

## TABLES

**Table - 1.4.1(1/2) Members of Study Team, Advisory Committee, Technical Committee and Steering Committee**

Position	Name	Position in Organisation Concerned
<b>(1) Advisory Committee</b>		
Chairman	Mr. Masayuki Watanabe	
Member	Mr. Eiji Kajita	Sewerage
Member	Mr. Hiroyuki Morita	Water Supply
Member	Mr. Katsuyoshi Saito	Task Management
<b>(2) Aftercare Study Team</b>		
Team Leader	Mr. H. Sadamura	
Water Supply Engineer	Mr. H. Yoda	
Water Resources Engineer (Surface Water)	Mr. K. Endo	
Water Resources Engineer (Groundwater)	Mr. S. Takahashi	
Water Supply Engineer	Mr. F. Ohyama	
Sewerage Engineer	Mr. R. C. Despault	
Facility Design Water Supply/ Cost Estimate	Mr. T. Yoshitake	
Sewerage Facility Design/ Cost Estimate	Mr. N. Sato	
Institutional Expert	Mr. J. A. L. Chetto	
Project Economist	Mr. K. Doubeta	
Assist Engineer	Mr. Y. Katsuhama	
<b>(3) Technical Committee</b>		
Water Supply	Mr. N. Muriithi Mr. S. Thuo Mr. Gathigo	AD/PD AD/WD Planning Eng.
Water Resources (Surface Water)	Mr. P. O. Oloo	AD/SC
Water Resources (Groundwater)	Mr. Z. Mukiri	AD/GG
Sewerage (O&M)	Mr. F. K. Munene	AD/MS
Sewerage (Design)	Mr. S. K. Ragu	AD/WD
Policy Issues	Mr. T. W. Kibaki Mr. G. Anyango	DD/PD DCE
Institutional & Legal Matters	Mr. J. R. Nyaoro Eng. D. K. Barasa	RWR DD/OM
GIS	Mr. J. Oyieko	Hydrogeologist
Economic Planning	Mr. J. O. Adem	PE/ME
National Water Resources Data Base	Mr. C. B. K. Mbugu Mr. G. Namanya	DR/DB
<b>(4) Steering Committee</b>		
Chairman	Eng. P. N. Machiri	DWD, MWR
Member	Eng. D. N. Stower	SDD/WRD, MWR

**Table - 1.4.1(2/2) Members of Study Team, Advisory Committee, Technical Committee and Steering Committee**

Position	Name	Position in Organisation Concerned
Member	Eng. J. N. Maina	DD/PD, MWR
Member	Mr. J. K. Waititu	DD/SW, MWR
Member	Eng. P.L. Ombogo	DD/CO, MWR
Member	Mr. F. K. Mwangi	DD/GI, MWR
Member	Mr. S. Ochieng	DD/GE, MWR
Member	Mr. F. A. Onyuna	DS/D, MWR
Member	Mr. E. N. Nyaga	DD/QP, MWR
Member	Mr. J. R. Nyaoro	RWR, MWR
Member	Eng. S. M. Wambua	DD/WP, MWR
Member	Eng. P. K. Njurumba	DD/WC, MWR
Member	Eng. W. Matigaro	DD/AWR, MWR
Member	Mr. G. Anyango	DCE, MWR
Secretary	Mr. T. W. Kibaki	AD/PP, MWR
Member	Eng. Mulli	MOLA
Member	Mr. Obadiah Kamau Bobotti	TARD
Member	Eng. P. G. Gichuki	ENND
Member	Eng. F. Kimani	KVDA
Member	Mr. Munyoki Mushoki	CDA
Member	Eng. M. M. Sabooke	NWCPC
Member	Eng. J. P. Kimani	NCC
Member	Mrs. E. Mbatia	MA
Member	Mr. H. G. Muhia	ENSD
Member	Mr. G. A. Owuor	ME

(As of July 1998)

Table - 2.1.1 Summary of Hydrogeology in Kenya

Era	Period	System	Representative Rocks	Hydrogeological Division	Groundwater Resources	
					Aquifer	Water Quality
Cainozoic	Quaternary	Recent	Soils, alluvials, sands, Hot springs-trona and other evaporites. Volcanic ashes	Eastern and Western Quaternary Sediment	Eastern Area: Aquifers are generally shallow and unconfined.	Deeper water is saline while shallower fresh. Shallow water is subjected to pollution.
		Pleistocene	Moraines on highest peaks. Coral reefs and sandstones at coast. Interior sediments, alkaline and pyroclastic lavas.		Western Area: Aquifers are shallow near The Equator, but deep in The other areas.	Shallow water is moderately saline but potable.
	Tertiary		Coastal sediments, Large quantities of volcanic rocks of the highlands. Interior Miocene Beds	Volcanic Rock Area outside the Rift Valley.	West to R/V: aquifers are either in the weathered zone of Basement below the volcanic rocks, depth to aquifer varies significantly. East of R/V: aquifers are in volcanic rocks, usually artesian, depth to The aquifer varies significantly	Water is generally bicarbonate type with low total dissolved solid. High fluoride content exists as local pockets.
Mesozoic - Paleozoic	Cretaceous		Danissa Beds, Maheeran Sandstones, Freretown limestones and siltstones	Volcanic Rock Area in the Rift Valley	Aquifers are displaced by faults and the occurrence is unpredictable. Either cool or hot (including steam) water is available in deeper ground.	Water is generally bicarbonate type. High fluoride content exists as local pockets.
		Jurassic	Limestones and shale in coastal areas. Dausi Limestone Series and Mandera Series			
Pre-Cambrian	Triassic Permian Carboniferous (Karoo)		Duruma Sandstones, Mansa Guda Formation	Old Sediment Rock Areas	Numerous aquifers in the systems, most are deep and confined.	Water quality is generally good though occasional occurrence of water with high electrical conductivity
		Bukoban	Kisii Series-Acid and basic volcanics, quartzites and other sediments			
		Basement(The Mozambique Belt)	Quartzites, crystalline limestones schists, gneisses including Kusao, Kasigau Series, Turoka and other formations			
		Kavirondian	Arenaceous and argillaceous sediments. Conglomerates, hornblende andesites etc.			
		Nyanzian	Sandstones, conglomerates, quartzites, phyllites, limestones, pelites volcanics and ironstones			
				Basement Complex Area	Aquifers are in weathered zones, shallow and more less unconfined; discontinuous(isolated aquifers)	Water Quality as good in origin, but subject to pollution by human activity.

Source: Hydrogeology map from Groundwater Resources in Kenya WHO (1973)

Table - 2.3.1 Surface Water Resources Development Potential by District

Province	Code	District	Catchment Area Code	Area (km <sup>2</sup> )	Area of Potential River Basin (km <sup>2</sup> )	New Surface Water Development Potential (m <sup>3</sup> /day)
Nairobi	110	Nairobi	3	693	578	10,978
Central	210	Kiambu	2	393	393	18,095
			3	1,923	1,602	30,457
			4	271	271	37,349
			Total	2,587	2,367	85,901
	220	Kinrossa	4	1,385	1,485	521,814
	230	Murang'a	4	2,524	2,525	681,144
	240	Nyandarua	2	1,912	1,912	39,848
			4	143	143	19,687
			5	1,318	1,318	49,348
			Total	3,373	3,373	108,883
250	Nyeri	4	2,231	2,231	134,051	
		5	1,035	1,035	786,245	
		Total	3,266	3,266	920,195	
Coast	310	Kilifi	3	10,336	8,613	479,338
			4	2,670	2,670	720,243
			Total	13,006	11,283	1,199,641
	320	Kwale	3	8,260	6,883	97,950
	330	Lamu	4	6,818	6,818	351,536
	340	Mombasa	3	282	235	623
	350	Taita	3	16,697	13,914	323,808,855
4			268	268	72,233	
Total			16,965	14,182	395,742	
360	Tana River	4	38,782	35,000	1,804,600	
Eastern	410	Embu	4	2,805	2,805	734,321
	420	Isiolo	4	2,894	2,894	149,213
			5	22,710	0	0
			Total	25,604	2,894	149,213
	430	Kitui	3	958	799	18,565
			Total	18,934	17,489	958,960
	440	Masaka	3	4,005	3,338	79,100
			4	2,244	2,244	605,318
			Total	6,249	5,581	684,419
	450	Marsabit	2	10,821	0	0
			5	61,469	0	0
			Total	72,290	0	0
	460	Meru	4	1,758	1,758	354,448
5			1,765	1,765	17,454	
Total			3,523	3,523	371,902	
470	Nyambene	4	2,201	2,201	593,660	
		5	1,865	1,865	19,520	
		Total	4,066	4,066	604,180	
480	Thika Nthi	4	2,295	2,295	462,672	
490	Mwingi	4	9,911	9,911	2,673,591	
4A0	Makueni	3	7,719	6,433	198,250	
North Eastern	510	Garissa	4	27,981	2,981	153,700
			5	15,411	0	0
			Total	43,392	2,981	153,700
520	Mandera	5	25,871	2,000	7,320	
530	Wajir	5	56,923	0	0	
Nyanza	610	Gesii	1	1,252	1,112	77,127
	620	Kisumu	1	2,077	1,843	158,894
	630	Siaya	1	2,524	2,242	273,568
	640	Homa Bay	1	3,105	2,759	295,577
	650	Migori	1	2,603	2,313	44,863
	660	Nyamira	1	946	840	36,349
Rift Valley	710	Kajiado	2	7,883	7,883	362,616
			3	13,873	11,561	356,206
			Total	21,756	19,444	718,922
	720	Kapsigis	1	2,569	2,282	62,239
	730	Lakipia	2	1,009	1,009	38,073
			5	8,153	4,124	428,749
			Total	9,162	5,133	466,822
	740	Nakuru	1	1,001	890	74,262
			2	6,189	6,189	233,557
			Total	7,190	7,078	257,818
	750	Nandi	1	7,189	6,387	608,313
			2	7,939	7,939	138,926
			Total	15,128	14,326	747,239
	760	Trans Nzoia	1	2,261	2,009	267,047
			2	206	206	3,316
			Total	2,467	2,215	270,363
	770	Uasin Gishu	1	3,134	2,793	138,483
			2	74	74	2,795
			Total	3,218	2,867	141,278
	780	Bomet	1	2,371	2,106	271,856
790	Transmara	1	2,874	2,553	243,777	
810	Baringo	1	34	30	971	
		2	10,920	10,800	1,478,599	
		Total	10,954	10,830	1,479,570	
820	Elgeyo Marakwet	1	1,153	1,024	13,380	
		2	1,896	1,896	259,562	
		Total	3,049	2,920	272,942	
830	Nandi	1	2,784	2,473	301,749	
		2	5,183	0	0	
		Total	15,625	0	0	
840	Samburu	2	20,808	0	0	
		5	69,146	4,145	37,190	
		Total	89,937	4,145	37,190	
850	West Pokot	1	321	285	15,610	
		2	8,616	8,616	434,958	
		Total	8,937	8,901	450,567	
Western	910	Bungoma	1	3,072	2,729	362,767
	920	Busia	1	1,652	1,468	69,978
	930	Kakamega	1	3,020	2,683	871,712
	940	Vihiga	1	541	481	58,315
TOTAL				581,787	254,419	21,217,952

Source : The Aftercare Study Team

Table - 2.4.1 Existing Boreholes by District

Code	District	Area (km <sup>2</sup> )	Number of Borehole	Borehole Density
			(nos.)	(nos./km <sup>2</sup> )
110	Nairobi	693	986	1.42
210	Kiambu	2,587	1,212	0.47
220	Kirinyaga	1,485	29	0.02
230	Muranga	2,525	67	0.03
240	Nyandarua	3,373	201	0.06
250	Nyeri	3,266	73	0.02
310	Kilifi	13,006	275	0.02
320	Kwale	8,260	647	0.08
330	Lamu	6,818	45	0.01
340	Mombasa	282	104	0.37
350	Taita	16,965	92	0.01
360	Tana River	38,782	16	0.00
410	Embu	2,805	277	0.10
420	Isiolo	25,604	123	0.00
430	Kitui	19,892	116	0.01
440	Masaku	9,911	621	0.06
450	Marsabit	6,249	133	0.02
460	Meru	7,719	69	0.01
470	Nyambene	72,290	-	-
480	Tharaka Nithi	3,523	-	-
490	Mwingi	4,066	-	-
4A0	Makueni	2,295	-	-
510	Garissa	43,392	120	0.00
520	Mandera	25,871	95	0.00
530	Wajir	56,923	141	0.00
610	Gusii	1,252	39	0.03
620	Kisumu	946	193	0.20
630	Siaya	2,077	259	0.12
640	Homa Bay	2,524	296	0.12
650	Migori	3,105	-	-
660	Nyamira	2,603	-	-
710	Kajiado	21,756	520	0.02
720	Kipsigis	2,569	59	0.02
730	Laikipia	9,162	275	0.03
740	Nakuru	7,190	920	0.13
750	Narok	15,128	58	0.00
760	Trans Nzoia	2,467	76	0.03
770	Uasin Gishu	3,218	183	0.06
780	Bomet	2,371	-	-
790	Transmara	2,874	-	-
810	Baringo	10,954	74	0.01
820	Elgeyo Marakwet	3,049	27	0.01
830	Nandi	2,784	12	0.00
840	Samburu	20,808	92	0.00
850	Turkana	69,146	488	0.01
860	West Pokot	8,937	90	0.01
910	Bungoma	3,072	262	0.09
920	Busia	1,652	386	0.23
930	Kakamega	3,020	461	0.15
940	Vihiga	541	-	-
	Uncertain		566	-
	Total	581,787	10,778	average= 0.02

Source: NAWARD (National Water Resources Database)

Note: Shaded District Name ... New District

Table - 2.4.2 Safe Yield of Boreholes and Shallow Wells

Code	District		Borehole		Shallow Wells		Total		
	Area (km <sup>2</sup> )		(m <sup>3</sup> /year/district)	(m <sup>3</sup> /year/km <sup>2</sup> )	(m <sup>3</sup> /year/district)	(m <sup>3</sup> /year/km <sup>2</sup> )	(m <sup>3</sup> /year/district)	(m <sup>3</sup> /year/km <sup>2</sup> )	
110	Nairobi	693			16,510	24			
210	Kiambu	2,587	727,471	281	44,544	17	772,015	298	
220	Kirinyaga	1,485	692,577	466	34,372	23	726,949	490	
230	Muranga	2,525	2,311,759	916	344,593	136	2,656,352	1,052	
240	Nyandarua	3,373	1,330,665	395	92,954	28	1,423,619	422	
250	Nyeri	3,266	2,279,104	698	66,746	20	2,345,850	718	
310	Kilifi	13,006	5,083,662	391	11,788,286	906	16,871,948	1,297	
320	Kwale	8,260	529,548	64	7,478,533	905	8,008,081	970	
330	Lamu	6,818	3,514,282	515	5,715,459	838	9,229,741	1,354	
340	Mombasa	282	86,504	307	64,505	229	151,009	535	
350	Taita	16,965	7,156,311	422	15,228,153	898	22,384,464	1,319	
360	Tana River	38,782	1,858,186	48	40,293,158	1,039	42,151,344	1,087	
410	Embu	2,805	996,081	355	1,736,190	619	2,732,271	974	
420	Isiolo	25,604	13,413,265	524	23,594,196	922	37,007,461	1,445	
430	Kitui	Kitui	19,892	6,818,933	343	18,614,037	936	25,432,970	1,279
490		Mwingi	9,911	3,397,469	343	9,274,267	936	12,671,736	1,279
440	Machakos	Masaku	6,249	3,745,426	599	4,821,985	772	8,567,411	1,371
4A0		Makueni	7,719	4,626,492	599	5,956,297	772	10,582,789	1,371
450	Marsabit	72,290	11,863,461	164	27,050,316	374	38,913,777	538	
460	Meru	Meru	3,523	719,135	204	798,752	227	1,517,887	431
470		Nyambene	4,066	829,975	204	921,863	227	1,751,839	431
480		Tbaraka Nithi	2,295	468,469	204	520,334	227	988,802	431
510	Garissa	43,392	24,886,298	574	42,800,905	986	67,687,203	1,560	
520	Mandera	25,871	8,386,408	324	23,295,791	900	31,682,199	1,225	
530	Wajir	56,923	17,568,082	309	56,759,870	997	74,327,952	1,306	
610	Kisii	Gusii	1,252	612,839	489	1,134,360	906	1,747,200	1,396
660		Nyamira	946	463,056	489	857,113	906	1,320,168	1,396
620	Kisumu	946	696,485	736	2,629,877	2,780	3,326,362	3,516	
630	Siaya	2,077	775,261	373	2,227,428	1,072	3,002,689	1,446	
640	S. Nyanza	Hema Bay	2,524	465,846	185	1,985,111	786	2,450,956	971
650		Migori	3,105	390,530	126	2,442,063	786	2,832,594	912
710	Kajiado	21,756	18,150,720	834	12,271,226	564	30,421,946	1,398	
720	Kericho	Kipsigis	2,569	2,370,120	923	525,247	204	2,895,367	1,127
780		Bomet	2,371	2,187,448	923	484,765	204	2,672,213	1,127
730	Laikipia	9,162	3,323,847	363	2,758,321	301	6,082,168	664	
740	Nakuru	7,190	4,442,296	618	1,349,013	188	5,791,309	805	
750	Narok	Narok	15,128	5,498,939	363	7,187,783	475	12,686,723	839
790		Transmara	2,874	1,044,682	363	1,365,527	475	2,410,209	839
760	Trans Nzoia	2,467	494,119	200	1,720,801	698	2,214,920	898	
770	Uasin Gishu	3,218	1,072,033	333	536,260	167	1,608,293	500	
810	Baringo	10,954	3,873,009	354	3,475,551	317	7,348,560	671	
820	Elgeyo Marakwet	3,049	2,129,868	699	2,465,072	808	4,594,940	1,507	
830	Nandi	2,784	1,358,224	488	1,663,833	598	3,022,057	1,086	
840	Samburu	20,808	1,413,948	68	14,997,422	721	16,411,370	789	
850	Turkana	69,146	4,799,898	69	51,652,401	747	56,452,299	816	
860	West Pokot	8,937	4,140,470	463	8,463,944	947	12,604,414	1,410	
910	Bungoma	3,072	311,371	101	1,855,671	604	2,167,042	705	
920	Busia	1,652	365,367	221	1,659,538	1,005	2,024,905	1,226	
930	Kakamega	Kakamega	3,020	691,943	229	2,642,464	875	3,334,406	1,104
940		Vihiga	541	123,954	229	473,368	875	597,322	1,104
Total			184,485,834		426,136,775		610,606,099		

Note: Shaded District Name ... New District









Table - 4.2.1(1/6) Existing Urban Water Supply Schemes

Code	District	Code	Name of Urban Scheme	Water Undertaker	Source/Treatment Process	Present Water Production (m <sup>3</sup> /day)	Population Served	Data Source	
110	Nairobi	U-1	Nairobi	Nairobi City Council	Kikuyu Springs, Sasumua, Ruiru, Thika, & Chania Dams / Conventional Full Treatment.	364,000	1,784,577	WSSS	
210	Kiambu	U-2	Githunguri	MWR	Borehole / No Treatment	300	8,000	WSSS	
		U-3	Karuri	Municipal Council of Karuri	Borehole / No Treatment	520	15,000	WSSS	
		U-4	Kiambu	Kiambu Municipal Council	Pipeline offtake & Borehole / No Treatment	490	8,058	WSSS, Status 96	
		U-5	Kikuyu	MWR	Borehole / Disinfection by chlorine	1,278	9,568	WSSS	
		U-7	Ndumbeni						
		U-8	Ruiru	MWR	Ruiru River / Conventional Full Treatment.	781	60,000	WSSS, MWR	
		U-9	Thika	Thika Municipal Council	Thika & Chania Rivers / Conventional Full Treatment.	24,000	120,000	WSSS, MOLA	
	Sub-total					27,369	220,644		
220	Kirinyaga	U-12	Kerugoya	MWR	Rutuli River / Conventional Full Treatment.	1,200	8,215	WSSS	
		U-12	Katus	NWCPC	Pipeline offtake (Ndia Water Supply) / Conventional Full Treatment.	246	1,234	WSSS	
		U-16	Wanguru	MWR	Thika River / Conventional Full Treatment.	80	667	WSSS	
	Sub-total					1,526	10,116		
230	Murang'a	U-19	Makuyu	Punda Mbia Farmers Co-operative	Borehole / No Treatment	360	600	WSSS	
		U-20	Maragua	MWR	Borehole / No Treatment	15	6,200	WSSS	
		U-21	Muranga	MWR	Mathaya & Kayahwe Rivers / Conventional Full Treatment.	2,000	24,000	WSSS	
	Sub-total					2,375	30,800		
240	Nyandarua	U-28	Nyahururu	Nyahururu Municipal Council	River / Conventional Full Treatment	3,000	50,000	WSSS	
		U-30	Oi Kaku	MOWR	Boreholes / Disinfection by Chlorine (TCL)	220	9,000	WSSS	
	Sub-total					3,220	59,000		
250	Nyeri	U-32	Enderasha	SH	Karungo River			NWMP	
		U-33	Karatina	MWR	Rugeri River / Conventional Full Treatment.	1,300	14,533	WSSS	
		U-36	Nyeri	Nyeri Municipal Council	Chania River / Conventional Full Treatment.	5,940	40,000	WSSS, MOLA	
		U-37	Othaya	NWCPC	Gakira River & Borehole / Disinfection by Chlorine (TCL)	700	14,000	WSSS	
	Sub-total					7,940	68,533		
310	Kiisi	U-38	Kiisi	NWCPC	Pipeline offtake (Mama Springs) / Conventional Full Treatment.	4,300	30,170	WSSS	
		U-39	Majengo						
		U-40	Malindi	NWCPC	Sabaki River / Conventional Full Treatment.	15,555	141,293	WSSS	
		U-41	Mumburi	Local Community	Well / No Treatment	207	2,000	WSSS	
		U-42	Mafakani	NWCPC	Pipeline offtake (Sabaki Pipe line) / Disinfection by Chlorine (TCL)	1,200	12,600	WSSS	
		U-43	Watawu	NWCPC	Pipeline offtake / Conventional Full Treatment.		6,375	WSSS	
	Sub-total					21,692	192,438		
320	Kwale	U-44	Kwale	NWCPC	Pipeline offtake from Mares Spring / Disinfection by chlorine	520	3,005	WSSS, Second Menibasa Report	
		U-45	Lungu Lungu	MWR	Borehole / No Treatment	220	1,833	WSSS	
		U-45	Msamweni	MWR	Wells / Disinfection by chlorine	520	12,000	WSSS	
	Sub-total					1,260	16,838		

