,710	1,754
				4	5	5	0	0	0	0	3	0	0	0	0	0	0	0	4	5
13 Okok	Rural	-1.06	4	2,496	743	743	0	0	0	0	1,753	0	0	0	0	0	0	0	2,496	743
				6	11	11	0	0	0	0	5	0	0	0	0	0	0	0	6	11
14 Got Nyabi	Rural	-6.6	4.5	1,578	0	0	0	0	0	0	1,578	0	0	0	0	0	0	0	1,578	0
				4	7	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0
16 Konya	Rural	5.03	8.4	10,433	4,742	4,742	584	584	0	0	5,107	0	0	0	0	0	0	0	10,433	5,326
				12	18	18	29	29	0	0	9	0	0	0	0	0	0	0	12	19
17 Bar	Rural	2	11.4	7,119	0	0	0	0	0	0	7,119	0	0	0	0	0	0	0	7,119	0
				6	12	0	0	0	0	0	6	0	0	0	0	0	0	0	6	0
18 Nyahera	Rural	2	14	9,041	0	0	0	0	0	0	9,041	0	0	0	0	0	0	0	9,041	0
				6	13	0	0	0	0	0	6	0	0	0	0	0	0	0	6	0
20 Dego	Rural	2.74	8.2	4,418	0	0	479	0	0	0	3,939	0	0	0	0	0	0	0	4,418	0
				5	10	0	16	0	0	0	5	0	0	0	0	0	0	0	5	0
21 Mkendwa	Rural	3.32	1.1	768	768	0	0	0	0	0	0	0	0	0	0	0	0	0	768	0
				7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
24 Ojolla	Rural	2.61	16.5	6,859	1,384	0	233	0	0	0	5,243	0	0	0	0	0	0	0	6,859	0
				4	7	0	12	0	0	0	4	0	0	0	0	0	0	0	4	0
25 Kanyagwo	Rural	2.78	30.8	12,295	0	0	0	0	0	0	12,295	0	0	0	0	0	0	0	12,295	0
				4	8	0	0	0	0	0	4	0	0	0	0	0	0	0	4	0
Total				247.9	363,157	259,890	257,738	19,117	18,405	4,701	4,701	79,450	0	0	0	0	0	0	363,157	280,844
	Urban			20	81,448	65,253	65,253	16,195	16,195	0	0	0	0	0	0	0	0	0	81,448	81,448
	Peri-urban			54.5	192,243	185,246	185,246	1,434	1,434	3,537	3,537	2,026	0	0	0	0	0	0	192,243	190,217
	Rural			173.4	89,466	9,391	7,239	1,487	776	1,164	1,164	77,424	0	0	0	0	0	0	89,466	9,179

D-7

Sub location	Population 1998		Living Area km ²	Total pop ave.densit pe/ha	residential		commercial		industrial		agricultural		wet and open		hilly		air port		Total		
	Category	Growth R: %			Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe
1 Kibuye	Urban	1.34	6	33,900	25,452	25,452	8,448	8,448	0	0	0	0	0	0	0	0	0	0	0	33,900	33,900
				57	54	54	65	65	0	0	0	0	0	0	0	0	0	0	0	57	29
2 Milimani	Urban	1.34	5.5	17,872	11,629	11,629	6,243	6,243	0	0	0	0	0	0	0	0	0	0	0	17,872	17,872
				32	31	31	37	37	0	0	0	0	0	0	0	0	0	0	0	32	32
23 Kanyakwa	Urban	7.35	8.5	32,474	30,657	30,657	1,817	1,817	0	0	0	0	0	0	0	0	0	0	0	32,474	32,474
				38	38	38	45	45	0	0	0	0	0	0	0	0	0	0	0	38	38
3 Nyalenda	Peri-urban	4.66	6.8	57,834	57,834	57,834	0	0	0	0	0	0	0	0	0	0	0	0	0	57,834	57,834
				85	85	85	0	0	0	0	0	0	0	0	0	0	0	0	0	85	85
5 Manyatta	Peri-urban	6.8	7.3	87,165	87,165	87,165	0	0	0	0	0	0	0	0	0	0	0	0	0	87,165	87,165
				119	119	119	0	0	0	0	0	0	0	0	0	0	0	0	0	119	119
11 Kasule	Peri-urban	2.28	9.6	10,370	9,903	9,903	0	0	467	467	0	0	0	0	0	0	0	0	0	10,370	10,370
				11	11	11	0	0	7	7	0	0	0	0	0	0	0	0	0	11	11
15 Wathoregt	Peri-urban	2	7.6	6,998	6,460	6,460	538	538	0	0	0	0	0	0	0	0	0	0	0	6,998	6,998
				9	9	9	13	13	0	0	0	0	0	0	0	0	0	0	0	9	9
19 Korando	Peri-urban	5	14.7	21,518	16,883	16,883	993	993	1,490	1,490	2,152	0	0	0	0	0	0	0	0	21,518	19,366
				15	17	17	25	25	10	10	8	0	0	0	0	0	0	0	0	15	16
22 Kogony	Peri-urban	6	8.5	19,083	17,218	17,218	0	0	1,865	1,865	0	0	0	0	0	0	0	0	0	19,083	19,083
				22	24	24	0	0	14	14	0	0	0	0	0	0	0	0	0	22	19
7 Chiga	Rural	1.64	24.5	7,608	0	0	195	195	61	61	7,352	0	0	0	0	0	0	0	0	7,608	256
				3	6	0	10	10	3	3	3	0	0	0	0	0	0	0	0	3	6
8 Mayenya	Rural	4.78	11.6	6,345	0	0	0	0	0	0	6,345	0	0	0	0	0	0	0	0	6,345	0
				5	11	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5	0
9 Buoye	Rural	4.78	16.8	6,000	0	0	0	0	0	0	6,000	0	0	0	0	0	0	0	0	6,000	0
				4	7	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4	0
10 Nyelunya	Rural	6.3	14.7	13,268	0	0	0	0	1,173	1,173	12,095	0	0	0	0	0	0	0	0	13,268	1,173
				9	18	0	0	0	9	9	9	0	0	0	0	0	0	0	0	9	9
12 Kadero	Rural	-1.06	6.9	2,681	1,735	1,735	0	0	0	0	946	0	0	0	0	0	0	0	0	2,681	1,735
				4	5	5	0	0	0	0	3	0	0	0	0	0	0	0	0	4	5
13 Okok	Rural	-1.06	4	2,470	736	736	0	0	0	0	1,734	0	0	0	0	0	0	0	0	2,470	736
				6	11	11	0	0	0	0	5	0	0	0	0	0	0	0	0	6	11
14 Got Nyabx	Rural	-6.6	4.5	1,474	0	0	0	0	0	0	1,474	0	0	0	0	0	0	0	0	1,474	0
				3	7	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3	0
16 Konya	Rural	5.03	8.4	10,958	4,981	4,981	613	613	0	0	5,364	0	0	0	0	0	0	0	0	10,958	5,594
				13	19	19	31	31	0	0	10	0	0	0	0	0	0	0	0	13	20
17 Bar	Rural	2	11.4	7,261	0	0	0	0	0	0	7,261	0	0	0	0	0	0	0	0	7,261	0
				6	13	0	0	0	0	0	6	0	0	0	0	0	0	0	0	6	0
18 Nyahera	Rural	2	14	9,222	0	0	0	0	0	0	9,222	0	0	0	0	0	0	0	0	9,222	0
				7	13	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0
20 Dago	Rural	2.74	8.2	4,539	0	0	492	0	0	0	4,047	0	0	0	0	0	0	0	0	4,539	0
				6	10	0	16	0	0	0	5	0	0	0	0	0	0	0	0	6	0
21 Mkondwa	Rural	3.32	1.1	793	793	0	0	0	0	0	0	0	0	0	0	0	0	0	0	793	0
				7	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
24 Ojolla	Rural	2.61	16.5	7,282	1,489	0	247	0	0	0	5,566	0	0	0	0	0	0	0	0	7,282	0
				4	8	0	12	0	0	0	4	0	0	0	0	0	0	0	0	4	0
25 Kanyagwo	Rural	2.78	30.8	12,637	0	0	0	0	0	0	12,637	0	0	0	0	0	0	0	0	12,637	0
				4	8	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4	0
Total				247.9	379,752	272,914	270,652	19,587	18,847	5,057	5,057	82,195	0	0	0	0	0	0	0	379,752	294,556
	Urban			20	84,246	67,739	67,739	16,508	16,508	0	0	0	0	0	0	0	0	0	0	84,246	84,246
	Peri-urban			54.5	202,968	195,462	195,462	1,531	1,531	3,822	3,822	2,152	0	0	0	0	0	0	0	202,968	200,816
	Rural			173.4	92,538	9,713	7,451	1,547	808	1,234	1,234	80,043	0	0	0	0	0	0	0	92,538	9,494

Sub location	Population 1999		Living Area km ²	Total pop ave. densit pe/ha	residential		commercial		industrial		agricultural		wet and open		hilly		air port		Total		
	Category	Growth R: %			Total pop pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha
1 Kibuye	Urban	1.34	6	34354	25,793	25,793	8,561	8,561	0	0	0	0	0	0	0	0	0	0	0	34,354	34,354
				57,2567	55	55	66	66	0	0	0	0	0	0	0	0	0	0	0	57	30
2 Milimeni	Urban	1.34	5.5	18111	11,785	11,785	6,326	6,326	0	0	0	0	0	0	0	0	0	0	0	18,111	18,111
				32,9291	31	31	37	37	0	0	0	0	0	0	0	0	0	0	0	33	33
23 Kanyakwa	Urban	7.35	8.5	34644.6	32,706	32,706	1,938	1,938	0	0	0	0	0	0	0	0	0	0	0	34,645	34,645
				40,7584	40	40	48	48	0	0	0	0	0	0	0	0	0	0	0	41	41
3 Nyalenda	Peri-urban	4.66	6.8	60529	60,529	60,529	0	0	0	0	0	0	0	0	0	0	0	0	0	60,529	60,529
				89,0132	89	89	0	0	0	0	0	0	0	0	0	0	0	0	0	89	89
5 Manyatta	Peri-urban	6.8	7.3	90478.6	90,479	90,479	0	0	0	0	0	0	0	0	0	0	0	0	0	90,479	90,479
				123,943	124	124	0	0	0	0	0	0	0	0	0	0	0	0	0	124	124
11 Kasule	Peri-urban	2.28	9.6	12342	11,786	11,786	0	0	556	556	0	0	0	0	0	0	0	0	0	12,342	12,342
				12,8563	13	13	0	0	8	8	0	0	0	0	0	0	0	0	0	13	13
15 Wathoreg	Peri-urban	2	7.6	7614	7,028	7,028	586	586	0	0	0	0	0	0	0	0	0	0	0	7,614	7,614
				10,0184	10	10	15	15	0	0	0	0	0	0	0	0	0	0	0	10	10
19 Korando	Peri-urban	5	14.7	22905	17,972	17,972	1,057	1,057	1,586	1,586	2,291	0	0	0	0	0	0	0	0	22,905	20,615
				15,5816	18	18	26	26	11	11	9	0	0	0	0	0	0	0	0	16	17
22 Kogony	Peri-urban	6	8.5	20511	18,506	18,506	0	0	2,005	2,005	0	0	0	0	0	0	0	0	0	20,511	20,511
				24,1306	26	26	0	0	15	15	0	0	0	0	0	0	0	0	0	24	20
7 Chiga	Rural	1.64	24.5	7733	0	0	198	198	62	62	7,473	0	0	0	0	0	0	0	0	7,733	260
				3,15633	6	0	10	10	3	3	3	0	0	0	0	0	0	0	0	3	7
8 Mayenya	Rural	4.78	11.6	6648	0	0	0	0	0	0	6,648	0	0	0	0	0	0	0	0	6,648	0
				5,73103	11	0	0	0	0	0	6	0	0	0	0	0	0	0	0	6	0
9 Buoye	Rural	4.78	16.8	6287	0	0	0	0	0	0	6,287	0	0	0	0	0	0	0	0	6,287	0
				3,74226	7	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4	0
10 Nyalunya	Rural	6.3	14.7	14104	0	0	0	0	1,247	1,247	12,857	0	0	0	0	0	0	0	0	14,104	1,247
				9,59456	19	0	0	0	10	10	10	0	0	0	0	0	0	0	0	10	10
12 Kadero	Rural	-1.06	6.9	2653	1,717	1,717	0	0	0	0	936	0	0	0	0	0	0	0	0	2,653	1,717
				3,84493	5	-5	0	0	0	0	3	0	0	0	0	0	0	0	0	4	5
13 Okok	Rural	-1.06	4	2444	728	728	0	0	0	0	1,716	0	0	0	0	0	0	0	0	2,444	728
				6,11	10	10	0	0	0	0	5	0	0	0	0	0	0	0	0	6	10
14 Got Nyabr	Rural	-6.6	4.5	1377	0	0	0	0	0	0	1,377	0	0	0	0	0	0	0	0	1,377	0
				3,06	6	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3	0
16 Konya	Rural	5.03	8.4	11509	5,231	5,231	644	644	0	0	5,634	0	0	0	0	0	0	0	0	11,509	5,875
				13,7012	20	20	32	32	0	0	10	0	0	0	0	0	0	0	0	14	21
17 Bar	Rural	2	11.4	7406	0	0	0	0	0	0	7,406	0	0	0	0	0	0	0	0	7,406	0
				6,49649	13	0	0	0	0	0	6	0	0	0	0	0	0	0	0	6	0
18 Nyahera	Rural	2	14	9406	0	0	0	0	0	0	9,406	0	0	0	0	0	0	0	0	9,406	0
				6,71857	13	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0
20 Dago	Rural	2.74	8.2	4663	0	0	505	0	0	0	4,158	0	0	0	0	0	0	0	0	4,663	0
				5,68659	11	0	17	0	0	0	5	0	0	0	0	0	0	0	0	6	0
21 Mkendwa	Rural	3.32	1.1	819	819	0	0	0	0	0	0	0	0	0	0	0	0	0	0	819	0
				7,44545	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0
24 Ojolla	Rural	2.61	16.5	7775.71	1,568	0	264	0	0	0	5,943	0	0	0	0	0	0	0	0	7,776	0
				4,71255	8	0	13	0	0	0	4	0	0	0	0	0	0	0	0	5	0
25 Kanyagwe	Rural	2.78	30.8	12988	0	0	0	0	0	0	12,988	0	0	0	0	0	0	0	0	12,988	0
				4,21688	8	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4	0
Total			247.9	397302	286,647	284,260	20,080	19,311	5,456	5,456	85,119	0	0	0	0	0	0	0	0	397,302	309,026
	Urban		20	87109.6	70,284	70,284	16,826	16,826	0	0	0	0	0	0	0	0	0	0	0	87,110	87,110
	Peri-urban		54.5	214380	206,300	206,300	1,643	1,643	4,147	4,147	2,290	0	0	0	0	0	0	0	0	214,380	212,089
	Rural		173.4	95812.7	10,063	7,676	1,612	842	1,309	1,309	82,828	0	0	0	0	0	0	0	0	95,813	9,828

Sub location	Population 2000		Growth %	R/Living Area km2	Total pop ave.densit pe/ha	residencial		commercial		industrial		agricultural		wet and open		hilly		air port		Total	
	Category	Category				Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe
1 Kibuye	Urban	1.34	6	34814	26,138	26,138	8,676	8,676	0	0	0	0	0	0	0	0	0	0	0	34,814	34,814
				58,0233	56	56	67	67	0	0	0	0	0	0	0	0	0	0	0	58	30
2 Milimani	Urban	1.34	5.5	18354	11,943	11,943	6,411	6,411	0	0	0	0	0	0	0	0	0	0	0	18,354	18,354
				33,3709	31	31	38	38	0	0	0	0	0	0	0	0	0	0	0	33	33
23 Kanyaiwa	Urban	7.35	8.5	36849.8	34,788	34,788	2,062	2,062	0	0	0	0	0	0	0	0	0	0	0	36,850	36,850
				43,3527	43	43	52	52	0	0	0	0	0	0	0	0	0	0	0	43	43
3 Nyalenda	Peri-urban	4.66	6.8	63350	63,350	63,350	0	0	0	0	0	0	0	0	0	0	0	0	0	63,350	63,350
				93,1618	93	93	0	0	0	0	0	0	0	0	0	0	0	0	0	93	93
5 Manyatta	Peri-urban	6.8	7.3	93604.3	93,604	93,604	0	0	0	0	0	0	0	0	0	0	0	0	0	93,604	93,604
				128,225	128	128	0	0	0	0	0	0	0	0	0	0	0	0	0	128	128
11 Kasule	Peri-urban	2.28	9.6	14738	14,074	14,074	0	0	664	664	0	0	0	0	0	0	0	0	0	14,738	14,738
				15,3521	16	16	0	0	9	9	0	0	0	0	0	0	0	0	0	15	15
15 Wathoreg	Peri-urban	2	7.6	8347	7,705	7,705	642	642	0	0	0	0	0	0	0	0	0	0	0	8,347	8,347
				10,9829	11	11	16	16	0	0	0	0	0	0	0	0	0	0	0	11	11
19 Korando	Peri-urban	5	14.7	24424	19,163	19,163	1,127	1,127	1,691	1,691	2,442	0	0	0	0	0	0	0	0	24,424	21,982
				16,615	19	19	28	28	11	11	9	0	0	0	0	0	0	0	0	17	18
22 Kogony	Peri-urban	6	8.5	22080	19,922	19,922	0	0	2,158	2,158	0	0	0	0	0	0	0	0	0	22,080	22,080
				25,9765	28	28	0	0	17	17	0	0	0	0	0	0	0	0	0	26	21
7 Chiga	Rural	1.64	24.5	7860	0	0	202	202	63	63	7,595	0	0	0	0	0	0	0	0	7,860	265
				3,20816	6	0	10	10	3	3	3	0	0	0	0	0	0	0	0	3	7
8 Meyenya	Rural	4.78	11.6	6966	0	0	0	0	0	0	6,966	0	0	0	0	0	0	0	0	6,966	0
				6,00517	12	0	0	0	0	0	6	0	0	0	0	0	0	0	0	6	0
9 Buoye	Rural	4.78	16.8	6588	0	0	0	0	0	0	6,588	0	0	0	0	0	0	0	0	6,588	0
				3,92143	8	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4	0
10 Nyalunya	Rural	6.3	14.7	14993	0	0	0	0	1,326	1,326	13,667	0	0	0	0	0	0	0	0	14,993	1,326
				10,1993	20	0	0	0	10	10	10	0	0	0	0	0	0	0	0	10	10
12 Kadero	Rural	-1.06	6.9	2625	1,699	1,699	0	0	0	0	926	0	0	0	0	0	0	0	0	2,625	1,699
				3,80435	5	.5	0	0	0	0	3	0	0	0	0	0	0	0	0	4	5
13 Okok	Rural	-1.06	4	2418	720	720	0	0	0	0	1,698	0	0	0	0	0	0	0	0	2,418	720
				6,045	10	10	0	0	0	0	5	0	0	0	0	0	0	0	0	6	10
14 Got Nyabx	Rural	-6.6	4.5	1286	0	0	0	0	0	0	1,286	0	0	0	0	0	0	0	0	1,286	0
				2,85778	6	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3	0
16 Konya	Rural	5.03	8.4	12088	5,495	5,495	676	676	0	0	5,917	0	0	0	0	0	0	0	0	12,088	6,171
				14,3905	21	21	34	34	0	0	11	0	0	0	0	0	0	0	0	14	22
17 Bar	Rural	2	11.4	7554	0	0	0	0	0	0	7,554	0	0	0	0	0	0	0	0	7,554	0
				6,62632	13	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0
18 Nyahera	Rural	2	14	9594	0	0	0	0	0	0	9,594	0	0	0	0	0	0	0	0	9,594	0
				6,85286	14	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0
20 Dago	Rural	2.74	8.2	4791	0	0	519	0	0	0	4,272	0	0	0	0	0	0	0	0	4,791	0
				5,84268	11	0	17	0	0	0	5	0	0	0	0	0	0	0	0	6	0
21 Mkendwa	Rural	3.32	1.1	846	846	0	0	0	0	0	0	0	0	0	0	0	0	0	0	846	0
				7,69091	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0
24 Ojolla	Rural	2.61	16.5	8348.9	1,684	0	284	0	0	0	6,381	0	0	0	0	0	0	0	0	8,349	0
				5,05994	9	0	14	0	0	0	4	0	0	0	0	0	0	0	0	5	0
25 Kanyagwe	Rural	2.78	30.8	13349	0	0	0	0	0	0	13,349	0	0	0	0	0	0	0	0	13,349	0
				4,33409	9	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4	0
Total				247.9	415868	301,131	298,601	20,599	19,796	5,902	5,902	88,236	0	0	0	0	0	0	0	415,868	324,299
	Urban			20	90017.8	72,869	72,869	17,149	17,149	0	0	0	0	0	0	0	0	0	0	90,018	90,018
	Peri-urban			54.5	226543	217,818	217,818	1,769	1,769	4,513	4,513	2,442	0	0	0	0	0	0	0	226,543	224,101
	Rural			173.4	99306.9	10,443	7,913	1,681	878	1,389	1,389	85,794	0	0	0	0	0	0	0	99,307	10,180

Sub location	Category	Population 2001		Living Area km ²	Total pop ave. densit pe/ha	residencial		commercial		industrial		agricultural		wet and open		hilly		air port		Total		
		Growth %	Ri			Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe
1 Kibuye	Urban	1.34	6	35281	26,489	26,489	8,792	8,792	0	0	0	0	0	0	0	0	0	0	0	35,281	35,281	
				58,8017	56	56	68	68	0	0	0	0	0	0	0	0	0	0	0	59	31	
2 Milimani	Urban	1.34	5.5	18600	12,103	12,103	6,497	6,497	0	0	0	0	0	0	0	0	0	0	0	18,600	18,600	
				33,8182	32	32	38	38	0	0	0	0	0	0	0	0	0	0	0	34	34	
23 Kanyakwa	Urban	7.35	8.5	39068.1	36,883	36,883	2,186	2,186	0	0	0	0	0	0	0	0	0	0	0	39,068	39,068	
				45,9625	46	46	55	55	0	0	0	0	0	0	0	0	0	0	0	46	46	
3 Nyalenda	Peri-urban	4.66	6.8	66302	66,302	66,302	0	0	0	0	0	0	0	0	0	0	0	0	0	66,302	66,302	
				97,5029	98	98	0	0	0	0	0	0	0	0	0	0	0	0	0	98	98	
5 Manyatta	Peri-urban	6.8	7.3	96540.3	96,540	96,540	0	0	0	0	0	0	0	0	0	0	0	0	0	96,540	96,540	
				132,247	132	132	0	0	0	0	0	0	0	0	0	0	0	0	0	132	132	
11 Kasule	Peri-urban	2.28	9.6	17595	16,802	16,802	0	0	793	793	0	0	0	0	0	0	0	0	0	17,595	17,595	
				18,3281	19	19	0	0	11	11	0	0	0	0	0	0	0	0	0	18	18	
15 Wathoregi	Peri-urban	2	7.6	9208	8,500	8,500	708	708	0	0	0	0	0	0	0	0	0	0	0	9,208	9,208	
				12,1158	12	12	18	18	0	0	0	0	0	0	0	0	0	0	0	12	12	
19 Korando	Peri-urban	5	14.7	26085	20,467	20,467	1,204	1,204	1,806	1,806	2,609	0	0	0	0	0	0	0	0	26,085	23,477	
				17,7449	20	20	30	30	12	12	10	0	0	0	0	0	0	0	0	18	19	
22 Kogony	Peri-urban	6	8.5	23800	21,474	21,474	0	0	2,326	2,326	0	0	0	0	0	0	0	0	0	23,800	23,800	
				28	30	30	0	0	18	18	0	0	0	0	0	0	0	0	0	28	23	
7 Chiga	Rural	1.64	24.5	7989	0	0	205	205	64	64	7,720	0	0	0	0	0	0	0	0	7,989	269	
				3,26082	6	0	10	10	3	3	3	0	0	0	0	0	0	0	0	3	7	
8 Mayenya	Rural	4.78	11.6	7299	0	0	0	0	0	0	7,299	0	0	0	0	0	0	0	0	7,299	0	
				6,29224	13	0	0	0	0	0	6	0	0	0	0	0	0	0	0	6	0	
9 Buoye	Rural	4.78	16.8	6903	0	0	0	0	0	0	6,903	0	0	0	0	0	0	0	0	6,903	0	
				4,10893	8	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4	0	
10 Nyalunya	Rural	6.3	14.7	15938	0	0	0	0	1,409	1,409	14,529	0	0	0	0	0	0	0	0	15,938	1,409	
				10,8422	22	0	0	0	11	11	11	0	0	0	0	0	0	0	0	11	11	
12 Kadero	Rural	-1.06	6.9	2597	1,680	1,680	0	0	0	0	917	0	0	0	0	0	0	0	0	2,597	1,680	
				3,76377	5	5	0	0	0	0	3	0	0	0	0	0	0	0	0	4	5	
13 Okok	Rural	-1.06	4	2392	713	713	0	0	0	0	1,679	0	0	0	0	0	0	0	0	2,392	713	
				5,98	10	10	0	0	0	0	5	0	0	0	0	0	0	0	0	6	10	
14 Got Nyabr	Rural	-6.6	4.5	1201	0	0	0	0	0	0	1,201	0	0	0	0	0	0	0	0	1,201	0	
				2,66889	5	0	0	0	0	0	3	0	0	0	0	0	0	0	0	3	0	
16 Konya	Rural	5.03	8.4	12696	5,771	5,771	710	710	0	0	6,215	0	0	0	0	0	0	0	0	12,696	6,481	
				15,1143	22	22	36	36	0	0	11	0	0	0	0	0	0	0	0	15	23	
17 Bar	Rural	2	11.4	7705	0	0	0	0	0	0	7,705	0	0	0	0	0	0	0	0	7,705	0	
				6,75877	14	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0	
18 Nyahera	Rural	2	14	9786	0	0	0	0	0	0	9,786	0	0	0	0	0	0	0	0	9,786	0	
				6,99	14	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0	
20 Dago	Rural	2.74	8.2	4922	0	0	533	0	0	0	4,389	0	0	0	0	0	0	0	0	4,922	0	
				6,00244	11	0	18	0	0	0	6	0	0	0	0	0	0	0	0	6	0	
21 Mkendwa	Rural	3.32	1.1	874	874	0	0	0	0	0	0	0	0	0	0	0	0	0	0	874	0	
				7,94545	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	
24 Ojolla	Rural	2.61	16.5	9006.57	1,817	0	306	0	0	0	6,884	0	0	0	0	0	0	0	0	9,007	0	
				5,45853	10	0	15	0	0	0	5	0	0	0	0	0	0	0	0	5	0	
25 Kanyagwe	Rural	2.78	30.8	13720	0	0	0	0	0	0	13,720	0	0	0	0	0	0	0	0	13,720	0	
				4,45455	9	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4	0	
Total				247.9	435508	316,413	313,722	21,142	20,302	6,399	6,399	91,555	0	0	0	0	0	0	0	435,508	340,424	
Urban				20	92949.1	75,474	75,474	17,475	17,475	0	0	0	0	0	0	0	0	0	0	0	92,949	92,949
Peri-urban				54.5	239530	230,084	230,084	1,912	1,912	4,925	4,925	2,608	0	0	0	0	0	0	0	0	239,530	236,922
Rural				173.4	103029	10,854	8,164	1,755	915	1,474	1,474	88,946	0	0	0	0	0	0	0	103,029	10,553	