Table - 4.2.1(2/6) Existing Urban Water Supply Schemes

Code	District	Code	Name of Urban Scheme	Water Undertaker	Source/Treatment Process	Present Water Production (m <sup>3</sup> /d)	Population Served	Data Source
330	Lamu	U - 47	Lamu	MWR	Shallow Wells / Disinfection by Chlorine (TCL)	575	5,000	WSSS
		U - 49	McLowe T.C			260	2,100	MWR
		Sub-total				835	7,100	
340	Mombasa	U - 52	Mombasa	NWCPC	Sabaki River & Moina Springs / Conventional Full Treatment.	16,200	370,264	Second Mombasa Report
350	Taita	U - 54	Taveta	NWCPC	Njoto springs / Disinfection by chlorine	1,600	4,400	WSSS, MOLA
		U - 55	Voi	NWCPC	Pipeline offtake (Moina pipe line) / Disinfection by chlorine	2,700	20,300	WSSS, MOLA
		U - 56	Wundanyi	MWR	River / Conventional Full Treatment.	1,232	8,000	WSSS, MOLA
Sub-total					5,532	32,700		
360	Tana River	U - 58	Garsen	MWR	Tana River / Conventional Full Treatment.		10,000	WSSS, MWR, Status'96
		U - 59	Hofa	MWR	Tana River / Conventional Full Treatment.	228	9,000	WSSS
		Sub-total				228	19,000	
410	Embu	U - 60	Embu	NWCPC	Pipeline Offtake (Embu Water Supply) / Conventional Full Treatment.	4,058	35,000	WSSS, MOLA
		U - 61	Runyenyis	Municipal council of Runyenyis.	Ewa River / No Treatment	135	4,284	WSSS, Status'96
		Sub-total				4,193	39,284	
420	Isiolo	U - 63	Isiolo	MWR	Pipeline Offtake from Ewaso Nyiro Water Supply / Conventional Full Treatment.	4,356	36,000	WSSS
		U - 64	Modo Gashe	Local Community	Gaa Gof River / No Treatment			WSSS
		U - 65	Meri	Local Community	Borehole / No Treatment	69	1,173	WSSS, Status'96
Sub-total					4,425	37,173		
430	Kisumu	U - 68	Kisumu	MWR	Borehole / No Treatment	800	11,000	WSSS
440	Masaku	U - 69	Athi River	Mavoko Municipal Council	Pipeline offtake / Conventional Full Treatment.	2,000	12,500	WSSS
		U - 71	Machakos	NWCPC	Dam on araruba River / Conventional Full Treatment.	2,660	80,000	WSSS, Status'96
		U - 74	Matuu	MWR	Yana Canal	281	10,000	MWR
		U - 77	Kangundo	Kangundo-Tala Town Council	Borehole / Disinfection by chlorine (TCL)	341	4,500	WSSS
		U - 77	Tala	Kangundo-Tala Town Council	Borehole / No Treatment	100	10,000	WSSS
Sub-total					5,382	117,000		
450	Marsabit	U - 79	Kargi	Local Community	Borehole / No Treatment	160	8,000	WSSS, MOLA
		U - 80	Korr		Shallow well / No Treatment		8,000	WSSS
		U - 82	Marsabit	MWR	Bakuli Spring / Conventional Full Treatment	136	19,750	WSSS
		U - 83	Moyale	MWR	Moyale Dam / Disinfection by chlorine (TCL)	61	10,000	WSSS, MWR
		U - 84	North Horr	Local Community	Shallow well / No Treatment	21	2,500	WSSS
		U - 85	Selcho	Local Community and NGO.	Wells equipped with Handpumps / Disinfection by chlorine (TCL)	21	6,500	WSSS, Status'96
Sub-total					399	54,750		
460	Meru	U - 86	Meru	MWR	Galabora Spring & Kathita River / Conventional Full Treatment	4,730	16,330	WSSS
		U - 87	Nkuba	MWR	Thingitha River / Conventional Full Treatment	325	5,000	WSSS, MWR
		Sub-total				5,055	21,330	

Table - 4.2.1(3/6) Existing Urban Water Supply Schemes

Code	District	Code	Name of Urban Scheme	Water Undertaker	Source/Treatment Process	Present Water Production (m <sup>3</sup> /day)	Population Served	Data Source
470	Nyanjone	U-89	Maua	MWR	Mboone stream / Conventional Full Treatment	164	2,375	WSSS
480	Tharaka Nithi	U-90	Chuka	MWR	Tungu River / Disinfection by Chlorine (TCL)	355	7,560	WSSS
490	Mwingi	U-91	Mwingi	MWR	Tyaa River / Disinfection by Chlorine	300	12,000	WSSS
440	Makueni	U-93	Ngwezi	MWR				
		U-98	Mitie Andri	MWR	Unanyi Springs / No Treatment	334	15,000	WSSS, MWR
		Sub-total				334	15,000	
510	Garissa	U-104	Garissa	MWR	Tana River / Conventional Full Treatment	1,440	34,750	WSSS
		U-105	Liboi	MWR		123	6,180	S.R.96
		Sub-total				1,563	40,938	
520	Mandera	U-108	Elwak	Local Community	Borehole / Disinfection by Chlorine			WSSS
		U-109	Mandera	MWR	Borehole / Disinfection by Chlorine	500	8,160	WSSS
		U-110	Rhamu	Local Community	Borehole / Disinfection by Chlorine	140	8,000	WSSS
		Sub-total				640	16,160	
530	Wajir	U-113	Bute	MWR	Borehole / No Treatment			WSSS
		U-114	Eldas	MWR	Borehole	69	5,000	MWR
		U-116	Wajir	MWR	Shallow Wells / Disinfection by Chlorine (TCL)	20	1,500	WSSS
		Sub-total				89	6,500	
610	Gusii	U-117	Ngisi	NWCPC	Gurha River / Conventional Full Treatment	3,520	45,000	WSSS, MOEA
620	Kisumu	U-119	Alero	Alero Catholic Church	Borehole / No Treatment		454	WSSS
		U-120	Kisumu	Kisumu Municipal Council	Lake Victoria & Igboos River / Conventional Full Treatment	14,565	280,845	WSSS, MOEA
		U-121	Maseno	NWCPC		N/A	30,000	S.R.96
		U-122	Muboroni	MWR	Nyando River / Conventional Full Treatment	600	5,000	WSSS
		Sub-total				15,165	316,300	
630	Siaya	U-123	Asiro					
		U-125	Siaya	NWCPC	Abura Dam on Nyanwin River / Conventional Full Treatment	770	11,340	WSSS, MOEA
		Sub-total				770	11,340	
640	Homa Bay	U-129	Homa Bay	MWR	Lake Victoria / Conventional Full Treatment	1,231	43,000	WSSS
		U-130	Kendo Bay	MWR	Awach River / Conventional Full Treatment	17	16,000	WSSS, Status 96
		U-131	Mbiba					
		U-133	Oyugis	MWR	Awach River / Conventional Full Treatment	82	30,000	WSSS, Status 96
		Sub-total				1,330	89,000	
650	Migori	U-134	Awendo	MWR	No existing Water supply System			WSSS
		U-135	Kenheba	MWR	Onawe Dam / No Treatment	44	3,850	WSSS
		U-136	Migori	MWR	Borehole / Disinfection by chlorine (TLC)	220	4,733	WSSS
		U-137	Nyahakaye					
		U-138	Rongo	MWR		497	4,142	S.R.96
		Sub-total				761	12,175	

Table - 4.2.1(4/6) Existing Urban Water Supply Schemes

Code	District	Code	Name of Urban Scheme	Water Undertaker	Source Treatment Process	Present Water Production (m <sup>3</sup> /day)	Population Served	Data Source	
660	Nyanira	U - 139	Kerika	MWR	Chidochiri River (KCB)	84		SR 96	
		U - 140	Nyanira	MWR	Eyaka River / Conventional Full Treatment	456	17,000	WSSS	
		Sub-total				550	17,000		
710	Kajado	U - 141	Kajado	NWCPC	Nolutesh pipeline offtake & Borehole / Disinfection by chlorine (TCL)	450	5,000	WSSS	
		U - 142	Magadi	Magadi Soda Factory	Otobor river / Conventional Full Treatment	1,359	10,000	WSSS	
		U - 143	Namanga	MWR	Oldonyo Creek springs / Disinfection by chlorine (TCL)	341	4,500	WSSS, MWR	
		U - 144	Ngong	MWR	Borehole / No Treatment	1,250	6,000	WSSS	
		U - 145	Loitokitik	NWCPC	Nol Turesh Springs Preventive Chlorination (TCL)	1,440	20,000	WSSS	
		U - 146	Ongata Lengai	MWR	Mhagathi River	978	7,200	MOWR	
Sub-total					5,832	52,700			
720	Kipsgis	U - 148	Kericho	Kericho Municipal Council	Tribili River / Conventional Full Treatment	5,325	58,720	WSSS, MOLA	
		U - 149	Kipkebon	MWR	River / Conventional Full Treatment	48	1,500	WSSS	
		U - 151	Londiani	MWR	River / Conventional Full Treatment	169	4,000	WSSS	
		U - 152	Sotik	NWCPC	Kiptenoi River & Pipeline Offtake / Conventional Full Treatment			WSSS	
Sub-total					5,542	64,222			
730	Lalipia	U - 153	Nanyuki	Nanyuki Municipal Council	Lid River / Conventional Full Treatment	2,720	43,100	WSSS, NWMP	
		U - 154	Rumuruti	Lalipia County Council	Borehole / Conventional Full Treatment		3,200	WSSS, NWCPC	
Sub-total					2,720	46,300			
740	Nakuru	U - 155	Ebitugu	NWCPC	Boreholes / Disinfection by Tropical Chloride of Lime (TCL)	391	6,000	WSSS	
		U - 156	Gitigi	NWCPC	Murandi & Malewa rivers / Conventional Full Treatment	760	8,000	WSSS, MOLA	
		U - 157	Melo	NWCPC	Nguso springs & Boreholes / Disinfection by Tropical Chloride of Lime (TCL)	775	10,000	WSSS	
		U - 158	Nakasha	NWCPC	Boreholes / Disinfection by Tropical Chloride of Lime (TCL)	762	46,000	WSSS	
		U - 159	Nakuru	Municipal Council of Nakuru	Mereroni & Malewa rivers, Kabañai & Baharai boreholes / Conventional Full Treatment	41,120	304,561	WSSS, NWCPC	
		U - 160	Njoro	NWCPC	Boreholes / Disinfection by Tropical Chloride of Lime (TCL)	224	5,000	WSSS	
Sub-total					44,032	379,561			
750	Narok	U - 153	Narok	Narok Municipal Council	Narok river & spring / Conventional Full Treatment	1,315	12,000	WSSS	
760	Trans Nzoia	U - 154	Kitale	Kitale Municipal Council	Nzoia River / Conventional Full Treatment	9,000	60,000	WSSS	
770	Uasin Gishu	U - 165	Burnt Forest	MWR	Dam & Borehole / No Treatment	500	1,810	WSSS	
		U - 166	Eldoret	Eldoret Municipal Council	Kapigat, Eldoret, Eligini Rivers & Dam on Morben River / Conventional Full Treatment	28,850	90,000	WSSS, MOLA	
		U - 167	Lerack						
		U - 169	Moi's Bridge	MWR	Nzoia River / Conventional Full Treatment	150	1,000	WSSS	
		U - 170	Sinat						
		U - 172	Turba	MWR	Confluence of Sergoit & Sesiari River / Conventional Full Treatment	300	2,450	WSSS	
Sub-total					29,250	95,270			

Table - 4.2.1(5/6) Existing Urban Water Supply Schemes

Code	District	Code	Name of Urban Scheme	Water Undertaker	Source/Treatment Process	Present Water Production (m <sup>3</sup> /day)	Population Served	Data Source
790	Transmara	U-174	Kigoria	MWR	Impounded reservoir stream	25	8,000	MWR
810	Saringo	U-178	Eldia Ravine	NWCPC	Chemusuu River / Conventional Full Treatment.	2,450	20,000	WSSS
		U-179	Karbaret	NWCPC, DWE	Kapchenusoo Dam & Boreholes / No Treatment	2,042	127,500	WSSS, NWCPC, WRAP
		U-180	Maji Manari	MWR	Kapkor River / No Treatment	90	2,000	WSSS, Status 96
		U-181	Marigat	MWR	Perekeru River / Conventional Full Treatment.	154	1,719	WSSS
		U-182	Mogotio	MWR, DWE	Molo River & Borehole / No Treatment	668	5,000	WSSS, Status 96, WRAP
		Sub-total				5,438	155,719	
820	Elgyo Marakwet	U-183	Iten	MWR	Kanariyo Springs & Boreholes / Disinfection by Chlorine (TCL)	460	1,900	WSSS
830	Nandi	U-185	Kapsabet	NWCPC	Kabuta River / Conventional Full Treatment.	1,100	7,000	WSSS
840	Samburu	U-188	Mara'al	MWR	Nundoto Earth Dam / Conventional Full Treatment	524	2,173	WSSS
		U-189	Waciba	MWR	Chlorine(TCL)	181	10,000	WSSS, MWR
			Sub-total				710	12,173
850	Turkana	U-190	Kakuma T.C	MWR	1 shallow well, 2 boreholes	260	20,000	MWR
		U-191	Kalokol	MWR, Community	Shallow wells and infiltration gallery	8	2,000	MWR
		U-194	Lodwar	MWR	Boreholes / Disinfection by Chlorine (TCL)	1,500	30,000	WSSS
		U-195	Lokitaung	MWR	Shallow wells and infiltration gallery	24	4,000	MWR
			Sub-total				1,792	56,000
860	West pokot	U-197	Kapeuguria	MWR	Kapolei River / Conventional Full Treatment.	247	5,500	WSSS
		U-198	Makutano	MWR	River Kapenguria / Conventional Full Treatment.	263	5,200	WSSS
			Sub-total				509	10,700
910	Bungoma	U-199	Bungoma	NWCPC	Kaywa River & Borehole / Conventional Full Treatment	2,620	36,000	WSSS
		U-200	Cheptais	MWR	Malikisi River / Conventional Full Treatment			WSSS
		U-202	Kirithi	MWR	River / Conventional Full Treatment	4,124	93,800	WSSS
		U-203	Malakisi	MWR	River / Conventional Full Treatment			WSSS
		U-205	Weboye	MWR	River / Conventional Full Treatment	1,700	40,000	WSSS
		Sub-total				8,443	169,800	
920	Busia	U-206	Busia	MWR	Sio River & Boreholes / Conventional Full Treatment.	2,072	17,267	WSSS
		U-207	Malaba Town					
		U-208	Nandiale	MWR	Boreholes / No Treatment	159	1,325	WSSS
			Sub-total				2,231	18,592
930	Kakamega	U-209	Buteze	MWR	Borehole / Disinfection by Chlorine (TCL)	261	5,000	WSSS
		U-210	Kakamega	NWCPC	River & Borehole / Conventional Full Treatment	7,000	27,826	WSSS, NWCPC
		U-211	Mundias	MWR	Lusumu River & Borehole / Conventional Full Treatment	1,488	12,440	WSSS
			Sub-total				8,749	45,266

**Table - 4.2.1(6/6) Existing Urban Water Supply Schemes**

Code	District	Code	Name of Urban Scheme	Water Undertaker	Source/Treatment Process	Present Water Production (m <sup>3</sup> /day)	Population Served	Data Source
940	Vihiga	U- 213	Maseno/ Luanda	MWR	Open Farrow / Conventional Full Treatment	1,192	68,400	WSSS
		U- 214	Mhale		Surface Water	889	20,000	MWR
		U- 215	Vihiga/ Majengo	MWR	Spring / Disinfection by Chlorine( TCl <sub>2</sub> )	63	12,000	WSSS
	Sub-total					2,144	100,400	
<b>TOTAL</b>						<b>629,793</b>	<b>4,974,003</b>	

**DATA SOURCE :**

- WSSS; Water Supply Sector Survey
- MWR; Project Rehabilitation Survey by the Ministry of Water Resources
- Status '96; Project Status Report '96, Ministry of Water Resources, Dec. 1997
- NWCPC; Brief on National Water Conservation and Pipeline Corporation's Activities and Present Status, National Water Conservation & Pipeline Corporation, Sep. 1997
- NWMP; The Study on the National Water Master Plan, Sectoral Report (D), Domestic and Industrial Water Supply, Japan International Cooperation Agency, July 1992
- WRAP; District Water Development Plan, Water Resources Assessment & Planning
- MOLA; Ministry of Local Authority



Table - 4.2.2 Estimated Water Served Population in 1995

Province	District	Population (x 1,000)			Service Coverage	Served Population (x 1,000)				Non-served (x 1,000)	Data Source
		Total	Urban	Rural		Total	by UWS	by LSWS	by SSWS		
Nairobi	Nairobi	1,857	1,857	0	96.1	1,785	1,785	0	0	72	1)
Central	Kiambu	1,156	153	1,003	60.1	695	221	353	121	461	2)
	Kirinyaga	453	18	435	26.6	347	10	326	11	106	3)
	Muranga	990	69	921	29.8	790	31	306	451	200	4)
	Nyandarua	398	23	375	63.0	251	59	76	115	147	2)
	Nyeri	715	140	575	61.1	437	69	107	261	278	2)
Coast	Kilifi	732	90	642	67.2	492	192	31	269	240	2)
	Kwale	471	21	450	46.5	219	17	17	186	252	2)
	Lamu	73	14	59	60.7	44	7	7	30	29	2)
	Mombasa	573	573	0	95.4	547	371	31	145	26	2)
	Taita	235	33	202	62.1	146	33	61	52	89	2)
	Tana River	166	17	149	24.1	40	19	15	7	126	4)
Eastern	Embu	443	37	411	53.8	241	39	124	78	207	2)
	Isiolo	91	37	54	23.9	67	37	11	19	24	4)
	Kitui	487	13	474	17.8	87	11	30	46	401	2)
	Masaku	823	191	633	38.9	320	117	103	101	503	2)
	Marsabit	157	47	110	96.1	151	55	62	34	6	3)
	Meru	577	131	446	62.5	361	21	130	209	216	2)
	Nyambene	548	5	543	50.3	276	2	200	24	273	3)
	Tharaka Nithi	317	6	312	33.7	107	8	94	5	210	2)
	Mwingi	312	5	306	18.9	59	12	29	18	253	4)
Makueni	892	8	884	17.9	160	15	36	109	732	2)	
North-Eastern	Garissa	220	43	177	58.3	128	41	35	53	92	3)
	Mandera	223	36	187	31.3	70	16	28	26	153	2)
	Wajir	214	31	183	20.8	152	7	131	14	63	3)
Nyanza	Gusii	1,337	51	1,287	31.5	421	45	30	346	916	2)
	Kisumu	878	259	619	65.5	525	316	259	52	303	3)
	Siaya	744	24	720	21.1	232	11	220	7	512	3)
	Homa Bay	893	46	847	26.0	232	83	132	17	661	2)
	Migori	621	34	587	6.6	41	12	7	22	580	2)
	Nyamira	294	10	284	43.0	126	17	35	74	167	2)
Rift Valley	Kajiado	338	68	270	72.9	246	53	55	139	92	2)
	Kipsigis	622	67	554	44.0	274	64	5	204	348	4)
	Laikipia	291	35	256	29.3	85	46	5	34	206	2)
	Nakuru	1,111	348	763	74.5	828	380	85	363	283	2)
	Narok	342	20	322	26.0	89	12	37	40	253	2)
	Trans Nzoia	516	74	442	39.6	204	60	0	144	312	2)
	Uasin Gishu	585	170	415	58.4	342	95	113	133	243	2)
	Bomet	597	0	597	29.6	177	0	19	158	421	2)
	Transmara	184	8	176	11.0	20	8	8	5	164	4)
	Baringo	367	37	330	64.0	235	156	40	39	132	3)
	Elgeyo Marakwet	270	6	264	29.0	78	2	26	50	192	4)
	Nandi	562	15	547	36.8	207	7	29	171	355	2)
	Samburu	137	16	121	53.4	93	12	63	18	44	4)
	Turkana	201	27	174	59.3	119	56	41	22	82	2)
	West Pokot	282	18	264	27.6	78	11	44	23	204	4)
Western	Bungoma	951	97	854	65.6	624	170	355	99	327	2)
	Busia	480	39	441	66.6	320	19	92	209	160	2)
	Kakamega	1,162	110	1,052	55.5	645	45	106	494	517	2)
	Vihiga	626	13	613	60.5	379	100	95	184	247	5)
TOTAL		27,520	5,191	22,329	53.2	14,640	4,974	4,239	5,435	12,880	

- Note: (1) Service coverage ratio for each district is obtained from Welfare Monitoring Survey II and/or the MOWR Project Status Report. The coverages underlined are from the 1996 PSR.  
(2) LSWS and SSWS imply Large Scale Water Supply and Small Scale Water Supply respectively.  
(3) Data source:  
1) Coverage from WMSII  
2) Coverage from WMS while served population from Status Report and/or Survey Results. Further adjusted to balance SSWS.  
3) Coverage and served population from Status Report and/or Survey Results  
4) Coverage from WMS while served population from Status Report and/or Survey Results.  
5) As served population exceeds district population, the figure was adjusted.