Sub location	Population 2002		Living Area km2	Total pop ave.densit pe/ha	residencial		commercial		industrial		agricultural		wet and open		hilly		air port		Total		
	Category	Growth Rt %			Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe
1 Kibuye	Urban	1.34	6	35754	26,844	26,844	8,910	8,910	0	0	0	0	0	0	0	0	0	0	0	35,754	35,754
				59,59	57	57	69	69	0	0	0	0	0	0	0	0	0	0	0	60	31
2 Milimani	Urban	1.34	5.5	18849	12,265	12,265	6,584	6,584	0	0	0	0	0	0	0	0	0	0	0	18,849	18,849
				34,2709	32	32	39	39	0	0	0	0	0	0	0	0	0	0	0	34	34
23 Kanyakwa	Urban	7.35	8.5	41278.3	38,969	38,969	2,309	2,309	0	0	0	0	0	0	0	0	0	0	0	41,278	41,278
				48,5627	48	48	58	58	0	0	0	0	0	0	0	0	0	0	0	49	49
3 Nyelenda	Peri-urban	4.66	6.8	69392	69,392	69,392	0	0	0	0	0	0	0	0	0	0	0	0	0	69,392	69,392
				102,047	102	102	0	0	0	0	0	0	0	0	0	0	0	0	0	102	102
5 Manyatta	Peri-urban	6.8	7.3	99284.9	99,285	99,285	0	0	0	0	0	0	0	0	0	0	0	0	0	99,285	99,285
				136,007	136	136	0	0	0	0	0	0	0	0	0	0	0	0	0	136	136
11 Kasule	Peri-urban	2.28	9.6	20949	20,005	20,005	0	0	944	944	0	0	0	0	0	0	0	0	0	20,949	20,949
				21,8219	22	22	0	0	13	13	0	0	0	0	0	0	0	0	0	22	22
15 Wathoregi	Peri-urban	2	7.6	10206	9,421	9,421	785	785	0	0	0	0	0	0	0	0	0	0	0	10,206	10,206
				13,4289	13	13	20	20	0	0	0	0	0	0	0	0	0	0	0	13	13
19 Korando	Peri-urban	5	14.7	27898	21,889	21,889	1,288	1,288	1,931	1,931	2,790	0	0	0	0	0	0	0	0	27,898	25,108
				18,9782	21	21	32	32	13	13	11	0	0	0	0	0	0	0	0	19	21
22 Kogony	Peri-urban	6	8.5	25683	23,173	23,173	0	0	2,510	2,510	0	0	0	0	0	0	0	0	0	25,683	25,683
				30,2153	32	32	0	0	19	19	0	0	0	0	0	0	0	0	0	30	25
7 Chiga	Rural	1.64	24.5	8120	0	0	208	208	65	65	7,847	0	0	0	0	0	0	0	0	8,120	273
				3,31429	7	0	10	10	3	3	3	0	0	0	0	0	0	0	0	3	7
8 Mayenya	Rural	4.78	11.6	7648	0	0	0	0	0	0	7,648	0	0	0	0	0	0	0	0	7,648	0
				6,5931	13	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0
9 Buoye	Rural	4.78	16.8	7233	0	0	0	0	0	0	7,233	0	0	0	0	0	0	0	0	7,233	0
				4,30536	9	0	0	0	0	0	4	0	0	0	0	0	0	0	0	4	0
10 Nyalunya	Rural	6.3	14.7	16942	0	0	0	0	1,498	1,498	15,444	0	0	0	0	0	0	0	0	16,942	1,498
				11,5252	23	0	0	0	12	12	12	0	0	0	0	0	0	0	0	12	12
12 Kadero	Rural	-1.06	6.9	2569	1,662	1,662	0	0	0	0	907	0	0	0	0	0	0	0	0	2,569	1,662
				3,72319	5	5	0	0	0	0	3	0	0	0	0	0	0	0	0	4	5
13 Okok	Rural	-1.06	4	2367	705	705	0	0	0	0	1,662	0	0	0	0	0	0	0	0	2,367	705
				5,9175	10	10	0	0	0	0	5	0	0	0	0	0	0	0	0	6	10
14 Got Nyabx	Rural	-6.6	4.5	1122	0	0	0	0	0	0	1,122	0	0	0	0	0	0	0	0	1,122	0
				2,49333	5	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0
16 Konya	Rural	5.03	8.4	13335	6,061	6,061	746	746	0	0	6,528	0	0	0	0	0	0	0	0	13,335	6,807
				15,875	23	23	37	37	0	0	12	0	0	0	0	0	0	0	0	16	24
17 Bar	Rural	2	11.4	7859	0	0	0	0	0	0	7,859	0	0	0	0	0	0	0	0	7,859	0
				6,89386	14	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0
18 Nyahera	Rural	2	14	9982	0	0	0	0	0	0	9,982	0	0	0	0	0	0	0	0	9,982	0
				7,13	14	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0
20 Dago	Rural	2.74	8.2	5057	0	0	548	0	0	0	4,509	0	0	0	0	0	0	0	0	5,057	0
				6,16707	11	0	18	0	0	0	6	0	0	0	0	0	0	0	0	6	0
21 Mkendwa	Rural	3.32	1.1	903	903	0	0	0	0	0	0	0	0	0	0	0	0	0	0	903	0
				8,20909	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0
24 Ojolie	Rural	2.61	16.5	9756.84	1,968	0	331	0	0	0	7,457	0	0	0	0	0	0	0	0	9,757	0
				5,91323	10	0	17	0	0	0	5	0	0	0	0	0	0	0	0	6	0
25 Kanyagwe	Rural	2.78	30.8	14101	0	0	0	0	0	0	14,101	0	0	0	0	0	0	0	0	14,101	0
				4,57825	9	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5	0
Total			247.9	456289	332,542	329,671	21,710	20,831	6,949	6,949	95,088	0	0	0	0	0	0	0	0	456,289	357,451
	Urban		20	95881.3	78,078	78,078	17,803	17,803	0	0	0	0	0	0	0	0	0	0	0	95,881	95,881
	Peri-urban		54.5	253413	243,165	243,165	2,073	2,073	5,386	5,386	2,790	0	0	0	0	0	0	0	0	253,413	250,623
	Rural		173.4	106995	11,300	8,429	1,834	954	1,563	1,563	92,298	0	0	0	0	0	0	0	0	106,995	10,946

Sub location	Population 2003		Living Area km2	Total pop ave. densit pe/ha	residencial		commercial		industrial		agricultural		wet and open		hilly		air port		Total			
	Category	Growth %			Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe
1 Kibuye	Urban	1.34	6	36233	27,204	27,204	9,029	9,029	0	0	0	0	0	0	0	0	0	0	0	36,233	36,233	
				60,3883	58	58	69	69	0	0	0	0	0	0	0	0	0	0	0	60	32	
2 Milimani	Urban	1.34	5.5	19102	12,429	12,429	6,673	6,673	0	0	0	0	0	0	0	0	0	0	0	19,102	19,102	
				34,7309	33	33	39	39	0	0	0	0	0	0	0	0	0	0	0	35	35	
23 Kanyakwa	Urban	7.35	8.5	43458.8	41,028	41,028	2,431	2,431	0	0	0	0	0	0	0	0	0	0	0	43,459	43,459	
				51,128	51	51	61	61	0	0	0	0	0	0	0	0	0	0	0	51	51	
3 Nyalande	Peri-urban	4.66	6.8	72626	72,626	72,626	0	0	0	0	0	0	0	0	0	0	0	0	0	72,626	72,626	
				106,803	107	107	0	0	0	0	0	0	0	0	0	0	0	0	0	107	107	
5 Manyatta	Peri-urban	6.8	7.3	101836	101,836	101,836	0	0	0	0	0	0	0	0	0	0	0	0	0	101,836	101,836	
				139,502	140	140	0	0	0	0	0	0	0	0	0	0	0	0	0	140	140	
11 Kasule	Peri-urban	2.28	9.6	24842	23,723	23,723	0	0	1,119	1,119	0	0	0	0	0	0	0	0	0	24,842	24,842	
				25,8771	27	27	0	0	16	16	0	0	0	0	0	0	0	0	0	26	26	
15 Wathoreg	Peri-urban	2	7.6	11352	10,479	10,479	873	873	0	0	0	0	0	0	0	0	0	0	0	11,352	11,352	
				14,9368	15	15	22	22	0	0	0	0	0	0	0	0	0	0	0	15	15	
19 Korando	Peri-urban	5	14.7	29872	23,438	23,438	1,379	1,379	2,068	2,068	2,987	0	0	0	0	0	0	0	0	29,872	26,885	
				20,3211	23	23	34	34	14	14	11	0	0	0	0	0	0	0	0	20	22	
22 Kogony	Peri-urban	6	8.5	27739	25,028	25,028	0	0	2,711	2,711	0	0	0	0	0	0	0	0	0	27,739	27,739	
				32,6341	35	35	0	0	21	21	0	0	0	0	0	0	0	0	0	33	27	
7 Chiga	Rural	1.64	24.5	8253	0	0	212	212	66	66	7,975	0	0	0	0	0	0	0	0	8,253	278	
				3,36857	7	0	11	11	3	3	3	0	0	0	0	0	0	0	0	3	7	
8 Mayenya	Rural	4.78	11.6	8014	0	0	0	0	0	0	8,014	0	0	0	0	0	0	0	0	8,014	0	
				6,90862	14	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0	
9 Buoye	Rural	4.78	16.8	7579	0	0	0	0	0	0	7,579	0	0	0	0	0	0	0	0	7,579	0	
				4,51131	9	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5	0	
10 Nyalunya	Rural	6.3	14.7	18009	0	0	0	0	1,593	1,593	16,416	0	0	0	0	0	0	0	0	18,009	1,593	
				12,251	25	0	0	0	12	12	12	0	0	0	0	0	0	0	0	12	12	
12 Kadero	Rural	-1.06	6.9	2542	1,645	1,645	0	0	0	0	897	0	0	0	0	0	0	0	0	2,542	1,645	
				3,68406	5	5	0	0	0	0	2	0	0	0	0	0	0	0	0	4	5	
13 Okok	Rural	-1.06	4	2342	698	698	0	0	0	0	1,644	0	0	0	0	0	0	0	0	2,342	698	
				5,855	10	10	0	0	0	0	5	0	0	0	0	0	0	0	0	6	10	
14 Got Nyabc	Rural	-6.6	4.5	1048	0	0	0	0	0	0	1,048	0	0	0	0	0	0	0	0	1,048	0	
				2,32889	5	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	
16 Konya	Rural	5.03	8.4	14006	6,366	6,366	784	784	0	0	6,856	0	0	0	0	0	0	0	0	14,006	7,150	
				16,6738	24	24	39	39	0	0	12	0	0	0	0	0	0	0	0	17	26	
17 Bar	Rural	2	11.4	8016	0	0	0	0	0	0	8,016	0	0	0	0	0	0	0	0	8,016	0	
				7,03158	14	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0	
18 Nyahera	Rural	2	14	10182	0	0	0	0	0	0	10,182	0	0	0	0	0	0	0	0	10,182	0	
				7,27286	15	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0	
20 Dago	Rural	2.74	8.2	5196	0	0	563	0	0	0	4,633	0	0	0	0	0	0	0	0	5,196	0	
				6,33659	12	0	19	0	0	0	6	0	0	0	0	0	0	0	0	6	0	
21 Mkendwa	Rural	3.32	1.1	933	933	0	0	0	0	0	0	0	0	0	0	0	0	0	0	933	0	
				8,48182	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	0	
24 Ojolla	Rural	2.61	16.5	10606.8	2,139	0	360	0	0	0	8,107	0	0	0	0	0	0	0	0	10,607	0	
				6,42836	11	0	18	0	0	0	6	0	0	0	0	0	0	0	0	6	0	
25 Kanyagwo	Rural	2.78	30.8	14493	0	0	0	0	0	0	14,493	0	0	0	0	0	0	0	0	14,493	0	
				4,70552	9	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5	0	
Total				247.9	478281	349,571	346,499	22,304	21,380	7,558	7,558	98,848	0	0	0	0	0	0	0	478,281	375,437	
Urban				20	98793.8	80,661	80,661	18,133	18,133	0	0	0	0	0	0	0	0	0	0	0	268,267	265,280
Peri-urban				54.5	268267	257,129	257,129	2,252	2,252	5,899	5,899	2,987	0	0	0	0	0	0	0	0	268,267	265,280
Rural				173.4	111220	11,781	8,709	1,919	995	1,659	1,659	95,861	0	0	0	0	0	0	0	111,220	11,363	

Sub location	Population 2004		Living Area km2	Total pop ave. density pe/ha	residential		commercial		industrial		agricultural		wet and open		hilly		air port		Total		
	Category	Growth %			Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	
1 Kibuye	Urban	1.34	6	36719	27,569	27,569	9,150	9,150	0	0	0	0	0	0	0	0	0	0	0	36,719	36,719
				61,1983	59	59	70	70	0	0	0	0	0	0	0	0	0	0	0	61	32
2 Milimani	Urban	1.34	5.5	19358	12,596	12,596	6,762	6,762	0	0	0	0	0	0	0	0	0	0	0	19,358	19,358
				35,1964	33	33	40	40	0	0	0	0	0	0	0	0	0	0	0	35	35
23 Kanyakwa	Urban	7.35	8.5	45588.2	43,038	43,038	2,550	2,550	0	0	0	0	0	0	0	0	0	0	0	45,588	45,588
				53,6332	53	53	64	64	0	0	0	0	0	0	0	0	0	0	0	54	54
3 Nyalenda	Peri-urban	4.66	6.8	76010	76,010	76,010	0	0	0	0	0	0	0	0	0	0	0	0	0	76,010	76,010
				111,779	112	112	0	0	0	0	0	0	0	0	0	0	0	0	0	112	112
5 Manyatta	Peri-urban	6.8	7.3	104193	104,193	104,193	0	0	0	0	0	0	0	0	0	0	0	0	0	104,193	104,193
				142,73	143	143	0	0	0	0	0	0	0	0	0	0	0	0	0	143	143
11 Kasule	Peri-urban	2.28	9.6	29314	27,993	27,993	0	0	1,321	1,321	0	0	0	0	0	0	0	0	0	29,314	29,314
				30,5354	31	31	0	0	19	19	0	0	0	0	0	0	0	0	0	31	31
15 Wathoregi	Peri-urban	2	7.6	12658	11,684	11,684	974	974	0	0	0	0	0	0	0	0	0	0	0	12,658	12,658
				16,6553	16	16	24	24	0	0	0	0	0	0	0	0	0	0	0	17	17
19 Korando	Peri-urban	5	14.7	32020	25,123	25,123	1,478	1,478	2,217	2,217	3,202	0	0	0	0	0	0	0	0	32,020	28,818
				21,7823	25	25	37	37	15	15	12	0	0	0	0	0	0	0	0	22	24
22 Kogony	Peri-urban	6	8.5	29982	27,051	27,051	0	0	2,931	2,931	0	0	0	0	0	0	0	0	0	29,982	29,982
				35,2729	38	38	0	0	23	23	0	0	0	0	0	0	0	0	0	35	29
7 Chiga	Rural	1.64	24.5	8388	0	0	215	215	67	67	8,105	0	0	0	0	0	0	0	0	8,388	283
				3,42367	7	0	11	11	3	3	3	0	0	0	0	0	0	0	0	3	7
8 Mayanya	Rural	4.78	11.6	8397	0	0	0	0	0	0	8,397	0	0	0	0	0	0	0	0	8,397	0
				7,23879	14	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0
9 Buoye	Rural	4.78	16.8	7941	0	0	0	0	0	0	7,941	0	0	0	0	0	0	0	0	7,941	0
				4,72679	9	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5	0
10 Nyalunya	Rural	6.3	14.7	19144	0	0	0	0	1,693	1,693	17,451	0	0	0	0	0	0	0	0	19,144	1,693
				13,0231	26	0	0	0	13	13	13	0	0	0	0	0	0	0	0	13	13
12 Kadero	Rural	-1.06	6.9	2515	1,627	1,627	0	0	0	0	888	0	0	0	0	0	0	0	0	2,515	1,627
				3,64493	5	5	0	0	0	0	2	0	0	0	0	0	0	0	0	4	5
13 Okok	Rural	-1.06	4	2317	690	690	0	0	0	0	1,627	0	0	0	0	0	0	0	0	2,317	690
				5,7925	10	10	0	0	0	0	5	0	0	0	0	0	0	0	0	6	10
14 Got Nyabx	Rural	-6.6	4.5	979	0	0	0	0	0	0	979	0	0	0	0	0	0	0	0	979	0
				2,17556	4	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0
16 Konya	Rural	5.03	8.4	14711	6,687	6,687	823	823	0	0	7,201	0	0	0	0	0	0	0	0	14,711	7,510
				17,5131	26	26	41	41	0	0	13	0	0	0	0	0	0	0	0	18	27
17 Bar	Rural	2	11.4	8176	0	0	0	0	0	0	8,176	0	0	0	0	0	0	0	0	8,176	0
				7,17193	14	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0
18 Nyahere	Rural	2	14	10386	0	0	0	0	0	0	10,386	0	0	0	0	0	0	0	0	10,386	0
				7,41857	15	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0
20 Dago	Rural	2.74	8.2	5338	0	0	578	0	0	0	4,760	0	0	0	0	0	0	0	0	5,338	0
				6,50976	12	0	19	0	0	0	6	0	0	0	0	0	0	0	0	7	0
21 Mkendwa	Rural	3.32	1.1	964	964	0	0	0	0	0	0	0	0	0	0	0	0	0	0	964	0
				8,76364	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0
24 Ojolia	Rural	2.61	16.5	11562.6	2,332	0	393	0	0	0	8,838	0	0	0	0	0	0	0	0	11,563	0
				7,00761	12	0	20	0	0	0	5	0	0	0	0	0	0	0	0	7	0
25 Kanyagwe	Rural	2.78	30.8	14896	0	0	0	0	0	0	14,896	0	0	0	0	0	0	0	0	14,896	0
				4,83636	10	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5	0
Total			247.9	501557	367,558	364,262	22,924	21,953	8,229	8,229	102,846	0	0	0	0	0	0	0	0	501,557	394,443
	Urban		20	101665	83,202	83,202	18,463	18,463	0	0	0	0	0	0	0	0	0	0	0	101,665	101,665
	Peri-urban		54.5	284177	272,055	272,055	2,452	2,452	6,468	6,468	3,202	0	0	0	0	0	0	0	0	284,177	280,975
	Rural		173.4	115715	12,300	9,004	2,009	1,038	1,760	1,760	99,644	0	0	0	0	0	0	0	0	115,715	11,803

Sub location	Population 2005		Living Area km ²	Total pop ave. densit pe/ha	residential		commercial		industrial		agricultural		wet and open		hilly		air port		Total			
	Category	Growth %			Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe
1 Kibuye	Urban	1.34	6	37211	27,938	27,938	9,273	9,273	0	0	0	0	0	0	0	0	0	0	0	37,211	37,211	
				62,0183	59	59	71	71	0	0	0	0	0	0	0	0	0	0	0	62	32	
2 Milimani	Urban	1.34	5.5	19617	12,764	12,764	6,853	6,853	0	0	0	0	0	0	0	0	0	0	0	19,617	19,617	
				35,6673	34	34	40	40	0	0	0	0	0	0	0	0	0	0	0	36	36	
23 Kanyakwa	Urban	7.35	8.5	47645	44,980	44,980	2,665	2,665	0	0	0	0	0	0	0	0	0	0	0	47,645	47,645	
				56,0529	56	56	67	67	0	0	0	0	0	0	0	0	0	0	0	56	56	
3 Nyalenda	Peri-urban	4.66	6.8	79552	79,552	79,552	0	0	0	0	0	0	0	0	0	0	0	0	0	79,552	79,552	
				116,988	117	117	0	0	0	0	0	0	0	0	0	0	0	0	0	117	117	
5 Manyatta	Peri-urban	6.8	7.3	106354	106,354	106,354	0	0	0	0	0	0	0	0	0	0	0	0	0	106,354	106,354	
				145,69	146	146	0	0	0	0	0	0	0	0	0	0	0	0	0	146	146	
11 Kasule	Peri-urban	2.28	9.6	34409	32,858	32,858	0	0	1,551	1,551	0	0	0	0	0	0	0	0	0	34,409	34,409	
				35,8427	37	37	0	0	22	22	0	0	0	0	0	0	0	0	0	36	36	
15 Wathoregi	Peri-urban	2	7.6	14135	13,048	13,048	1,087	1,087	0	0	0	0	0	0	0	0	0	0	0	14,135	14,135	
				18,5987	18	18	27	27	0	0	0	0	0	0	0	0	0	0	0	19	19	
19 Korando	Peri-urban	5	14.7	34352	26,953	26,953	1,585	1,585	2,378	2,378	3,435	0	0	0	0	0	0	0	0	34,352	30,917	
				23,3687	26	26	40	40	16	16	13	0	0	0	0	0	0	0	0	23	26	
22 Kogony	Peri-urban	6	8.5	32423	29,254	29,254	0	0	3,169	3,169	0	0	0	0	0	0	0	0	0	32,423	32,423	
				38,1447	41	41	0	0	24	24	0	0	0	0	0	0	0	0	0	38	31	
7 Chiga	Rural	1.64	24.5	8526	0	0	219	219	68	68	8,239	0	0	0	0	0	0	0	0	8,526	287	
				3,48	7	0	11	11	3	3	3	0	0	0	0	0	0	0	0	3	7	
8 Mayenya	Rural	4.78	11.6	8798	0	0	0	0	0	0	8,798	0	0	0	0	0	0	0	0	8,798	0	
				7,58448	15	0	0	0	0	0	8	0	0	0	0	0	0	0	0	8	0	
9 Buoya	Rural	4.78	16.8	8321	0	0	0	0	0	0	8,321	0	0	0	0	0	0	0	0	8,321	0	
				4,95298	10	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5	0	
10 Nyalunya	Rural	6.3	14.7	20350	0	0	0	0	1,800	1,800	18,550	0	0	0	0	0	0	0	0	20,350	1,800	
				13,8435	28	0	0	0	14	14	14	0	0	0	0	0	0	0	0	14	14	
12 Kadero	Rural	-1.06	6.9	2488	1,610	1,610	0	0	0	0	878	0	0	0	0	0	0	0	0	2,488	1,610	
				3,6058	5	5	0	0	0	0	2	0	0	0	0	0	0	0	0	4	5	
13 Okok	Rural	-1.06	4	2292	683	683	0	0	0	0	1,609	0	0	0	0	0	0	0	0	2,292	683	
				5,73	10	10	0	0	0	0	5	0	0	0	0	0	0	0	0	6	10	
14 Got Nyabx	Rural	-6.6	4.5	914	0	0	0	0	0	0	914	0	0	0	0	0	0	0	0	914	0	
				2,03111	4	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	
16 Konya	Rural	5.03	8.4	15451	7,023	7,023	864	864	0	0	7,563	0	0	0	0	0	0	0	0	15,451	7,888	
				18,394	27	27	43	43	0	0	14	0	0	0	0	0	0	0	0	18	28	
17 Bar	Rural	2	11.4	8340	0	0	0	0	0	0	8,340	0	0	0	0	0	0	0	0	8,340	0	
				7,31579	15	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0	
18 Nyahera	Rural	2	14	10594	0	0	0	0	0	0	10,594	0	0	0	0	0	0	0	0	10,594	0	
				7,56714	15	0	0	0	0	0	8	0	0	0	0	0	0	0	0	8	0	
20 Dago	Rural	2.74	8.2	5484	0	0	594	594	0	0	4,890	0	0	0	0	0	0	0	0	5,484	0	
				6,6878	12	0	20	0	0	0	6	0	0	0	0	0	0	0	0	7	0	
21 Mkwandwa	Rural	3.32	1.1	996	996	0	0	0	0	0	0	0	0	0	0	0	0	0	0	996	0	
				9,05455	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	
24 Ojolla	Rural	2.61	16.5	12633.2	2,548	0	429	0	0	0	9,656	0	0	0	0	0	0	0	0	12,633	0	
				7,65649	13	0	21	0	0	0	7	0	0	0	0	0	0	0	0	8	0	
25 Kanyagwo	Rural	2.78	30.8	15310	0	0	0	0	0	0	15,310	0	0	0	0	0	0	0	0	15,310	0	
				4,97078	10	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5	0	
Total				247.9	526195	386,561	383,017	23,570	22,547	8,966	8,966	107,098	0	0	0	0	0	0	0	526,195	414,530	
Urban				20	104473	85,682	85,682	18,791	18,791	0	0	0	0	0	0	0	0	0	0	0	104,473	104,473
Peri-urban				54.5	301225	288,019	288,019	2,673	2,673	7,098	7,098	3,435	0	0	0	0	0	0	0	0	301,225	297,790
Rural				173.4	120497	12,860	9,316	2,107	1,083	1,868	1,868	103,663	0	0	0	0	0	0	0	0	120,497	12,267