Source: The Aftercare Study Team

Table - 4.2.3 (1/5) Existing Large Scale Rural Water Supply Schemes

Code	District	Project Name	Location		Water Source	Production Capacity (m <sup>3</sup> /day)	Population Served (Nos)	Management Agency	Data Source	
			Code	Name						
210	Kiambu	Limuru	213.1, 213.4	Limuru, Mehya	Borchole	1,538	12,000	MOWR	Status '96	
		Karai		Karai	Borchole	527	15,000	MOWR	Status '96	
		Limuru Uplands		Lari	Borchole	196	6,500	MOWR	Status '96	
		Ngecha		Ngecha	Borchole, Gitungu Springs	375	5,000	MOWR	Status '96	
		Ikino Ricks	215.2	Ikono			1,230	16,400	NWCPC	Status '96
		Kofo					375	5,000	NWCPC	Status '96
		Githa					640	8,538	NWCPC	Status '96
		Kanunga					488	6,500	NWCPC	Status '96
		Kiaria					338	4,500	NWCPC	Status '96
		Kiu South					300	4,000	NWCPC	Status '96
		Thirika	212.3	Kiganjo		Thirika River	7,005	50,000	MOWR	Status '96
		Gatundu				Pipeline offtake (Ngethu Water Supply)	411	10,719	Nairobi City Council	JICA
		Komotha Uplands				River Gatamaiyo	432	40,000	MOWR	MOWR
		Bathi	217.1, 213.1	Lari, Limuru		Borchole	9,264	14,000	MOWR	MOWR
		Karimenu				River Bathi	106,440	35,000	MOWR	MOWR
		Ithanga				Karimenu River	3,605	45,000	MOWR	MOWR
		Ndaruru				Thika River	1,200	30,000	MOWR	MOWR
		212.5	Ndaruru	Ndaruru River	5,568	45,000	MOWR	MOWR		
					139,931	353,157				
220	Kirinyaga	Ngarima	223.1	Ngarima	Kiri and Kiye River	1,018	39,885	MOWR	Status '96	
		Kabare	223.3	Baragwi	Thiba River	1,603	16,390	MOWR	Status '96	
		Karuri W.P				4,310	12,000	NWCPC	Status '96	
		Kiangombe S.H				800	6,120	NWCPC	Status '96	
		Kisungu Women Group				219	4,370	NWCPC	Status '96	
		Teithia, Teith S.H				1,262	7,651	NWCPC	Status '96	
		Mutungara S.H				383	7,650	NWCPC	Status '96	
		Ndia Ph A				8,188	27,400	NWCPC	Status '96	
		Ph B				1,838	24,500	MOWR	Status '96	
		Ph C				6,375	85,000	MOWR	Status '96	
		Sagana	222.5	Kiine South	River Ragati	624	21,300	MOWR	MOWR	
		Kabara Rural			Thiba River	5,400	16,530	MOWR	MOWR	
		Ngarima Rural	223.1	Ngarima	Kive and Kiri River	783	48,900	MOWR	MOWR	
		Kirinyaga			Thiba River	168	8,000	MOWR	MOWR	
					32,969	325,696				
230	Muranga	Sabasaba			Sabasaba River	45	9,327	MOWR	Status '96	
		Gatango	231.2	Gatanga	Take off from Gatango w/s	2,640	7,813	MOWR	JICA	
		Kigumo	232.2	Kigumo	River Irati	8,640	150,000	MOWR	JICA	
		Kandara			Thika river	14,640	78,183	NWCPC	JICA	
					12,910	60,298	NWCPC	JICA		
					38,875	305,621				
240	Nyandarua	Ngonika				247	15,000	S.H	Status '96	
		Mawinga				1,090	8,688	NWCPC	Status '96	
		Mugiliri				648	12,000	NWCPC	Status '96	
		Gilei				612	5,500	NWCPC	Status '96	
		Kinangop R.M.				4,471	11,300	MOWR	Status '96	
		Of J Kangui				37	15,000	MOWR	Status '96	
		Kirima			Protected well	254	5,000	MOWR	MOWR	
		Kuri				3,785	3,900	MOWR	MOWR	
					11,145	76,388				
250	Nyeri	Zaina				586	16,000	MOWR	Status '96	
		Tetu Thegenze	255.2, 255.3	Tetu Thegenze	Zaina River	4,008	40,000	MOWR	MOWR	
		Mukurweini	253.3	Gikondi	Served by Mukurweini Rural	197	6,000	MOWR	MOWR	
		Mukurweini Rural	253.3	Gikondi	Chinga dam	5,016	45,000	MOWR	MOWR	
					9,808	107,000				
310	Kilifi	Tezo-Roka	313.2, 313.1	Tezo Roka		313	8,736	NWCPC	Status '96	
		Mazeras Zanbuni				2,005	10,192	NWCPC	Status '96	
		Mackinnon Road				55	5,260	NWCPC	Status '96	
		Pidmango			Take off Baricho pipeline	42	6,459	NWCPC / Community	JICA	
					2,416	30,647				
320	Kwale	Vanga				432	4,500	MOWR	MOWR	
		Kikooent	324.7	Kikomeni	Dam, Mkanda River	1,728	12,000	MOWR	MOWR	
					2,160	16,500				
330	Lamu	Central W/S	332.1	Mkungwi	Wells	1,085	7,000	GTZ/PC	Status '96	
						1,085	7,000			
340	Mombasa	Miongwé-Mwenzá Ext.	344.2	Miongwé	pipéd	400	10,000	NWCPC	Status '96	
		Mrina Flats Ext.				160	4,000	NWCPC	Status '96	
		Vyetmani Line Ext.				160	4,000	NWCPC	Status '96	
		Soweto Mwatsalafu Ext.				183	8,000	NWCPC	Status '96	
		Kwa Jomvu Miritini				150	5,000	NWCPC	Status '96	
					1,053	31,000				
350	Taita	Chongoni				39	12,200	NWCPC	Status '96	
		Bura	354.2	Bura		2,599	6,100	NWCPC	Status '96	
		Wundanyi	353.4	Wundanyi		751	16,000	MOWR	Status '96	
		Mzungu Buzota				603	7,000	NWCPC	Status '96	
		Ngrirwanyi w/s (Dembaa)				65	12,200	MC	Status '96	
		Mwaliki			Sanguni and Mkonanyi Springs	563	7,512	Community	JICA	
					4,620	61,012				

Table - 4.2.3 (2/5) Existing Large Scale Rural Water Supply Schemes

Code	District	Project Name	Location		Water Source	Production Capacity (m <sup>3</sup> /day)	Population Served (Nos)	Management Agency	Data Source
			Code	Name					
360	Tana River	Bura W/S	362.3	Bura	River Tana	5,200	8,000	MOWR	Status '96
		Ngon	364.4	Ngon		1,200	6,500	MOWR	MOWR
		Sub-total				6,400	14,500		
410	Embu	Ena-Siakao			River Ena	1,562	12,500	MOWR	Status '96
		Siakao			Pipeline Offtake	196	8,000	MOWR	JICA
		Nganduri A			Rupingazi and Kapingazi Rivers	19,200	20,000	MOWR	MOWR
		Nganduri B			Thambana River	6,840	20,000	MOWR	MOWR
		Kyeni Rural	414.1, 414.2	Kyeni North, Kyeni South	River	3,552	28,000	MOWR	MOWR
		Ishara	412.4	Eyurore	River Thuchi	670	5,572	MOWR	MOWR
Sub-total					32,020	124,072			
420	Isiolo	Garbatula	422.1	Garbatula	Borehole	128	4,740	Community	Status '96
		Ngaremaru W/S				128	6,172	Community	Status '96
		Sub-total				256	10,918		
430	Kitui	Mwingi				27	15,000	MOWR	Status '96
		Kabul			2 no. Boreholes	498	6,643	Community	JICA
		Mutito-Mai	432.1	Mutito	Springs	120	8,000	MOWR	MOWR
Sub-total					645	29,643			
440	Masaku	Ikombe				80	4,000	NWCPC	Status '96
		Muthetheni	443.5	Muthetheni		1,005	13,400	NWCPC	Status '96
		Katheka/Kithayoni				600	8,000	NWCPC	Status '96
		Vyolva				13	4,000	NWCPC	Status '96
		Muthetheni Dam	443.5	Muthetheni	Dam on Kyethiva stream	100	9,000	Community	JICA
		Mekilingi			Mekilingi river	124	10,000	Community	JICA
		Uaani			Pipeline Offtake	750	10,000	Local	JICA
		Wamuyu	443.4	Wamuyu	Athi River	312	11,000	Community	MOWR
		Siathani			Borehole/Surface from Mia river	2	4,000	MOWR	MOWR
		Mbiuni	443.1	Mbiuni	Surface (Athi River)	15	7,500	MOWR	MOWR
		Kibauni	443.6	Kibauni	Athi river	2,050	12,000	MOWR	MOWR
		Kathiani			Muoni Dam	26,400	9,800	MOWR	MOWR
		Sub-total					31,451	102,700	
450	Marsabit	South Horr				137	6,300	NWCPC	Status '96
		Godoma	456.3	Godoma		20	6,000	NWCPC	Status '96
		Uran	455.1	Uran	Borehole	39	5,000	NWCPC	Status '96
		Maikona Wells	451.3	Maikona	Wells	68	11,000	MOWR/ NWCPC	Status '96
		Bubisa	451.4	Bubisa		21	7,000	NWCPC	Status '96
		Loyanzalani	452.1	Loyanzalani	Springs	82	8,000	NWCPC	Status '96
		Dabul	456.3	Godoma	Borehole	52	9,000	PHD/NWCPC	Status '96
		Bori				11	5,000	NWCPC	Status '96
		Wakda	455.1	Uran	Borehole	137	6,000	NWCPC	Status '96
		Dob-Gombo B11	454.3	Saganje	Borehole	49	4,600	NWCPC	Status '96
		Laisamis	453.2	Logologo	Borehole	27	8,200	MOWR	Status '96
		Loglogo	453.2	Logologo	Borehole	137	13,000	MOWR/ NWCPC	Status '96
		Ngurunit				3	6,000	MOWR/ NWCPC	Status '96
		Sub-total					783	95,100	
460	Meru	Mitunguru	463.7	Mitunguru	River Thingith	480	91,000	MOWR	MOWR
		Mwimbi	463.5	Iroji	Mt. Kenya Forest	3,000	32,000	MOWR	MOWR
		Nkatane			Kathita River	600	7,000	MOWR	MOWR
Sub-total					4,080	130,000			
470	Nyambene	Kaweru				1,620	20,000	NWCPC	Status '96
		Amwamba				389	8,000	NWCPC	Status '96
		Murimi				294	4,500	NWCPC	Status '96
		K.K. Mwehe				1,499	12,000	NWCPC	Status '96
		Kamberwa				155	25,000	NWCPC	Status '96
		Riaki (Kaongone)				900	5,000		Status '96
		Gitwe				1,000	5,000	NWCPC	Status '96
		Kitheto Miori				500	5,000	NWCPC	Status '96
		Miathene				2,625	35,000	NWCPC	Status '96
		Tigania			Spring	4,104	80,000	MOWR	MOWR
Sub-total					13,086	199,500			
480	Tharaka Nithi	Murugi Mutumango				206	20,000	NWCPC	Status '96
		Magumoni				2,191	9,000	NWCPC	Status '96
		Karingani	481.6	Kanjuki	Tungu River	3,600	45,000	MOWR	MOWR
		Mwimbi Chogoria			Mutonga River	2,400	20,000	MOWR	MOWR
Sub-total					8,896	94,000			
490	Mwingi	Ngomeni W/S	492.3	Ngomeni	Rock Catchments	750	10,000	MOWR	Status '96
		Miwani	493.2	Miwani	Borehole	243	19,000	NWCPC	Status '96
		Sub-total					243	29,000	
4A0	Makueni	Wote	4A3.1	Makueni	Borehole	75	5,500	MOWR	Status '96
		Makindu	4A4.1	Makindu	Makindu springs	480	12,000	MOWR	MOWR
		Kikumbulyu Rural	4A4.4	Kikumbulyu	Umuri springs at the foot of Chyulu hills	720	9,400	MOWR	MOWR
		Ena-Siakao			River Ena	2,400	8,800	MOWR	MOWR
Sub-total					3,675	35,700			

Table - 4.2.3 (3/5) Existing Large Scale Rural Water Supply Schemes

Code	District	Project Name	Location		Water Source	Production Capacity (m <sup>3</sup> /day)	Population Served (Nos)	Management Agency	Data Source	
			Code	Name						
510	Garissa	Masalani	515.4	Masalani	River Tana	55	5,150	MOWR	Status 96	
		Mbalambala	511.3	Mbalambala		68	4,120	MOWR	Status 96	
		Modogashe	513.1	Modogashe	Shallow Wells	33	6,068	MOWR	Status 96	
		Dadaab	518.0	Dadaab	Borehole	82	4,625	MOWR	Status 96	
		Ahijagur			Borehole	25	5,150	MOWR	Status 96	
		Shanta-abak			Borehole	23	4,638	MOWR	Status 96	
		Ijara	515.2	Ijara	Pans	375	5,000	Local Community	JICA	
		Sub-total					667	34,745		
520	Mandera	Wareadud	523.3	Wareadud	Borehole	80	6,000	MOWR	Status 96	
		B.H. Ekeven				80	4,000	MOWR	Status 96	
		S.Fatuma				80	4,000	MOWR	Status 96	
		Kutulo	523.2	Kutulo	Borehole	15	4,500	MOWR	Status 96	
		Kalaliyo	521.3	Kalaliyo	River Daua	79	4,000	MOWR	Status 96	
		Neboi (Army Section)	521.2	Neboi	River Daua	160	5,000	MOWR	Status 96	
Sub-total					494	27,500				
530	Wajir	Kutulo			River Daua	68	5,000	MOWR	Status 96	
		Sabuli	531.3	Sabuli		110	5,000	MOWR	Status 96	
		Ahakore				151	5,000	MOWR	Status 96	
		Sarif				100	25,000	MOWR	Status 96	
		Arbajahan	535.2	Arbajahan	Borehole	141	16,000	MOWR	MOWR	
		Habaswein	531.1	Habaswein	Borehole	168	20,000	MOWR	MOWR	
		Wajir Minor	533.2	Wajir-Boy	Well	240	5,000	MOWR	MOWR	
		Khorof Hakar	533.1	Khorof Hakar	Borehole	192	8,000	MOWR	MOWR	
		Kujulo			Borehole	192	7,000	MOWR	MOWR	
		Damas			Borehole	216	10,000	MOWR	MOWR	
		Hadado	535.5, 535.6	Hadado North South	Borehole	101	5,000	MOWR	MOWR	
		Bayamodhow			Borehole	126	20,000	MOWR	MOWR	
		Sub-total					1,805	131,000		
610	Gusii	Geten Gesusu	618.2	Nyaribari Masaba		5	27,532	MOWR	Status 96	
		Birongo	613.1	Nyaribari Keambu	Chirichiro River	2,812	18,000	MOWR	Status 96	
		Qimseri	612.4	Bassi Masiee	Spring	490	4,728	MOWR	Status 96	
		Mosochu Gesoni			Ria Modito spring	60	6,000	MOWR	JICA	
		Tabaka			Bombura Spring	100	4,200	MOWR	JICA	
		Keroka			Chirichiri River	960	27,349	MOWR	JICA, Status 96	
		Sub-total					4,428	87,801		
620	Kisumu	M. Kombewa				2,230	30,000	NWCPC	Status 96	
		Nyakach W/S				9,000	120,000	NWCPC	Status 96	
		Kenasia W/S				28	5,000	NWCPC	Status 96	
		Othoo				750	10,000	NWCPC	Status 96	
		Nyahera (Gazetted Rural W.S)			Orinde Springs	720	10,000	MOWR	MOWR	
		Kabigori			Stream/Spring	720	10,000	MOWR	MOWR	
		Koru Maara W.S	626.1	Koru	Kipcherian Stream	192	5,000	MOWR	MOWR	
		Kisumu Rural W/S			Lake Victoria	1,992	25,000	MOWR	MOWR	
		Oyuuis			River Awach	8,640	32,000	MOWR	MOWR	
		West Karachuonyo			Lake Victoria	1,920	140,000	MOWR	MOWR	
		Kendo Bay			River	1,080	12,000	MOWR	MOWR	
		Sub-total					16,042	399,000		
630	Siaya	Bondo	632.4	West Sakwa	River Yala	295	10,000	MOWR	Status 96	
		Yala Township	633.2	East Gem	River Yala	548	5,000	MOWR	Status 96	
		Uyoma	631.1	East Uyoma	Lake Victoria	1,080	5,110	Community	JICA	
		Mauna Dam	636.2	Ukwala	Mauna Dam and spring	166	12,778	MOWR	JICA, MOWR	
		Ukwala	636.2	Ukwala	Borehole	975	13,000	MOWR	JICA	
		North Sakwa	632.2	North Sakwa	River Yala	668	8,913	MOWR	MOWR	
		South Sakwa	632.1	South Sakwa	Lake Victoria	1,009	13,457	MOWR	MOWR	
		Urunja	635.2	Uhoho	Borehole	288	6,000	MOWR	MOWR	
		Sege	636.3	North Ugenya	I Borehole	336	16,000	MOWR	MOWR	
		Sidindi Macanga	632.2	North Sakwa	Yala River	3,480	90,000	MOWR	MOWR	
		Uranja Ramula	633.2	East Gem	Stream	648	5,000	MOWR	MOWR	
		Bar Ober	635.2	Uhoho	Spring	1,590	20,000	MOWR	MOWR	
		Yenga-Sirawaga			Yenga Dam	960	5,000	MOWR	MOWR	
		Sigomure	635.2	Uhoho	Borehole	600	10,000	MOWR	MOWR	
		Sub-total					12,554	220,255		
		640	Homa Bay	Kochia	641.3	Kochia		2,100	28,000	MOWR
West Rachuonyo						17	104,000	MOWR	Status 96	
Sub-total					2,117	132,000				
650	Migori	Nyasare				409	6,500	PC/NGO	Status 96	
Sub-total						409	6,500			
660	Nyamira	Nyambaria	663.2	North Kitutu	Stream	429	14,500	MOWR	Status 96	
		Nyansiongo	662.1	Nyansiongo	Dam	260	8,000	MOWR	Status 96	
		Manga w's	663.3	Central Kitutu	Spring	96	4,500	MOWR	MOWR	
		Jembe w's	663.3	Central Kitutu	Spring	432	4,000	MOWR	MOWR	
		Mochewa w's	663.1	East Kitutu	Spring	130	4,000	MOWR	MOWR	
Sub-total					1,347	35,000				
710	Kajiado	Kiserian	712.3	Nyong	Spring	647	6,300	NWCPC	Status 96	
		Lower Matasia				353	4,000	NWCPC	Status 96	
		Silanga								
		Kabiko				459	5,800	NWCPC	Status 96	
		Okchorinyori				213	3,800	NWCPC	Status 96	
		Okosges				100	8,000	NWCPC	Status 96	
		Bisset	713 B	Lorogusaa	Borehole	8	20,000	MOWR	MOWR	
		Rongui			Mbagathi River	3,600	7,200	MOWR	MOWR	
Sub-total					5,380	55,100				

Table - 4.2.3 (4/5) Existing Large Scale Rural Water Supply Schemes

Code	District	Project Name	Location		Water Source	Production Capacity (m <sup>3</sup> /day)	Population Served (Nos)	Management Agency	Data Source
			Code	Name					
720	Kipsicis	Chesimende			River	100	3,600	Community	Status '96
		Sosiol				787	15,000	MOWR	MOWR
		Sub-total				887	18,600		
730	Laikipia	Doldol water supply	732.2	Mukogondo	Borehole	21	5,000	MOWR	MOWR
		Sub-total				21	5,000		
740	Nakuru	Lanet	749.3	Lanet	River Merironi	57	5,000	MOWR	MOWR
		Nyamamihhi				240	3,200	NWCPC	Status '96
		West acre			River	259	4,000	MOWR	MOWR
		Crater Stream			Crater River	864	45,000	MOWR	MOWR
		Olunguruone			Asap Mzee River	65	3,500	MOWR	MOWR
		Lake Nakuru Block 4	749.5	Lake Nakuru	Borehole	166	18,000	MOWR	MOWR
		Lake Nakuru Block 2	749.5	Lake Nakuru	Borehole	103	6,000	MOWR	MOWR
		Sub-total				1,754	84,700		
750	Narok	Angata Baragoi				8	4,000	MOWR	Status '96
		Kigolis			Inkitaak River	1,315	3,500	MOWR	JICA
		Lemek	753.3	Lemek	Lemek borehole	100	3,066		JICA
		Mulot	753.1	Mulot	Mara river	300	12,725	MOWR	JICA
		Olofunga	753.2	Olofunga	Ewaso Nyiro river	110	4,650	Community	JICA
		Ilmasharian			Spring	216	9,198	MOWR	JICA
		Sub-total				2,049	37,189		
770	Uasin Gishu	Alnabkoi	774.9	Alnabkoi		3,111	44,770	NWCPC	Status '96
		Sosian	772.4	Sosoi	Borehole	36	4,000	MOWR	Status '96
		Kaptagat	774.2	Kaptagat		60	6,800	MOWR	Status '96
		Moi Barracks			River Sergoig	1,173	14,000	Instiit.	Status '96
		Kapunda				980	4,600	NWCPC	Status '96
		Yamumbi			Sosiai river	980	7,665	Passenga Sec. school	JICA Status '96
		Moi University			Samul river	1,600	4,267	Moi University	JICA
		Arangai			River Rongai	2,027	27,032	Community	JICA
		Sub-total				8,367	113,133		
780	Bomet	Sigoc Longisa	782.3	Longisa		473	5,000	MOWR	Status '96
		Bomet water supply			Nyanuores River	1,200	4,000	MOWR	MOWR
		Chepalungo			River	1,200	10,000	MOWR	MOWR
		Sub-total				2,873	19,000		
790	Transmara	Angata Baragoi w/s	792.3	Siria Central	Spring	10	4,000	MOWR	Status '96
		Lolgorien W/S	792.1	Siria East	Stream	15	3,500	MOWR	Status '96
		Sub-total				25	7,500		
810	Baringo	Narusura				750	11,000	NWCPC	Status '96
		Chemeron				15	17,000	MOWR	Status '96
		Toronoo			Perennial Stream	480	8,000	MOWR	MOWR
		Obokwe			I - Borehole	166	4,000	MOWR	MOWR
		Sub-total				1,411	40,000		
820	Eleevo Marakwet	Kpatarakwa	821.7	Mosop		538	8,000	MOWR	Status '96
		Nerkuwo			River	5	4,088	Community	JICA
		Kapsowar			Emstoo river	1,600	5,000	MOWR	JICA
		Kpatarakwa	821.7	Mosop	Small Stream	840	4,800	MOWR	MOWR
		Chepkorio	821.5	Marichor	Kipsen river	240	4,500	MOWR	MOWR
		Sub-total				3,223	26,388		
830	Nandi	Nandi Hills	831.3	Nandi Hill		263	15,000	MOWR	Status '96
		Lelmoikwo	833.6	Lelmoikwo	Dam	312	4,000	MOWR	Status '96
		Kemeloi Kobujoi Ph I	834.1, 841.4	Kaptumo South. Mutata Urban	River Yala	517	10,400	MOWR	Status '96
		Sub-total				1,092	29,000		
840	Samburu	Londongokwe	842.3	Londongokwe	Borehole	192	4,000	MOWR	Status '96
		Kisima	841.7	Kisima	Dam	192	4,000	MOWR	Status '96
		Baragoi 1 Borehole	843.8	Baragoi	Borehole	60	4,000	MOWR	MOWR
		Baragoi 2 Borehole	843.8	Baragoi	Borehole	31	4,000	MOWR	MOWR
		Soguta marmar water supply	844.1	Soguta marmar	Spring	1,200	3,000	MOWR	MOWR
		Archers post	844.1	Waso	Borehole, Buffalo Springs	864	4,000	MOWR	MOWR
		South Horr water supply			Spring	1,200	10,000	MOWR	MOWR
		Loikas water supply			Borehole	133	30,000	MOWR	MOWR
		Sub-total				3,872	63,000		
850	Turkana	Katila	854.1	Katila	Borehole	138	5,000	MOWR	Status '96
		Lokeri	855.3	Nzihitae	Borehole	197	7,000	MOWR	Status '96
		Kainuk	854.4	Lobokat	Shallow wells	72	9,300	MOWR	JICA
		Lokichogio	851.1	Lokichogio	Shallow wells near Ewaso River	405	5,400	Community/NGOs	JICA
		Loarewak	852.3	Naissier	Borehole	144	7,000	MOWR	MOWR
		Lokichar	854.2	Lokicher	Borehole	120	7,000	MOWR	MOWR
		Sub-total				1,076	40,700		
860	West Pokot	Tartar, Kerigaet	861.4	Mnagai		301	6,180	MOWR	Status '96
		Orlum W/S	862.3	I'atei	Streams	548	7,210	MOWR	Status '96
		Chepareria w/s	862.4	Kipkomo	Streams	685	8,240	MOWR	Status '96
		L'Prog. B'h (90 Drilled, 75 Installed)				1,383	18,437	MOWR	Status '96
		Kachebha	864.1	Susa	Perennial River (Swam)	197	4,000	MOWR	MOWR
		Sub-total				3,115	44,067		

Table - 4.2.3 (5/5) Existing Large Scale Rural Water Supply Schemes

Code	District	Project Name	Location		Water Source	Production Capacity (m <sup>3</sup> /day)	Population Served (Nos)	Management Agency	Data Source
			Code	Name					
910	Buacoma	Naitiri Health Centre	915.1	Naitiri		3	21,600	MOH	Status '96
		Bukoli Health Centre	915.1	Bukoli		44	19,270	MOH	Status '96
		Kabuchai Health Centre				41	33,049	MOH	Status '96
		Machwele				22	5,000	NWCPC	Status '96
		Kababji Complex				85	6,800	NWCPC	Status '96
		Lukhuna				375	5,000	NWCPC	Status '96
		Kapsokwony	915.1	Kapsokwony		296	15,000	NWCPC	Status '96
		Kaptama Chesito	915.2	Kaptama		48	4,400	NWCPC	Status '96
		Chepkube				221	17,000	NWCPC	Status '96
		Ndivisi-Makusela			Kibiy river	2,736	60,000	MOWR	MOWR
		Boitoli / Kibicitori			River Kuywa	1,680	50,000	MOWR	MOWR
		Old Kibicitori			River Kuywa	450	25,000	MOWR	MOWR
		Chewele	911.6	Chewele		2,040	5,000	MOWR	MOWR
		Chesitaki			River Malakisi	2,312	88,000	MOWR	MOWR
			Sub-total				10,883	355,119	
920	Busia	Funyohi Bumala	922.3, 923.1, 926.1	West Bukhaya, North Samia, West Marach		426	29,000	MOWR	Status '96
		Wakhungu	923.1, 923.2	North Samia, South Samia	River Wakhungu	1	5,550	MOWR	Status '96
		Sio Port	923.2	South Samia	Lake Victoria	354	4,717	MOWR	Status '96
		Amukura Complex	925.2	South Teso	Borehole	30	4,000	MOWR	Status '96
		Amukura				30	4,000	MOWR	Status '96
		Port Victoria	924.2, 924.1	North Maragoli, South Maragoli	Lake Victoria	600	10,000	MOWR	MOWR
		Busia Hills	924.1	West Maragoli	Lake Victoria	840	15,000	MOWR	MOWR
		Funyula - Nangina	923.1	North Samia	Spring	250	7,000	MOWR	MOWR
		Ebumala			Sio River	1,001	12,800	MOWR	MOWR
	Sub-total				3,532	92,067			
930	Kakamega	Bukura W/S				316	4,590	MOA	Status '96
		Shikusa W/S				92	4,070	MOH	Status '96
		Lumakanda	936.4	Lumakanda		326	4,350	MOWR	Status '96
		Soy	936.2	Soy		750	10,000	Community	Status '96
		300N W/P				4,500	60,000	Community	Status '96
		Little Nazona			Dam	4,992	15,000	MOWR	MOWR
		Malava			Protected Springs - 2 No	96	8,000	MOWR	MOWR
	Sub-total				11,072	106,010			
940	Vihica	Bumbo-Shamakhokho	942.4	Shamakhokho		50	4,500	RDF	Status '96
		Malindi-Sirulo				50	3,830	RDF	Status '96
		Magui-Buyani				200	8,240	RDF	Status '96
		Moi God's Yokoli				49	15,450	Insuit	Status '96
		Kainosi				1,440	52,500	MOWR	JICA
		Sosiani			Sosiani spring	720	10,000	MOWR	MOWR
	Sub-total				2,509	94,520			
<b>TOTAL</b>					<b>418,602</b>	<b>4,484,047</b>			

Source: JICA; Field Survey by the Study Team

MOWR; Project Rehabilitation Survey by the Ministry of Water Resources  
Status '96; Project Status Report '96, Ministry of Water Resources, Dec. 1997

Note: Design capacity is adopted as water production for water supply schemes referred to Status Report '96.

Water production is adopted as design capacity for water supply schemes referred to the field survey result by JICA

**Table - 4.2.4 Supply Capacity of Existing Water Supply Facilities by District and by Type of Scheme**

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

Province	Code	District	UWS	RWS				TOTAL
				LSRWS	SSRWS	Roof	TOTAL	
Nairobi	110	Nairobi	319,000	0	0	0	0	319,000
Central	210	Kiambu	40,204	139,931	6,073	162	146,166	186,370
	220	Kirinyaga	2,958	32,969	431	0	33,400	36,358
	230	Murang'a	2,456	38,875	16,616	134	55,624	58,080
	240	Nyandarua	3,220	11,145	4,189	181	15,514	18,734
Coast	250	Nyeri	18,240	9,808	10,542	229	20,578	38,818
	310	Kilifi	21,917	2,416	9,592	0	12,008	33,925
	320	Kwale	7,844	2,160	7,727	14	9,901	17,745
	330	Lamu	695	1,085	1,144	0	2,229	2,924
	340	Mombasa	70,000	1,053	12,700	0	13,753	83,753
Eastern	350	Taita	7,169	4,620	1,603	0	6,223	13,392
	360	Tana River	328	6,400	265	0	6,665	6,993
	410	Embu	4,193	32,020	2,119	22	34,161	38,354
	420	Isiolo	4,425	256	919	4	1,179	5,604
	430	Kitui	3,000	645	1,415	7	2,068	5,068
	440	Masaku	8,721	31,451	3,231	12	34,694	43,415
	450	Marsabit	563	783	1,043	0	1,827	2,390
	460	Meru	5,059	4,080	5,106	6	9,191	14,250
North-Eastern	470	Nyambene	400	13,086	2,745	36	15,866	16,266
	480	Tharaka Nithi	355	8,896	247	3	9,146	9,501
	490	Mwingi	300	243	1,038	5	1,285	1,585
Nyanza	4A0	Makueni	3,000	3,675	6,375	6	10,056	13,056
	510	Garissa	1,563	667	1,661	0	2,328	3,891
	520	Mandera	640	494	632	0	1,126	1,766
Rift Valley	530	Wajir	315	1,805	279	0	2,085	2,400
	610	Gusii	6,000	4,428	11,560	74	16,061	22,061
	620	Kisumu	15,308	16,042	1,222	22	17,286	32,593
	630	Siaya	770	12,554	153	134	12,841	13,611
	640	Homa Bay	7,980	2,117	869	353	3,339	11,319
	650	Migori	1,501	409	2,539	78	3,026	4,527
Rift Valley	660	Nyamira	466	1,347	3,010	15	4,372	4,838
	710	Kajiado	10,444	5,380	5,529	8	10,917	21,361
	720	Kipsigis	9,264	887	5,943	106	6,936	16,200
	730	Laikipia	6,800	21	1,269	26	1,315	8,115
	740	Nakuru	31,881	1,754	11,491	1,217	14,462	46,343
	750	Narok	1,315	2,049	1,443	72	3,564	4,879
	760	Trans Nzoia	12,749	0	5,058	28	5,086	17,835
	770	Uasin Gishu	38,900	8,367	4,973	6	13,346	52,246
	780	Bomet	0	2,873	5,463	349	8,686	8,686
	790	Transmara	864	25	400	39	464	1,328
	810	Baringo	10,054	1,411	1,310	172	2,894	12,948
	820	Elgeyo Marakwet	460	3,223	1,825	0	5,048	5,508
	830	Nandi	624	1,092	7,071	34	8,196	8,820
	840	Samburu	710	3,872	638	6	4,516	5,227
850	Turkana	2,898	1,076	1,078	0	2,154	5,052	
860	West Pokot	622	3,114	592	8	3,714	4,336	
Western	910	Bungoma	9,400	10,883	7168.053	19	18,070	27,470
	920	Busia	2,231	3,532	17795.782	5	21,332	23,563
	930	Kakamega	8,762	11,072	6607.7043	279	17,959	26,721
	940	Vihiga	2,215	2,509	34092.654	350	36,952	39,167
<b>TOTAL</b>			<b>708,783</b>	<b>448,602</b>	<b>205218.41</b>	<b>4,220</b>	<b>658,041</b>	<b>1,366,824</b>

Source: The Aftercare Study Team

**Table - 5.1.1 Urban Centres Selected for Sewerage Development**

	Province	Code	District	Code	Urban Centre	Water & Sanitation Development 1998					
						Urban Population (1)	Population connected to water supply (2)	Population connected to sewer (1)	Population with water but no sewerage	% of urban population connected to sewer	
1	Nairobi	110	Nairobi	U-1	Nairobi	2,240,000	1,784,577	1,000,000	784,577	44%	45%
2	Central	210	Kiarabu	U-4	Kiarabu	7,500	8,658	2,250	5,808	72%	30%
3	Central	210	Kiambu	U-6	Limuru	3,000	1,958	2,100	-142	-7%	70%
4	Central	210	Kiambu	U-9	Thika	155,770	120,000	87,230	32,770	27%	56%
5	Central	230	Maranga	U-21	Maranga	30,000	24,000	10,500	13,500	56%	35%
6	Rift Valley	240	Nyandarua	U-28	Nyahururu	60,000	50,000	18,000	32,000	64%	30%
7	Central	250	Nyeri	U-33	Karolina	7,299	14,533	5,109	9,424	65%	70%
8	Central	250	Nyeri	U-36	Nyeri	142,000	40,000	37,100	2,900	7%	26%
9	Coast	340	Mombasa	U-52	Mombasa	580,000	370,764	69,600	301,164	21%	12%
10	Coast	350	Taita	U-55	Voi	15,772 <sup>(2)</sup>	20,300	700	19,600	97%	4%
11	Eastern	410	Embu	U-60	Erabu	45,000	35,000	9,000	26,000	74%	20%
12	Eastern	420	Isiolo	U-63	Isiolo	26,968	36,000	1,700	34,300	95%	6%
13	Eastern	440	Masaku	U-69	Athi River	50,000	12,500	12,500	0	0%	25%
14	Eastern	440	Masaku	U-71	Machakos	154,008	80,000	8,000	72,000	90%	5%
15	Eastern	460	Meru	U-86	Meru	124,412 <sup>(2)</sup>	16,330	800	15,530	95%	1%
16	Nyanza	610	Kisii	U-117	Kisii	65,000	45,000	13,000	32,000	71%	20%
17	Nyanza	620	Kisumu	U-120	Kisumu	231,327 <sup>(2)</sup>	280,845	130,000	150,845	54%	56%
18	Nyanza	640	Homa Bay	U-129	Homa Bay	75,000	43,000	15,000	28,000	65%	20%
19	Rift Valley	710	Kajiado	U-144	Ngong	15,000	6,000	750	5,250	88%	5%
20	Rift Valley	720	Kipsigis	U-148	Kericho	80,000	58,723	41,600	17,123	29%	52%
21	Rift Valley	730	Lakipia	U-153	Nanyuki	55,000	43,100	24,750	18,350	43%	45%
22	Rift Valley	740	Nakuru	U-158	Nahasha	60,000	46,000	30,000	16,000	35%	50%
23	Rift Valley	740	Nakuru	U-159	Nakuru	231,687	384,561	123,500	181,061	59%	53%
24	Rift Valley	760	Trans Nzoia	U-164	Kitale	75,000	60,000	37,500	22,500	38%	50%
25	Rift Valley	770	Uasin Gishu	U-166	Eldoret	220,000	90,000	70,400	19,600	22%	32%
26	Rift Valley	830	Nandi	U-185	Kapsabet + Barotot	20,000	7,000	4,000	3,000	43%	20%
27	Western	910	Bungoma	U-199	Bungoma	70,000	36,000	12,600	23,400	65%	18%
28	Western	910	Bungoma	U-205	Webuye	60,000	40,000	12,000	28,000	70%	20%
29	Western	920	Busia	U-206	Busia	48,000	17,267	9,600	7,667	44%	20%
30	Western	930	Kakamega	U-210	Kakamega	77,306 <sup>(2)</sup>	27,826	5,445	22,381	80%	7%

		1998	
		Population connected to sewer (1)	
Population living in urban centers where sewerage is available	3,851,543	1,794,734	47%
Total population in all urban centers	6,576,000	1,794,734	28%

Notes:

- (1) Populations reported by municipal and town councils during JICA study team survey.
- (2) Information not reported in survey or incorrect therefore population shown is for 1995 as estimated by JICA study team.
- (3) From various sources gathered by JICA study team.