Population 2006		Growth %	Living Area km ²	Total pop. ave. dens. pe/ha	residential		commercial		industrial		agricultural		wet and open		hilly		air port		Total			
Sub location	Category				Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha
1	Kibuye Urban	1.34	6	37710	28,313	28,313	9,397	9,397	0	0	0	0	0	0	0	0	0	0	0	37,710	37,710	
				62.85	60	60	72	72	0	0	0	0	0	0	0	0	0	0	0	63	33	
2	Milimani Urban	1.34	5.5	19880	12,936	12,936	6,944	6,944	0	0	0	0	0	0	0	0	0	0	0	19,880	19,880	
				36.1455	34	34	41	41	0	0	0	0	0	0	0	0	0	0	0	36	36	
23	Kanyakwa Urban	7.35	8.5	49607.8	46,832	46,832	2,775	2,775	0	0	0	0	0	0	0	0	0	0	0	49,608	49,608	
				58.3621	58	58	69	69	0	0	0	0	0	0	0	0	0	0	0	58	58	
3	Nyalenda Peri-urban	4.66	6.8	83240	83,240	83,240	0	0	0	0	0	0	0	0	0	0	0	0	0	83,240	83,240	
				122.412	122	122	0	0	0	0	0	0	0	0	0	0	0	0	0	122	122	
5	Manyatta Peri-urban	6.8	7.3	108316	108,316	108,316	0	0	0	0	0	0	0	0	0	0	0	0	0	108,316	108,316	
				148.379	148	148	0	0	0	0	0	0	0	0	0	0	0	0	0	148	148	
11	Kasule Peri-urban	2.28	9.6	40183	38,372	38,372	0	0	1,811	1,811	0	0	0	0	0	0	0	0	0	40,183	40,183	
				41.8573	43	43	0	0	26	26	0	0	0	0	0	0	0	0	0	42	42	
15	Wathoregi Peri-urban	2	7.6	15799	14,584	14,584	1,215	1,215	0	0	0	0	0	0	0	0	0	0	0	15,799	15,799	
				20.7882	20	20	30	30	0	0	0	0	0	0	0	0	0	0	0	21	21	
19	Korando Peri-urban	5	14.7	36882	28,938	28,938	1,702	1,702	2,553	2,553	3,688	0	0	0	0	0	0	0	0	36,882	33,194	
				25.0898	28	28	43	43	17	17	14	0	0	0	0	0	0	0	0	25	27	
22	Kogony Peri-urban	6	8.5	35079	31,650	31,650	0	0	3,429	3,429	0	0	0	0	0	0	0	0	0	35,079	35,079	
				41.2694	44	44	0	0	26	26	0	0	0	0	0	0	0	0	0	41	34	
7	Chiga Rural	1.64	24.5	8666	0	0	222	222	69	69	8,374	0	0	0	0	0	0	0	0	8,666	292	
				3.53714	7	0	11	11	3	3	3	0	0	0	0	0	0	0	0	4	7	
8	Mayenya Rural	4.78	11.6	9219	0	0	0	0	0	0	9,219	0	0	0	0	0	0	0	0	9,219	0	
				7.94741	16	0	0	0	0	0	8	0	0	0	0	0	0	0	0	8	0	
9	Buoye Rural	4.78	16.8	8719	0	0	0	0	0	0	8,719	0	0	0	0	0	0	0	0	8,719	0	
				5.18988	10	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5	0	
10	Nyalunya Rural	6.3	14.7	21632	0	0	0	0	1,913	1,913	19,719	0	0	0	0	0	0	0	0	21,632	1,913	
				14.7156	29	0	0	0	15	15	15	0	0	0	0	0	0	0	0	15	15	
12	Kadero Rural	-1.06	6.9	2462	1,593	1,593	0	0	0	0	869	0	0	0	0	0	0	0	0	2,462	1,593	
				3.56812	5	-5	0	0	0	0	2	0	0	0	0	0	0	0	0	4	5	
13	Okok Rural	-1.06	4	2268	676	676	0	0	0	0	1,592	0	0	0	0	0	0	0	0	2,268	676	
				5.67	10	10	0	0	0	0	5	0	0	0	0	0	0	0	0	6	10	
14	Got Nyabr Rural	-6.6	4.5	854	0	0	0	0	0	0	854	0	0	0	0	0	0	0	0	854	0	
				1.89778	4	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	
16	Konya Rural	5.03	8.4	16228	7,376	7,376	908	908	0	0	7,944	0	0	0	0	0	0	0	0	16,228	8,284	
				19.319	28	28	45	45	0	0	14	0	0	0	0	0	0	0	0	19	30	
17	Bar Rural	2	11.4	8507	0	0	0	0	0	0	8,507	0	0	0	0	0	0	0	0	8,507	0	
				7.46228	15	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0	
18	Nyshera Rural	2	14	10806	0	0	0	0	0	0	10,806	0	0	0	0	0	0	0	0	10,806	0	
				7.71857	15	0	0	0	0	0	8	0	0	0	0	0	0	0	0	8	0	
20	Dago Rural	2.74	8.2	5634	0	0	610	0	0	0	5,024	0	0	0	0	0	0	0	0	5,634	0	
				6.87073	13	0	20	0	0	0	6	0	0	0	0	0	0	0	0	7	0	
21	Mkendwa Rural	3.32	1.1	1029	1,029	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,029	0	
				9.35455	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	0	
24	Ojolla Rural	2.61	16.5	13827.9	2,789	0	470	0	0	0	10,569	0	0	0	0	0	0	0	0	13,828	0	
				8.38055	15	0	23	0	0	0	7	0	0	0	0	0	0	0	0	8	0	
25	Kanyagwe Rural	2.78	30.8	15736	0	0	0	0	0	0	15,736	0	0	0	0	0	0	0	0	15,736	0	
				5.10909	10	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5	0	
Total				247.9	552285	406,644	402,826	24,245	23,165	9,775	9,775	111,620	0	0	0	0	0	0	0	552,285	435,767	
Urban				20	107198	88,081	88,081	19,117	19,117	0	0	0	0	0	0	0	0	0	0	0	107,198	107,198
Peri-urban				54.5	319499	305,101	305,101	2,918	2,918	7,793	7,793	3,688	0	0	0	0	0	0	0	0	319,499	315,811
Rural				173.4	125588	13,463	9,645	2,210	1,130	1,983	1,983	107,932	0	0	0	0	0	0	0	0	125,588	12,758

Population 2007		Growth Rate %	Living Area km ²	Total population	residential		commercial		industrial		agricultural		wet and open		hilly		air port		Total			
Sub location	Category				pe/ha	pe/ha	pe/ha	pe/ha	pe/ha	pe/ha	pe/ha	pe/ha	pe/ha	pe/ha	pe/ha	pe/ha	pe/ha	pe/ha	pe/ha	pe/ha	pe/ha	pe/ha
1	Kibuye Urban	1.34	6	38215	28,692	28,692	9,523	9,523	0	0	0	0	0	0	0	0	0	0	0	38,215	38,215	
				63,6917	61	61	73	73	0	0	0	0	0	0	0	0	0	0	0	64	33	
2	Milimani Urban	1.34	5.5	20146	13,109	13,109	7,037	7,037	0	0	0	0	0	0	0	0	0	0	0	20,146	20,146	
				36,6291	34	34	41	41	0	0	0	0	0	0	0	0	0	0	0	37	37	
23	Kanyakwa Urban	7.35	8.5	51455	48,576	48,576	2,879	2,879	0	0	0	0	0	0	0	0	0	0	0	51,455	51,455	
				60,5353	60	60	72	72	0	0	0	0	0	0	0	0	0	0	0	61	61	
3	Nyalenda Peri-urban	4.66	6.8	87127.6	87,128	87,128	0	0	0	0	0	0	0	0	0	0	0	0	0	87,128	87,128	
				128,129	128	128	0	0	0	0	0	0	0	0	0	0	0	0	0	128	128	
5	Menyatta Peri-urban	6.8	7.3	110079	110,079	110,079	0	0	0	0	0	0	0	0	0	0	0	0	0	110,079	110,079	
				150,794	151	151	0	0	0	0	0	0	0	0	0	0	0	0	0	151	151	
11	Kasulu Peri-urban	2.28	9.6	46658	44,555	44,555	0	0	2,103	2,103	0	0	0	0	0	0	0	0	0	46,658	46,658	
				48,6021	50	50	0	0	30	30	0	0	0	0	0	0	0	0	0	49	49	
15	Wathorezi Peri-urban	2	7.6	17656	16,298	16,298	1,358	1,358	0	0	0	0	0	0	0	0	0	0	0	17,656	17,656	
				23,2316	23	23	34	34	0	0	0	0	0	0	0	0	0	0	0	23	23	
19	Korando Peri-urban	5	14.7	39619	31,086	31,086	1,829	1,829	2,743	2,743	3,962	0	0	0	0	0	0	0	0	39,619	35,657	
				26,9517	30	30	46	46	18	18	15	0	0	0	0	0	0	0	0	27	29	
22	Kogony Peri-urban	6	8.5	37958	34,248	34,248	0	0	3,710	3,710	0	0	0	0	0	0	0	0	0	37,958	37,958	
				44,6565	48	48	0	0	29	29	0	0	0	0	0	0	0	0	0	45	37	
7	Chiga Rural	1.64	24.5	8808	0	0	226	226	71	71	8,511	0	0	0	0	0	0	0	0	8,808	297	
				3,5951	7	0	11	11	4	4	4	0	0	0	0	0	0	0	0	4	7	
8	Mayenya Rural	4.78	11.6	9660	0	0	0	0	0	0	9,660	0	0	0	0	0	0	0	0	9,660	0	
				8,32759	17	0	0	0	0	0	8	0	0	0	0	0	0	0	0	8	0	
9	Buoye Rural	4.78	16.8	9136	0	0	0	0	0	0	9,136	0	0	0	0	0	0	0	0	9,136	0	
				5,4381	11	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5	0	
10	Nyalunya Rural	6.3	14.7	22995	0	0	0	0	2,034	2,034	20,961	0	0	0	0	0	0	0	0	22,995	2,034	
				15,6429	31	0	0	0	16	16	16	0	0	0	0	0	0	0	0	16	16	
12	Kadero Rural	-1.06	6.9	2436	1,576	1,576	0	0	0	0	860	0	0	0	0	0	0	0	0	2,436	1,576	
				3,53043	5	5	0	0	0	0	2	0	0	0	0	0	0	0	0	4	5	
13	Okok Rural	-1.06	4	2244	668	668	0	0	0	0	1,576	0	0	0	0	0	0	0	0	2,244	668	
				5,61	10	10	0	0	0	0	5	0	0	0	0	0	0	0	0	6	10	
14	Got Nyabx Rural	-6.6	4.5	798	0	0	0	0	0	0	798	0	0	0	0	0	0	0	0	798	0	
				1,77333	4	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0	
16	Konya Rural	5.03	8.4	17044	7,747	7,747	954	954	0	0	8,343	0	0	0	0	0	0	0	0	17,044	8,701	
				20,2905	30	30	48	48	0	0	15	0	0	0	0	0	0	0	0	20	31	
17	Ber Rural	2	11.4	8677	0	0	0	0	0	0	8,677	0	0	0	0	0	0	0	0	8,677	0	
				7,6114	15	0	0	0	0	0	8	0	0	0	0	0	0	0	0	8	0	
18	Nyahera Rural	2	14	11022	0	0	0	0	0	0	11,022	0	0	0	0	0	0	0	0	11,022	0	
				7,87286	16	0	0	0	0	0	8	0	0	0	0	0	0	0	0	8	0	
20	Dago Rural	2.74	8.2	5788	0	0	627	0	0	0	5,161	0	0	0	0	0	0	0	0	5,788	0	
				7,05854	13	0	21	0	0	0	7	0	0	0	0	0	0	0	0	7	0	
21	Mkendwa Rural	3.32	1.1	1063	1,063	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,063	0	
				9,66364	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	
24	Ojolla Rural	2.61	16.5	15152.1	3,056	0	515	0	0	0	11,581	0	0	0	0	0	0	0	0	15,152	0	
				9,18309	16	0	26	0	0	0	8	0	0	0	0	0	0	0	0	9	0	
25	Kanyagwe Rural	2.78	30.8	16173	0	0	0	0	0	0	16,173	0	0	0	0	0	0	0	0	16,173	0	
				5,25097	11	0	0	0	0	0	5	0	0	0	0	0	0	0	0	5	0	
Total				247.9	579910	427,882	423,762	24,947	23,805	10,660	10,660	116,421	0	0	0	0	0	0	0	579,910	458,228	
Urban				20	109816	90,377	90,377	19,439	19,439	0	0	0	0	0	0	0	0	0	0	0	109,816	109,816
Peri-urban				54.5	339098	323,394	323,394	3,187	3,187	8,556	8,556	3,962	0	0	0	0	0	0	0	339,098	335,136	
Rural				173.4	130996	14,111	9,992	2,321	1,180	2,104	2,104	112,459	0	0	0	0	0	0	0	130,996	13,276	

Sub location	Population 2008		Living Area km ²	Total pop ave. densit pe/ha	residencial		commercial		industrial		agricultural		wet and open		hilly		air port		Total	
	Category	Growth %			Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha
1 Kibuye	Urban	1.34	6	38727	29,076	29,076	9,651	9,651	0	0	0	0	0	0	0	0	0	0	38,727	38,727
				64,545	62	62	74	74	0	0	0	0	0	0	0	0	0	0	65	34
2 Milimani	Urban	1.34	5.5	20416	13,284	13,284	7,132	7,132	0	0	0	0	0	0	0	0	0	0	20,416	20,416
				37,12	35	35	42	42	0	0	0	0	0	0	0	0	0	0	37	37
23 Kanyakwa	Urban	7.35	8.5	53165.3	50,191	50,191	2,974	2,974	0	0	0	0	0	0	0	0	0	0	53,165	53,165
				62,5474	62	62	74	74	0	0	0	0	0	0	0	0	0	0	63	63
3 Nyalenda	Peri-urban	4.66	6.8	91076.3	91,076	91,076	0	0	0	0	0	0	0	0	0	0	0	0	91,076	91,076
				133,936	134	134	0	0	0	0	0	0	0	0	0	0	0	0	134	134
5 Manyatta	Peri-urban	6.8	7.3	111641	111,641	111,641	0	0	0	0	0	0	0	0	0	0	0	0	111,641	111,641
				152,933	153	153	0	0	0	0	0	0	0	0	0	0	0	0	153	153
11 Kasule	Peri-urban	2.28	9.6	53966	51,534	51,534	0	0	2,432	2,432	0	0	0	0	0	0	0	0	53,966	53,966
				56,2146	58	58	0	0	35	35	0	0	0	0	0	0	0	0	56	56
15 Wathoregi	Peri-urban	2	7.6	19741	18,222	18,222	1,519	1,519	0	0	0	0	0	0	0	0	0	0	19,741	19,741
				25,975	25	25	38	38	0	0	0	0	0	0	0	0	0	0	26	26
19 Korando	Peri-urban	5	14.7	42591	33,418	33,418	1,966	1,966	2,949	2,949	4,259	0	0	0	0	0	0	0	42,591	38,332
				28,9735	33	33	49	49	20	20	16	0	0	0	0	0	0	0	29	32
22 Kogony	Peri-urban	6	8.5	41090	37,074	37,074	0	0	4,016	4,016	0	0	0	0	0	0	0	0	41,090	41,090
				48,3412	51	51	0	0	31	31	0	0	0	0	0	0	0	0	48	40
7 Ohige	Rural	1.64	24.5	8952	0	0	230	230	72	72	8,650	0	0	0	0	0	0	0	8,952	302
				3,65388	7	0	11	11	4	4	4	0	0	0	0	0	0	0	4	8
8 Mayenya	Rural	4.78	11.6	10122	0	0	0	0	0	0	10,122	0	0	0	0	0	0	0	10,122	0
				8,72586	17	0	0	0	0	0	9	0	0	0	0	0	0	0	9	0
9 Buoye	Rural	4.78	16.8	9573	0	0	0	0	0	0	9,573	0	0	0	0	0	0	0	9,573	0
				5,69821	11	0	0	0	0	0	6	0	0	0	0	0	0	0	6	0
10 Nyalunya	Rural	6.3	14.7	24444	0	0	0	0	2,162	2,162	22,282	0	0	0	0	0	0	0	24,444	2,162
				16,6286	33	0	0	0	17	17	17	0	0	0	0	0	0	0	17	17
12 Kadero	Rural	-1.06	6.9	2410	1,559	1,559	0	0	0	0	851	0	0	0	0	0	0	0	2,410	1,559
				3,49275	5	.5	0	0	0	0	2	0	0	0	0	0	0	0	3	5
13 Okok	Rural	-1.06	4	2220	661	661	0	0	0	0	1,559	0	0	0	0	0	0	0	2,220	661
				5,55	9	9	0	0	0	0	5	0	0	0	0	0	0	0	6	9
14 Got Nyebc	Rural	-6.6	4.5	745	0	0	0	0	0	0	745	0	0	0	0	0	0	0	745	0
				1,65556	3	0	0	0	0	0	2	0	0	0	0	0	0	0	2	0
16 Konya	Rural	5.03	8.4	17901	8,137	8,137	1,001	1,001	0	0	8,763	0	0	0	0	0	0	0	17,901	9,138
				21,3107	31	31	50	50	0	0	16	0	0	0	0	0	0	0	21	33
17 Bar	Rural	2	11.4	8851	0	0	0	0	0	0	8,851	0	0	0	0	0	0	0	8,851	0
				7,76404	16	0	0	0	0	0	8	0	0	0	0	0	0	0	8	0
18 Nyahera	Rural	2	14	11242	0	0	0	0	0	0	11,242	0	0	0	0	0	0	0	11,242	0
				8,03	16	0	0	0	0	0	8	0	0	0	0	0	0	0	8	0
20 Dago	Rural	2.74	8.2	5947	0	0	644	0	0	0	5,303	0	0	0	0	0	0	0	5,947	0
				7,25244	13	0	21	0	0	0	7	0	0	0	0	0	0	0	7	0
21 Mkendwa	Rural	3.32	1.1	1098	1,098	0	0	0	0	0	0	0	0	0	0	0	0	0	1,098	0
				9,98182	10	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0
24 Ojolla	Rural	2.61	16.5	16627.3	3,354	0	565	0	0	0	12,709	0	0	0	0	0	0	0	16,627	0
				10,0772	18	0	28	0	0	0	9	0	0	0	0	0	0	0	18	0
25 Kanyagwe	Rural	2.78	30.8	16623	0	0	0	0	0	0	16,623	0	0	0	0	0	0	0	16,623	0
				5,39708	11	0	0	0	0	0	5	0	0	0	0	0	0	0	5	0
Total				247.9	609169	450,326	445,874	25,681	24,472	11,630	11,630	121,531	0	0	0	0	0	0	609,169	481,977
	Urban			20	112308	92,552	92,552	19,757	19,757	0	0	0	0	0	0	0	0	0	112,308	112,308
	Peri-urban			54.5	360105	342,965	342,965	3,484	3,484	9,397	9,397	4,259	0	0	0	0	0	0	360,105	355,846
	Rural			173.4	136755	14,809	10,358	2,440	1,231	2,234	2,234	117,272	0	0	0	0	0	0	136,755	13,822

Sub location	Population 2009		Living Area km ²	Total pop ave. densit pe/ha	residential		commercial		industrial		agricultural		wet and open		hilly		air port		Total		
	Category	Growth %			Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha	Service pe/ha	Total pe/ha
1 Kibuye	Urban	1.34	6	39246	29,466	29,466	9,780	9,780	0	0	0	0	0	0	0	0	0	0	0	39,246	39,246
				65.41	63	63	75	75	0	0	0	0	0	0	0	0	0	0	0	65	65
2 Milimani	Urban	1.34	5.5	20690	13,463	13,463	7,227	7,227	0	0	0	0	0	0	0	0	0	0	0	20,690	20,690
				37.6182	35	35	43	43	0	0	0	0	0	0	0	0	0	0	0	38	38
23 Kanyakwa	Urban	7.35	8.5	54717.2	51,656	51,656	3,061	3,061	0	0	0	0	0	0	0	0	0	0	0	54,717	54,717
				64.3752	64	64	77	77	0	0	0	0	0	0	0	0	0	0	0	64	64
3 Nyalende	Peri-urban	4.66	6.8	94947.8	94,948	94,948	0	0	0	0	0	0	0	0	0	0	0	0	0	94,948	94,948
				139.629	140	140	0	0	0	0	0	0	0	0	0	0	0	0	0	140	140
5 Manyatta	Peri-urban	6.8	7.3	113000	113,000	113,000	0	0	0	0	0	0	0	0	0	0	0	0	0	113,000	113,000
				154.794	155	155	0	0	0	0	0	0	0	0	0	0	0	0	0	155	155
11 Kasule	Peri-urban	2.28	9.6	62239	59,434	59,434	0	0	2,805	2,805	0	0	0	0	0	0	0	0	0	62,239	62,239
				64.8323	67	67	0	0	40	40	0	0	0	0	0	0	0	0	0	65	65
15 Wathoregt	Peri-urban	2	7.6	22092	20,393	20,393	1,699	1,699	0	0	0	0	0	0	0	0	0	0	0	22,092	22,092
				29.0684	28	28	42	42	0	0	0	0	0	0	0	0	0	0	0	29	29
19 Korando	Peri-urban	5	14.7	45826	35,956	35,956	2,115	2,115	3,173	3,173	4,583	0	0	0	0	0	0	0	0	45,826	41,243
				31.1741	35	35	53	53	21	21	18	0	0	0	0	0	0	0	0	31	34
22 Kogony	Peri-urban	6	8.5	44505	40,155	40,155	0	0	4,350	4,350	0	0	0	0	0	0	0	0	0	44,505	44,505
				52.3588	56	56	0	0	33	33	0	0	0	0	0	0	0	0	0	52	43
7 Chiga	Rural	1.64	24.5	9099	0	0	233	233	73	73	8,793	0	0	0	0	0	0	0	0	9,099	306
				3.71388	7	0	12	12	4	4	4	0	0	0	0	0	0	0	0	4	8
8 Mayenya	Rural	4.78	11.6	10606	0	0	0	0	0	0	10,606	0	0	0	0	0	0	0	0	10,606	0
				9.1431	18	0	0	0	0	0	9	0	0	0	0	0	0	0	0	9	0
9 Buoye	Rural	4.78	16.8	10031	0	0	0	0	0	0	10,031	0	0	0	0	0	0	0	0	10,031	0
				5.97083	12	0	0	0	0	0	6	0	0	0	0	0	0	0	0	6	0
10 Nyalunya	Rural	6.3	14.7	25984	0	0	0	0	2,298	2,298	23,686	0	0	0	0	0	0	0	0	25,984	2,298
				17.6762	35	0	0	0	18	18	18	0	0	0	0	0	0	0	0	18	18
12 Kadero	Rural	-1.06	6.9	2384	1,543	1,543	0	0	0	0	841	0	0	0	0	0	0	0	0	2,384	1,543
				3.45507	5	5	0	0	0	0	2	0	0	0	0	0	0	0	0	3	5
13 Okok	Rural	-1.06	4	2196	654	654	0	0	0	0	1,542	0	0	0	0	0	0	0	0	2,196	654
				5.49	9	9	0	0	0	0	5	0	0	0	0	0	0	0	0	5	9
14 Got Nyabr	Rural	-6.6	4.5	696	0	0	0	0	0	0	696	0	0	0	0	0	0	0	0	696	0
				1.54667	3	0	0	0	0	0	2	0	0	0	0	0	0	0	0	2	0
16 Konya	Rural	5.03	8.4	18801	8,546	8,546	1,052	1,052	0	0	9,203	0	0	0	0	0	0	0	0	18,801	9,598
				22.3821	33	33	53	53	0	0	16	0	0	0	0	0	0	0	0	22	34
17 Bar	Rural	2	11.4	9028	0	0	0	0	0	0	9,028	0	0	0	0	0	0	0	0	9,028	0
				7.9193	16	0	0	0	0	0	8	0	0	0	0	0	0	0	0	8	0
18 Nyahera	Rural	2	14	11467	0	0	0	0	0	0	11,467	0	0	0	0	0	0	0	0	11,467	0
				8.19071	16	0	0	0	0	0	8	0	0	0	0	0	0	0	0	8	0
20 Dago	Rural	2.74	8.2	6110	0	0	662	0	0	0	5,448	0	0	0	0	0	0	0	0	6,110	0
				7.45122	14	0	22	0	0	0	7	0	0	0	0	0	0	0	0	7	0
21 Mkendwa	Rural	3.32	1.1	1134	1,134	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,134	0
				10.3091	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0
24 Ojolla	Rural	2.61	16.5	18278.1	3,687	0	621	0	0	0	13,971	0	0	0	0	0	0	0	0	18,278	0
				11.0777	19	0	31	0	0	0	10	0	0	0	0	0	0	0	0	11	0
25 Kanyagwo	Rural	2.78	30.8	17085	0	0	0	0	0	0	17,085	0	0	0	0	0	0	0	0	17,085	0
				5.54708	11	0	0	0	0	0	6	0	0	0	0	0	0	0	0	6	0
Total				247.9	640162	474,033	489,212	26,451	25,168	12,698	12,698	126,979	0	0	0	0	0	0	0	640,162	507,079
	Urban		20	114653	94,585	94,585	20,069	20,069	0	0	0	0	0	0	0	0	0	0	0	114,653	114,653
	Peri-urban		54.5	382610	363,885	363,885	3,814	3,814	10,327	10,327	4,583	0	0	0	0	0	0	0	0	382,610	378,027
	Rural		173.4	142899	15,583	10,743	2,568	1,285	2,371	2,371	122,397	0	0	0	0	0	0	0	0	142,899	14,399