Table - 5.2.1(1/4) Summary of Urban Sewerage Schemes

No.	District	Urban Area / Name of Scheme	Municipal Area (km <sup>2</sup> )	Urban Population	Quantity of Water Supplied (m <sup>3</sup> /d)	Water Undertaker	Type of Sewage Treatment Works	Year Constructed (Expansion)	Treatment Works Capacity (m <sup>3</sup> /d)	Organization Running the Works	No. of Sewer Connections	Population Served	Present Flow (m <sup>3</sup> /d)	Per capita flow (l/pod)	Total Length of Sewers (m)	Length per capita (m)	Method of Sludge Treatment	Influent BOD (mg/l)	Per capita BOD (g/day)	Effluent BOD (mg/l)	Total O & M Staff	Remarks
1	Bungoma	Bungoma	55	70,000	2,620	NWCPC	WSP	1965	45	Municipal Council	260	12,600	NFM		3,710	0.29	No Facility	550	NFM	No Effluent	9	- The works have been neglected. The first pond is full of sludge and covered with vegetation. Part of the plot is being used as a school. - No Effluent from The first pond. - Construction of the new works has been stopped. - Future plans to complete stalled sewerage project
2	Kisumu	Kisumu (conventional)	390 ha	231,687	14,565	NWCPC	conventional	1966, subsequent rehabilitation in 1986	6,800	Municipal Council	NA	130,000		115		0.13	anaerobic digestion followed by sludge drying beds	822-914	105	143-254	NA	- oil separator unit added in 1986 is not working, frequent mechanical and electrical equipment failures, the treatment works are subjected to heavy organic and hydraulic overload.
3	Kisumu	Nyalenda	214 ha				WSP	1975	11,000								2,000	8,000	No Facility	314-472		54
4	Nakuru	Nakuru town	4.2	123,500	41,120	Municipal Council	WSP	1997	6,600	Municipal Council	NA	57,480	3,484	61		0.70	anaerobic digestion followed by sludge drying beds	875	53	104	60	- new t/w - operating below capacity
5	Nakuru	Nakuru - Njoro	8.7	WSP			1997	9,600	65,980													4,739
6	Meru	Meru	NA	124,412	4,700	MOWR	WSP	1974	2,500	Municipal Council	NA	800	500	625	NA	NA	No Facility	502	314	160	NA	- hydraulically overloaded - no screening or grit removal - no maintenance
7	Isiolo	Isiolo	NA	124,412	4,700	MOWR	WSP	1984	2,000	Municipal Council	NA	1,700	595	350	NA	NA	No Facility	605	212	251	NA	- accumulation of sludge - poorly maintained, no grass cutting, weeds
8	Nyeri	Karatina	NA	7,299	1,300	MOWR	WSP	NA	317	Municipal Council	NA	5,109	561	116	NA	NA	No Facility	267-438	51	23-63	NA	- t/w slightly overloaded
9	Bungoma	Webuye	69	60,000	1,700	NWCPC	WSP	1973	NA	Municipal Council	1,620	12,000	NFM	NFM	8,500	0.71	No Facility	200	NFM	60	9	- There is no inlet works and the ponds are choked with sludge. - No access road to site. - About 40% of the sewer lines are undersize (< 150mm) - No future plans for rehabilitation or expansion
10	Busia	Busia (South Teso)	25	48,000	2,072	NWCPC	WSP	1981	600	Municipal Council	473	9,600	600	63	7,350	0.77	No Facility	200	13	85	13	- The works are poorly maintained - Seepage from embankment between first and third pond. - Slabs lining the second maturation pond have collapsed. - No future plans for rehabilitation or expansion.
11	Embu	Embu	80	45,000	7,305	NWCPC	WSP	1973	682	Municipal Council	1,400	9,000	NFM	NFM	13,395	1.49	No Facility	700	NFM	140	7	- The works are overloaded and poorly maintained - Sludge accumulation in the facultative pond. - Future plans for rehabilitation and expansion of treatment works and sewer system. (awaiting funding)

Table - 5.2.1(2/4) Summary of Urban Sewerage Schemes

No.	District	Urban Area / Name of Scheme	Municipal Area (km <sup>2</sup> )	Urban Population	Quantity of Water Supplied (m <sup>3</sup> /d)	Water Undertaker	Type of Sewage Treatment Works	Year Constructed (Expansion)	Treatment Works Capacity (m <sup>3</sup> /d)	Organization Running the Works	No. of Sewer Connections	Population Served	Present Flow (m <sup>3</sup> /d)	Per capita flow (lpcd)	Total Length of Sewers (m)	Length per capita (m)	Method of Sludge Treatment	Influent BOD (mg/l)	Per capita BOD (g/day)	Effluent BOD (mg/l)	Total O & M Staff	Remarks
12	Kajiado	Ngong	NA	15,000	1,260	NWCPC	WSP	1950s	230	Municipal Council	85	750	NFM	NFM	NA	NA	No Facility	Inlet Not Accessible	NFM	No Effluent	2	- the works have been neglected and ponds are covered with vegetation. - There is very little flow to the works and the second pond is dry - no future plans for rehabilitation or expansion
13	Kakamega	Kakamega - Kambi Somali	51	110,000	7,000	NWCPC	WSP	1980	NA	Municipal Council	500	51,700	500	97	3,455	0.07	No Facility	300	29	No Effluent	11	- The works have been neglected and ponds are covered with vegetation. - There is very little flow to the works and there is no effluent to the river. - No future plans for rehabilitation or expansion
14	Kakamega	Kakamega - Shirere					WSP	1972	NA		5,000											4,500
15	Kericho	Kericho	66	80,000	5,246	Municipal Council	Conventional	1962 (1995)	1,500	Municipal Council	236	41,600	2,000	48	15,625	0.38	Digesters & Drying	450	22	25	30	- existing tw rehabilitated and expanded - very well maintained
16	Kiambu	Kiambu	58	7,500	490	Municipal Council	Conventional	1982	960	Municipal Council	127	2,250	NFM	NFM	NA	NA	Drying	225	NFM	90	7	- Well maintained works. - There is provision to increase the capacity of the works. However, there is no space for polishing ponds. - Future planned expansion of treatment works.
17	Kiambu	Limuru	NA	3,000	660	NWCPC	Conventional	1984	550	NWCPC	352	2,100	NFM	NFM	7,725	3.68	Drying	90	NFM	68	6	- Mechanical equipment on site does not function. - The maturation pond and sludge drying beds are covered with vegetation. - The works are poorly maintained. - No future plans for rehabilitation or expansion.
18	Kiambu	Thika	93	155,770	24,000	Municipal Council	WSP	1972	6,100	Municipal Council	6,000	87,230	10,000	115	18,740	0.21	No facility	570	65	40	30	- The works are overloaded and poorly maintained. - Mechanical equipment at inlet works does not function. - Sewer blockages are common due to small size pipes. - Masterplan proposals (funding agency being sought)
19	Kisii	Kisii	29	65,000	4,000	NWCPC	WSP	To be commissioned	NA	Municipal Council	500	13,000	NFM	NFM	NA	NA	Drying	500	NFM	No Effluent	8	- Newly constructed Treatment Works still filling. - Old Treatment Works have been abandoned.
20	Laikipia	Nanyuki	147	55,000	11,250	Municipal Council	WSP	1985	2,270	Municipal Council	2,100	24,750	8,000	323	33,880	1.37	No Facility	294	95	68	15	- The works are not well maintained. - Some concrete sewer pipes have ingrown roots. - No future plans for rehabilitation or expansion.
21	Laikipia	Nyahururu	104	60,000	3,000	Municipal Council	Conventional	1987	2,500	Municipal Council	1,511	18,000	3,436	191	23,385	1.30	No Facility	300	57	50	20	- The works are well maintained. - Inadequate power supply to run both aerators at the same time. - Future planned expansion of treatment works and sewer system.
22	Machakos	Muvuti - Machakos	520	80,000	1,740	NWCPC	WSP	1974 (1984)	2,000	Municipal Council	2,000	8,000	NFM	NFM	18,070	2.26	No Facility	670	NFM	130	18	- The works are overloaded and anaerobic pond requires desludging. - Maturation pond is formed by a dam across the stream and is overgrown with weeds. - The works are not well maintained. - Masterplan proposal (funding agency being sought)
23	Machakos	Mavoko (Albi River)	684	50,000	2,000	NWCPC / NCC	WSP	1994	12,960	Municipal Council	370	12,500	NFM	NFM	22,070	1.77	No Facility	Site Not Accessible	NFM	Site Not Accessible	10	- Low flow to the new works and ponds are still filling. - The works are poorly maintained. - Pump station is not currently being used due to broken sewer line. - No future planned rehabilitation or expansion.

Table - 5.2.1(3/4) Summary of Urban Sewerage Schemes

No.	District	Urban Area / Name of Scheme	Municipal Area (km <sup>2</sup> )	Urban Population	Quantity of Water Supplied (m <sup>3</sup> /d)	Water Undertaker	Type of Sewage Treatment Works	Year Constructed (Expansion)	Treatment Works Capacity (m <sup>3</sup> /d)	Organization Running the Works	No. of Sewer Connections	Population Served	Present Flow (m <sup>3</sup> /d)	Per capita flow (l/p/d)	Total Length of Sewers (m)	Length per capita (m)	Method of Sludge Treatment	Influent BOD (mg/l)	Per capita BOD (g/day)	Effluent BOD (mg/l)	Total O & M Staff	Remarks
24	Mombasa	Mombasa - Changamwe	282	580,000	180,200	NWCPC	Conventional	1961	17,100	Municipal Council	NA	69,600	1,450	66	9,400	0.14	Drying	NA	NA	NA		- New works still to be commissioned and old works to be abandoned.
25	Mombasa	Mombasa - Kizingo					Primary Sedimentation	1961	32,500		NA		3,140		22,970		No Facility	NA	NA	NA		- Treatment works has not worked since 1988 and raw sewage passes to the sea. - Mechanical equipment on site does not function. - Proposed long sea outfall.
26	Muranga	Mbiri - Muranga	25	30,000	2,000	MOWR	WSP	1997	1,564	Municipal Council	500	10,500	870	83	14,645	1.39	No Facility	568	47	50	17	- Newly constructed Treatment Works receives low flow. Levels in the ponds made up with river water.
27	Nairobi	Nairobi - Dandora	693	2,240,000	326,700	NWCPC	WSP	1977 (1992)	80,000	Nairobi City Council	NA	1,000,000	Estimate	217	153,000	0.15	No Facility	440	95	120	60	- The works are well maintained and the old ponds are being desludged. - Future planned construction of new anaerobic ponds.
28	Nairobi	Nairobi - Kariobangi					Conventional	1961	32,000	Nairobi City Council			Digester & Drying				448	129		- The works are not well maintained. - Some mechanical equipment does not function. - The works are overloaded and there is no space for polishing ponds. - No future planned rehabilitation or expansion.		
29	Nakuru	Naivasha	9.89	60,000	762	NWCPC	Conventional	1983	2,035	Municipal Council	2,012	30,000	NFM	NFM	15,640	0.52	Sludge Thickener & Drying	664	NFM	60	11	- Mechanical equipment on site has not functioned since 1992. - Aerated lagoons and facultative pond require desludging. - Future planned rehabilitation of treatment works (Electromechanical equipment)
30	Nandi	Kapsabet	14	20,000	1,100	NWCPC	WSP	1997	1,000	Municipal Council	130	4,000	NFM	NFM	35,540	8.89	No Facility	480	NFM	20	8	- Newly constructed Treatment Works to be commissioned and is well maintained
31	Nyeri	Nyeri - Kiganjo	200	22,000	7,000	Municipal Council	WSP	1990	2,000	Municipal Council	73	1,100	500	455	5,885	5.35	Drying	560	255	185	7	- Inflow is low due to few sewer connections and frequent breakdown of the pumping station. - Sludge drying beds have never been used due to low flow and are flooded. - No future plans for rehabilitation or expansion
32	Nyeri	Nyeri - ADB		120,000			Conventional	1988	6,100	Municipal Council	1,865	36,000	2,000	56	42,540	1.18	Digester & Drying	372	21	87	23	- Grit removal air blowers and flow recorder out of order. - Third maturation pond embankment washed away and sludge drying beds flooded. - Trunk sewer damaged and some sewage leaking. - Planned rehabilitation of trunk sewer and maturation pond.
33	Taita	Voi	16	15,772	2,700	NWCPC	WSP	1980	NA	Municipal Council	NA	700	Facility is dry	NFM	NA	NA	No Facility	NA	NA	NFM	NA	- no flow to pond - pond is dry
34	South Nyanza	Homa Bay	197	75,000	1,231	NWCPC	Conventional	1987	750	Municipal Council	2,500	15,000	1,045	70	9,650	0.64	Sludge Thickener & Drying	250	17	40	11	- Mechanical equipment on site does not function. - Sedimentation tanks are by-passed due to sludge accumulation. - Surface water run-off to ponds. - The works are poorly maintained. - No future plans for rehabilitation or expansion.

Table - 5.2.1(4/4) Summary of Urban Sewerage Schemes

No.	District	Urban Area / Name of Scheme	Municipal Area (km <sup>2</sup> )	Urban Population	Quantity of Water Supplied (m <sup>3</sup> /d)	Water Undertaker	Type of Sewage Treatment Works	Year Constructed (Expansion)	Treatment Works Capacity (m <sup>3</sup> /d)	Organization Running the Works	No. of Sewer Connections	Population Served	Present Flow (m <sup>3</sup> /d)	Per capita flow (l/p/d)	Total Length of Sewers (m)	Length per capita (m)	Method of Sludge Treatment	Influent BOD (mg/l)	Per capita BOD (g/day)	Effluent BOD (mg/l)	Total O & M Staff	Remarks
35	Trans Nzola	Kitale - Conventional	92	75,000	9,000	Municipal Council	Conventional	1957 (1978)	1,830	Municipal Council	1,500	37,500	NFM	NFM	54,945	1.47	No Facility	550	NFM	105	9	- Mechanical equipment on site does not function and most of the units are blocked. - The works receive negligible wastewater and are poorly maintained. - No future planned rehabilitation or expansion.
36	Trans Nzola	Kitale - Ponds					WSP	1983	2,930				NFM				Drying	550	NFM	100		- The works are well maintained but receive high strength industrial waste. - No future planned rehabilitation or expansion.
37	Uasin Gishu	Eldoret - Conventional	147	220,000	25,000	Municipal Council	Conventional	1959	1,575	Municipal Council	5,886	70,400	6,000	NFM	21,900	0.31	Digester & Drying	300		115	38	- The works are overloaded. Overflow is diverted to the waste stabilization ponds site. - The works are well maintained. However, some mechanical parts require replacing. - Future planned construction of new treatment works.
38	Uasin Gishu	Eldoret - Ponds					WSP	1978	4,800				NFM				No Facility	370	85	- The works are overloaded and receive a lot of industrial waste. There is permanent overflow to the facultative pond. - Anaerobic ponds require desludging. - Future planned construction of new treatment works.		

Note: Legend

- WSP - Waste stabilization ponds
- NWCPC - National Water Conservation & Pipeline Corporation
- NCC - Nairobi City Council
- NFM - No flow measurement
- NA - Not available



Table - 5.2.2 Effluent Standard

"A" - Acceptance into Public Sewers	
B.O.D (5 days at 20°C)	Not to exceed 450 mg/l
pH	To be in the range 6 to 9.
Temperature	Not to exceed 35°C
Suspended Solid	Not to exceed 300 mg/l
4 hours oxygen absorption for permanganate	N./80 at 27°C, 100 mg/l
Greases	The wastes should not (contain more than 100 milligrams per liter of greases that dissolve in Ethyl-ether.
Oil, Petrol, Kerosene or other combustible materials	These must be intercepted.
TOXICITY	The wastes should not include any toxic materials.

Note: (1) In addition the waste should not contain materials that might damage pipes or treatment works.

- (2) The flow must not exceed the capacity of the sewerage system and a meter is to be provided with a log book to record flows which can be inspected by the City Engineer or Medical Officer of Health.
- (3) Quarterly tests will be carried out, at the expense of the industry concerned, in accordance with the "Standard Methods for the Examination of water, sewage and Industrial wastes", issued by the American Public Health Association.

"B" - Direct Discharge to Natural Water Course	
C.O.D	Not to exceed 10 mg/l
Total Nitrogen exclusive NO	1 mg/l
NH <sub>3</sub>	1.5 mg/l
B.O.D (5 days at 20°C)	Not to exceed 20 mg/l
pH	In the range 6 to 9
Temperature	Not to exceed 25°C
Suspended solids	Not to exceed 30 mg/l
Total Dissolved Solids	Not to exceed 1,500 mg/l
4 hours oxygen absorption for permanganate	N./80 at 27°C not to exceed 15 mg/l.
Nitrate as NO <sub>3</sub>	Not to exceed 45 mg/l

Note: All other standards mention in "A" supra viz. greases oil toxic materials also apply.











Table - 6.3.1 Estimated Population Served in 2010

Province	District	Population (x 1,000)			Service Coverage (%)	Served Population (x 1,000)				Non served (x 1,000)
		Total	Urban	Rural		Total	UWS	LSRWS	SSWS	
Nairobi	Nairobi	3,023	3,023	0	97.0	2,932	2,932	0	0	91
Central	Kiambu	1,476	380	1,096	80.0	1,181	414	571	196	295
	Kirinyaga	535	49	486	80.0	428	47	348	33	107
	Muranga	1,144	151	993	80.0	915	135	314	466	229
	Nyandarua	516	70	446	80.0	413	178	94	141	103
	Nyeri	791	375	416	80.0	633	300	97	236	158
Coast	Kilifi	950	248	702	80.0	760	269	50	441	190
	Kwale	588	56	532	80.0	470	53	34	383	118
	Lamu	97	40	57	80.0	78	38	8	32	19
	Mombasa	736	736	0	95.4	702	476	40	186	34
	Taita	286	74	212	80.0	229	80	80	69	57
	Tana River	227	47	180	80.0	182	56	87	39	45
Eastern	Embu	583	97	486	80.0	466	104	223	139	117
	Isiolo	141	109	32	80.0	113	87	9	16	28
	Kitui	644	38	606	80.0	515	36	187	292	129
	Masaku	1,058	502	556	80.0	847	402	225	220	212
	Marsabit	195	108	87	96.1	187	118	45	25	8
	Meru	768	357	412	80.0	615	252	142	219	154
	Nyambene	730	12	718	80.0	584	12	418	155	146
	Tharaka Nithi	423	13	410	80.0	338	17	303	16	85
	Mwingi	411	16	396	80.0	329	35	182	112	82
	Makueni	1,147	29	1,117	80.0	917	54	213	650	229
North-Eastern	Garissa	288	122	166	80.0	230	98	53	80	58
	Mandera	350	82	268	80.0	280	78	103	98	70
	Wajir	247	77	170	80.0	198	78	108	12	49
Nyanza	Gusii	1,765	121	1,645	80.0	1,412	115	103	1,194	353
	Kisumu	1,128	621	507	80.0	902	497	338	68	226
	Siaya	809	66	743	80.0	647	63	567	17	162
	Homa Bay	1,166	103	1,063	80.0	933	185	661	86	233
	Migori	811	72	738	80.0	648	69	131	449	162
	Nyamira	388	23	365	80.0	310	40	87	184	78
Rift Valley	Kajiado	557	227	330	80.0	446	215	66	165	111
	Kipsigis	904	181	722	80.0	723	172	13	537	181
	Laikipia	464	106	359	80.0	372	142	30	200	93
	Nakuru	1,750	1,143	607	80.0	1,400	914	92	394	350
	Narok	601	77	523	80.0	480	73	197	210	120
	Trans Nzoia	770	229	541	80.0	616	218	0	398	154
	Uasin Gishu	856	506	350	80.0	685	405	129	151	171
	Bomet	868	0	868	80.0	695	0	75	620	174
	Transmara	323	28	296	80.0	259	26	142	90	65
	Baringo	497	98	399	80.0	398	232	28	138	99
	Elgeyo Marakwet	372	15	357	80.0	297	14	98	185	74
	Nandi	798	45	753	80.0	638	42	86	509	160
	Samburu	185	48	137	80.0	148	46	79	23	37
	Turkana	207	70	137	80.0	166	69	62	34	41
	West Pokot	378	53	324	80.0	302	50	165	86	76
Western	Bungoma	1,400	276	1,124	80.0	1,120	484	497	139	280
	Busia	609	120	489	80.0	487	114	114	259	122
	Kakamega	1,589	274	1,315	80.0	1,271	260	179	832	318
	Vihiga	856	32	824	80.0	685	241	151	293	171
<b>TOTAL</b>		<b>37,405</b>	<b>11,347</b>	<b>26,058</b>	<b>81.8</b>	<b>30,583</b>	<b>11,037</b>	<b>8,023</b>	<b>11,521</b>	<b>6,822</b>

Source: The Aftercare Study Team

Table - 6.3.2 Water Demand Estimate in 1995

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

Province	District	Residential				Non-residential					Total
		UWS	LSRWS	SSRWS	Sub-total	Health	School	Ind. & Com.	Livestock	Sub-total	
Nairobi	Nairobi	221,117	0	0	221,117	1,072	10,131	99,503	1,223	111,929	333,046
Central	Kiambu	27,332	17,199	2,842	47,373	405	6,307	11,813	3,633	22,188	69,562
	Kirinyaga	1,253	15,861	258	17,372	392	2,471	2,606	2,154	7,624	24,996
	Muranga	3,815	14,884	10,660	29,359	568	5,401	4,404	3,872	14,246	43,604
	Nyandarua	7,309	3,720	2,711	13,739	354	2,171	687	6,388	9,600	23,340
	Nyeri	8,490	5,211	6,141	19,842	479	3,901	2,976	3,895	11,252	31,093
Coast	Kilifi	23,838	1,493	6,317	31,648	417	3,994	1,582	2,428	8,421	40,069
	Kwale	2,086	804	4,363	7,253	310	2,570	1,088	5,585	9,553	16,805
	Lamu	880	341	710	1,930	142	398	97	918	1,555	3,485
	Mombasa	45,928	3,840	3,539	53,307	427	2,156	31,984	176	34,742	88,050
	Taita	4,051	2,971	1,227	8,249	133	505	412	1,180	2,230	10,480
	Tana River	2,354	706	87	3,147	267	357	472	11,767	12,862	16,009
Eastern	Embu	4,866	6,042	1,039	11,947	312	2,411	597	4,123	7,476	19,423
	Isiolo	4,605	532	450	5,587	55	196	1,397	939	2,586	8,173
	Kitui	1,363	1,444	617	3,423	283	1,048	171	11,244	12,746	16,169
	Masaku	14,493	5,001	1,345	20,839	477	4,491	1,042	8,601	14,611	35,450
	Marsabit	6,782	3,010	808	10,601	165	338	530	8,253	9,286	19,887
	Meru	2,642	6,331	2,801	11,774	232	3,149	589	4,257	8,227	20,001
	Nyambene	294	9,716	1,735	11,744	193	2,992	587	3,679	7,451	19,195
	Tharaka Nithi	936	4,578	127	5,642	336	1,732	282	4,437	6,787	12,429
	Mwingi	1,487	1,412	421	3,319	165	1,700	166	5,421	7,452	10,771
	Makueni	1,858	1,739	2,560	6,157	418	4,865	308	66,518	72,109	78,265
North-Eastern	Garissa	5,071	1,692	1,236	7,999	165	473	400	55,476	56,515	64,513
	Mandera	2,002	1,339	350	3,691	91	479	185	12,665	13,419	17,110
	Wajir	805	6,380	187	7,372	169	460	369	21,766	22,764	30,136
Nyanza	Gusii	5,574	1,461	4,632	11,667	549	7,296	583	6,837	15,265	26,932
	Kisumu	39,183	12,619	1,222	53,023	480	4,790	7,954	9,087	22,311	75,335
	Siaya	1,405	10,726	153	12,284	434	4,059	614	9,783	14,890	27,174
	Homa Bay	10,282	6,428	405	17,115	513	4,873	856	5,490	11,732	28,847
	Migori	1,508	317	524	2,349	199	3,387	117	3,305	7,008	9,357
	Nyamira	2,106	1,705	1,745	5,555	272	1,602	278	6,112	8,264	13,819
Rift Valley	Kajiado	6,528	2,683	3,257	12,469	194	727	3,117	23,084	27,122	39,591
	Kipsigis	7,956	244	2,733	10,932	359	3,392	547	5,248	9,546	20,478
	Laikipia	5,735	244	798	6,777	217	626	339	6,153	7,334	14,111
	Nakuru	47,018	4,125	4,861	56,004	638	6,061	8,401	55,455	70,554	126,558
	Narok	1,487	1,811	933	4,231	195	735	212	13,095	14,236	18,467
	Trans Nzoia	7,433	0	1,930	9,363	208	2,815	1,404	2,955	7,382	16,745
	Uasin Gishu	11,802	5,510	3,131	20,442	399	1,258	3,066	8,190	12,913	33,355
	Bomet	0	925	2,111	3,036	346	3,259	152	9,300	13,056	16,092
	Transmara	991	365	112	1,468	149	1,004	73	4,924	6,151	7,619
	Baringo	19,290	1,948	923	22,161	419	789	1,108	36,709	39,025	61,186
	Elgeyo Marakwet	235	1,285	669	2,189	228	1,473	109	1,956	3,767	5,956
	Nandi	867	1,412	4,014	6,294	320	3,066	315	8,160	11,860	18,154
	Samburu	1,508	3,068	428	5,004	82	747	250	9,801	10,880	15,884
	Turkana	6,937	1,982	529	9,448	117	432	2,362	6,771	9,682	19,130
	West Pokot	1,325	2,146	308	3,780	160	606	189	9,565	10,521	14,301
Western	Bungoma	21,034	17,294	1,323	39,652	382	5,188	1,983	6,721	14,274	53,926
	Busia	2,303	4,484	4,912	11,699	247	2,619	585	4,153	7,604	19,302
	Kakamega	5,607	5,163	11,603	22,373	631	6,341	1,119	9,833	17,923	40,296
	Vihiga	12,437	4,603	4,317	21,357	240	3,414	1,068	4,220	8,942	30,298
TOTAL		616,207	208,793	110,102	935,102	16,003	135,287	201,077	517,508	869,875	1,804,976

Source: The Aftercare Study Team

Table - 6.3.3 Water Demand Estimate in 2010

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

Province	District	Residential				Non-residential					Total
		UWS	ISRWS	SSRWS	Sub-total	Health	School	Ind. & Com.	Livestock	Sub-total	
Nairobi	Nairobi	438,333	0	0	438,333	1,796	16,492	265,065	1,378	284,732	723,065
Central	Kiambu	57,702	28,372	8,122	94,197	599	8,053	31,550	4,095	44,296	138,493
	Kirinyaga	6,534	17,293	1,364	25,191	614	2,919	6,942	2,428	12,902	38,093
	Muranga	18,896	15,584	19,333	53,813	893	6,241	11,731	4,364	23,230	77,043
	Nyandarua	24,787	4,650	5,870	35,308	561	2,815	1,830	7,199	12,406	47,714
	Nyeri	41,896	4,795	9,789	56,480	729	4,315	7,928	4,390	17,363	73,843
Coast	Kilifi	37,515	2,495	18,294	58,304	672	5,183	4,215	2,737	12,807	71,111
	Kwale	7,456	1,690	15,891	25,037	482	3,208	2,898	6,294	12,882	37,919
	Lamu	5,245	373	1,347	6,969	230	529	257	1,035	2,051	9,020
	Mombasa	66,435	5,555	3,675	75,665	671	2,769	49,182	198	52,820	128,485
	Taita	11,174	3,978	1,354	16,507	203	615	1,099	1,330	3,246	19,753
	Tana River	7,749	4,320	771	12,840	433	488	1,257	13,261	15,439	28,279
Eastern	Embu	14,570	11,052	5,783	31,405	490	3,181	1,591	4,646	9,908	41,313
	Isiolo	12,170	461	322	12,952	89	303	3,721	1,088	5,171	18,123
	Kitui	5,007	9,305	5,758	20,070	441	1,384	456	12,671	14,952	35,022
	Masaku	56,030	11,167	9,136	76,333	756	5,774	2,776	9,693	18,999	95,332
	Marsabit	16,440	2,219	1,032	19,691	262	1,064	1,413	9,301	12,039	31,730
	Meru	20,221	7,058	9,097	36,376	354	4,192	1,568	4,797	10,912	47,288
	Nyambene	1,609	20,746	6,416	28,771	290	3,982	1,564	4,146	9,983	38,755
	Tharaka Nithi	2,394	15,065	727	18,186	538	2,306	751	5,000	8,596	26,781
	Mwingi	4,820	9,046	4,665	18,531	256	2,245	442	6,109	9,052	27,583
	Makueni	7,568	10,577	12,838	30,982	638	2,465	820	74,963	78,886	109,868
North-Eastern	Garissa	13,613	2,624	1,579	17,816	261	619	1,065	62,520	64,465	82,281
	Mandera	10,898	5,139	1,943	17,980	147	753	492	14,272	15,663	33,643
	Wajir	10,939	5,346	227	16,513	262	531	982	24,530	26,305	42,818
Nyanza	Gusii	15,585	5,137	49,564	70,686	836	9,632	1,554	7,705	19,726	90,412
	Kisumu	69,354	16,757	2,811	88,922	742	6,154	21,187	10,241	38,324	127,246
	Siaya	8,812	28,166	695	37,673	658	4,414	1,636	11,025	17,732	55,405
	Homa Bay	25,862	32,835	3,586	62,284	822	6,364	2,280	6,187	15,653	77,937
	Migori	9,583	6,498	18,629	34,710	295	4,422	313	3,725	8,754	43,464
	Nyamira	5,567	4,297	7,618	17,483	434	2,114	740	6,888	10,178	27,659
Rift Valley	Kajiado	29,983	3,262	3,264	36,508	329	1,198	8,304	26,015	35,846	72,354
	Kipsigis	24,036	653	22,306	46,995	582	4,930	1,456	5,914	12,882	59,877
	Laikipia	19,752	1,465	3,959	25,176	355	999	903	6,935	9,191	34,367
	Nakuru	127,565	4,556	7,776	139,898	1,064	3,762	22,378	62,495	89,700	229,598
	Narok	10,235	9,775	8,723	28,733	336	3,276	564	14,758	18,933	47,666
	Trans Nzoia	30,392	0	16,526	46,917	330	4,201	3,741	3,330	11,602	58,520
	Uasin Gishu	56,490	6,380	2,989	65,859	641	1,840	8,168	9,230	19,879	85,738
	Bomet	0	3,706	25,728	29,434	560	4,737	404	10,481	16,182	45,616
	Transmara	3,662	7,065	3,741	14,468	250	1,764	196	5,549	7,759	22,227
	Baringo	32,314	1,335	2,733	36,433	674	1,069	2,952	41,370	46,065	82,498
	Elgeyo Marakwet	1,981	4,854	7,689	14,525	365	2,027	292	2,205	4,888	19,413
	Nandi	5,923	4,295	21,144	31,361	524	4,354	838	9,195	14,912	46,273
	Samburu	6,355	3,940	453	10,747	129	397	666	11,045	12,238	22,985
	Turkana	9,685	3,075	1,421	14,181	182	1,129	6,292	7,631	15,234	29,414
West Pokot	7,037	8,200	1,707	16,944	259	812	503	10,780	12,353	29,297	
Western	Bungoma	67,569	24,683	5,748	97,999	604	7,638	5,281	7,575	21,098	119,097
	Busia	15,947	5,661	10,743	32,351	378	3,322	1,558	4,680	9,939	42,291
	Kakamega	36,337	8,872	34,538	79,747	989	8,670	2,980	11,082	23,721	103,468
	Vihiga	33,578	7,488	12,163	53,229	368	4,669	2,845	4,755	12,637	65,865
TOTAL		1,554,008	401,915	421,588	2,377,511	25,370	176,322	499,627	583,210	1,284,529	3,662,040

Source: The Aftercare Study Team









Table - 6.4.1(3/3) Water Balance for Urban Water Supply

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

Province	Code	District	Code	Urban Centre Name	Water Demand		Step 1: Existing Projects		Step 2: Ongoing Projects			Step 3: Planned / Design Projects			Step 4: Rehabilitation of Existing Facilities		
					1995	2010	Supply Capacity	Deficit 2010	Project Name	Supply Capacity	Deficit 2010	Project Name	Supply Capacity	Deficit 2010	Augmented Capacity	Deficit 2010	
Rift Valley	740	Nakuru	U - 155	Elburgon	553	2,297	391	1,906			1,906			1,906	130	1,776	
			U - 156	Gilgil	1,137	3,063	760	2,303			2,303			2,303	253	2,050	
			U - 157	Molo	1,421	3,820	775	3,054			3,054			3,054	258	2,796	
			U - 158	Naivasha	6,537	17,614	762	16,852			16,852			16,852	254	16,598	
			U - 159	Nakuru	43,284	116,613	28,969	87,649			87,649			87,649	12,070	75,579	
			U - 160	Njoro	711	1,915	224	1,691			1,691			1,691	75	1,616	
		Sub-total			53,942	145,336	31,831	113,455		0	113,455		0	113,455	13,041	100,414	
		750	Narok	U - 163	Narok	1,641	10,873	1,315	9,558						9,558	0	9,558
		760	Trans Nzoia	U - 164	Kitale	8,732	33,317	12,749	20,568						20,568	4,250	16,318
	770	Uasin Gishu	U - 165	Bumt Forest	249	1,105	600	505	Bumt Forest	600	0				200	0	
			U - 166	Eldoret	12,393	54,928	37,400	17,528				10	17,518		0	17,518	
			U - 167	Lemok	0	1,627	0	1,627					1,627		0	1,627	
			U - 169	Moi's Bridge	139	616	600	16	Moi's Bridge	1,500	0			0	400	0	
			U - 170	Simat	0	3,015	0	3,015					3,015		0	3,015	
			U - 172	Turbo	337	1,495	300	1,195				10	1,195		200	995	
	Sub-total			13,119	62,737	38,900	23,537		2,100	23,366		10	23,356	800	23,156		
	790	Transmara	U - 174	Katgis	1,476	3,836	861	3,022						3,022	285	2,737	
810	Baringo	U - 178	Elda Ravine	2,675	4,501	6,700	0							2,233	0		
		U - 179	Karbamet	17,050	28,696	2,042	26,654							631	25,974		
		U - 180	Maji Mazuri	267	450	260	190							87	103		
		U - 181	Marigat	163	274	366	0							244	0		
		U - 182	Mogotio	609	1,125	686	439							0	439		
			Sub-total			20,824	35,047	10,054	27,284		0	27,284		0	3,245	26,516	
	820	Elgeyo/Marakwet	U - 183	Iten	279	2,110	460	1,650						153	0		
	830	Nandi	U - 185	Kapsabet	992	6,303	624	5,679						208	1,460		
840	Samburu	U - 183	Marjal	294	1,200	529	671							309	262		
		U - 189	Wamba	1,354	5,523	181	5,341	Wamba	600	4,741				144	4,597		
			Sub-total			1,649	6,722	710	6,012		600	5,412		0	452	4,960	
850	Turkana	U - 190	Kakuma T.C	2,966	4,597	1,080	3,517							360	2,957		
		U - 191	Kalokot	297	460	72	385	Kalokot	1,350	0				54	0		
		U - 194	Lodwar	4,449	6,896	1,506	5,390	Lodwar	5,250	140				0	140		
		U - 195	Lokitaung	593	919	240	679	Lokitaung	815	0				190	0		
			Sub-total			8,305	12,872	2,898	9,974		7,415	3,657		1,400	3,457	594	3,097
860	West pokot	U - 197	Kapenguria	749	3,752	360	3,392							210	3,182		
		U - 198	Makutano	708	3,547	262	3,285							98	3,187		
	Sub-total			1,457	7,299	622	6,677		0	6,677		0	308	6,369			
Total in Rift Valley Province					135,149	407,533	127,585	282,788		13,728	273,127		13,559	263,185	30,385	238,299	
Western	910	Bungoma	U - 199	Bungoma	4,895	15,066	3,060	12,066						1,586	10,480		
			U - 200	Cheptais	0	1,142	2,400	0							800	0	
			U - 202	Kimilili	12,755	39,255	2,200	37,055							733	36,321	
			U - 203	Malakisi	0	1,215	0	1,215							0	1,215	
			U - 205	Webuye	5,439	16,740	1,800	14,940							0	14,940	
		Sub-total			23,090	73,417	9,460	65,275		0	65,275		1,586	63,689	2,533	61,956	
	920	Busia	U - 206	Busia	2,325	14,794	2,072	12,722	Busia /mundika	7,500	5,222				691	4,231	
			U - 207	Malaba Town	0	1,252	0	1,252	Malaba /Kocholia	13,256	0				0	0	
			U - 208	Nambale	178	1,135	159	976							976	0	
		Sub-total			2,504	17,181	2,231	14,950		20,756	6,198		300	5,893	691	5,202	
930	Kakamega	U - 209	Butere	652	4,300	264	4,036	Butere W/S	251	3,785				132	3,653		
		U - 210	Kakamega	3,796	23,929	7,000	16,929							2,333	14,596		
		U - 211	Mumias	1,697	10,695	1,493	9,200	Mumias W/S	2,250	6,950				0	6,950		
	Sub-total			6,145	38,927	8,757	30,165		2,501	27,664		0	2,465	25,198			
940	Vihiga	U - 213	Maseno/Luanda	9,326	24,763	1,192	23,571							397	23,174		
		U - 214	Mbale	2,727	7,241	960	6,281							240	0		
		U - 215	Vihiga/Majengo	1,636	4,344	63	4,281							32	0		
	Sub-total			13,689	36,349	2,215	34,134		0	34,134		0	669	23,174			
Total in Western Province					45,458	165,874	22,603	144,524		23,257	133,270		180,337	120,822	6,358	115,535	
TOTAL IN KENYA					800,525	2,005,907	708,783	1,313,652		81,656	1,253,595		259,581	1,152,593	50,091	1,111,626	

Source: The Aftercare Study Team



Table - 6.4.2 Water Balance for Large Scale Rural Water Supply

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

Province	Code	District	Water Demand for		Step 1 : Existing Projects		Step 2 : Ongoing Projects		Step 3 : Planned/Designed Projects		Step 4 : Rehabilitation	
			LSRWS		Supply	Deficit	Supply	Deficit	Supply	Deficit	Augmented	Deficit
			1995	2010	Capacity	2010	Capacity	2010	Capacity	2010	Capacity	2010
Central	210	Kiambu	26,631	47,828	139,931	0	16,046	0	10,912	0	4,890	0
	220	Kirinyaga	20,998	25,817	32,969	0	4,127	0	7,161	0	9,633	0
	230	Murang'a	18,897	22,055	38,875	0	89,856	0	0	0	9,210	0
	240	Nyandarua	4,699	5,832	11,145	0	31,566	0	2,426	0	3,715	0
	250	Nyeri	7,013	6,775	9,808	0	24,638	0	19,143	0	261	0
Sub-total			78,237	108,306	232,727	0	157,232	0	39,642	0	27,709	0
Coast	310	Kilifi	1,866	3,161	2,416	745	21,300	0	4,024	0	805	0
	320	Kwale	1,102	2,166	2,160	6	0	6	2,350	0	828	0
	330	Lamu	441	472	1,085	0	3,967	0	400	0	362	0
	340	Mombasa	5,800	9,360	1,053	8,307	2,250	6,057	2,600	3,457	351	3,106
	350	Taita	3,410	4,649	4,620	29	4,354	0	173	0	1,603	0
	360	Tana River	1,103	5,364	6,400	0	1,875	0	1,300	0	2,633	0
Sub-total			13,724	25,172	17,734	9,068	33,746	6,063	10,847	3,457	6,582	3,106
Eastern	410	Embu	7,768	13,564	32,020	0	5,625	0	1,248	0	586	0
	420	Isiolo	799	799	256	543	12,164	0	0	0	85	0
	430	Kitui	1,957	10,135	645	9,490	12,712	0	1,751	0	310	0
	440	Masaku	6,929	13,639	31,451	0	23,283	0	3,978	0	9,972	0
	450	Marsabit	3,433	2,872	783	2,088	16,328	0	1,275	0	261	0
	460	Meru	7,762	8,472	4,050	4,392	16,959	0	0	0	0	0
	470	Nyamene	12,445	24,922	13,086	11,836	11,312	524	0	524	3,286	0
	480	Tharaka Nithi	6,642	18,292	8,896	9,395	9,133	262	2,200	0	965	0
	490	Mwingi	2,412	10,674	243	10,432	3,113	7,319	90	7,229	414	6,815
	4A0	Makueni	2,989	11,488	3,675	7,813	22,840	0	31,729	0	105	0
Sub-total			53,137	114,856	95,136	55,988	133,447	8,106	42,321	7,753	15,985	6,815
North-Eastern	510	Garissa	1,973	3,070	667	2,403	7,275	0	806	0	264	0
	520	Mandera	1,637	5,653	494	5,159	0	5,159	2,400	2,759	165	2,594
	530	Wajir	7,243	6,314	1,805	4,509	2,925	1,584	248	1,336	671	665
Sub-total			10,852	15,037	2,966	12,076	10,200	6,742	3,448	4,095	1,100	3,258
Nyanza	610	Cusii	2,061	6,018	4,428	1,590	13,508	0	22,008	0	1,476	0
	620	Kisumu	18,573	27,261	16,042	11,219	4,050	7,169	4,268	2,881	12,297	0
	630	Siaya	15,584	34,045	12,554	21,491	66,375	0	21,353	0	3,624	0
	640	Homa Bay	9,976	39,549	2,117	37,427	54,086	0	3,000	0	472	0
	650	Migori	904	7,513	409	7,104	19,125	0	1,782	0	136	0
	660	Nyanira	2,301	5,215	1,347	3,867	5,400	0	53,367	0	370	0
Sub-total			49,399	119,596	36,897	82,699	162,545	7,169	105,298	2,881	18,375	0
Rift Valley	710	Kajiado	3,586	4,710	5,380	0	3,225	0	0	0	2,457	0
	720	Kipsigis	322	780	887	0	1,584	0	29,178	0	33	0
	730	Laikipia	313	1,644	21	1,623	28,194	0	8,766	0	7	0
	740	Nakuru	5,670	6,339	1,754	4,585	1,883	2,703	4,044	0	301	0
	750	Narek	2,289	11,486	2,049	9,437	2,436	7,001	340	6,661	686	5,975
	760	Trans Nzola	0	0	0	0	4,402	0	11,240	0	0	0
	770	Uasin Gisha	7,074	8,379	8,367	12	9,339	0	18,471	0	3,548	0
	780	Bomet	1,329	4,319	2,873	1,445	2,469	0	3,400	0	958	0
	790	Transmara	820	8,281	25	8,255	1,125	7,130	0	7,130	8	7,122
	810	Baringo	2,342	1,715	1,411	303	7,713	0	2,253	0	681	0
	820	Elgeyo Marakwet	1,895	5,737	3,223	2,514	11,085	0	35,830	0	180	0
	830	Nandi	1,931	5,069	1,092	3,977	6,113	0	35,200	0	364	0
	840	Samburu	3,796	4,580	3,872	708	465	243	553	0	2,381	0
	850	Turkana	2,976	5,919	1,076	4,843	1,718	3,125	0	3,125	582	2,541
860	West Pokot	2,687	9,061	3,114	5,946	49,163	0	750	0	1,115	0	
Sub-total			37,030	78,017	35,145	43,649	130,910	20,202	150,528	16,916	13,301	15,641
Western	910	Bungoma	21,594	30,685	10,883	19,802	9,077	10,726	10,291	435	1	433
	920	Busia	5,477	6,892	3,532	3,360	20,306	0	1,243	0	472	0
	930	Kakamega	6,492	10,648	11,072	0	465	0	11,776	0	2,771	0
	940	Vihiga	5,782	9,224	2,509	6,715	0	6,715	0	6,715	115	6,598
Sub-total			39,345	57,449	27,997	29,877	29,847	17,440	23,310	7,149	3,361	7,032
Total			281,725	518,433	448,602	233,371	657,926	65,722	375,894	42,252	86,412	35,852
Number of Districts Facing Water Deficit						36		15		41		9

Source : The Aftercare Study Team

Note: Deficits above imply balance between designed production capacity and estimated water requirements by planned population served.