Sub location	Population 2011		Living Area km ²	Total pop ave. densit pe/ha	residential		commercial		industrial		agricultural		wet and open		hilly		air port		Total	
	Category	Growth %			Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha
1 Kibuyo	Urban	1.34	6	40305	30,261	30,261	10,044	10,044	0	0	0	0	0	0	0	0	0	0	40,305	40,305
				67,175	64	64	77	77	0	0	0	0	0	0	0	0	0	0	67	35
2 Milimani	Urban	1.34	5.5	21248	13,826	13,826	7,422	7,422	0	0	0	0	0	0	0	0	0	0	21,248	21,248
				38,6327	36	36	44	44	0	0	0	0	0	0	0	0	0	0	39	39
23 Kanyakwa	Urban	7.35	8.5	57259.9	54,057	54,057	3,203	3,203	0	0	0	0	0	0	0	0	0	0	57,260	57,260
				67,3645	67	67	80	80	0	0	0	0	0	0	0	0	0	0	67	67
3 Nyalenda	Peri-urban	4.66	6.8	101905	101,905	101,905	0	0	0	0	0	0	0	0	0	0	0	0	101,905	101,905
				149,86	150	150	0	0	0	0	0	0	0	0	0	0	0	0	150	150
5 Manyatta	Peri-urban	6.8	7.3	115102	115,102	115,102	0	0	0	0	0	0	0	0	0	0	0	0	115,102	115,102
				157,674	158	158	0	0	0	0	0	0	0	0	0	0	0	0	158	158
11 Kasule	Peri-urban	2.28	9.6	82233	78,527	78,527	0	0	3,706	3,706	0	0	0	0	0	0	0	0	82,233	82,233
				85,6594	88	88	0	0	53	53	0	0	0	0	0	0	0	0	86	86
15 Wathoreg	Peri-urban	2	7.6	27739	25,605	25,605	2,134	2,134	0	0	0	0	0	0	0	0	0	0	27,739	27,739
				36,4987	36	36	53	53	0	0	0	0	0	0	0	0	0	0	36	36
19 Korando	Peri-urban	5	14.7	53211	41,750	41,750	2,456	2,456	3,684	3,684	5,321	0	0	0	0	0	0	0	53,211	47,890
				36,198	41	41	61	61	25	25	20	0	0	0	0	0	0	0	36	40
22 Kogony	Peri-urban	6	8.5	52309	47,196	47,196	0	0	5,113	5,113	0	0	0	0	0	0	0	0	52,309	52,309
				61,54	66	66	0	0	39	39	0	0	0	0	0	0	0	0	62	51
7 Chiga	Rural	1.64	24.5	9400	0	0	241	241	75	75	9,083	0	0	0	0	0	0	0	9,400	317
				3,83673	8	0	12	12	4	4	4	0	0	0	0	0	0	0	4	8
8 Mayenya	Rural	4.78	11.6	11644	0	0	0	0	0	0	11,644	0	0	0	0	0	0	0	11,644	0
				10,0379	20	0	0	0	0	0	10	0	0	0	0	0	0	0	10	0
9 Buoye	Rural	4.78	16.8	11012	0	0	0	0	0	0	11,012	0	0	0	0	0	0	0	11,012	0
				6,55476	13	0	0	0	0	0	7	0	0	0	0	0	0	0	7	0
10 Nyalunya	Rural	6.3	14.7	29361	0	0	0	0	2,597	2,597	26,764	0	0	0	0	0	0	0	29,361	2,597
				19,9735	40	0	0	0	20	20	20	0	0	0	0	0	0	0	20	20
12 Kadero	Rural	-1.06	6.9	2334	1,510	1,510	0	0	0	0	824	0	0	0	0	0	0	0	2,334	1,510
				3,38261	5	5	0	0	0	0	2	0	0	0	0	0	0	0	3	5
13 Okok	Rural	-1.06	4	2150	640	640	0	0	0	0	1,510	0	0	0	0	0	0	0	2,150	640
				5,375	9	9	0	0	0	0	5	0	0	0	0	0	0	0	5	9
14 Got Nyab	Rural	-6.6	4.5	607	0	0	0	0	0	0	607	0	0	0	0	0	0	0	607	0
				1,34889	3	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0
16 Konya	Rural	5.03	8.4	20740	9,427	9,427	1,160	1,160	0	0	10,152	0	0	0	0	0	0	0	20,740	10,588
				24,6905	36	36	58	58	0	0	18	0	0	0	0	0	0	0	25	38
17 Bar	Rural	2	11.4	9393	0	0	0	0	0	0	9,393	0	0	0	0	0	0	0	9,393	0
				8,23947	16	0	0	0	0	0	8	0	0	0	0	0	0	0	8	0
18 Nyahera	Rural	2	14	11930	0	0	0	0	0	0	11,930	0	0	0	0	0	0	0	11,930	0
				8,52143	17	0	0	0	0	0	9	0	0	0	0	0	0	0	9	0
20 Dago	Rural	2.74	8.2	6449	0	0	699	0	0	0	5,750	0	0	0	0	0	0	0	6,449	0
				7,86463	15	0	23	0	0	0	7	0	0	0	0	0	0	0	8	0
21 Mkendwa	Rural	3.32	1.1	1211	1,211	0	0	0	0	0	0	0	0	0	0	0	0	0	1,211	0
				11,0091	11	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0
24 Ojolla	Rural	2.61	16.5	22202.8	4,478	0	754	0	0	0	16,970	0	0	0	0	0	0	0	22,203	0
				13,4563	24	0	38	0	0	0	12	0	0	0	0	0	0	0	13	0
25 Kanyagwo	Rural	2.78	30.8	18048	0	0	0	0	0	0	18,048	0	0	0	0	0	0	0	18,048	0
				5,85974	12	0	0	0	0	0	6	0	0	0	0	0	0	0	6	0
Total			247.9	707794	525,496	519,807	28,114	26,661	15,174	15,174	139,009	0	0	0	0	0	0	0	707,794	561,642
	Urban		20	118813	98,143	98,143	20,670	20,670	0	0	0	0	0	0	0	0	0	0	118,813	118,813
	Peri-urban		54.5	432499	410,086	410,086	4,590	4,590	12,503	12,503	5,321	0	0	0	0	0	0	0	432,499	427,178
	Rural		173.4	156482	17,267	11,578	2,854	1,401	2,672	2,672	133,688	0	0	0	0	0	0	0	156,482	15,651

Sub location	Population 2012		Living Area km ²	Total pop ave. densit pe/ha	residential		commercial		industrial		agricultural		wet and open		hilly		air port		Total		
	Category	Growth %			Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe
1 Kibuye	Urban	1.34	6	40845 68.075	30,666 65	30,666 65	10,179 78	10,179 78	0	0	0	0	0	0	0	0	0	0	0	40,845	40,845
2 Milimani	Urban	1.34	5.5	21533 39,1509	14,011 37	14,011 37	7,522 44	7,522 44	0	0	0	0	0	0	0	0	0	0	0	21,533	21,533
23 Kanyakwa	Urban	7.35	8.5	58207.7 68.4797	54,951 68	54,951 68	3,256 81	3,256 81	0	0	0	0	0	0	0	0	0	0	0	58,208	58,208
3 Nyalenda	Peri-urban	4.66	6.8	104714 153.991	104,714 154	104,714 154	0	0	0	0	0	0	0	0	0	0	0	0	0	104,714	104,714
5 Menyatta	Peri-urban	6.8	7.3	115843 158,688	115,843 159	115,843 159	0	0	0	0	0	0	0	0	0	0	0	0	0	115,843	115,843
11 Kasule	Peri-urban	2.28	9.6	94239 98,1656	89,992 101	89,992 101	0	0	4,247 61	4,247 61	0	0	0	0	0	0	0	0	0	94,239	94,239
15 Wathoregi	Peri-urban	2	7.6	31113 40,9382	28,720 40	28,720 40	2,393 60	2,393 60	0	0	0	0	0	0	0	0	0	0	0	31,113	31,113
19 Korando	Peri-urban	5	14.7	57424 39,0639	45,056 44	45,056 44	2,650 66	2,650 66	3,976 27	3,976 27	5,742 22	0	0	0	0	0	0	0	0	57,424	51,682
22 Kogony	Peri-urban	6	8.5	56763 66.78	51,215 71	51,215 71	0	0	5,548 43	5,548 43	0	0	0	0	0	0	0	0	0	56,763	56,763
7 Chiga	Rural	1.64	24.5	9554 3,89959	0	0	245	245	77	77	9,232	0	0	0	0	0	0	0	0	9,554	322
8 Mayenya	Rural	4.78	11.6	12201 10,5181	0	0	12	12	4	4	12,201	0	0	0	0	0	0	0	0	12,201	0
9 Buoye	Rural	4.78	16.8	11538 6,86786	0	0	0	0	0	0	11,538	0	0	0	0	0	0	0	0	11,538	0
10 Nyalunya	Rural	6.3	14.7	31211 21,232	0	0	0	0	2,760	2,760	28,451	0	0	0	0	0	0	0	0	31,211	2,760
12 Kadero	Rural	-1.06	6.9	2309 3,34638	1,494	1,494	0	0	0	0	21	0	0	0	0	0	0	0	0	2,309	1,494
13 Okok	Rural	-1.06	4	2127 5,3175	634	634	0	0	0	0	1,493	0	0	0	0	0	0	0	0	2,127	634
14 Got Nyabr	Rural	-6.6	4.5	567 1,26	0	0	0	0	0	0	567	0	0	0	0	0	0	0	0	567	0
16 Konya	Rural	5.03	8.4	21783 25,9321	9,901	9,901	1,219	1,219	0	0	10,663	0	0	0	0	0	0	0	0	21,783	11,120
17 Bar	Rural	2	11.4	9581 8,40439	0	0	0	0	0	0	9,581	0	0	0	0	0	0	0	0	9,581	0
18 Nyahora	Rural	2	14	12169 8,69214	0	0	0	0	0	0	12,169	0	0	0	0	0	0	0	0	12,169	0
20 Dago	Rural	2.74	8.2	6626 8,08049	0	0	718	0	0	0	5,908	0	0	0	0	0	0	0	0	6,626	0
21 Mkendwa	Rural	3.32	1.1	1251 11,3727	1,251	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,251	0
24 Ojolla	Rural	2.61	16.5	24526.8 14,8647	4,947	0	833	0	0	0	18,747	0	0	0	0	0	0	0	0	24,527	0
25 Kanyagwe	Rural	2.78	30.8	18550 6,02273	0	0	0	0	0	0	18,550	0	0	0	0	0	0	0	0	18,550	0
Total			247.9	744675	553,395	547,197	29,015	27,464	16,607	16,607	145,657	0	0	0	0	0	0	0	0	744,675	591,268
	Urban		20	120586	99,629	99,629	20,957	20,957	0	0	0	0	0	0	0	0	0	0	0	120,586	120,586
	Peri-urban		54.5	460095	435,539	435,539	5,044	5,044	13,771	13,771	5,742	0	0	0	0	0	0	0	0	460,095	454,353
	Rural		173.4	163994	18,227	12,029	3,015	1,464	2,837	2,837	139,915	0	0	0	0	0	0	0	0	163,994	16,330

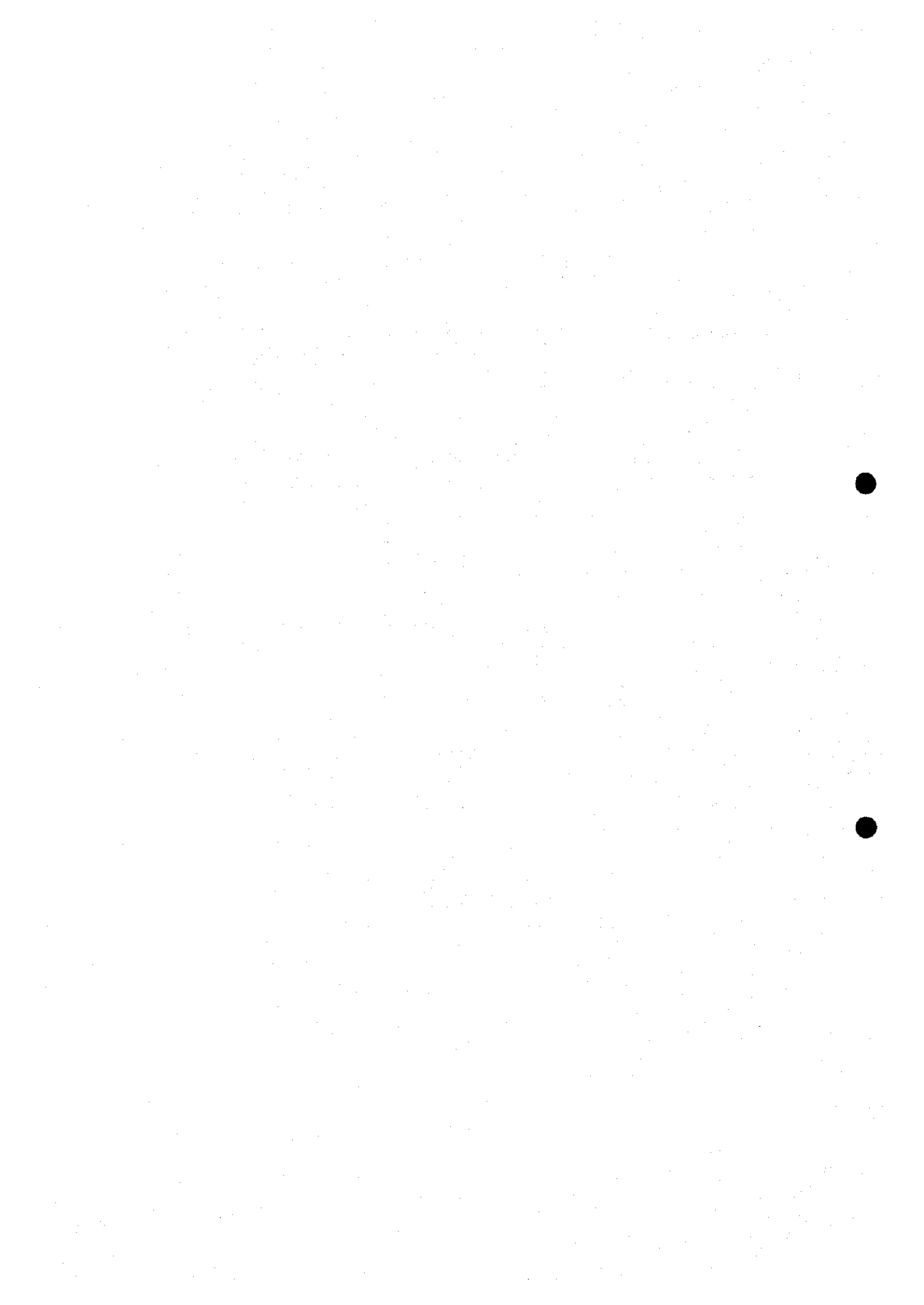
Sub location	Population 2013		Living Area km ²	Total pop. ave. densit. pe/ha	residential		commercial		industrial		agricultural		wet and open		hilly		ar port		Total		
	Category	Growth Rr %			Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe
1 Kibuye	Urban	1.34	6	41392	31,077	31,077	10,315	10,315	0	0	0	0	0	0	0	0	0	0	0	41,392	41,392
				60,9067	66	66	79	79	0	0	0	0	0	0	0	0	0	0	0	69	36
2 Mitimani	Urban	1.34	5.5	21822	14,199	14,199	7,623	7,623	0	0	0	0	0	0	0	0	0	0	0	21,822	21,822
				39,6764	37	37	45	45	0	0	0	0	0	0	0	0	0	0	0	40	40
23 Kanyakwa	Urban	7.35	8.5	58911.4	55,616	55,616	3,296	3,296	0	0	0	0	0	0	0	0	0	0	0	58,911	58,911
				69,3075	69	69	82	82	0	0	0	0	0	0	0	0	0	0	0	69	69
3 Nyalenda	Peri-urban	4.66	6.8	106892	106,892	106,892	0	0	0	0	0	0	0	0	0	0	0	0	0	106,892	106,892
				157,194	157	157	0	0	0	0	0	0	0	0	0	0	0	0	0	157	157
5 Manyatta	Peri-urban	5.8	7.3	116373	116,373	116,373	0	0	0	0	0	0	0	0	0	0	0	0	0	116,373	116,373
				159,416	159	159	0	0	0	0	0	0	0	0	0	0	0	0	0	159	159
11 Kasulo	Peri-urban	2.28	9.6	107777	102,920	102,920	0	0	4,857	4,857	0	0	0	0	0	0	0	0	0	107,777	107,777
				112,268	116	116	0	0	69	69	0	0	0	0	0	0	0	0	0	112	112
15 Wathoregi	Peri-urban	2	7.6	34906	32,221	32,221	2,685	2,685	0	0	0	0	0	0	0	0	0	0	0	34,906	34,906
				45,9289	45	45	67	67	0	0	0	0	0	0	0	0	0	0	0	46	46
19 Korondo	Peri-urban	5	14.7	62026	48,667	48,667	2,863	2,863	4,294	4,294	6,203	0	0	0	0	0	0	0	0	62,026	55,823
				42,1946	48	48	72	72	29	29	24	0	0	0	0	0	0	0	0	42	46
22 Kogony	Peri-urban	6	8.5	61630	55,606	55,606	0	0	6,024	6,024	0	0	0	0	0	0	0	0	0	61,630	61,630
				72,5059	77	77	0	0	46	46	0	0	0	0	0	0	0	0	0	73	60
7 Chiga	Rural	1.64	24.5	9711	0	0	249	249	78	78	9,384	0	0	0	0	0	0	0	0	9,711	327
				3,96367	8	0	12	12	4	4	4	0	0	0	0	0	0	0	0	4	8
8 Mayenya	Rural	4.78	11.6	12784	0	0	0	0	0	0	12,784	0	0	0	0	0	0	0	0	12,784	0
				11,0207	22	0	0	0	0	0	11	0	0	0	0	0	0	0	0	11	0
9 Buoye	Rural	4.78	16.8	12090	0	0	0	0	0	0	12,090	0	0	0	0	0	0	0	0	12,090	0
				7,19643	14	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0
10 Nyalunya	Rural	5.3	14.7	33177	0	0	0	0	2,934	2,934	30,243	0	0	0	0	0	0	0	0	33,177	2,934
				22,5694	45	0	0	0	23	23	23	0	0	0	0	0	0	0	0	23	23
12 Kadero	Rural	-1.06	6.9	2265	1,479	1,479	0	0	0	0	806	0	0	0	0	0	0	0	0	2,285	1,479
				3,31159	4	4	0	0	0	0	2	0	0	0	0	0	0	0	0	3	4
13 Okok	Rural	-1.06	4	2104	627	627	0	0	0	0	1,477	0	0	0	0	0	0	0	0	2,104	627
				5,26	9	9	0	0	0	0	4	0	0	0	0	0	0	0	0	5	9
14 Got Nyabr	Rural	-6.6	4.5	530	0	0	0	0	0	0	530	0	0	0	0	0	0	0	0	530	0
				1,17778	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
16 Konya	Rural	5.03	8.4	22879	10,400	10,400	1,280	1,280	0	0	11,200	0	0	0	0	0	0	0	0	22,879	11,679
				27,2369	40	40	64	64	0	0	20	0	0	0	0	0	0	0	0	27	42
17 Bar	Rural	2	11.4	9773	0	0	0	0	0	0	9,773	0	0	0	0	0	0	0	0	9,773	0
				8,57281	17	0	0	0	0	0	9	0	0	0	0	0	0	0	0	9	0
18 Nyahera	Rural	2	14	12412	0	0	0	0	0	0	12,412	0	0	0	0	0	0	0	0	12,412	0
				8,86571	18	0	0	0	0	0	9	0	0	0	0	0	0	0	0	9	0
20 Dago	Rural	2.74	8.2	6808	0	0	738	0	0	0	6,070	0	0	0	0	0	0	0	0	6,808	0
				8,30244	15	0	25	0	0	0	8	0	0	0	0	0	0	0	0	8	0
21 Mkendwa	Rural	3.32	1.1	1293	1,293	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,293	0
				11,7545	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0
24 Ojolia	Rural	2.61	16.5	27128.6	5,472	0	922	0	0	0	20,735	0	0	0	0	0	0	0	0	27,129	0
				16,4416	29	0	46	0	0	0	14	0	0	0	0	0	0	0	0	16	0
25 Kanyagwe	Rural	2.78	30.8	19066	0	0	0	0	0	0	19,066	0	0	0	0	0	0	0	0	19,066	0
				6,19026	12	0	0	0	0	0	6	0	0	0	0	0	0	0	0	6	0
Total			247.9	783770	582,840	576,075	29,970	28,310	18,187	18,187	152,773	0	0	0	0	0	0	0	0	783,770	622,573
	Urban		20	122125	100,892	100,892	21,233	21,233	0	0	0	0	0	0	0	0	0	0	0	122,125	122,125
	Peri-urban		54.5	489604	462,679	462,679	5,548	5,548	15,175	15,175	6,203	0	0	0	0	0	0	0	0	489,604	483,401
	Rural		173.4	172041	19,270	12,505	3,188	1,529	3,012	3,012	146,571	0	0	0	0	0	0	0	0	172,041	17,046