Table - 6.4.3 Water Balance for Small Scale Rural Water Supply

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

Province	Code	District	Water Demand for		Step 1 : Existing Projects		Step 2 : Ongoing Projects		Step 3 : Planned Designed Projects		Step 4 : Rehabilitation	
			SSRWS		Supply	Deficit	Supply	Deficit	Supply	Deficit	Augmented	Deficit
			1995	2010	Capacity	2010	Capacity	2010	Capacity	2010	Capacity	2010
Central	210	Kisumu	6,073	14,786	6,073	8,713	0	8,713	1,983	6,730	0	6,730
	220	Kirinyaga	431	2,168	431	1,737	865	872	3,123	0	0	0
	230	Muranga	16,616	28,936	16,616	12,321	0	12,321	1,843	10,478	0	10,478
	240	Nyandarua	4,189	7,654	4,189	3,466	975	2,491	2,952	0	0	0
	250	Nyeri	10,542	13,625	10,542	4,084	1,551	2,532	11,877	0	0	0
Sub-total			37,850	68,170	37,850	30,320	3,391	26,929	21,777	17,208	0	17,208
Coast	310	Kilifi	9,592	24,135	9,592	14,543	525	14,018	214	13,804	0	13,804
	320	Kwale	7,727	21,254	7,727	13,527	1,200	12,327	444	11,883	0	11,883
	330	Lamu	1,144	1,772	1,144	628	122	507	300	207	0	207
	340	Mombasa	12,700	6,976	12,700	0	0	0	0	0	0	0
	350	Taita	1,603	1,929	1,603	326	1,462	0	922	0	0	0
	360	Tana River	265	1,239	265	974	0	974	280	694	0	694
Sub-total			33,032	57,306	33,032	29,998	3,309	27,826	2,160	26,588	0	26,588
Eastern	410	Embu	2,119	7,355	2,119	5,236	180	5,056	1,362	3,694	0	3,694
	420	Isiolo	919	915	919	0	291	0	986	0	0	0
	430	Kitui	1,415	7,050	1,415	5,634	522	5,112	0	5,112	0	5,112
	440	Masaku	3,231	11,556	3,231	8,325	540	7,785	0	7,785	0	7,785
	450	Marsabit	1,043	1,395	1,043	351	2,986	0	863	0	0	0
	460	Meru	5,106	11,294	5,106	6,189	6,716	0	0	0	0	0
	470	Nyambene	2,745	7,962	2,745	5,217	855	4,362	0	4,362	0	4,362
	480	Tharaka Nithi	247	913	247	666	41	626	0	626	0	626
	490	Mwingi	1,038	5,670	1,038	4,633	1,332	3,301	316	2,985	0	2,985
	4A0	Makueni	6,375	15,617	6,375	9,242	1,351	7,892	221	7,671	0	7,671
Sub-total			24,238	69,727	24,238	45,493	14,813	34,133	3,748	32,234	0	32,234
North Eastern	510	Garissa	1,661	2,255	1,661	594	330	264	113	151	0	151
	520	Mandera	632	2,432	632	1,799	600	1,199	0	1,199	0	1,199
	530	Wajir	279	331	279	51	0	51	0	51	0	51
Sub-total			2,573	5,017	2,573	2,444	930	1,514	113	1,402	0	1,402
Nyanza	610	Gusii	11,560	59,729	11,560	48,170	959	47,211	175	47,036	0	47,036
	620	Kisumu	1,222	4,919	1,222	3,697	183	3,509	26	3,483	0	3,483
	630	Siaya	153	868	153	716	150	566	3,200	0	0	0
	640	Homa Bay	869	4,463	869	3,594	0	3,594	750	2,844	0	2,844
	650	Migori	2,539	22,110	2,539	19,571	0	19,571	85	19,486	0	19,486
	660	Nyamira	3,010	9,565	3,010	6,555	225	6,330	170	6,160	0	6,160
Sub-total			19,352	101,655	19,352	82,302	1,521	80,781	4,406	79,009	0	79,009
Rift Valley	710	Kajiado	5,529	6,907	5,529	1,379	518	861	300	561	0	561
	720	Kipsigis	5,943	27,486	5,943	21,543	392	21,151	953	20,199	0	20,199
	730	Laikipia	1,269	5,176	1,269	3,908	451	3,457	78	3,379	0	3,379
	740	Nakuru	11,491	15,428	11,491	3,937	0	3,937	1,559	2,378	0	2,378
	750	Narok	1,443	10,550	1,443	9,107	166	8,941	5,954	2,987	0	2,987
	760	Trans Nzoia	5,058	21,873	5,058	16,815	457	16,358	0	16,358	0	16,358
	770	Uasin Gishu	4,973	5,343	4,973	370	1,199	0	3,768	0	0	0
	780	Bomet	5,463	30,816	5,463	25,353	297	25,056	729	24,327	0	24,327
	790	Transmara	400	4,511	400	4,111	600	3,511	4,550	0	0	0
	810	Baringo	1,310	4,366	1,310	3,056	555	2,501	4,963	0	0	0
	820	Elgeyo Marakwet	1,825	9,362	1,825	7,537	2,672	4,865	210	4,655	0	4,655
	830	Nandi	7,071	25,705	7,071	18,655	533	18,102	280	17,822	0	17,822
	840	Samburu	638	638	638	0	1,665	0	967	0	0	0
	850	Turkana	1,078	2,992	1,078	1,914	1,838	77	120	0	0	0
860	West Pokot	592	2,158	592	1,566	450	1,116	3,444	0	0	0	
Sub-total			54,081	173,311	54,081	119,230	11,792	109,933	27,873	92,666	0	92,666
Western	910	Bungoma	2,521	7,420	2,521	4,899	519	4,381	0	4,381	0	4,381
	920	Busia	7,168	13,537	7,168	6,369	720	5,649	400	5,249	0	5,249
	930	Kakamega	17,796	42,811	17,796	25,015	0	25,015	473	24,543	0	24,543
	940	Vihiga	6,608	15,537	6,608	8,930	240	8,690	0	8,690	0	8,690
Sub-total			34,093	79,305	34,093	45,213	1,479	43,734	873	42,862	0	42,862
Total			205,218	554,491	205,218	355,001	37,234	324,850	60,948	291,969	0	291,969
Number of Districts Facing Water Deficit						45		42		34		31

Source : The Aftercare Study Team

Note: Deficits above imply balance between designed production capacity and estimated water requirements by planned population served.

Table - 6.4.4 Water Balance for Livestock Water Supply

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

Province	Code	District	Production Capacity for Livestock	Livestock Water Demand				Deficit			
				1995	2000	2005	2010	1995	2000	2005	2010
Nairobi	110	Nairobi	978	1,223	1,275	1,326	1,378	245	296	348	400
Central	210	Kiambu	2,907	3,633	3,787	3,941	4,095	727	880	1,034	1,188
	220	Kirinyaga	1,723	2,154	2,245	2,337	2,428	431	522	613	704
	230	Muranga	3,098	3,872	4,036	4,200	4,364	774	938	1,102	1,266
	240	Nyandarua	5,110	6,388	6,658	6,929	7,199	1,278	1,548	1,818	2,089
	250	Nyeri	3,116	3,895	4,060	4,225	4,390	779	944	1,109	1,274
Coast	310	Kilifi	1,943	2,428	2,531	2,634	2,737	486	588	691	794
	320	Kwale	4,468	5,585	5,821	6,057	6,294	1,117	1,353	1,590	1,826
	330	Lamu	735	918	957	996	1,035	184	223	261	300
	340	Mombasa	140	176	183	190	198	35	43	50	57
	350	Taita	944	1,180	1,230	1,280	1,330	236	286	336	386
	360	Tana River	9,413	11,767	12,265	12,763	13,261	2,353	2,851	3,349	3,847
Eastern	410	Embu	3,298	4,123	4,297	4,472	4,646	825	999	1,174	1,348
	420	Isiolo	751	939	979	1,018	1,058	188	228	267	307
	430	Kitui	8,995	11,244	11,719	12,195	12,671	2,249	2,725	3,200	3,676
	440	Masaku	6,881	8,601	8,965	9,329	9,693	1,720	2,084	2,448	2,812
	450	Marsabit	6,603	8,253	8,603	8,952	9,301	1,651	2,000	2,349	2,698
	460	Meru	3,406	4,257	4,437	4,617	4,797	851	1,032	1,212	1,392
	470	Nyambene	2,943	3,679	3,835	3,991	4,146	736	892	1,047	1,203
	480	Tharaka Nithi	3,550	4,437	4,625	4,813	5,000	887	1,075	1,263	1,451
	490	Mwingi	4,337	5,421	5,650	5,880	6,109	1,084	1,314	1,543	1,772
	4A0	Makueni	53,214	66,518	69,333	72,148	74,963	13,304	16,119	18,934	21,749
North Eastern	510	Garissa	44,381	55,476	57,824	60,172	62,520	11,095	13,443	15,791	18,138
	520	Mandera	10,132	12,665	13,200	13,736	14,272	2,533	3,069	3,605	4,141
	530	Wajir	17,413	21,766	22,688	23,609	24,530	4,353	5,274	6,196	7,117
Nyanza	610	Gusii	5,469	6,837	7,126	7,415	7,705	1,367	1,657	1,946	2,235
	620	Kisumu	7,270	9,087	9,472	9,856	10,241	1,817	2,202	2,587	2,971
	630	Siaya	7,826	9,783	10,197	10,611	11,025	1,957	2,371	2,785	3,199
	640	Homa Bay	4,392	5,490	5,722	5,955	6,187	1,098	1,330	1,563	1,795
	650	Migori	2,644	3,305	3,445	3,585	3,725	661	801	941	1,081
	660	Nyamira	4,890	6,112	6,371	6,629	6,888	1,222	1,481	1,740	1,998
Rift Valley	710	Kajiado	18,467	23,084	24,061	25,038	26,015	4,617	5,594	6,571	7,548
	720	Kipsigis	4,198	5,248	5,470	5,692	5,914	1,050	1,272	1,494	1,716
	730	Laikipia	4,923	6,153	6,414	6,674	6,935	1,231	1,491	1,751	2,012
	740	Nakuru	44,364	55,455	57,802	60,148	62,495	11,091	13,438	15,785	18,131
	750	Narok	10,476	13,095	13,649	14,204	14,758	2,619	3,173	3,727	4,282
	760	Trans Nzoia	2,364	2,955	3,080	3,205	3,330	591	716	841	966
	770	Uasin Gishu	6,552	8,190	8,537	8,883	9,230	1,638	1,985	2,331	2,678
	780	Bomet	7,440	9,300	9,694	10,087	10,481	1,860	2,254	2,647	3,041
	790	Transmara	3,939	4,924	5,133	5,341	5,549	985	1,193	1,402	1,610
	810	Baringo	29,367	36,709	38,263	39,816	41,370	7,342	8,895	10,449	12,002
	820	Elgeyo Marakwet	1,565	1,956	2,039	2,122	2,205	391	474	557	640
	830	Nandi	6,528	8,160	8,505	8,850	9,195	1,632	1,977	2,323	2,668
	840	Samburu	7,841	9,801	10,216	10,630	11,045	1,960	2,375	2,790	3,205
850	Turkana	5,417	6,771	7,057	7,344	7,631	1,354	1,641	1,927	2,214	
860	West Pokot	7,652	9,565	9,970	10,375	10,780	1,913	2,318	2,723	3,127	
Western	910	Bungoma	5,377	6,721	7,006	7,290	7,575	1,344	1,629	1,913	2,198
	920	Busia	3,323	4,153	4,329	4,505	4,680	831	1,006	1,182	1,358
	930	Kakamega	7,867	9,833	10,249	10,665	11,082	1,967	2,383	2,799	3,215
	940	Vihiga	3,376	4,220	4,398	4,577	4,755	844	1,022	1,201	1,380
TOTAL			414,006	517,508	539,408	561,309	583,210	103,502	125,402	147,303	169,204

Source: The Aftercare Study Team

Note: The present situation is assumed that 80% of the 1995 demand is being fed from the existing facilities.

Table-6.4.5(1/3) Water Resources Development Plan for Urban Water Supply

Province	Code	District	Code	Urban Center Name	Required New Development		Water Resources Development for 1995		Water Resources Development for 2010		Future Water Source
					1995 (m <sup>3</sup> /day)	2010 (m <sup>3</sup> /day)	G.W. (m <sup>3</sup> /day)	S.W. (m <sup>3</sup> /day)	G.W. (m <sup>3</sup> /day)	S.W. (m <sup>3</sup> /day)	
Nairobi	110	Nairobi	U-1	Nairobi	12,823	402,687	0	12,823	0	402,687	Thika Dam, Ndarugu, Ruiru-A, Chania-B
Central	210	Kiambu	U-2	Githunguri	665	1,940	0	665	0	1,940	Ruiru River
			U-3	Karuri	0	0	0	0	0	0	
			U-4	Kiambu	0	0	0	0	0	0	
			U-5	Kikuyu	0	1,393	0	0	0	1,393	Kikuyu Dam
			U-7	Ndamburi	0	3,393	0	0	2,113	1,280	Boreholes, Surface Water
			U-8	Ruiru	4,574	14,137	0	4,574	0	14,137	Ruiru River
			U-9	Thika	0	536	0	0	0	536	Chania River
			Sub-total				5,239	21,398	0	5,239	2,113
	220	Kirinyaga	U-12	Kerugoya/Kutus	0	5,247	0	0	0	5,247	Kiringa River, Thiba River
			U-16	Wanguru	0	0	0	0	0	0	
	Sub-total				0	5,247	0	0	0	5,247	
	230	Muranga	U-19	Makuyu	0	0	0	0	0	0	
			U-20	Maragua	0	1,927	0	0	0	1,927	Githanji River
			U-21	Muranga	0	11,412	0	0	0	11,412	Maragua River
	Sub-total				0	13,339	0	0	0	13,339	
240	Nyandarua	U-28	Nyahururu	2,334	18,406	0	2,334	0	18,406	Nyahururu Dam	
		U-30	Olkaria	0	539	0	0	0	539	Malewa River	
Sub-total				2,334	18,944	0	2,334	0	18,944		
250	Nyeri	U-32	Endarasha	0	0	0	0	0	0		
		U-33	Karatina	745	4,903	0	745	0	4,903	Ragati River	
		U-36	Nyeri	0	28,798	0	0	0	28,798	Chania River	
		U-37	Othaya	0	0	0	0	0	0		
Sub-total				745	33,700	0	745	0	33,700		
Total in Central Province					8,318	92,628	0	8,318	2,113	90,516	
Coastal	310	Kilifi	U-38	Kilifi	0	2,014	0	0	0	2,014	Rare Reservoir
			U-39	Majengo	0	805	0	0	177	628	Boreholes, Surface Water
			U-40	Malindi	3,239	13,584	0	3,239	0	13,584	Sabaki Pipeline, Rare Dam
			U-41	Mamburi	0	0	0	0	0	0	
			U-42	Mariakani	0	586	0	0	0	586	2nd Mzima Pipeline
	Sub-total				4,106	18,323	0	4,106	177	18,146	Sabaki Pipeline
	320	Kwale	U-44	Kwale	0	0	0	0	0	0	
			U-45	Lunga Lungu	4	637	0	4	0	637	Umba River
			U-46	Msamwani	794	4,937	0	794	0	4,937	Mkurumuji River
	Sub-total				798	5,574	0	798	0	5,574	
	330	Lamu	U-47	Lamu	0	568	0	0	0	568	Pipeline from Tana River
			U-49	Mokowe T.C	108	1,516	0	108	0	1,516	Tana River
	Sub-total				108	2,084	0	108	0	2,084	
	340	Mombasa	U-52	Mombasa	0	0	0	0	0	0	
	350	Taita	U-54	Taveta	0	0	0	0	0	0	
U-55			Voi	0	4,653	0	0	0	4,653	2nd Mzima Pipeline	
U-56			Wundanyi	0	666	0	0	0	666	Sigaso/Manguri River	
Sub-total				0	5,319	0	0	0	5,319		
360	Tana River	U-58	Garsen	79	2,996	0	79	0	2,996	Tana River	
		U-59	Hofa	0	2,306	0	0	0	2,306	Tana River	
Sub-total				79	5,302	0	79	0	5,302		
Total in Coastal Province					5,091	36,603	4	5,088	1,420	35,123	
Eastern	410	Embu	U-60	Embu	88	9,297	0	88	0	9,297	Kapingazi River, Rupingazi River
			U-61	Runyenjes	433	1,560	0	433	0	1,560	Ena River
	Sub-total				521	10,856	0	521	0	10,856	
	420	Isiolo	U-63	Isiolo	985	9,526	985	0	9,526	0	Boreholes
			U-64	Modo Gashe	0	0	0	0	0	0	
			U-65	Merti	105	383	0	105	0	383	Surface Water
	Sub-total				1,090	9,910	985	105	9,526	383	
	430	Kisumu	U-68	Kitui	0	0	0	0	0	0	
	440	Masaka	U-69	Ashi River	0	1,158	0	0	0	1,158	Upper Ashi Dam
			U-71	Machakos	0	27,229	0	0	0	27,229	Ashi River Pipeline
U-74			Matuu	766	4,506	0	766	0	4,506	Surface Water	
U-77			Kangundo/Tafa	1,462	6,885	0	1,462	0	6,885	Pipeline from Ashi River	
Sub-total				2,228	39,777	0	2,228	0	39,777		