Sub location	Population 2014		Living Area km ²	Total pop. ave. densit. pe/ha	residential		commercial		industrial		agricultural		wet and open		hilly		air port		Total			
	Category	Growth %			Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe	Total pe	Service pe
1 Kibuye	Urban	1.34	6	41,947	31,494	31,494	10,453	10,453	0	0	0	0	0	0	0	0	0	0	0	41,947	41,947	
				70	67	67	80	80	0	0	0	0	0	0	0	0	0	0	0	70	36	
2 Milimani	Urban	1.34	6	22,114	14,389	14,389	7,725	7,725	0	0	0	0	0	0	0	0	0	0	0	22,114	22,114	
				40	38	38	45	45	0	0	0	0	0	0	0	0	0	0	0	40	40	
23 Kanyakwa	Urban	7.35	9	59,349	56,029	56,029	3,320	3,320	0	0	0	0	0	0	0	0	0	0	0	59,349	59,349	
				70	69	69	83	83	0	0	0	0	0	0	0	0	0	0	0	70	70	
3 Nyalenda	Peri-urban	4.66	7	108,300	108,300	108,300	0	0	0	0	0	0	0	0	0	0	0	0	0	108,300	108,300	
				159	159	159	0	0	0	0	0	0	0	0	0	0	0	0	0	159	159	
5 Manyatta	Peri-urban	6.8	7	116,693	116,693	116,693	0	0	0	0	0	0	0	0	0	0	0	0	0	116,693	116,693	
				160	160	160	0	0	0	0	0	0	0	0	0	0	0	0	0	160	160	
11 Kasule	Peri-urban	2.28	10	123,000	117,457	117,457	0	0	5,543	5,543	0	0	0	0	0	0	0	0	0	123,000	123,000	
				128	132	132	0	0	79	79	0	0	0	0	0	0	0	0	0	128	128	
15 Wathoreg	Peri-urban	2	8	39,161	36,149	36,149	3,012	3,012	0	0	0	0	0	0	0	0	0	0	0	39,161	39,161	
				52	50	50	75	75	0	0	0	0	0	0	0	0	0	0	0	52	52	
19 Korando	Peri-urban	5	15	67,051	52,609	52,609	3,095	3,095	4,642	4,642	6,705	0	0	0	0	0	0	0	0	67,051	60,346	
				46	52	52	77	77	31	31	26	0	0	0	0	0	0	0	0	46	50	
22 Kogony	Peri-urban	6	9	66,946	60,402	60,402	0	0	6,544	6,544	0	0	0	0	0	0	0	0	0	66,946	66,946	
				79	84	84	0	0	50	50	0	0	0	0	0	0	0	0	0	79	65	
7 Chiga	Rural	1.64	25	9,870	0	0	253	253	79	79	9,538	0	0	0	0	0	0	0	0	9,870	332	
				4	8	0	13	13	4	4	4	0	0	0	0	0	0	0	0	4	8	
8 Meyenya	Rural	4.78	12	13,395	0	0	0	0	0	0	13,395	0	0	0	0	0	0	0	0	13,395	0	
				12	23	0	0	0	0	0	12	0	0	0	0	0	0	0	0	12	0	
9 Buoyo	Rural	4.78	17	12,668	0	0	0	0	0	0	12,668	0	0	0	0	0	0	0	0	12,668	0	
				8	15	0	0	0	0	0	8	0	0	0	0	0	0	0	0	8	0	
10 Nyalunya	Rural	6.3	15	35,267	0	0	0	0	3,119	3,119	32,148	0	0	0	0	0	0	0	0	35,267	3,119	
				24	48	0	0	0	24	24	24	0	0	0	0	0	0	0	0	24	24	
12 Kadero	Rural	-1.06	7	2,261	1,463	1,463	0	0	0	0	798	0	0	0	0	0	0	0	0	2,261	1,463	
				3	4	4	0	0	0	0	2	0	0	0	0	0	0	0	0	3	4	
13 Okok	Rural	-1.06	4	2,082	620	620	0	0	0	0	1,462	0	0	0	0	0	0	0	0	2,082	620	
				5	9	9	0	0	0	0	4	0	0	0	0	0	0	0	0	5	9	
14 Got Nyab	Rural	-6.6	5	495	0	0	0	0	0	0	495	0	0	0	0	0	0	0	0	495	0	
				1	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	
16 Konya	Rural	5.03	8	24,030	10,923	10,923	1,344	1,344	0	0	11,763	0	0	0	0	0	0	0	0	24,030	12,267	
				29	42	42	67	67	0	0	21	0	0	0	0	0	0	0	0	29	44	
17 Bar	Rural	2	11	9,968	0	0	0	0	0	0	9,968	0	0	0	0	0	0	0	0	9,968	0	
				9	17	0	0	0	0	0	9	0	0	0	0	0	0	0	0	9	0	
18 Nyahera	Rural	2	14	12,660	0	0	0	0	0	0	12,660	0	0	0	0	0	0	0	0	12,660	0	
				9	18	0	0	0	0	0	9	0	0	0	0	0	0	0	0	9	0	
20 Dago	Rural	2.74	8	6,995	0	0	758	0	0	0	6,237	0	0	0	0	0	0	0	0	6,995	0	
				9	16	0	25	0	0	0	8	0	0	0	0	0	0	0	0	9	0	
21 Mkondwa	Rural	3.32	1	1,336	1,336	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,336	0	
				12	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	
24 Ojolle	Rural	2.61	17	30,033	6,058	0	1,020	0	0	0	22,955	0	0	0	0	0	0	0	0	30,033	0	
				18	32	0	51	0	0	0	16	0	0	0	0	0	0	0	0	18	0	
25 Kanyagwe	Rural	2.78	31	19,596	0	0	0	0	0	0	19,596	0	0	0	0	0	0	0	0	19,596	0	
				6	13	0	0	0	0	0	6	0	0	0	0	0	0	0	0	6	0	
Total				248	825,217	613,922	606,528	30,981	29,203	19,927	19,927	160,368	0	0	0	0	0	0	0	825,217	655,658	
Urban				20	123,410	101,912	101,912	21,498	21,498	0	0	0	0	0	0	0	0	0	0	0	123,410	123,410
Peri-urban				55	521,151	491,610	491,610	6,107	6,107	16,729	16,729	6,705	0	0	0	0	0	0	0	0	521,151	514,446
Rural				173	180,656	20,399	13,006	3,376	1,598	3,198	3,198	153,683	0	0	0	0	0	0	0	0	180,656	17,802

Sub location	Population 2015		Living Area km2	Total pop ave.densit pe/ha	residencial		commercial		industrial		agricultural		wet and open		hilly		swamp		Total			
	Category	Growth R %			Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha	Total pe	Service pe/ha
1 Kibuye	Urban	1.34	6	42,509	31,916	31,916	10,593	10,593	0	0	0	0	0	0	0	0	0	0	0	42,509	42,509	
				71	68	68	81	81	0	0	0	0	0	0	0	0	0	0	0	71	37	
2 Milimani	Urban	1.34	5.5	22,410	14,582	14,582	7,828	7,828	0	0	0	0	0	0	0	0	0	0	0	22,410	22,410	
				41	38	38	46	46	0	0	0	0	0	0	0	0	0	0	0	41	41	
23 Kanyakwa	Urban	7.35	8.5	59,500	56,171	56,171	3,329	3,329	0	0	0	0	0	0	0	0	0	0	0	59,500	59,500	
				70	69	69	83	83	0	0	0	0	0	0	0	0	0	0	0	70	70	
3 Nyalenda	Pen-urban	4.66	6.8	108,800	108,800	108,800	0	0	0	0	0	0	0	0	0	0	0	0	0	108,800	108,800	
				160	160	160	0	0	0	0	0	0	0	0	0	0	0	0	0	160	160	
5 Manyatta	Pen-urban	6.8	7.3	116,800	116,800	116,800	0	0	0	0	0	0	0	0	0	0	0	0	0	116,800	116,800	
				160	160	160	0	0	0	0	0	0	0	0	0	0	0	0	0	160	160	
11 Kesule	Pen-urban	2.28	9.6	140,063	133,751	133,751	0	0	6,312	6,312	0	0	0	0	0	0	0	0	0	140,063	140,063	
				146	150	150	0	0	90	90	0	0	0	0	0	0	0	0	0	146	146	
15 Wathoregi	Pen-urban	2	7.6	43,919	40,541	40,541	3,378	3,378	0	0	0	0	0	0	0	0	0	0	0	43,919	43,919	
				58	56	56	84	84	0	0	0	0	0	0	0	0	0	0	0	58	58	
19 Korando	Pen-urban	5	14.7	72,535	56,912	56,912	3,348	3,348	5,022	5,022	7,253	0	0	0	0	0	0	0	0	72,535	65,282	
				49	56	56	84	84	33	33	28	0	0	0	0	0	0	0	0	49	54	
22 Kogony	Pen-urban	6	8.5	72,747	65,636	65,636	0	0	7,111	7,111	0	0	0	0	0	0	0	0	0	72,747	72,747	
				86	91	91	0	0	55	55	0	0	0	0	0	0	0	0	0	86	71	
7 Chiga	Rural	1.64	24.5	10,032	0	0	257	257	80	80	9,694	0	0	0	0	0	0	0	0	10,032	338	
				4	8	0	13	13	4	4	4	0	0	0	0	0	0	0	0	4	8	
8 Mayenya	Rural	4.78	11.6	14,035	0	0	0	0	0	0	14,035	0	0	0	0	0	0	0	0	14,035	0	
				12	24	0	0	0	0	0	12	0	0	0	0	0	0	0	0	12	0	
9 Buoye	Rural	4.78	16.8	13,274	0	0	0	0	0	0	13,274	0	0	0	0	0	0	0	0	13,274	0	
				8	16	0	0	0	0	0	8	0	0	0	0	0	0	0	0	8	0	
10 Nyalunya	Rural	6.3	14.7	37,489	0	0	0	0	3,315	3,315	34,174	0	0	0	0	0	0	0	0	37,489	3,315	
				26	51	0	0	0	26	26	26	0	0	0	0	0	0	0	0	26	26	
12 Kadero	Rural	-1.06	6.9	2,237	1,447	1,447	0	0	0	0	790	0	0	0	0	0	0	0	0	2,237	1,447	
				3	4	4	0	0	0	0	2	0	0	0	0	0	0	0	0	3	4	
13 Okok	Rural	-1.06	4	2,060	614	614	0	0	0	0	1,446	0	0	0	0	0	0	0	0	2,060	614	
				5	9	9	0	0	0	0	4	0	0	0	0	0	0	0	0	5	9	
14 Got Nyebi	Rural	-6.6	4.5	462	0	0	0	0	0	0	462	0	0	0	0	0	0	0	0	462	0	
				1	2	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0	
16 Konya	Rural	5.03	8.4	25,239	11,472	11,472	1,412	1,412	0	0	12,355	0	0	0	0	0	0	0	0	25,239	12,884	
				30	44	44	71	71	0	0	22	0	0	0	0	0	0	0	0	30	46	
17 Bar	Rural	2	11.4	10,167	0	0	0	0	0	0	10,167	0	0	0	0	0	0	0	0	10,167	0	
				9	18	0	0	0	0	0	9	0	0	0	0	0	0	0	0	9	0	
18 Nyahera	Rural	2	14	12,913	0	0	0	0	0	0	12,913	0	0	0	0	0	0	0	0	12,913	0	
				9	18	0	0	0	0	0	9	0	0	0	0	0	0	0	0	9	0	
20 Dago	Rural	2.74	8.2	7,187	0	0	779	0	0	0	6,408	0	0	0	0	0	0	0	0	7,187	0	
				9	16	0	26	0	0	0	8	0	0	0	0	0	0	0	0	9	0	
21 Mkondwa	Rural	3.32	1.1	1,380	1,380	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,380	0	
				13	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	0	
24 Ojolla	Rural	2.61	16.5	33,267	6,710	0	1,130	0	0	0	25,427	0	0	0	0	0	0	0	0	33,267	0	
				20	35	0	57	0	0	0	18	0	0	0	0	0	0	0	0	20	0	
25 Kanyagwe	Rural	2.78	30.8	20,141	0	0	0	0	0	0	20,141	0	0	0	0	0	0	0	0	20,141	0	
				7	13	0	0	0	0	0	7	0	0	0	0	0	0	0	0	7	0	
Total				248	869,166	646,732	638,642	32,054	30,146	21,840	21,840	168,539	0	0	0	0	0	0	0	869,166	690,628	
Urban				20	124,419	102,669	102,669	21,750	21,750	0	0	0	0	0	0	0	0	0	0	0	124,419	124,419
Pen-urban				55	554,864	522,440	522,440	6,726	6,726	18,444	18,444	7,254	0	0	0	0	0	0	0	0	554,864	547,611
Rural				173	189,883	21,623	13,533	3,578	1,669	3,396	3,396	161,286	0	0	0	0	0	0	0	0	189,883	18,599

APPENDIX-E

WATER DEMAND



APPENDIX E
WATER DEMAND

- E1 Water Supply Method for Master Plan
- E2 Design Unit Classified by Service Type and Consumers from Design Manual in Kenya
- E3 Water Demand and Supply Planning to 2015 as Target ; Kisumu
- E4 Total Demand by Sub-location
- E5 Demand by Domestic Use
- E6 Demand by Commercial Use
- E7 Demand by Industrial Use
- E8 Demand by Public Use
- E9 Sample Survey Result of Existing Water Consumption in Central Kisumu
- E10 Existing Situation of Kisumu Water Supply in 1997
- E11 Estimation of Commercial Use
- E12 Estimation of Industrial Use
- E13 Estimation of Public Use
- E14 List of Public Consumers
- E15 List of Industrial and Public Consumers

E1 Water Supply Method for Master Plan

Urban area	Category	Method	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
		Component %																			
High	Income level %	Individual taps	15.00	15.00	15.00	15.00	15.00	15.00	15.00	15.42	15.83	16.25	16.67	17.08	17.50	17.92	18.33	18.75	19.17	19.58	20.00
		Common taps	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	100.00	100.00	100.00	100.00	100.00	100.00
Medium	Income level %	Individual taps	35	34.72	34.44	34.17	33.89	33.61	33.33	33.06	32.78	32.50	32.22	31.94	31.67	31.39	31.11	30.83	30.56	30.28	30.00
		Common taps	100	100	100	100	100	100	100	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Low	Income level %	Individual taps	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
		Common taps	70.00	71.67	73.33	75.00	76.67	78.33	80.00	81.67	83.33	85.00	86.67	88.33	90.00	91.67	93.33	95.00	96.67	98.33	100.00
		Common taps	30.00	28.33	26.67	25.00	23.33	21.67	20.00	18.33	16.67	15.00	13.33	11.67	10.00	8.33	6.67	5.00	3.33	1.67	0.00
			1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Rural/Urban area	Income level %	Individual taps	10	10	10	10	10	10	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00	10.00
		Common taps	90	90.56	91.11	91.67	92.22	92.78	93.33	93.89	94.44	95.00	95.56	96.11	96.67	97.22	97.78	98.33	98.89	99.44	100.00
High	Income level %	Individual taps	10	9.44	8.89	8.33	7.78	7.22	6.67	6.11	5.56	5.00	4.44	3.89	3.33	2.78	2.22	1.67	1.11	0.56	0.00
		Common taps	25	25.83	26.67	27.50	28.33	29.17	30.00	30.83	31.67	32.50	33.33	34.17	35.00	35.83	36.67	37.50	38.33	39.17	40.00
Medium	Income level %	Individual taps	80	80	80	80	80	80	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00	80.00
		Common taps	20	20	20	20	20	20	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	
Low	Income level %	Individual taps	65	64.17	63.33	62.50	61.67	60.83	60.00	59.17	58.33	57.50	56.67	55.83	55.00	54.17	53.33	52.50	51.67	50.83	50.00
		Common taps	40	41.11	42.22	43.33	44.44	45.56	46.67	47.78	48.89	50.00	51.11	52.22	53.33	54.44	55.56	56.67	57.78	58.89	60.00
		Common taps	60	58.89	57.78	56.67	55.56	54.44	53.33	52.22	51.11	50.00	48.89	47.78	46.67	45.56	44.44	43.33	42.22	41.11	40.00
Leakage Ratio			0.7	0.7	0.7	0.7	0.7	0.7	0.7	0.704	0.708	0.713	0.717	0.721	0.725	0.729	0.733	0.738	0.742	0.746	0.750
Treatment loss			0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05

E2 Design Unit classified by Service type and Consumers from Design Manual in Kenya

1) Design Unit classified by Service type

The distribution between individual connection users (IC) and non-individual connection users (NC) i.e. consumers using kiosks or communal water points or share connections for the purpose of the demand projection for new supplies should be assumed to be as shown in the table below.

However, local factors may warrant deviation from the figures in the table which only shall be construed as indicative. When the designed supply is an extension or completion of an existing supply should the distribution of IC and NC be estimated after the monitoring of the existing situation.

Design Unit classified by Service type

	IC %			NC %		
	Initial	Future	Ultimate	Initial	Future	Ultimate
<u>Urban Areas</u>						
High and Medium Class Housing	100	100	100	0	0	0
Low Class Housing	10	30	50	90	70	50
<u>Rural Areas</u>						
High potential	20	40	80	80	60	20
Medium potential	10	20	40	90	80	60
Low potential	5	10	20	95	90	80

2) Design Unit classified by Consumers

Design Unit classified by Consumers

CONSUMER	UNIT	RURAL AREAS			URBAN AREAS		
		High Potential	Medium Potential	Low Potential	High Class Housing	Medium Class Housing	Low Class Housing
People with individual connections	1/head/day	60	50	40	250	150	75
People without connections	1/head/day	20	15	10	-	-	20
Livestock unit	1/head/day	50			-		
Boarding Schools	1/head/day	50					
Day schools with WC without NC	1/head/day	25 5					
Hospitals Regional District other	1/bed/day	400) 200) 100)			+20 l per outpatient and day (minimum 5000 l/day)		
Dispensary and Health Centre	1/day	5000					
Hotels High class Medium class low class	1/bed/day	600 300 50					
Administrative offices	1/head/day	25					
Bars	1/day	500					
Shops	1/day	100					
Unspecified industry	1/ha/day				20,000		
Coffee pulping factories	1/kg coffee	25 (when recirculation of water is used).					

E3 Water Demand and Supply Planning to 2015 as Target ; Kisumu

Year	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Domestic Use	16,363	17,239	18,164	19,141	20,171	21,257	22,401	23,606	24,876	26,212	27,621	29,104	30,666	32,311	34,044	35,868	37,790	39,816	41,952
Commercial Use	4,200	4,360	4,530	4,700	4,880	5,070	5,270	5,470	5,680	5,900	6,120	6,360	6,600	6,850	7,120	7,390	7,680	7,970	8,300
Industrial Use	5,400	5,700	6,030	6,380	6,750	7,150	7,570	8,010	8,480	8,990	9,530	10,120	10,740	11,400	12,110	12,870	13,680	14,550	15,500
Public Use	1,500	1,630	1,760	1,910	2,070	2,240	2,430	2,640	2,860	3,100	3,360	3,640	3,950	4,280	4,650	5,040	5,470	5,930	6,500
Ave. daily demand (net)	27,463	28,929	30,484	32,131	33,871	35,717	37,671	39,726	41,895	44,202	46,631	49,224	51,956	54,841	57,924	61,168	64,620	68,266	72,252
Ave. daily supply volume	39,233	41,327	43,549	45,901	48,387	51,024	53,816	56,816	60,174	62,038	65,067	68,288	71,663	75,228	78,987	82,940	87,128	91,530	96,336
Max. daily supply volume	43,156	45,460	47,903	50,492	53,226	56,127	59,197	62,057	65,091	68,242	71,573	75,116	78,830	82,750	86,886	91,234	95,841	100,683	105,970
Water resources requirement	47,951	50,511	53,226	56,102	59,140	62,363	65,775	69,323	73,017	76,833	80,779	84,970	89,419	94,128	99,105	104,359	109,895	115,722	121,850
1-Non revenue water	0.70	0.70	0.70	0.70	0.70	0.70	0.70	0.704	0.708	0.713	0.717	0.721	0.725	0.729	0.733	0.738	0.742	0.746	0.750
1- treatment loss	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95

T.W.Capacity	18,000	18,000	18,000	18,000	27800	27800	27800	67800	67800	67800	67800	107800	107800	107800	107800	107800	107800	107800	107800	107800
--------------	--------	--------	--------	--------	-------	-------	-------	-------	-------	-------	-------	--------	--------	--------	--------	--------	--------	--------	--------	--------

E4 Total Demand by the Sub Location

		m3/day																		
		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Kibuye	Urban	8,631	8,900	9,184	9,479	9,794	10,119	10,453	10,801	11,164	11,547	11,944	12,372	12,821	13,291	13,786	14,309	14,860	15,435	16,081
Milmani	Urban	2,494	2,547	2,601	2,658	2,717	2,778	2,842	2,910	2,980	3,056	3,134	3,217	3,306	3,401	3,503	3,611	3,727	3,852	3,996
Kanyakwa	Urban	4,294	4,627	4,975	5,335	5,708	6,084	6,468	6,854	7,240	7,624	8,004	8,378	8,744	9,098	9,441	9,761	10,062	10,336	10,611
Nyalenda	Pen-urban	2,922	3,087	3,258	3,439	3,628	3,830	4,042	4,265	4,501	4,747	5,006	5,273	5,540	5,794	6,035	6,246	6,425	6,557	6,641
Manyatta	Pen-urban	4,424	4,653	4,870	5,082	5,282	5,480	5,688	5,848	6,017	6,177	6,325	6,464	6,593	6,708	6,816	6,909	6,995	7,065	7,130
Kasule	Pen-urban	675	781	914	1,072	1,257	1,478	1,734	2,027	2,363	2,745	3,175	3,665	4,217	4,846	5,565	6,380	7,302	8,345	9,530
Wathoregi	Pen-urban	343	373	410	454	504	564	632	711	800	901	1,015	1,143	1,289	1,454	1,643	1,856	2,097	2,371	2,681
Korando	Pen-urban	1,414	1,522	1,644	1,776	1,917	2,076	2,249	2,436	2,640	2,864	3,108	3,375	3,663	3,979	4,327	4,706	5,123	5,580	6,085
Kogony	Pen-urban	1,330	1,442	1,567	1,703	1,850	2,015	2,196	2,392	2,606	2,843	3,099	3,380	3,686	4,020	4,390	4,793	5,236	5,722	6,261
Konya	Rural	282	299	315	334	356	375	398	422	445	472	498	530	559	593	626	663	703	741	786
Chiga	Rural	74	79	86	92	99	107	116	125	135	146	158	171	185	201	218	236	256	278	301
Nyalunya	Rural	448	487	530	576	625	681	742	805	875	951	1,035	1,126	1,224	1,329	1,447	1,571	1,708	1,858	2,022
Kadero	Rural	92	92	92	92	92	92	92	92	91	91	90	90	89	89	89	89	89	89	89
Okok	Rural	40	40	40	40	39	39	39	39	39	39	39	39	38	38	37	37	37	37	37
Urban		15,419	16,073	16,760	17,472	18,220	18,981	19,764	20,564	21,384	22,227	23,081	23,967	24,871	25,790	26,730	27,681	28,649	29,623	30,688
Pen-urban		11,108	11,858	12,662	13,526	14,440	15,443	16,520	17,678	18,926	20,277	21,728	23,300	24,988	26,802	28,776	30,890	33,178	35,641	38,329
Rural		936	997	1,063	1,134	1,212	1,293	1,387	1,482	1,585	1,698	1,820	1,956	2,097	2,250	2,417	2,597	2,793	3,002	3,235
Total		27,463	28,928	30,485	32,131	33,871	35,717	37,671	39,725	41,895	44,202	46,630	49,223	51,955	54,842	57,924	61,168	64,619	68,266	72,252

E5 Demand by Domestic Use

Sub location	Category	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
		pe m3/day	pe m3/day	pe m3/day	pe m3/day	pe m3/day	pe m3/day	pe m3/day	pe m3/day	pe m3/day	pe m3/day	pe m3/day	pe m3/day	pe m3/day	pe m3/day	pe m3/day	pe m3/day	pe m3/day	pe m3/day	pe m3/day	pe m3/day
1	Kibuye	Urban	33,452	33,900	34,354	34,814	35,281	35,754	36,233	36,719	37,211	37,710	38,215	38,727	39,246	39,772	40,305	40,845	41,392	41,947	42,509
2	Milimani	Urban	3,211	3,273	3,336	3,400	3,465	3,532	3,599	3,668	3,738	3,809	3,881	3,954	4,029	4,105	4,183	4,261	4,342	4,423	4,508
23	Kenyakwar	Urban	1,693	1,726	1,759	1,793	1,827	1,862	1,897	1,934	1,970	2,008	2,048	2,088	2,124	2,164	2,205	2,247	2,289	2,332	2,375
3	Nyalenda	Peri-urban	55,259	57,834	60,529	63,350	66,302	69,392	72,626	76,010	79,552	83,240	87,128	91,076	94,948	98,604	101,905	104,714	106,892	108,300	108,600
5	Manyatta	Peri-urban	83,665	87,165	90,479	93,604	96,540	99,285	101,836	104,193	106,354	108,316	110,079	111,641	113,000	114,154	115,102	115,843	116,373	116,693	116,800
11	Kasulu	Peri-urban	3,585	3,774	3,957	4,135	4,307	4,474	4,634	4,787	4,933	5,072	5,203	5,326	5,441	5,547	5,644	5,731	5,809	5,876	5,933
15	Wathonago	Peri-urban	8,788	10,370	12,342	14,738	17,595	20,949	24,842	29,314	34,409	40,183	46,658	53,966	62,239	71,615	82,233	94,239	107,777	123,000	140,063
19	Korando	Peri-urban	377	449	540	651	785	944	1,130	1,347	1,596	1,882	2,205	2,575	2,997	3,480	4,032	4,662	5,380	6,194	7,115
22	Kogony	Peri-urban	6,489	8,998	7,614	8,347	9,208	10,206	11,352	12,658	14,135	15,799	17,656	19,741	22,092	24,745	27,739	31,113	34,906	39,161	43,919
7	Chiga	Rural	252	256	260	265	269	273	278	283	287	292	297	302	306	311	317	322	327	332	336
10	Nyalunye	Rural	11	11	11	12	12	12	13	13	13	14	14	15	15	16	16	16	17	17	17
12	Kadero	Rural	1,104	1,173	1,247	1,326	1,409	1,498	1,593	1,693	1,800	1,913	2,034	2,162	2,298	2,443	2,597	2,760	2,934	3,119	3,315
13	Okok	Rural	47	51	55	59	63	68	72	78	83	90	98	103	111	119	127	137	146	157	168
16	Konya	Rural	1,754	1,735	1,717	1,699	1,680	1,662	1,645	1,627	1,610	1,593	1,576	1,559	1,543	1,526	1,510	1,494	1,479	1,463	1,447
Total			280,844	294,556	308,026	324,289	340,424	357,451	375,437	394,443	414,530	435,767	458,228	481,977	507,079	533,610	561,642	591,268	622,573	655,658	690,628
URBAN			16,363	17,239	18,164	19,141	20,171	21,257	22,401	23,608	24,875	26,212	27,621	29,104	30,666	32,311	34,044	35,868	37,790	39,816	41,952
PERI-URBAN			81,448	84,246	87,110	90,018	92,949	95,881	98,794	101,686	104,473	107,198	109,816	112,308	114,653	116,828	118,813	120,586	122,125	123,410	124,419
RURAL			7,819	8,134	8,459	8,792	9,130	9,471	9,814	10,155	10,494	10,827	11,152	11,468	11,771	12,059	12,330	12,581	12,810	13,013	13,188
URBAN	high	200	15.90%	15.28%	15.56%	15.83%	16.11%	16.39%	16.67%	16.94%	17.22%	17.50%	17.78%	18.06%	18.33%	18.61%	18.89%	19.17%	19.44%	19.72%	20%
URBAN	medium	120	35.00%	34.72%	34.44%	34.17%	33.89%	33.61%	33.33%	33.06%	32.78%	32.50%	32.22%	31.94%	31.67%	31.39%	31.11%	30.83%	30.56%	30.28%	30%
URBAN	low	60	35.00%	35.83%	36.67%	37.50%	38.33%	39.17%	40.00%	40.83%	41.67%	42.50%	43.33%	44.17%	45.00%	45.83%	46.67%	47.50%	48.33%	49.17%	50%
URBAN	common	20	15.00%	14.17%	13.33%	12.50%	11.67%	10.83%	10.00%	9.17%	8.33%	7.50%	6.67%	5.83%	5.00%	4.17%	3.33%	2.50%	1.67%	0.83%	0%
URBAN	ave		96.000	94.556	97.111	97.667	98.222	98.778	99.333	99.889	100.444	101.000	101.556	102.111	102.667	103.222	103.778	104.333	104.889	105.444	106.000
PERI	high	120	9.00%	9.06%	9.11%	9.17%	9.22%	9.28%	9.33%	9.39%	9.44%	9.50%	9.56%	9.61%	9.67%	9.72%	9.78%	9.83%	9.89%	9.94%	10%
PERI	medium	60	20.00%	20.67%	21.33%	22.00%	22.67%	23.33%	24.00%	24.67%	25.33%	26.00%	26.67%	27.33%	28.00%	28.67%	29.33%	30.00%	30.67%	31.33%	32%
PERI	low	50	28.00%	28.22%	28.44%	28.67%	28.89%	29.11%	29.33%	29.56%	29.78%	30.00%	30.22%	30.44%	30.67%	30.89%	31.11%	31.33%	31.56%	31.78%	32%
PERI	o-high	20	1.00%	0.94%	0.89%	0.83%	0.78%	0.72%	0.67%	0.61%	0.56%	0.50%	0.44%	0.39%	0.33%	0.28%	0.22%	0.17%	0.11%	0.06%	0%
PERI	o-medium	20	5.00%	5.17%	5.33%	5.50%	5.67%	5.83%	6.00%	6.17%	6.33%	6.50%	6.67%	6.83%	7.00%	7.17%	7.33%	7.50%	7.67%	7.83%	8%
PERI	o-low	15	39.00%	37.94%	36.89%	35.83%	34.78%	33.72%	32.67%	31.61%	30.56%	29.50%	28.44%	27.39%	26.33%	25.28%	24.22%	23.17%	22.11%	21.06%	20%
PERI	ave		42.850	43.292	43.733	44.175	44.617	45.058	45.500	45.942	46.383	46.825	47.267	47.708	48.150	48.592	49.033	49.475	49.917	50.358	50.800

E6 Demand by Commercial Use

		m3/day																		
		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Kibuye	Urban	1,191	1,207	1,227	1,245	1,268	1,290	1,317	1,344	1,371	1,404	1,437	1,476	1,516	1,563	1,615	1,670	1,732	1,798	1,879
Milimani	Urban	628	636	647	657	668	680	694	708	723	740	758	778	799	824	851	880	913	948	991
Kanyakwar	Urban	1,081	1,156	1,237	1,318	1,404	1,490	1,579	1,668	1,756	1,846	1,935	2,026	2,114	2,204	2,294	2,380	2,465	2,544	2,630
Nyalenda	Pen-urban	360	374	387	400	413	427	441	454	470	484	498	512	525	535	543	547	549	545	538
Manyatta	Pen-urban	545	564	579	591	601	611	618	623	628	630	629	628	625	619	613	605	598	588	578
Kasule	Pen-urban	57	67	79	93	109	129	151	175	203	234	266	304	344	388	438	493	553	619	693
Wathoregc	Pen-urban	42	45	49	53	57	63	69	76	83	92	101	111	122	134	148	163	179	197	217
Korando	Pen-urban	119	125	132	139	146	155	163	172	182	193	204	216	228	241	255	270	287	304	323
Kogony	Pen-urban	116	123	131	139	148	158	168	179	191	204	217	231	246	262	279	297	316	337	360
Konya	Rural	36	36	37	39	41	42	44	45	46	47	48	51	52	54	57	58	60	62	63
Chiga	Rural	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Nyalunya	Rural	7	8	8	8	9	9	10	10	11	11	12	12	13	13	14	14	15	16	16
Kadero	Rural	11	11	11	11	10	10	10	10	10	9	9	9	9	8	8	8	8	7	7
Okok	Rural	5	5	5	5	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3
Urban		2,900	2,999	3,111	3,220	3,340	3,460	3,590	3,720	3,850	3,990	4,130	4,280	4,429	4,591	4,760	4,930	5,110	5,290	5,500
Pen-urban		1,239	1,298	1,357	1,415	1,474	1,543	1,610	1,679	1,757	1,837	1,915	2,002	2,090	2,179	2,276	2,375	2,482	2,590	2,709
Rural		61	62	63	65	66	67	70	71	73	73	75	78	80	81	84	85	88	90	91
Total		4,200	4,359	4,531	4,700	4,880	5,070	5,270	5,470	5,680	5,900	6,120	6,360	6,599	6,851	7,120	7,390	7,680	7,970	8,300
Urban		2,900	3,000	3,110	3,220	3,340	3,460	3,590	3,720	3,850	3,990	4,130	4,280	4,430	4,590	4,760	4,930	5,110	5,290	5,500
Pen-urban and Rural		1,300	1,360	1,420	1,480	1,540	1,610	1,680	1,750	1,830	1,910	1,990	2,080	2,170	2,260	2,360	2,460	2,570	2,680	2,800
Total		4,200	4,360	4,530	4,700	4,880	5,070	5,270	5,470	5,680	5,900	6,120	6,360	6,600	6,850	7,120	7,390	7,680	7,970	8,300

E7 Demand by Industrial Use

		m ³ /day																		
		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Kibuye	Urban	3,900	4,070	4,250	4,440	4,640	4,850	5,060	5,280	5,510	5,750	6,000	6,270	6,550	6,840	7,140	7,460	7,790	8,130	8,500
Milimani	Urban	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kanyakwar	Urban	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nyalenda	Peri-urban	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Manyatta	Peri-urban	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kasule	Peri-urban	210	228	249	272	295	322	351	382	416	454	494	539	587	638	696	757	825	899	980
Wathorego	Peri-urban	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Korando	Peri-urban	450	489	534	582	633	690	753	819	891	972	1,059	1,155	1,257	1,368	1,491	1,623	1,767	1,926	2,100
Kogony	Peri-urban	390	424	463	504	549	598	653	710	772	842	918	1,001	1,089	1,186	1,292	1,407	1,531	1,669	1,820
Konya	Rural	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Chiga	Rural	60	65	71	78	84	92	100	109	119	130	141	154	168	182	199	216	236	257	280
Nyalunya	Rural	390	424	463	504	549	598	653	710	772	842	918	1,001	1,089	1,186	1,292	1,407	1,531	1,669	1,820
Kadero	Rural	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Okok	Rural	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Urban		3,900	4,070	4,250	4,440	4,640	4,850	5,060	5,280	5,510	5,750	6,000	6,270	6,550	6,840	7,140	7,460	7,790	8,130	8,500
Peri-urban		1,050	1,141	1,246	1,358	1,477	1,610	1,757	1,911	2,079	2,268	2,471	2,695	2,933	3,192	3,479	3,787	4,123	4,494	4,900
Rural		450	489	534	582	633	690	753	819	891	972	1,059	1,155	1,257	1,368	1,491	1,623	1,767	1,926	2,100
Total		5,400	5,700	6,030	6,380	6,750	7,150	7,570	8,010	8,480	8,990	9,530	10,120	10,740	11,400	12,110	12,870	13,680	14,550	15,500

E8 Demand by Public Use

PUBLIC DEMAND		m3/day																		
		1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Kibuye	Urban	329	350	371	394	421	447	477	509	545	584	626	672	726	783	848	918	996	1,084	1,196
Milimani	Urban	173	185	195	208	222	236	251	268	287	308	330	354	383	413	447	484	525	572	630
Kanyakwar	Urban	298	335	374	418	467	517	572	632	698	768	843	923	1,012	1,104	1,205	1,308	1,418	1,534	1,674
Nyalenda	Pen-urban	194	209	224	241	257	276	297	319	341	365	390	416	443	468	495	518	540	558	576
Manyatta	Pen-urban	294	315	334	355	374	395	416	438	456	475	493	510	527	542	559	573	588	601	619
Kasule	Pen-urban	31	37	46	56	68	83	101	123	148	176	209	247	290	340	399	467	545	633	742
Wathoregc	Pen-urban	23	25	28	32	36	41	46	53	61	69	79	90	103	118	135	154	176	202	233
Korando	Pen-urban	64	70	76	84	91	100	110	121	133	145	160	175	192	211	233	256	282	311	346
Kogony	Pen-urban	62	69	76	84	92	102	113	126	139	154	170	188	208	229	254	281	312	345	385
Konya	Rural	18	21	21	22	26	26	29	32	33	37	39	43	45	49	50	55	60	61	68
Chiga	Rural	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	2
Nyaluruya	Rural	4	4	5	5	5	6	7	7	8	8	9	10	11	12	13	14	15	16	18
Kadero	Rural	6	6	6	6	7	7	7	7	7	7	7	7	7	7	7	7	7	8	8
Okok	Rural	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Urban		800	870	940	1,020	1,110	1,200	1,300	1,409	1,530	1,660	1,799	1,949	2,121	2,300	2,500	2,710	2,939	3,190	3,500
Pen-urban		668	725	784	853	918	997	1,083	1,180	1,278	1,384	1,501	1,626	1,763	1,908	2,075	2,249	2,443	2,650	2,901
Rural		32	35	36	37	42	43	47	50	52	56	59	64	67	72	75	81	87	90	99
Total		1,500	1,630	1,760	1,910	2,070	2,240	2,430	2,639	2,860	3,100	3,359	3,639	3,951	4,280	4,650	5,040	5,469	5,930	6,500
Urban		800	870	940	1,020	1,110	1,200	1,300	1,410	1,530	1,660	1,800	1,950	2,120	2,300	2,500	2,710	2,940	3,190	3,500
Pen-urban and Rural		700	760	820	890	960	1,040	1,130	1,230	1,330	1,440	1,560	1,690	1,830	1,980	2,150	2,330	2,530	2,740	3,000
Total		1,500	1,630	1,760	1,910	2,070	2,240	2,430	2,640	2,860	3,100	3,360	3,640	3,950	4,280	4,650	5,040	5,470	5,930	6,500

**E9 Sample survey result of existing water consumption
in central Kisumu under usual condition not including stand post**

Survey item			Component	l/day/capita
No. of household visited		309		
Meter condition	Working	192	62.1	
	Wrong or stop	117	37.9	
	Total		100.0	
Ave. No. of members in household		6.45		
Water consumption	160 l/day/capita or over Ave. consumption	31	10.0	192
	80 l/day/capita or over Ave. consumption	162	52.4	118
	40 l/day/capita or over Ave. consumption	79	25.6	64
	Under 40 l/day/capita Ave. consumption	37	12.0	32
	Total Ave. consumption		100.0	101

E10 Existing situations of Kisumu water supply in 1997(1)

Classified by water supply condition	Sub - location		Population
	No.	Name	
Usual supply with sufficient pressure Sub- total	2	Milimai	17,638
			17,638
Limited supply in a day because of low pressure, high land area, insufficient water amount, or long distance from the treatment work Sub- total	1	Kibuye	33,453
	5	Manyatta A	26,476
	23	Kanyakwar	16,291
			76,220
Water supply from common taps, Kiosk and other individual taps Sub- total	4	Nyalenda	55,237
	5	Manyatta A	44,292
	6	Manyatta B	24,078
		other Location	6,690
			130,297
Total population			224,251

E10 Existing situations of Kisumu water supply in 1997(2)

By analysis of field survey

Category	Water uses		No. of Persons	Ave. l/capita/d	l/house/day	Ave., Daily m3/d
Domestic Use	Usual supply area	High (Individual Taps)	2,000	200	1,300	400
		Medium (Individual)	6,000	120	780	720
		Low (Individual)	5,000	60	390	300
		Kiosk others	4,838	20	130	100
		sub-total	17,838	85	553	1,520
	Limited supply area		76,220	30	195	2,287
		Kiosk & others (no supply area)	130,397	10	65	1,304
		sub-total	224,455	27	176	5,111
Commercial Use					2,600	
Industrial Use					3,600	
Public Use					600	
Total					11,911	

Daily water supply amount = $17,000 \times 0.7 = 11,900$ m³/day

Daily water supply consumption = $11,900/224,455 = 53$ l/day/capita

E11 Estimation of Commercial Use

1. Estimation by Commercial land area

	Residential area (ha)	Around Commercial area (ha)	Commercial area (ha)	Ratio of road etc. (%)	Net area (ha)	Unit (m ³ /day/ha)	Demand (m ³ /day)	Total Demand (m ⁴ /day)	Demand proposed (m ³ /day)
Urban area	1,660	550	340	70 70	385 238	2.0 20.0	770 4,760	5,530	5500
Peri-urban	4,760	1,180	120	80 75	944 90	1.5 15.0	1,416 1,350	2,766	2800
Total								8,296	8300

2. Estimation by Population

	Total population 97'	Commercial use; 97' m ³ /d	Per capita 97' l/day/capita	Conversion factor for uses *	Per capita 2015 l/day/capita	Total population 2015	Total demand m ³ /d	Demand proposed (m ³ /day)
Urban area	81,448	2,900	36	1.25	45.00	124,419	5,599	5,500
Peri-urban	192,480	1,300	7	0.75	5.25	554,864	2,913	2,800
Total							8,512	8,300

* Land use arranged is assumed to be more clearly by urbanization.

E12 Estimation of Industrial Use

1. Estimation by Industrial land area

	Land area (ha)	Ratio of road etc.(%)	Net area (ha)	Unit (m ³ /day/ha)	Demand (m ³ /day)	Demand by big consumer (m ³ /day)	Demand proposed (m ³ /day)
Urban area	410	70	287	20	5,740	* 2800	8,500
Peri-urban	500	70	350	20	7,000		7,000
Total					12,740		15,500

Unit is concerned with the Kisumu structure plan and Design Criteria in Kenya

2. Estimation by GDP

	1987y	1988y	1989y	1990y	Average %
GDP growth a constant prices (%)	4.9	5.2	4.9	4.5	4.88
GDP at market prices Million Ks	6556	7560	8643	9939	

Source :Kenya Uhuru Factbook

	Demand;1997	Conversion factor for vacant land	Average growth ratio(%)	Demand	Demand by big consumer (m ³ /day)	Demand proposed (m ³ /day)
Urban area	2400	1.0	4.88	5658	* 2800	8,500
Peri-urban	1500	2.0	4.88	7073		7,000
Total						15,500

* Demand by big consumer is assumed with questionnaires on their development plan

E13 Estimation of Public Use

1. Estimation by land use (Commercial & Residential)

	Total population	Education area (ha)			Public space ;Community center police station, Hospital etc.)			Government offices etc.		Demand (m3/day)	Total (m3/day)	Demand proposed (m3/day)
		Nursery school others	m3/d/ha	m3/d	(ha)	m3/d/ha	m3/d	(ha)	m3/d/ha			
Urban area	18.32 124,419	81 122	* 10 * 5	810 610	43	25	1,075	50	20	1,000	3,495	3,500
Peri-urban	554,864 81.68	546	* 5	2,730	11	15	165	12	15	180	3,075	3,000
Total	679,083 100.00	749			54			62				6500

2. Estimation by population

	Total population 97'	Public use;97' m3/d	Growth ratio of population	Conversion factor for uses **	Demand m3/day	Demand proposed (m3/day)
Urban area	81,448	800	5.20	1.80	3,586	3,500
Peri-urban	192,480	700	5.20	1.80	3,138	3,000
Total	273,928					6500

**Increasing Factor for improvement of water and sanitation is assumed as 0.1 for every year

* Unit demand for a school

	Demand per student l/d/capita	No. of perpule per /ha	Water demand m3/day/ha
Preliminary and secondary school	25	200	5.0
Nursery school	50	200	10.0

Source: Kenya Design Criteria

E14 List of Public Consumers

No.	Name of the Customers	Account Number	Average Consumption	Period of Average
1.	Provincial Geologist	012.000.022	8m3	8 months
2.	Provincial Director	012.000.023	8m3	8 months
3.	Tsetsefly Control	012.000.024	54m3	8 months
4.	Police Officers Mess	012.000.025	60m3	8 months
5.	Cosmopolitan Club	012.000.026	63m3	8 months
6.	State Lodge	012.000.027	216m3	8 months
7.	State Lodge	012.000.028	141m3	8 months
8.	Provincial Commissioner	012.000.046	51m3	8 months
9.	Victoria Hospital	012.000.094	6m3	8 months
10.	Victoria Hospital	012.000.095	cut off	8 months
11.	Livestock Dev. Prog.	012.000.158	6m3	8 months
12.	P.C Nyanza	012.000.161	124m3	8 months
13.	M.O.T Commerce	022.000.258	cut off	8 months
14.	District Commissioner	022.000.603	23m3	8 months
15.	Ministry of Transport	022.000.357	cut off	8 months
16.	Ministry of Works	032.000.788	40m3	8 months
17.	Kisumu Museum	032.000.883	62m3	8 months
18.	Provincial Water Office	032.000.898	8m3	8 months
19.	Provincial Water Eng.	032.000.899	cut off	8 months
20.	Ministry of Wildlife	032.000.900	89m3	8 months
21.	Ministry of Wildlife	032.000.901	99m3	8 months
22.	V.O.K Broadcasting	032.000.904	59m3	8 months
23.	Prov. Dir. of Agric.	032.000.905	13m3	8 months
24.	Prov. Dir. of Agric.	032.000.906	35m3	8 months
25.	Prov. Dir. of Agric.	032.000.907	11m3	8 months
26.	Prov. Dir. of Agric.	032.000.908	25m3	8 months
27.	Prov. Dir. of Agric.	032.000.909	17m3	8 months
28.	Driving Test Examiner	062.001.453	cut off	8 months
29.	Survey of Kenya	032.001.454	cut off	8 months
30.	Labour Offices	062.001.518	8m3	8 months
31.	Dist. Information Office	062.001.519	8m3	8 months
32.	Ministry of Labour	062.001.520	8m3	8 months
33.	Weights and Measures	062.001.521	8m3	8 months
34.	A.D.C Court House	062.001.522	5m3	8 months
35.	Kenya Police Station	062.001.523	142m3	8 months
36.	Kenya Police Station	062.001.524	38m3	8 months
37.	Dist. Education Office	062.001.525	cut off	8 months
38.	DCS Administration	062.001.527	37m3	8 months
39.	Law Court	062.001.528	83m3	8 months
40.	District Commissioner	062.001.530	cut off	8 months
41.	New Dist. Land & Survey	062.001.535	32m3	8 months
42.	National Reg & Bureau	062.001.534	8m3	8 months
43.	P.C Nyanza	072.001.679	8m3	8 months
44.	P.C	072.001.680		8 months
45.	Provincial Eng. (MOW)	072.001.705	95m3	8 months
46.	Customs and Exercise	072.001.840	cut off	8 months

47.	Provincial Forest Officer	082.001.958	8m3	8 months
48.	Hides ans Skin Officer	082.001.959	8m3	8 months
49.	Provincial Medical Officer	082.001.960	10m3	8 months
50.	Provincial T. Officer	082.001.968	cut off	8 months
51.	Prov. Loc. Gov. Officer	082.001.970	cut off	8 months
52.	P.C Office	082.001.971	cut off	8 months
53.	Director of Social Services	082.001.972	cut off	8 months
54.	S.A A Senior Auditor	082.001.973	cut off	8months
55.	Cotton Lint & Seed MKT	082.001.974	cut off	8 months
56.	Ministry of Finance	082.002.011	8m3	8 months
57.	Provincial Information	082.002.116	8m3	8 months
58.	Nyanza Prov. Information	082.002.219	cut off	8 months
59.	Kenya Broad Casting	082.002.121	8m3	8 months
60.	Ministry of Public Works	082.002.188	44m3	8 months
61.	Senior Assessors	092.002.381	1m3	8 months
62.	Kisumu County Council	102.002.493	cut off	8 months
63.	Ass. Comm. Of Police	102.002.516	12m3	8 months
64.	Kenya Police Line	102.002.517	3164m3	8 months
65.	Police Supt. Divison	102.002.518	8m3	8 months
66.	Kisumu Juvenile House	102.002.519	8m3	8 months
67.	Agric. Society of Kenya	112.002.635		8 months
68.	Entomological Lab	122.002.742	19m3	8 months
69.	Nyanza General hospital	122.002.743	1008m3	8 months
70.	Medical Supt.	122.002.744	66m3	8 months
71.	Nyanza General Hospital	122.002.745	cut off	8 months
72.	Principal M.T.C	122.002.747	411m3	8 months
73.	Kenya Medical Research	122.002.748	cut off	8 months
74.	E.A.C Division	122.002.866	8m3	8 months
75.	MCK Health Dept.	122.002.867	cut off	8 months
76.	Ministry of Cop. Develp.	122.002.876	cut off	8 months
77.	Dist. Multy Works Office	142.000.638	8m3	8 months
78.	Kenya Police	152.003.731	8m3	8 months
79.	Kenya Police	152.003.732	cut off	8 months
80.	Kenya Police	152.003.733	cut off	8 months
81.	Kenya Police	152.003.734	cut off	8 months
82.	Kenya Police	152.003.736	cut off	8 months
83.	Kenya Police	152.003.737	cut off	8 months
84.	Kenya Police	152.003.738	cut off	8 months
85.	Kenya Police	152.003.739	cut off	8 months
86.	Kenya Police	152.003.740	8m3	8 months
87.	Dist Special Branch Office	172.004.060	cut off	8 months
88.	Police Dog Sec	252.006.066	51m3	8 months
89.	Police Dog Sec	252.006.067	cut off	8 months
90.	District Commissioner	252.006.091	cut off	8 months
91.	Provincial Eng. M.ow	252.006.092	cut off	8 months
92.	Kenya Police Dog Sec	252.006.103	8m3	8 months
93.	Survey of Kenya	272.006.911	55m3	8 months
94.	D C Chief's Office	272.006.915	cut off	8 months
95.	District Education	272.007.085	8m3	8 months
96.	Resident Magistrates	272.007.089	162m3	8 months

97.	Ministry of Works	292.007.431	8m3	8 months
98.	Ministry of Public Works	292.007.432	cut off	8 months
99.	A.D.M Police Line	292.007.442	8m3	8 months
100	New Nyanza Hospital	302.007.827	8m3	8 months
101	Med. Supt	302.007.829	cut off	8 months
102	Nyanza General Hospital	302.007.830	250m3	8 months
103	Med. Supt	302.007.846		
104	Nyanza School of Nursing	302.007.849	14m3	8 months
105	Airport Manager	332.009.278	cut off	8 months
106	Evergreen Hse(officers incharge)	332.009.295	cut off	8 months
107	M.M. Fire Tender	332.009.296	8m3	8 months
108	Ministry of Power & Comm	332.009.298	8m3	8 months
109	Forest Department	332.009.300	cut off	8 months
110	Victoria Pri. School	012.000.069		
111	Victoria Pri. School	012.000.071		
112	Municipal Town hall	062.001.467		
113	M.ow Offices	332.009.303	cut off	8 months
114	Kenya Police Station	332.009.311	41m3	8 months
115	Industrial Training Centre	332.009.314	150m3	8 months
116	District Water Office	332.009.323	cut off	8 months
117	District Education	062.001.525	cut off	8 months
118	District Water Office	332.009.323	cut off	8 months
119	Officer Incharges	332.009.323	cut off	8 months
120	Air Navigation Services	432.010.331	cut off	8 months
121	Ass. Comm. of Police	332.009.325	cut off	8 months
122	Min of Power & Comm	332.009.326	8m3	8 months
123	Police Depot Sub	332.009.298	8m3	8 months
124	Fisheries Department	332.009.327	8m3	8 months
125	E. A. Comm	332.009.329	8m3	8 months
126	Central Medistores	332.009.331	44m3	8 months
127	Fisheries Department	332.009.332	8m3	8 months
128	Chief Airport Manager	332.009.333	10m3	8 months
129	District Agriculture Office	332.009.334	cut off	8 months
130	Kenya Industrial Estate	332.009.335	cut off	8 months
131	Project Manager	332.009.337	8m3	8 months
132	Ministry of Works	332.009.362	cut off	8 months
133	District Education Officer	332.009.377	cut off	8 months
134	M.ow Resealing Unit	332.009.397	cut off	8 months
135	M.ow Airport	332.009.399	cut off	8 months
136	Provincial v. c	332.009.403	cut off	8 months
137	Provincial Director of Ser	352.009.663	8m3	8 months
138	Ministry of Livestock	402.010.755	8m3	8 months
139	Ministry of Envikronment	402.010.764	cut off	8 months
140	Nyanza Co-op Market	402.010.765	cut off	8 months
141	National Sugar Research	402.010.679	cut off	8 months
142	D. C ADM Police	402.010.544	8m3	8 months
143	ASK Mamboleo Show	407.010.534	cut off	8 months
144	Prov. Dir. of Agriculture	4022.010.737	160m3	8 months
145	Nyayo Bus Co-operation	402.010.749	8m3	8 months

146	District Commissioner	412.011.307	cut off	8 months
147	Ragumo Chief Cump	412.011.341	cut off	8 months
148	Labour Health Centre	412.011.342	cut off	8 months
149	Cotton Reacarch Station	432.009.991	cut off	8 months
150	Divisional Personnel	432.010.081	cut off	8 months
151	Kibos Prison Annex	432.010.166	cut off	8 months
152	Kibos Prison	432.010.168	8m3	8 months
153	Salvation Army	432.001.992	cut off	8 months

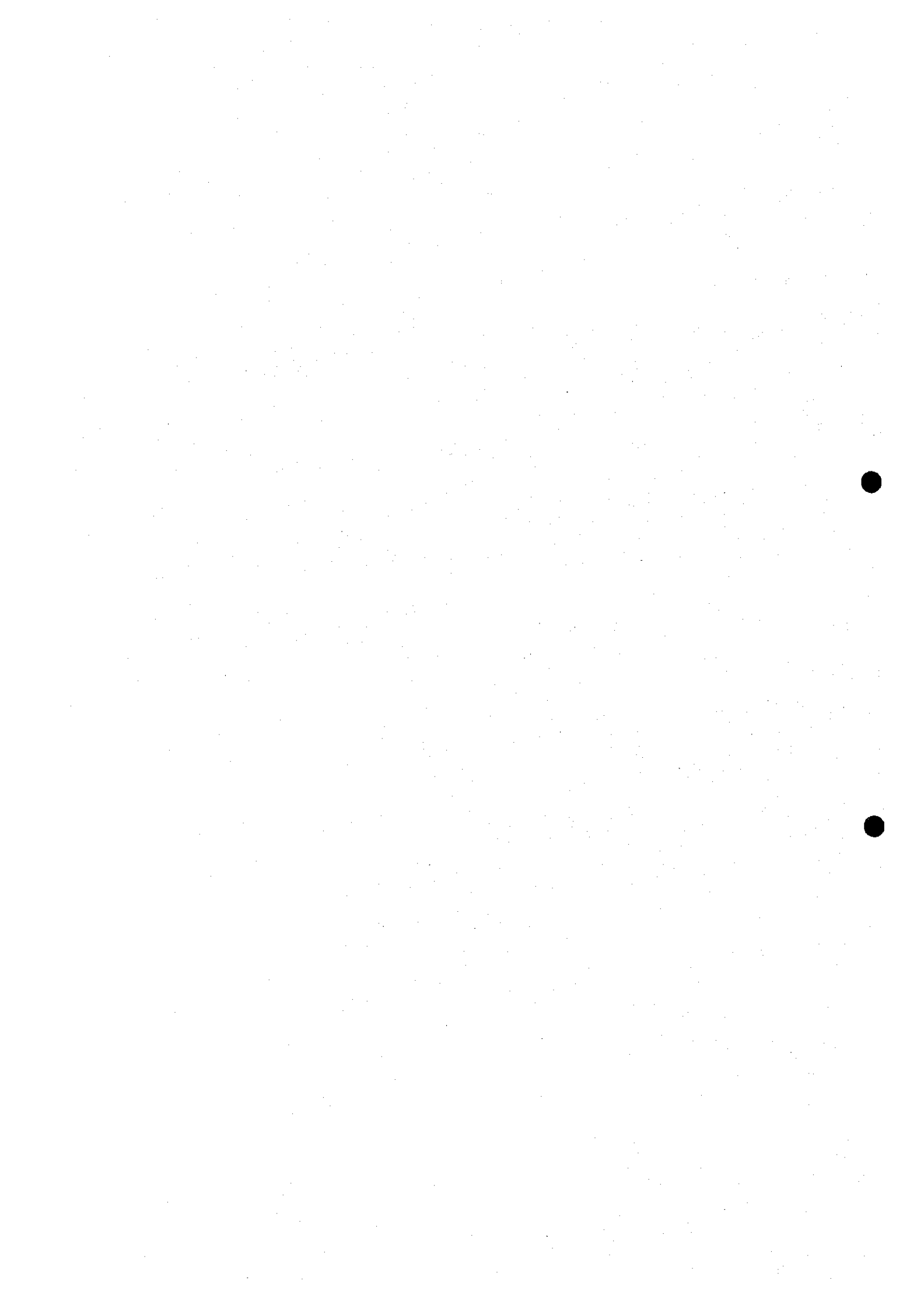
Total 7602 m³
7602/30=253 m³/day

E15 List of Industrial and Public Consumers

NO	NAME OF THE CUSTOMER	CUSTOMER'S CONNECTION - NO	AVERAGE CONSUMPTION	PERIOD OF AVERAGE
1	MIS SUNSET HOTEL	011 000 050	1643	MONTHS
2	NYANZA CLUB	011 000 051	360	MONTHS
3	NYANZA CLUB	011 000 052	360	MONTHS
4	VICTORIA PRI SCHOOL	011 000 069	88	MONTHS
5	CENTRAL BANK OF KENYA	011 000 144	1211	MONTHS
6	KISUMU YETU CLUB	021 000 503	241	MONTHS
7	COTU COLLEGE	021 000 515	852	MONTHS
8	CENTRAL BANK OF KENYA	021 000 250	64	MONTHS
9	M.K.R. UNITED MILLERS	021 000 293	53	MONTHS
10	MILIMANI RESORT HOTEL	031 000 762	311	MONTHS
11	KENYA BREWERIES (JNR QUARTERS)	031 000 897	150	MONTHS
12	KISUMU BANCO MFRS LTD	011 001 213	83	MONTHS
13	XARERE PRI SCHOOL	051 001 415	87	MONTHS
14	NEW KISUMU HOTEL	061 001 452	1298	MONTHS
15	KENYA COMMERCIAL BANK	061 001 464	373	MONTHS
16	SADMDI - TEJ FER	061 001 468	70	MONTHS
17	UNITED MILLERS	061 001 690	269	MONTHS
18	IMPERIAL HOTEL	061 00 475	1542	MONTHS
19	FLAMINGO INVESTMENT	061 001 506	132	MONTHS
20	EQUATOR BOTTLERS	061 001 514	3772	MONTHS
21	EQUATOR BOTTLERS	061 001 515	912	MONTHS
22	MAYFAIR BAKERIES	061 0 01 516	132	MONTHS
23	YOUNG WOMEN CHRISTIAN ASS	061 001 517	157	MONTHS
24	INSPECTOR OF WORKS (KENYA RAILWAYS)	071 001 608	397	MONTHS
25	KENYA RAILWAYS	071 001 833	80	MONTHS
26	KENYA RAILWAYS	071 001 836	611	MONTHS
27	KENYA RAILWAYS	071 001 838	370	MONTHS
28	KENYA SHELL	071 001 843	99	MONTHS
29	JUBILEE INSURANCE	071 001 983	134	MONTHS
30	BANK (K) LTD	081 002 086	445	MONTHS
31	MOHALISA RESTAURANT	081 002 129	142	MONTHS
32	WEDGO LIMITED	081 002 152	1037	MONTHS
33	KENYA NATIONAL ASSURANCE	081 002 189	879	MONTHS
34	TRUSTEES ARYA SAMAJ	091 002 298	85	MONTHS
35	TRUSTEES SAMAJ	091 002 299	97	MONTHS
36	KCC DAIRY	101 002 522	85	MONTHS
37	SIKL UNION CLUB	111 002 560	155	MONTHS
38	NATTE ONDEGO (FANANA HOTEL)	111 002 593	310	MONTHS
39	KISUMU DAY SEC. SCHOOL	111 002 611	117	MONTHS
40	KENYA RAILWAYS	111 0026 26	416	MONTHS
41	KENYA RAILWAYS	111 002 629	319	MONTHS
42	KENYA RAILWAYS	111 002 630	238	MONTHS
43	LUTTERA CHURCH SCHOOL	111 002 642	212	MONTHS
44	KISUMU TECHNICAL (KISUMU POLYTECHNIC)	111 002 647	2143	MONTHS
45	OTIYA ODHAMBO (CAR WASH)	111 002 836	94	MONTHS
46	FANANA INVESTMENT	111 002 905	167	MONTHS
47	H.H. ISMAEL JAMAL	121 002 854	113	MONTHS
48	AGA KHAN HOSPITAL	121 002 860	MONTHS	
49	H.H. AGA KHAN (SWIMMING POOL)	121 002 875	114	MONTHS
50	NEW VICTORIA HOTEL	121 002 952	86	MONTHS
51	VICTORIA BAKERY	121 002 963	91	MONTHS
52	WELLINGTON ONDELE (LODGING)	131 003 158	48	MONTHS
53	GENERAL EQUIPMENT	131 003 260	129	MONTHS
54	FASHION BAZAR (MARINE HOTEL)	131 003 300	65	MONTHS
55	BINGO SWEETS	141 0034 33	765	MONTHS
56	MAYFAIR HOLDINGS	141 003 479	584	MONTHS
57	LAKESIDE MOTORS	141 003 556	102	MONTHS
58	KENYA RAILWAYS (CORPORATION STAFF)	141 003 616	150	MONTHS
59	KENYA RAILWAYS	141 003 618	139	MONTHS
60	KENYA RAILWAYS	141 003 619	123	MONTHS
61	PRIDE CONSTRUCTIONS	141 003 642	124	MONTHS
62	FIROZ K. ALISBLAI (FISH PROCESSOR)	141 003 710	261	MONTHS
63	NYANZA LOLENA (JALARAM HOSPITAL)	191 004 541	256	MONTHS
64	JOSANA NURSERY SCHOOL	231 006 684	118	MONTHS
65	CHARLES CHEGE NJOROGE	251 006 178	224	MONTHS
66	GENERAL MANAGER (MUNICIPAL WATER KIOSK)	251 006 200	2942	MONTHS
67	R.I.A.T	271 006 904	196	MONTHS
68	D.H.T. SEC SCHOOL	291 007 423	163	MONTHS
69	BHAYAN NURSERY SCHOOL	291 007 427	119	MONTHS
70	MUSLIM GIRLS SCHOOL	291 007 428	112	MONTHS
71	M.M. SHAR GIRLS	291 007 433	164	MONTHS
72	KISUMU GIRLS HIGH SCHOOL	291 007 453	656	MONTHS
73	KISUMU BOYS HIGH SCHOOL	291 007 461	182	MONTHS
74	KENYA BREWERIES MAIN FACTORY	331 009 270	26019	MONTHS
75	KENYA BREWERIES MAIN FACTORY	331 009 271	1726	MONTHS
76	FISH PROCESSORS LTD	331 009 276	642	MONTHS
77	KENYA FISH NET INDUSTRY	331 009 307	213	MONTHS
78	KICOMI	331 009 239	2067	MONTHS
79	SWAN MILLERS	331 009 251	300	MONTHS
80	AFRO MEAT	331 009 372	274	MONTHS
81	EAST AFRICAN SEA FOOD	331 009 396	1739	MONTHS
82	UNITED MILLERS LTD (BREAD FACTORY)	331 009 458	1260	MONTHS
83	SWAN INDUSTRIES	331 009 471	507	MONTHS
84	AFRO MEAT CO. LTD	331 009 489	3027	MONTHS
85	G.L.A.C. GROUP	271 007 131	253	MONTHS
			68,920	2,297m3/9

APPENDIX-F

**WASTEWATER
MANAGEMENT METHODS
AND WASTEWATER
GENERATION**



APPENDIX F
WASTEWATER MANAGEMENT METHODS AND
WASTEWATER GENERATION

TABLE OF CONTENTS

F1	Introduction.....	F-1
F2	Wastewater Management Methods.....	F-1
F2.1	Sewerage System.....	F-1
F2.2	On-site/Community Wastewater Treatment System.....	F-2
F3	Service Area and Population.....	F-2
F4	Wastewater Generation.....	F-6
F4.1	Domestic Wastewater Generation.....	F-6
F4.2	Non-domestic Wastewaters Generation.....	F-6

F Wastewater Management Methods and Wastewater Generation

F1 Introduction

It is envisaged that Kisumu, in order to cater for its increasing population and commercial/industrial activities in the future, will require much more water than it currently consumes. And if this requirement is met, there will be a significant increase in wastewater as well.

Against this background, the ultimate objectives of wastewater management in Kisumu will be to maintain living environments and protect Lake Victoria from degradation of its water quality.

F2 Wastewater Management Methods

There are a variety of methods for disposal of wastewater. The followings are taking into account to select an appropriate wastewater management methods: extent of water supply area and water distribution, per capita water consumption rates, ability to pay, groundwater conditions and current wastewater management practises.

F2.1 Sewerage System

Sewerage system is an ideal but most expensive way of managing wastewater. It consists of sewers, pump stations and a sewage treatment works. Generally, it is applied in areas where people consume water at a rate of 100 lcd or more. This is because sewerage system requires a relatively large quantity of water to transport domestic sewage from households to the sewage treatment works.

In order to maximise the availability of municipal sewerage, a system of shallow sewers is proposed to collect wastewater generated from people who consume water at a rate of 50 to 60 lcd and live in densely populated peri-urban and urban areas. This system has been successfully applied in areas where a minimum water consumption rate exceeds 25 lcd. Compared with the conventional sewerage system, almost twice the number of households must be connected to a sewer to increase the flow. This requires part of sewer pipes to be installed within private properties, thus community participation is essential from the planning to O/M stages.

The system has been developed by the United Nations Center for Human Settlements (Habitat)

for high density, low income settlements such as those that exist in Kisumu. The headquarters of Habitat is in Nairobi, and advice on implementation will be readily available. The institutional requirements for the system will be presented in the Appendix K.

F2.2 On-site/Community Wastewater Treatment System

On-site sanitation is generally applied in areas where residents use less than 20 lcd of water. In these areas, neither conventional sewerage nor shallow sewer can be used, since water available for disposing sewage is too small for either of these methods to work properly. The following on-site sanitation systems are recommended:

- Ventilated Improved Pit (VIP) latrines
- Aqua privies or septic tanks

VIP latrines are recommended as an appropriate on-site sanitation system to reduce nuisance from flies and odor experienced in Pit latrines commonly used at present in Kisumu Municipality. The single pit VIP latrines are suitable for areas of low population density in rural area. The double pit VIP latrines are suitable for areas of high population density and an infrequent water supply.

In case of high groundwater conditions, following modification would be recommended. One is to raise the latrine above the ground and another is to introduce double pit latrines. These modifications provide extra storage, prevents flow of surface water into the pit and increase the time between emptying or relocating the pit.

Aqua privies or septic tanks are most convenient, healthy, and acceptable to use as an on-site sanitation system, however require frequent water supply for operation. Therefore, these systems can be applicable to areas where at least tap water is supplied. For the individual systems, regular emptying sludge by vacuum vehicles is necessary for successful operation. Septic tanks and aqua privies require adequate land and suitable soils for disposal of effluent through soak pits and percolation trenches.

F3 Service Area and Population

The area to be covered by the municipal sewerage system in 2015 is shown in Figure 5-5 in the main report. The boundary of area is set on the basis of the assessment of the projected wastewater generation within the municipal water supply system. It is estimated that with the combination of conventional sewerage system and shallow sewer system, the proposed service area will be able to collect more than 80 % of wastewater to be generated within the service area

of the municipal water supply system in the year of 2015.

The proposed sewerage service area is divided into three wastewater treatment districts, namely Central, Eastern, and Western Wastewater Treatment Districts (WTDs), taking into account of topographic conditions, locations of exiting trunk sewers and sewage treatment works, future water supply service area and future land-use plan. Table F-1 shows a summary of the projected service area and population for each of the years 2005 and 2015. The detailed service population to be covered by the conventional sewerage and shallow sewer system are presented in Tale F-2 and Table F-3 respectively.

Table F-1 Sewerage Service Area and Service Population

WTD	Service Area (Km ²)		Service Population	
	Year 2005	Year 2015	Year 2005	Year 2015
Central	4.4	4.4	23,992	29,896
Eastern	14.5	20.6	109,277	185,070
Western	0.0	26.4	0	158,880
	18.9	51.4	133,269	373,846

Source : JICA Study Team

Table F-2 Population served by Sewerage System

WTD Sub-district	Income level	Population		Sewerage Coverage Ratio	Unit DWWG (lcd)	Service Population	
		Year 2005	Year 2015			Year 2005	Year 2015
Eastern							
Kibuye	urban, high	4,024	5,340	100%	190		5,340
	urban, med.	7,660	8,009	100%	120	7,660	8,009
Millimani	urban, high	1,255	1,665	100%	190	1,255	1,665
	urban, med.	2,389	2,498	100%	120	2,389	2,498
Nyalenda	high	7,513	10,880	100%	120	7,513	10,880
Manyatta	high	10,045	11,680	100%	120	10,045	11,680
Kasule	high	3,250	14,006	100%	120	3,250	14,006
Wathorego	high	1,335	4,392	100%	120	1,335	4,392
Sub-total		37,471	58,470			33,447	58,470
Central							
Kibuye	urban, high	2,384	3,162	100%	190	2,384	3,162
	urban, med.	4,538	4,744	100%	120	4,538	4,744
Millimani	urban, high	2,123	2,817	100%	190	2,123	2,817
	urban, med.	4,041	4,225	100%	120	4,041	4,225
Sub-total		13,086	14,948			13,086	14,948
Western							
Kanyakwar	urban, high	-	11,900	100%	190	-	11,900
	urban, med.	-	17,850	100%	120	-	17,850
Korando	high	-	6,528	100%	120	-	6,528
Kogony	high	-	7,275	100%	120	-	7,275
Sub-total			43,553				43,553
Total		50,557	116,971			46,533	116,971

Table F-3 Population served by Shallow Sewer System

WTD	Sub-district	Income level	Population		Sewerage Coverage Ratio	Unit DWWC (lcd)	Service Population	
			Year 2005	Year 2015			Year 2005	Year 2015
Eastern								
	Kibuye	urban, low	9,738	13,349	100%	60	9,738	13,349
	Millimani	urban, low	3,037	4,163	100%	60	3,037	4,163
	Nyalenda	medium	20,153	34,816	50%	60	10,077	17,408
		low	22,098	32,640	50%	50	11,049	16,320
	Manyatta	medium	26,943	37,376	50%	60	13,472	18,688
		low	29,543	35,040	50%	50	14,772	17,520
	Kasule	medium	8,717	44,820	20%	60	1,743	8,964
		low	9,558	42,019	20%	50	1,912	8,404
	Wathorego	medium	3,581	14,054	80%	60	2,865	11,243
		low	3,926	13,176	80%	50	3,141	10,541
	Sub-total		137,294	271,453			71,806	126,600
Central								
	Kibuye	urban, low	5,768	7,906	100%	60	5,768	7,906
	Millimani	urban, low	5,138	7,042	100%	60	5,138	7,042
	Sub-total		10,906	14,948			10,906	14,948
Western								
	Kanyakwar	urban, low	-	29,750	100%	60	-	29,750
	Korando	medium	-	20,890	100%	60	-	20,890
		low	-	19,584	100%	50	-	19,584
	Kogony	medium	-	23,279	100%	60	-	23,279
		low	-	21,824	100%	50	-	21,824
	Sub-total			115,327				115,327
	Total		148,200	401,728			82,712	256,875

Note: Sewerage coverage ratio is set based on the area coverage ratio in the respective sub-location

F4 Wastewater Generation

F4.1 Domestic Wastewater Generation

Domestic wastewater generation volumes are estimated for different domestic water consumption rates as shown in Table F-4. They are basically the same as the projected per capita consumption rates, except that wastewater generation from a household who consumes 200 lcd is assumed to generate 190 lcd or 95 % of water consumed.

Table F-4 Domestic Wastewater Generation VS Water Consumption

Water Supply Methods	Urban/ Peri-urban/ Rural	Income Level	Water Consumption Rate (lcd)	Wastewater Generation Rate (lcd)
House Connection	Urban	High	200	190
		Medium	120	120
		Low	60	60
	Peri-urban and Rural	High	120	120
		Medium	60	60
		Low	50	50
Communal tap	Peri-urban and Rural	High	20	20
		Medium	20	20
		Low	15	15

Source : JICA Study Team

Table F-5 presents a summary of the estimated total domestic wastewater generation in the municipal water supply system and the wastewater to be collected by the municipal sewerage system. It is estimated that the municipal sewerage system will collect 46 % of the total domestic wastewater to be generated within the municipal water supply system in 2005, and that ratio will increase to 73 % in 2015.

F4.2 Non-domestic Wastewater Generation

Non-domestic wastewaters comprise wastewaters to be generated from institutional, commercial and industrial activities. The first two are estimated from the projected water demands multiplied by ratios of 0.80 and 0.85 respectively. Wastewater from general industries is assumed to be 80 % of the projected water demand. Wastewater from large factories users is estimated through interviews with factories and from the results of previous studies. Table F-6 shows a summary of the estimated industrial wastewater generation within the municipal water supply system. It is assumed that the proposed municipal sewerage system will collect all the commercial/institutional wastewaters to be generated in urban and peri-urban areas and all industrial wastewater within the municipal water supply system.

Table F-5 Domestic Wastewater Generation within Municipal Water Supply Area and That to be Collected by the Sewerage System

Urban/ Peri-urban/ Rural	Water Supply Method	Income Level	Unit DWVG (lcd)	2005				2015			
				Populatiuon		DWVG		Populatiuon		DWVG	
				Total	Sewerage System	Total	Sewerage System	Total	Sewerage System	Total	Sewerage System
Urban	House Connection	High	190	17,993	9,787	3,419	1,860	24,884	24,884	4,728	4,728
		Medium	120	34,244	18,627	4,109	2,235	37,326	37,326	4,479	4,479
		Low	60	43,530	23,681	2,612	1,421	62,210	62,210	3,733	3,733
	Communal Taps	Low	20	8,706	0	174	0	0	0	0	0
	Sub-total			104,473	52,095	10,314	5,516	124,420	124,420	12,940	12,940
Peri- Urban	House Connection	High	120	28,125	22,143	3,375	2,657	54,761	54,761	6,571	6,571
		Medium	60	75,440	28,157	4,526	1,689	175,235	100,472	10,514	6,028
		Low	50	82,719	30,874	4,136	1,544	164,283	94,193	8,214	4,710
	Communal Taps	High	20	1,655	0	33	0	0	0	0	0
		Medium	20	18,859	0	377	0	43,810	0	876	0
		Low	15	90,992	0	1,365	0	109,522	0	1,643	0
	Sub-total			297,790	81,174	13,812	5,890	547,611	249,426	27,818	17,309
Rural	House Connection	High	120	1,158	0	139	0	1,857	0	223	0
		Medium	60	3,107	0	186	0	5,917	0	355	0
		Low	50	3,408	0	170	0	5,568	0	278	0
	Communal Taps	High	20	69	0	1	0	0	0	0	0
		Medium	20	777	0	16	0	1,482	0	30	0
		Low	15	3,748	0	56	0	3,773	0	57	0
	Sub-total			12,267	0	568	0	18,597	0	943	0
Total				414,530	133,269	24,694	11,406	690,628	373,846	41,701	30,249

F-7

JICA'S STUDY ON KENYA WATER SUPPLY AND SEWERAGE SYSTEM

Table F-6 Industrial Wastewater Generation

Area	Type of Industry	Year 2005		Year 2015	
		Water Demand (m ³ /d)	Wastewater Generation (m ³ /d)	Water Demand (m ³ /d)	Wastewater Generation (m ³ /d)
Urban	Large factories	3,100	2,770	2,800	2,550
	General	2,410	1,930	5,700	4,560
Peri-urban and Rural	Large factories	0	0	800	640
	General	2,970	2,380	6,200	4,960
Total		8,480	7,080	15,500	12,710

Source : JICA Study Team

Table F-7 presents a summary of the estimated wastewater generation and the wastewater to be collected by the municipal sewerage system in each of the years 2005 and 2015.

Table F-7 Wastewater Generation and Wastewater to be Collected by Municipal Sewerage System

Category of Wastewater	Year 2005		Year 2015	
	Wastewater Generation (m ³ /d)	Wastewater to be Collected by Sewerage (m ³ /d)	Wastewater Generation (m ³ /d)	Wastewater to be Collected by Sewerage (m ³ /d)
Domestic	24,690	11,410	41,700	30,250
Non-domestic				
Institutional	2,290	1,750	5,200	5,120
Commercial	4,830	3,920	7,055	6,990
Industrial	7,080	6,140	12,710	12,710
sub-total	14,200	11,810	24,965	24,820
Total	38,890	23,220	66,665	55,070

As can be seen in the above table, it is estimated that the municipal sewerage system will be able to collect approximately 60 % (23,220/38,890) of the total wastewater generation within the municipal water supply system in 2005, and that the percentage will increase to 83 % (55,070/66,665) in 2015.

APPENDIX-G

**FUTURE WATER SUPPLY
SYSTEM**

APPENDIX G

FUTURE WATER SUPPLY SYSTEM

- G1 Day average and maximum water demand in Kibuye distribution zone (2015)
- G2 Day average and maximum water demand in Kogony distribution zone (2015)
- G3 Day average and maximum water demand in Kanyakwar distribution zone (2015)
- G4 Day average and maximum water demand in Kajule distribution zone (2015)
- G5 Total day average and maximum water demand (2015)
- G6 Raw water diversion from Yala River
- G7 Water sources for each alternative case
- G8 Outline of water supply development alternatives
- G9 Schematic of alternatives, Cases 1, 2 and 3
- G10 Schematic of alternatives, Cases 4, 5 and 6
- G11 Flow chart for water supply facility plan in 2015, Alternative study - Case 1
- G12 Flow chart for water supply facility plan in 2015, Alternative study - Case 2
- G13 Flow chart for water supply facility plan in 2015, Alternative study - Case 3
- G14 Flow chart for water supply facility plan in 2015, Alternative study - Case 4
- G15 Flow chart for water supply facility plan in 2015, Alternative study - Case 5
- G16 Flow chart for water supply facility plan in 2015, Alternative study - Case 6
- G17 Land to be acquired for proposed Kibuye water treatment works
- G18 Layout of proposed Kibuye water treatment works
- G19 Outline of treatment units - Proposed Kibuye water treatment works
- G20 Layout of treatment units - Proposed Kibuye water treatment works
- G21 Sectional profile of treatment units - Proposed Kibuye water treatment works
- G22 Breakdown of trunk mains
- G23 List of trunk main required (1)
- G24 List of trunk main required (2)
- G25 Summary of trunk main required (1)
- G26 Road density of each pipe network drawing
- G27 Category of road density
- G28 Summary of road density
- G29 Calculation of service mains
- G30 Service main required
- G31 Outline of proposed plan for municipal water supply system
- G32 Major works planned for master plan
- G33 Distribution reservoir
- G34 Layout of Kibuye distribution pump station

- G35 Layout of wastewater disposal facilities
- G36 Typical standpipe installation
- G37 Typical pipe trench

G1 DAY AVERAGE AND MAXIMUM WATER DEMAND IN KIBUYE DISTRIBUTION ZONE(2015)

Sub-location	Total	Population Served								Per Capita Consumption							
		Distribution as per Service Level								Distribution as per Service Level							
		House Connection			Water Kiosk					House Connection			Water Kiosk				
		High	Medium	Low	Urban	Peri-Urban & Rural				High	Medium	Low	Urban	Peri-Urban & Rural			
High	High					Medium	Low	High	High					Medium	Low		
Urban	Kibuye	42,509	8,502	12,733	21,255	0	0	0	0	200	120	60	20	-	-	-	
	Millimani	22,410	4,482	6,723	11,205	0	0	0	0	200	120	60	20	-	-	-	
	kanyakwar	29,750	5,950	8,925	14,875	0	0	0	0	200	120	60	20	-	-	-	
	Sub-total	94,669	18,934	28,401	47,335	0	0	0	0	-	-	-	-	-	-	-	
Peri-urban	Nyalenda	108,800	10,880	34,816	32,640	0	0	8,704	21,760	120	60	50	-	20	20	15	
	Manyatta	116,800	11,680	37,376	35,040	0	0	9,344	23,360	120	60	50	-	20	20	15	
	Kasule	140,063	14,006	44,820	42,019	0	0	11,205	28,013	120	60	50	-	20	20	15	
	Wathorego	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Korando	26,113	2,611	8,356	7,834	0	0	2,089	5,223	120	60	50	-	20	20	15	
	Kogony	36,374	3,637	11,640	10,912	0	0	2,916	7,273	120	60	50	-	20	20	15	
	Sub-total	428,149	42,814	137,008	128,445	0	0	34,252	85,631	-	-	-	-	-	-	-	
Rural	Chiga	338	34	108	101	0	0	27	68	120	60	50	-	20	20	15	
	Nyalunya	3,315	332	1,061	995	0	0	265	663	120	60	50	-	20	20	15	
	Kadero	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Okok	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Konya	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Sub-total	3,653	366	1,169	1,096	0	0	292	731	-	-	-	-	-	-	-	
Total	526,471	62,114	166,578	176,876	0	0	34,544	86,362	-	-	-	-	-	-	-		

Sub-location	Total	Day Average Demand												Day Maximum Demand	
		Domestic Water Demand								Non-domestic Water Demand					Total
		House Connection			Water Kiosk					Sub-total	Institutional	Commercial	Industrial		
		High	Medium	Low	Urban	Peri-Urban & Rural									
m3/day	m3/day	m3/day	m3/day	High	High	Medium	Low	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	
Urban	Kibuye	1,700.4	1,530.4	1,275.3	0.0	0.0	0.0	0.0	4,506.1	1,196.0	1,879.0	8,500.0	11,575.0	16,081.1	23,586
	Millimani	896.4	806.8	672.3	0.0	0.0	0.0	0.0	2,375.5	630.0	991.0	0.0	1,621.0	3,996.5	5,861
	kanyakwar	1,190.0	1,071.0	892.5	0.0	0.0	0.0	0.0	3,153.5	837.0	1,315.0	0.0	2,152.0	5,305.5	7,781
	Sub-total	3,786.8	3,408.1	2,840.1	0.0	0.0	0.0	0.0	10,035.0	2,663.0	4,185.0	8,500.0	15,348.0	25,383.0	37,228
Peri-urban	Nyalenda	1,305.6	2,089.0	1,632.0	0.0	0.0	174.1	326.4	5,527.0	576.0	538.0	0.0	1,114.0	6,641.0	9,740
	Manyatta	1,401.6	2,242.6	1,752.0	0.0	0.0	186.9	350.4	5,933.4	619.0	578.0	0.0	1,197.0	7,130.4	10,458
	Kasule	1,680.7	2,689.2	2,101.0	0.0	0.0	224.1	420.2	7,115.2	742.0	693.0	980.0	2,415.0	9,530.2	13,978
	Wathorego	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Korando	313.3	501.4	391.7	0.0	0.0	41.8	78.3	1,326.5	138.4	129.2	840.0	1,107.6	2,434.1	3,570
	Kogony	436.4	698.4	545.6	0.0	0.0	58.2	109.1	1,847.8	192.5	180.0	910.0	1,282.5	3,130.3	4,591
	Sub-total	5,137.7	8,220.5	6,422.3	0.0	0.0	685.0	1,284.5	21,749.9	2,267.9	2,118.2	2,730.0	7,116.1	28,866.0	42,337
Rural	Chiga	4.1	6.5	5.1	0.0	0.0	0.5	1.0	17.2	2.0	2.0	280.0	284.0	301.2	442
	Nyalunya	39.8	63.7	49.8	0.0	0.0	5.3	9.9	168.5	18.0	16.0	1,820.0	1,854.0	2,022.5	2,966
	Kadero	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Okok	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Konya	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Sub-total	43.9	70.1	54.8	0.0	0.0	5.8	11.0	185.7	20.0	18.0	2,100.0	2,138.0	2,323.7	3,408
Total	8,968.4	11,698.7	9,317.2	0.0	0.0	690.9	1,295.4	31,970.6	4,950.9	6,321.2	13,330.0	24,602.1	56,572.7	82,973	

G-3

G2 DAY AVERAGE AND MAXIMUM WATER DEMAND IN KOGONY DISTRIBUTION ZONE(2015)

Sub-location	Total	Population Served								Per Capita Consumption							
		Distribution as per Service Level								Distribution as per Service Level							
		House Connection			Water Kiosk					House Connection			Water Kiosk				
		High	Medium	Low	Urban	Peri-Urban & Rural				High	Medium	Low	Urban	Peri-Urban & Rural			
High	High				Medium	Low	High	High	Medium				Low				
Urban	Kibuye	0	0	0	0	0	0	0	0	200	120	60	20	-	-	-	
	Millimani	0	0	0	0	0	0	0	0	200	120	60	20	-	-	-	
	kanyakwar	0	0	0	0	0	0	0	0	200	120	60	20	-	-	-	
	Sub-total	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	
Peri-urban	Nyalenda	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Manyatta	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Kasule	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Wathorego	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Korando	39,169	3,917	12,534	11,751	0	0	3,134	7,834	120	60	50	-	20	20	15	
	Kogony	36,174	3,637	11,640	10,912	0	0	2,910	7,273	120	60	50	-	20	20	15	
	Sub-total	75,543	7,554	24,174	22,663	0	0	6,044	15,109	-	-	-	-	-	-	-	
Rural	Chiga	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Nyalunya	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Kadero	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Okok	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Konya	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Sub-total	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	
Total	75,543	7,554	24,174	22,663	0	0	6,044	15,109	-	-	-	-	-	-	-	-	

Sub-location	Day Average Demand														Day Maximum Demand	
	Domestic Water Demand								Sub-total	Non-domestic Water Demand				Total		
	House Connection			Water Kiosk						Institutions	Commercial	Industrial	Sub-total			
	High	Medium	Low	Urban	Peri-Urban & Rural					m3/day	m3/day	m3/day	m3/day			
m3/day	m3/day	m3/day	High	High	Medium	Low	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day			
Urban	Kibuye	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Millimani	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	kanyakwar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Sub-total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
Peri-urban	Nyalenda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Manyatta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Kasule	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Wathorego	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Korando	470.0	752.0	587.6	0.0	0.0	62.7	117.5	1,989.8	207.6	193.8	1,260.0	1,661.4	3,651.2	5,355	
	Kogony	436.4	698.4	545.6	0.0	0.0	58.2	109.1	1,847.8	192.5	180.0	910.0	1,282.5	3,130.3	4,591	
	Sub-total	906.5	1,450.4	1,133.2	0.0	0.0	120.9	226.6	3,837.6	400.1	373.8	2,170.0	2,943.9	6,781.5	9,946	
Rural	Chiga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
	Nyalunya	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
	Kadero	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
	Okok	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
	Konya	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
	Sub-total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Total	906.5	1,450.4	1,133.2	0.0	0.0	120.9	226.6	3,837.6	400.1	373.8	2,170.0	2,943.9	6,781.5	9,946		

G-4

JICA STUDY ON KISUMU WATER SUPPLY AND SEWERAGE SYSTEM

G3 DAY AVERAGE AND MAXIMUM WATER DEMAND IN KANYAKWAR DISTRIBUTION ZONE(2015)

Sub-location		Population Served								Per Capita Consumption							
		Total	Distribution as per Service Level							Distribution as per Service Level							
			House Connection			Water Kiosk				House Connection			Water Kiosk				
			High	Medium	Low	Urban	Peri-Urban & Rural			High	Medium	Low	Urban	Peri-Urban & Rural			
High	High	Medium				Low	High	High	Medium				Low				
Urban	Kibuye	0	0	0	0	0	0	0	0	200	120	60	20	-	-	-	
	Millimani	0	0	0	0	0	0	0	0	200	120	60	20	-	-	-	
	kanyakwar	29,750	5,950	8,925	14,875	0	0	0	0	200	120	60	20	-	-	-	
	Sub-total	29,750	5,950	8,925	14,875	0	0	0	0	-	-	-	-	-	-	-	
Peri-urban	Nyalenda	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Manyatta	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Kasule	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Wathorego	28,547	2,855	9,135	8,564	0	0	2,284	5,709	120	60	50	-	20	20	15	
	Korando	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Kogony	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Sub-total	28,547	2,855	9,135	8,564	0	0	2,284	5,709	-	-	-	-	-	-	-	
Rural	Chiga	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Nyalunya	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Kadero	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Okok	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Konya	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Sub-total	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	
Total		58,297	8,805	18,060	23,439	0	0	2,284	5,709	-	-	-	-	-	-	-	

Sub-location		Day Average Demand													Day Maximum Demand	
		Domestic Water Demand								Sub-total	Non-domestic Water Demand					Total
		House Connection			Water Kiosk				Institutional		Commercial	Industrial	Sub-total			
		High	Medium	Low	Urban	Peri-Urban & Rural			m3/day		m3/day	m3/day	m3/day			
m3/day	m3/day	m3/day	High	High	Medium	Low	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day				
Urban	Kibuye	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	Millimani	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0
	kanyakwar	1,190.0	1,071.0	892.5	0.0	0.0	0.0	0.0	3,153.5	837.0	1,315.0	0.0	2,152.0	5,305.5	7,781	
	Sub-total	1,190.0	1,071.0	892.5	0.0	0.0	0.0	0.0	3,153.5	837.0	1,315.0	0.0	2,152.0	5,305.5	7,781	
Peri-urban	Nyalenda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
	Manyatta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
	Kasule	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
	Wathorego	342.6	548.1	428.2	0.0	0.0	45.7	85.6	1,450.2	151.5	141.1	0.0	292.6	1,742.8	2,556	
	Korando	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
	Kogony	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
	Sub-total	342.6	548.1	428.2	0.0	0.0	45.7	85.6	1,450.2	151.5	141.1	0.0	292.6	1,742.8	2,556	
Rural	Chiga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
	Nyalunya	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
	Kadero	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
	Okok	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
	Konya	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
	Sub-total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Total		1,532.6	1,619.1	1,320.7	0.0	0.0	45.7	85.6	4,603.7	988.5	1,456.1	0.0	2,444.6	7,048.3	10,338	

G-5

G4 DAY AVERAGE AND MAXIMUM WATER DEMAND IN KAJULE DISTRIBUTION ZONE(2015)

Sub-location	Total	Population Served								Per Capita Consumption							
		Distribution as per Service Level								Distribution as per Service Level							
		House Connection			Water Kiosk					House Connection			Water Kiosk				
		High	Medium	Low	Urban	Peri-Urban & Rural				High	Medium	Low	Urban	Peri-Urban & Rural			
High	High				Medium	Low	High	High	Medium				Low				
Urban	Kibuye	0	0	0	0	0	0	0	0	200	120	60	20	-	-	-	
	Millimani	0	0	0	0	0	0	0	0	200	120	60	20	-	-	-	
	kanyakwar	0	0	0	0	0	0	0	0	200	120	60	20	-	-	-	
	Sub-total	0	0	0	0	0	0	0	0	-	-	-	-	-	-	-	
Peri-urban	Nyalenda	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Manyatta	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Kasule	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Wathorogo	15,372	1,537	4,919	4,612	0	0	1,230	3,074	120	60	50	-	20	20	15	
	Korando	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Kogony	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Sub-total	15,372	1,537	4,919	4,612	0	0	1,230	3,074	-	-	-	-	-	-	-	
Rural	Chiga	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Nyalunya	0	0	0	0	0	0	0	0	120	60	50	-	20	20	15	
	Kadero	1,447	145	463	434	0	0	116	289	120	60	50	-	20	20	15	
	Okok	614	61	196	184	0	0	49	123	120	60	50	-	20	20	15	
	Konya	12,884	1,288	4,123	3,865	0	0	1,031	2,577	120	60	50	-	20	20	15	
	Sub-total	14,945	1,494	4,782	4,483	0	0	1,196	2,989	-	-	-	-	-	-	-	
Total	30,317	3,031	9,701	9,095	0	0	2,426	6,063	-	-	-	-	-	-	-	-	

Sub-location	Total	Day Average Demand												Day Maximum Demand		
		Domestic Water Demand								Non-domestic Water Demand					Total	
		House Connection			Water Kiosk					Sub-total	Institutional	Commercial	Industrial			Sub-total
		High	Medium	Low	Urban	Peri-Urban & Rural										
m3/day	m3/day	m3/day	High	High	Medium	Low	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day		
Urban	Kibuye	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Millimani	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	kanyakwar	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Sub-total	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Peri-urban	Nyalenda	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Manyatta	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Kasule	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Wathorogo	184.4	295.1	230.6	0.0	0.0	24.6	46.1	780.9	81.6	76.0	0.0	157.6	938.5	1,376	
	Korando	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Kogony	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Sub-total	184.4	295.1	230.6	0.0	0.0	24.6	46.1	780.9	81.6	76.0	0.0	157.6	938.5	1,376	
Rural	Chiga	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Nyalunya	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	Kadero	17.4	27.8	21.7	0.0	0.0	2.3	4.3	73.5	8.0	7.0	0.0	15.0	88.5	130	
	Okok	7.3	11.8	9.2	0.0	0.0	1.0	1.8	31.1	3.0	3.0	0.0	6.0	37.1	54	
	Konya	154.6	247.4	193.3	0.0	0.0	20.6	38.7	654.5	68.0	63.0	0.0	131.0	785.5	1,152	
	Sub-total	179.3	286.9	224.2	0.0	0.0	23.9	44.8	759.1	79.0	73.0	0.0	152.0	911.1	1,336	
Total	363.7	582.1	454.8	0.0	0.0	48.5	90.9	1,540.0	160.6	149.0	0.0	309.6	1,849.6	2,713		

G5 TOTAL DAY AVERAGE AND MAXIMUM WATER DEMAND(2015)

Sub-location		Population Served								Per Capita Consumption								
		Total	Distribution as per Service Level								Distribution as per Service Level							
			House Connection				Water Kiosk				House Connection				Water Kiosk			
			High	Medium	Low	Urban High	Peri-Urban & Rural High	Medium	Low	High	Medium	Low	Urban High	Peri-Urban & Rural High	Medium	Low		
Urban	Kibuye	42,509	8,502	12,753	21,255	0	0	0	0	200	120	60	20	-	-	-		
	Millimani	22,410	4,482	6,723	11,205	0	0	0	0	200	120	60	20	-	-	-		
	kanyakwar	59,500	11,900	17,850	29,750	0	0	0	0	200	120	60	20	-	-	-		
	Sub-total	124,419	24,884	37,326	62,210	0	0	0	0	-	-	-	-	-	-	-		
Peri-urban	Nyalenda	108,800	10,880	34,816	32,640	0	0	8,704	21,760	120	60	50	-	20	20	15		
	Manyatta	116,800	11,680	37,376	35,040	0	0	9,344	23,360	120	60	50	-	20	20	15		
	Kasule	140,063	14,006	44,820	42,019	0	0	11,205	28,013	120	60	50	-	20	20	15		
	Wathorego	43,919	4,392	14,054	13,176	0	0	3,514	8,783	120	60	50	-	20	20	15		
	Korando	65,282	6,528	20,890	19,585	0	0	5,223	13,057	120	60	50	-	20	20	15		
	Kogony	72,748	7,274	23,280	21,824	0	0	5,820	14,550	120	60	50	-	20	20	15		
	Sub-total	547,611	54,760	173,236	164,284	0	0	43,810	109,523	-	-	-	-	-	-	-		
Rural	Chiga	338	34	108	101	0	0	27	68	120	60	50	-	20	20	15		
	Nyalunya	3,315	332	1,061	995	0	0	265	663	120	60	50	-	20	20	15		
	Kadero	1,447	145	463	434	0	0	116	289	120	60	50	-	20	20	15		
	Okok	614	61	196	184	0	0	49	123	120	60	50	-	20	20	15		
	Konya	12,884	1,288	4,123	3,865	0	0	1,031	2,577	120	60	50	-	20	20	15		
	Sub-total	18,598	1,860	5,951	5,579	0	0	1,488	3,720	-	-	-	-	-	-	-		
	Total	690,628	81,504	218,313	232,073	0	0	45,298	113,243	-	-	-	-	-	-	-		

Sub-location		Day Average Demand												Total	Day Maximum Demand	
		Domestic Water Demand								Sub-total	Non-domestic Water Demand					Total
		House Connection				Water Kiosk					Institutional	Commercial	Industrial			
		High	Medium	Low	Urban	Peri-Urban & Rural	High	High	Medium							
m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day		
Urban	Kibuye	1,700.4	1,530.4	1,275.3	0.0	0.0	0.0	0.0	4,506.1	1,196.0	1,879.0	8,500.0	11,575.0	16,081.1	23,586	
	Millimani	896.4	806.8	672.3	0.0	0.0	0.0	0.0	2,375.5	630.0	991.0	0.0	1,621.0	3,996.5	5,861	
	kanyakwar	2,380.0	2,142.0	1,785.0	0.0	0.0	0.0	0.0	6,307.0	1,674.0	2,630.0	0.0	4,304.0	10,611.0	15,563	
	Sub-total	4,976.8	4,479.1	3,732.6	0.0	0.0	0.0	0.0	13,188.5	3,500.0	5,500.0	8,500.0	17,500.0	30,688.5	45,010	
Peri-urban	Nyalenda	1,305.6	2,089.0	1,632.0	0.0	0.0	174.1	326.4	5,527.0	576.0	538.0	0.0	1,114.0	6,641.0	9,740	
	Manyatta	1,401.6	2,242.6	1,752.0	0.0	0.0	186.9	350.4	5,933.4	619.0	578.0	0.0	1,197.0	7,130.4	10,458	
	Kasule	1,680.7	2,689.2	2,101.0	0.0	0.0	224.1	420.2	7,115.2	742.0	693.0	980.0	2,415.0	9,530.2	13,978	
	Wathorego	527.0	843.2	658.8	0.0	0.0	70.3	131.7	2,231.1	233.1	217.1	0.0	450.2	2,681.3	3,933	
	Korando	783.4	1,253.4	979.3	0.0	0.0	104.5	195.9	3,316.3	346.0	323.0	2,100.0	2,769.0	6,085.3	8,925	
	Kogony	872.9	1,396.8	1,091.2	0.0	0.0	116.4	218.3	3,695.5	385.0	360.0	1,820.0	2,565.0	6,260.5	9,182	
	Sub-total	6,571.2	10,514.2	8,214.2	0.0	0.0	876.2	1,642.8	27,818.6	2,901.1	2,709.1	4,900.0	10,510.2	38,328.8	56,216	
Rural	Chiga	4.1	6.5	5.1	0.0	0.0	0.5	1.0	17.2	2.0	280.0	284.0	301.2	442		
	Nyalunya	39.8	63.7	49.8	0.0	0.0	5.3	9.9	168.5	18.0	16.0	1,820.0	1,854.0	2,022.5	2,966	
	Kadero	17.4	27.8	21.7	0.0	0.0	2.3	4.3	73.5	8.0	7.0	0.0	15.0	88.5	130	
	Okok	7.3	11.8	9.2	0.0	0.0	1.0	1.8	31.1	3.0	3.0	0.0	6.0	37.1	54	
	Konya	154.6	247.4	193.3	0.0	0.0	20.6	38.7	654.5	68.0	63.0	0.0	131.0	785.5	1,152	
	Sub-total	223.2	357.1	279.0	0.0	0.0	29.8	55.8	944.8	99.0	91.0	2,100.0	2,290.0	3,234.8	4,744	
Total	11,771.2	15,350.3	12,225.8	0.0	0.0	906.0	1,698.6	41,951.9	6,500.1	8,300.1	15,500.0	30,300.2	72,252.1	105,970		

G-7