Table-6.4.5(2/3) Water Resources Development Plan for Urban Water Supply

Province	Code	District	Code	Urban Center Name	Required New Development		Water Resources Development for 1995		Water Resources Development for 2010		Future Water Source	
					1995	2010	G.W.	S.W.	G.W.	S.W.		
					(m <sup>3</sup> /day)	(m <sup>3</sup> /day)	(m <sup>3</sup> /day)	(m <sup>3</sup> /day)	(m <sup>3</sup> /day)	(m <sup>3</sup> /day)		
Eastern	450	Marsabit	U - 79	Kargi	181	1,789	181	0	1,789	0	Boreholes	
			U - 80	Korr	221	1,829	221	0	1,829	0	Boreholes	
			U - 82	Marsabit	0	2,027	0	0	2,027	0	Boreholes	
			U - 83	Moyale	0	1,966	0	0	1,966	0	Boreholes	
			U - 84	North Horr	301	803	301	0	803	0	Boreholes	
			U - 85	Sololo	0	840	0	0	840	0	Boreholes	
		Sub-total			702	9,253	702	0	9,253	0		
		460	Meru	U - 86	Meru	0	12,668	0	0	12,668	Kathita River	
	U - 87			Nkuba	154	4,806	0	154	0	4,806	Thingithu River	
		Sub-total			154	17,474	0	154	0	17,474		
		470	Nyambene	U - 89	Maua	0	1,323	0	0	1,323	Ura River	
		480	Tharaka Nithi	U - 90	Chuka	0	1,222	0	0	1,222	Tungu River	
		490	Mwingi	U - 91	Mwingi	1,300	4,529	0	1,300	0	4,529	Kiambeje Dam
		4A0	Makueni	U - 93	Kibwezi	0	1,052	0	0	0	1,052	Pipeline from Athi River
U - 98	Mitito Andei			0	3,748	0	0	0	3,748	Surface Water		
Sub-total					0	4,800	0	0	0	4,800		
	Total in Eastern Province				5,996	99,147	1,687	4,309	18,780	80,367		
North East	510	Garissa	U - 104	Garissa	0	0	0	0	0	0		
			U - 105	Liboi	652	2,015	0	652	0	2,015	Surface Water	
		Sub-total			652	2,015	0	652	0	2,015		
	520	Mandera	U - 108	Elwak	0	1,869	0	0	1,869	0	Boreholes	
			U - 109	Mandera	0	637	0	0	0	637	Daua River	
			U - 110	Rhamu	591	4,027	0	591	0	4,027	Daua River	
		Sub-total			591	6,533	0	591	1,869	4,664		
	530	Wajir	U - 113	Bute	0	522	0	0	522	0	Boreholes	
			U - 114	Eldas	571	1,636	571	0	1,636	0	Boreholes	
			U - 116	Wajir	132	9,088	132	0	9,088	0	Boreholes	
	Sub-total			703	11,246	703	0	11,246	0			
	Total in North Eastern Province				1,945	19,794	703	1,242	13,115	6,679		
Nyanza	610	Gusii	U - 117	Kisii	0	8,960	0	0	8,960	Bunyonyu Dam		
			U - 119	Ahero	38	94	0	38	0	94	Nyando River	
			U - 120	Kisumu	26,679	60,750	0	26,679	0	60,750	Kibos Dam	
			U - 121	Maseno	4,406	8,045	0	4,406	0	8,045	Edzawa Dam	
			U - 122	Muhoroni	0	0	0	0	0	0	0	
		Sub-total			31,123	68,889	0	31,123	0	68,889		
	630	Siaya	U - 123	Asiro	0	1,334	0	0	1,334	Surface Water		
			U - 125	Siaya	0	4,410	0	0	0	4,410	Yala River	
		Sub-total			0	5,745	0	0	0	5,745		
	640	Homa Bay	U - 129	Homa Bay	4,482	11,524	0	4,482	0	11,524	Lake Victoria	
			U - 130	Kenda Bay	548	2,185	0	548	0	2,185	Lake Victoria	
			U - 131	Mbita	0	1,639	0	0	0	1,639	Surface Water	
			U - 133	Oyugis	0	1,755	0	0	0	1,755	Santa River (Awach Tende)	
		Sub-total			5,030	17,103	0	5,030	0	17,103		
650	Migori	U - 134	Awendo	0	0	0	0	0	0	0		
		U - 135	Kenbacha	0	0	0	0	0	0	0		
		U - 136	Migen	0	0	0	0	0	0	0		
		U - 137	Nyabikaye	0	1,167	0	0	1,167	0	Boreholes		
		U - 138	Rongo	225	1,608	0	225	0	1,608	Surface Water		
	Sub-total			225	2,775	0	225	1,167	1,608			
660	Nyamira	U - 139	Keroka	0	762	0	0	0	762	Bunyonyu Dam		
		U - 140	Nyamira	0	2,699	0	0	0	2,699	Kuja River		
	Sub-total			0	3,461	0	0	0	3,461			
	Total in Nyanza Province				36,377	106,933	0	36,377	1,167	105,766		
Rift Valley	710	Kajiado	U - 141	Kajiado	0	628	0	0	0	628	Kiserian Pipeline	
			U - 142	Magadi	0	4,770	0	0	0	4,770	Gloiboriotto River	
			U - 143	Namanga	0	1,735	0	0	347	1,388	Boreholes, Namanga Spring	
			U - 144	Ngong	0	0	0	0	0	0	0	
			U - 145	Loitokitok	885	11,257	527	358	527	10,730	Boreholes, Nol-Turesh Spring	
			U - 146	Ongata Longai	0	0	0	0	0	0	0	
		Sub-total			885	18,390	527	358	874	17,516		
	720	Kipsigis	U - 148	Kericho	0	13,707	0	0	0	13,707	Dimilich Dam, Kimugung Dam	
			U - 149	Kipkelion	0	0	0	0	0	0	0	
			U - 151	Londiani	0	0	0	0	0	0	0	
U - 152			Sotik	0	1,453	0	0	0	1,453	Kipsenoi River		
	Sub-total			0	15,161	0	0	0	15,161			



Table-6.4.5(3/3) Water Resources Development Plan for Urban Water Supply

Province	Code	District	Code	Urban Center Name	Required New Development		Water Resources Development for 1995		Water Resources Development for 2010		Future Water Source	
					1995	2010	G.W.	S.W.	G.W.	S.W.		
					(m <sup>3</sup> /day)	(m <sup>3</sup> /day)	(m <sup>3</sup> /day)	(m <sup>3</sup> /day)	(m <sup>3</sup> /day)	(m <sup>3</sup> /day)		
Rift Valley	730	Laikipia	U-153	Nanyuki	0	10,120	0	0	0	10,120	Liki River	
			U-154	Rumuruti	0	47	0	0	0	47	Rumuruti Dam	
			Sub-total		0	10,167	0	0	0	10,167		
	740	Nakuru	U-155	Eburogon	331	1,776	0	331	0	1,776	Isare Dam	
			U-156	Gilgil	124	2,050	0	124	0	2,050	Turasha Pipeline, Malewa Dam	
			U-157	Molo	388	2,796	0	388	0	2,796	Isare Dam	
			U-158	Narvasha	5,521	16,598	0	5,521	0	16,598	Turasha Pipeline, Malewa Dam	
			U-159	Nakuru	2,244	75,578	0	2,244	0	75,578	Turasha Pipeline, Malewa Dam, Isare Dam	
			U-160	Njoro	412	1,616	0	412	0	1,616	Isare Dam	
	Sub-total		9,020	100,414	0	9,020	0	100,414				
	750	Narok	U-163	Narok	326	9,558	0	326	0	9,558	Upper Narok Dam	
	760	Trans Nzoia	U-164	Kitale	0	16,318	0	0	0	16,318	Koitobos River	
	770	Uasin Gishu	U-165	Burni Forest	0	0	0	0	0	0	0	
			U-166	Eldoret	0	17,518	0	0	0	17,518	Moihen Dam, Nzoia River	
			U-167	Lemok	0	1,627	0	0	0	1,627	Surface Water	
			U-169	Moi's Bridge	0	0	0	0	0	0	0	
			U-170	Simat	0	3,015	0	0	726	2,289	Borchholes, Surface Water	
			U-172	Tiobo	0	995	0	0	0	995	Sosiati River	
	Sub-total		0	23,156	0	0	726	22,430				
	790	Transmara	U-174	Kilgoris	324	2,734	0	324	0	2,734	Poroko River	
810	Baringo	U-178	Eldia Ravine	0	0	0	0	0	0	0		
		U-179	Karbarnet	14,328	25,974	0	14,328	0	25,974	Krandich Dam		
		U-180	Maji Mazuri	0	103	0	0	0	103	Maji Mazuri River		
		U-181	Marigat	0	0	0	0	0	0	0		
		U-182	Mogoto	0	439	0	0	0	439	Molo River, Chemususu Dam		
Sub-total		14,328	26,516	0	14,328	0	26,516					
820	Elgeyo Marak	U-183	Iten	0	0	0	0	0	0			
830	Nandi	U-185	Kapsabet	0	1,450	0	0	0	1,450	Mkong River		
840	Samburu	U-188	Maralal	0	362	0	0	0	362	Loikas River, Yamo River		
		U-189	Wamba	429	4,597	429	0	4,597	0	Boreholes		
Sub-total		429	4,960	429	0	4,597	362					
850	Turkana	U-190	Kakuma T.C	1,326	2,957	1,326	0	2,957	0	Boreholes		
		U-191	Kafokof	0	0	0	0	0	0	0		
		U-194	Lothar	0	140	0	0	140	0	Boreholes		
		U-195	Lokitang	0	0	0	0	0	0	0		
Sub-total		1,326	3,097	1,326	0	3,097	0					
860	West pokot	U-197	Kapenguria	179	3,182	0	179	0	3,182	Kapenguria River, Kapolet River		
		U-198	Makutano	348	3,187	0	348	0	3,187	Kapenguria River, Kapolet River		
Sub-total		527	6,369	0	527	0	6,369					
Total in Rift Valley Province					27,165	238,299	2,282	24,883	9,294	229,005		
Western	910	Bungoma	U-199	Bungoma	0	9,480	0	0	0	9,480	Kuywa River	
			U-200	Cheptais	0	0	0	0	0	0	0	
			U-202	Kimilili	9,822	36,321	0	9,822	0	36,321	Kimilili River	
			U-203	Mahikisi	0	1,215	0	0	0	1,215	Mahikisi River	
			U-205	Webuye	3,639	14,940	0	3,639	0	14,940	Nzoia River	
	Sub-total		13,461	61,956	0	13,461	0	61,956				
	920	Busia	U-206	Busia	0	4,231	0	0	0	4,231	Sio River	
			U-207	Mafaha Towa	0	0	0	0	0	0	0	
			U-208	Nambale	19	976	0	19	0	976	Sio River	
	Sub-total		19	5,207	0	19	0	5,207				
	930	Kakamega	U-209	Butere	35	3,653	0	35	0	3,653	Viratsi River	
			U-210	Kakamega	0	14,596	0	0	0	14,596	Isiukhu River, Makulusi Dam	
U-211			Mumias	0	6,950	0	0	0	6,950	Nzoia River		
Sub-total		35	25,199	0	35	0	25,199					
940	Vihiga	U-213	Maseno Luanda	7,737	23,174	2,491	5,246	0	23,174	Edzawa River		
		U-214	Mbale	0	0	0	0	0	0	0		
		U-215	Vihiga Majengo	0	0	0	0	0	0	0		
Sub-total		7,737	23,174	2,491	5,246	0	23,174					
Total in Western Province					21,252	115,555	2,491	18,761	0	115,555		
TOTAL IN KENYA					118,966	1,111,626	7,166	111,800	45,949	1,065,677		

Source : The Aftercare Study Team

Note: G.W. : Ground Water S.W.: Surface Water

Table-6.4.6 Water Resources Development Plan for Large Scale Rural Water Supply

Province	Code	District	Required New Development		Water Resources		Water Resources	
			1995 (m <sup>3</sup> /day)	2010 (m <sup>3</sup> /day)	Development for 1995 G.W. (m <sup>3</sup> /day)	S.W. (m <sup>3</sup> /day)	Development for 2010 G.W. (m <sup>3</sup> /day)	S.W. (m <sup>3</sup> /day)
Central	210	Kiambu	0	0	0	0	0	0
	220	Kirinyaga	0	0	0	0	0	0
	230	Murang'a	0	0	0	0	0	0
	240	Nyandarua	0	0	0	0	0	0
	250	Nyeri	0	0	0	0	0	0
Sub-total			0	0	0	0	0	0
Coast	310	Kilifi	0	0	0	0	0	0
	320	Kwale	0	0	0	0	0	0
	330	Lamu	0	0	0	0	0	0
	340	Mombasa	0	3,106	0	0	0	3,106
	350	Taita	0	0	0	0	0	0
	360	Tana River	0	0	0	0	0	0
Sub-total			0	3,106	0	0	0	3,106
Eastern	410	Embu	0	0	0	0	0	0
	420	Isiolo	0	0	0	0	0	0
	430	Kitui	0	0	0	0	0	0
	440	Masaku	0	0	0	0	0	0
	450	Marsabit	0	0	0	0	0	0
	460	Meru	0	0	0	0	0	0
	470	Nyambene	0	0	0	0	0	0
	480	Tharaka Nithi	0	0	0	0	0	0
	490	Mwingi	0	6,815	0	0	0	6,815
	4A0	Makueni	0	0	0	0	0	0
Sub-total			0	6,815	0	0	0	6,815
North-Eastern	510	Garissa	0	0	0	0	0	0
	520	Mandera	0	2,594	0	0	0	2,594
	530	Wajir	1,594	665	1,594	0	665	0
Sub-total			1,594	3,258	1,594	0	665	2,594
Nyanza	610	Gusii	0	0	0	0	0	0
	620	Kisumu	0	0	0	0	0	0
	630	Siaya	0	0	0	0	0	0
	640	Homa Bay	0	0	0	0	0	0
	650	Migori	0	0	0	0	0	0
	660	Nyamira	0	0	0	0	0	0
Sub-total			0	0	0	0	0	0
Rift Valley	710	Kajiado	0	0	0	0	0	0
	720	Kipsigis	0	0	0	0	0	0
	730	Laikipia	0	0	0	0	0	0
	740	Nakuru	0	0	0	0	0	0
	750	Narok	0	5,975	0	0	0	5,975
	760	Trans Nzoia	0	0	0	0	0	0
	770	Uasin Gishu	0	0	0	0	0	0
	780	Bomet	0	0	0	0	0	0
	790	Transmara	0	7,122	0	0	0	7,122
	810	Baringo	0	0	0	0	0	0
	820	Elgeyo Marakwet	0	0	0	0	0	0
	830	Nandi	0	0	0	0	0	0
	840	Samburu	0	0	0	0	0	0
	850	Turkana	0	2,544	0	0	0	2,544
860	West Pokot	0	0	0	0	0	0	
Sub-total			0	15,641	0	0	0	15,641
Western	910	Bungoma	0	433	0	0	0	433
	920	Busia	0	0	0	0	0	0
	930	Kakamega	0	0	0	0	0	0
	940	Vihiga	3,156	6,598	0	3,156	0	6,598
Sub-total			3,156	7,032	3,156	0	0	7,032
TOTAL			4,750	35,852	4,750	0	665	35,187

Source : The Aftercare Study Team

Table - 6.4.7 Water Resources Development Plan for Small Scale Water Supply

Province	Code	District	Required New Development		Water Resources		Water Resources	
			1995	2010	Development for 1995		Development for 2010	
			(m <sup>3</sup> /day)	(m <sup>3</sup> /day)	G.W. (m <sup>3</sup> /day)	S.W. (m <sup>3</sup> /day)	G.W. (m <sup>3</sup> /day)	S.W. (m <sup>3</sup> /day)
Central	210	Kiambu	0	6,730	0	0	0	6,730
	220	Kirinyaga	0	0	0	0	0	0
	230	Murang'a	0	10,478	0	0	10,478	0
	240	Nyandarua	0	0	0	0	0	0
	250	Nyeri	0	0	0	0	0	0
Sub-total			0	17,208	0	0	10,478	6,730
Coast	310	Kilifi	0	13,804	0	0	13,804	0
	320	Kwale	0	11,883	0	0	11,883	0
	330	Lamu	0	207	0	0	207	0
	340	Mombasa	0	0	0	0	0	0
	350	Taita	0	0	0	0	0	0
	360	Tana River	0	694	0	0	694	0
Sub-total			0	26,588	0	0	26,588	0
Eastern	410	Embu	0	3,694	0	0	3,694	0
	420	Isiolo	0	0	0	0	0	0
	430	Kitui	0	5,112	0	0	5,112	0
	440	Masaku	0	7,785	0	0	7,785	0
	450	Marsabit	0	0	0	0	0	0
	460	Meru	0	0	0	0	0	0
	470	Nyambene	0	4,362	0	0	4,362	0
	480	Tharaka Nithi	0	626	0	0	626	0
	490	Mwingi	0	2,985	0	0	2,497	488
	4A0	Makueni	0	7,671	0	0	7,671	0
Sub-total			0	32,234	0	0	31,746	488
North-East	510	Garissa	0	151	0	0	151	0
	520	Mandera	0	1,199	0	0	905	294
	530	Wajir	0	51	0	0	51	0
Sub-total			0	1,402	0	0	1,107	294
Nyanza	610	Gusii	0	47,036	0	0	4,098	42,938
	620	Kisumu	0	3,483	0	0	3,483	0
	630	Siaya	0	0	0	0	0	0
	640	Homa Bay	0	2,844	0	0	2,844	0
	650	Migori	0	19,486	0	0	19,486	0
	660	Nyamira	0	6,160	0	0	3,096	3,064
Sub-total			0	79,009	0	0	33,008	46,002
Rift Valley	710	Kajiado	0	561	0	0	561	0
	720	Kipsigis	0	20,199	0	0	6,519	13,680
	730	Laikipia	0	3,379	0	0	3,379	0
	740	Nakuru	0	2,378	0	0	2,378	0
	750	Narok	0	2,987	0	0	2,243	744
	760	Trans Nzoia	0	16,358	0	0	4,774	11,584
	770	Uasin Gishu	0	0	0	0	0	0
	780	Bomet	0	24,327	0	0	6,016	18,311
	790	Transmara	0	0	0	0	0	0
	810	Baringo	0	0	0	0	0	0
	820	Elgeyo Marakwet	0	4,655	0	0	4,655	0
	830	Nandi	0	17,822	0	0	6,747	11,075
	840	Samburu	0	0	0	0	0	0
	850	Turkana	0	0	0	0	0	0
860	West Pokot	0	0	0	0	0	0	
Sub-total			0	92,666	0	0	37,272	55,394
Western	910	Bungoma	0	4,381	0	0	3,188	1,193
	920	Busia	0	5,249	0	0	5,249	0
	930	Kakamega	0	24,543	0	0	7,473	17,070
	940	Vihiga	0	8,690	0	0	1,339	7,351
Sub-total			0	42,862	0	0	17,249	25,613
TOTAL			0	291,969	0	0	157,447	134,522

Source :The Aftercare Study Team

Table - 6.4.8 Water Source Development for Water Supply Projects

## Inter-basin Transfer Schemes by Dam Development

Code	Damsite to be Developed	Yields (m <sup>3</sup> /d)	Urban Centre	Required Quantity (m <sup>3</sup> /d)	Embankment Volume (1000 m <sup>3</sup> )	Construction Costs (US\$ million)	Pipeline (km)	Pump Head (m)	Remarks
110	Kikuyu	21,600	Nairobi	402,700	221	8.3	-	-	
"	Ruiru - A	30,300	Nairobi	"	1,528	49.0	165	150	
"	Chania - B	112,300	Nairobi	"	101	4.0			W/S + I
"	Ndarugu	527,000	Nairobi	"	1,302	43.0			W/S + I
210	Kiambaa (*)	10,000	Kiambu	2,100	120	-	12	0	
"	"	"	Karuri	4,100		-	2	170	
240	Nyahururu	22,500	Nyahururu	20,200	72	2.9	645	-	
310	Rare	32,800	Malindi	13,700	502	17.6	-	-	weir type
320	Pemba	19,800	Coastal areas	157,200	-	-	-	-	
340	Mwachi	237,600	Mombasa	-	3,218	97.0	-	-	
430	Masinga (existing)	5,400	Kitui	2,400	-	-	-	-	
440	Upper Athi	28,500	Athi River	4,500	171	6.6	10	-	
490	Kiambere (existing)	-	Mwengi	4,800			41	290	W/S + I
610	Bunyonyu	52,700	Kisii	11,100	108	4.3	11	-	
660	"	"	Keroka	1,000	"		13	-	
620	Kibos	82,100	Kisumu	64,300	700	23.9	14	-	
720	Londiani	41,000	Londiani	800	1,720	54.5	-	-	
730	Rumuruti	2,600	Rumuruti	1,500	109	4.3	120	-	
740	Itare	150,000	Elburgon	2,000	623	21.4	50	350	
"	"	"	Molo	3,200	"		37	350	
"	"	"	Njoro	1,800	"		67	350	
"	"	"	Nakuru	23,000 (**)	"		41	350	
"	Malewa	119,000	"	70,000 (**)	1,170	38.3	50	-	
"	"	"	Gilgil	2,500	"		-	-	
"	"	"	Naivasha	17,700	"		30	-	
750	Upper Narok	104,000	Narok	9,600	368	13.2	15	-	
"	Moiben (*)	58,700	Eldoret	19,300	414	14.7	-	-	
820	"	"	Iten	1,700	"		35	40	
810	Kirandich	11,000	Karbanet	26,800	420	14.9	6	250	
"	Chemususu	35,000	Mogotio	500	757	25.6	-	-	
930	Makutsi	95,000	Kakamega	4,100	21	0.9	8	100	

Source : 1992 Notional Water Master plan, Integrated water resources development planning

Note : Dam construction costs are estimated by " Estimated Dam Construction Cost Curve"

(\*): D stage in 1992 (\*\*): Assumption of water supply allocation (\*\*\*) : Assumption of construction costs

## Inter-basin Transfer Schemes without Dam Development

Code	Damsite to be Developed	Yields (m <sup>3</sup> /d)	Urban Centre	Required Quantity (m <sup>3</sup> /d)	Pipeline (km)	Pump Head (m)	Remarks
110	Komu Transfer	691,200	Ndarugu dam	402,700			Transfer from Komu R. to Ndarugu D.
	Komu Transfer	691,200	Munyu dam				Alternative for Ndarugu dam
310	Sabaki extension	18,000	Malindi	13,600	49	0	Alternative for Raare dam
340	"	25,900	Mombasa				Alternative for Mwachi dam
350	Second Mzima	25,900	Mombasa	344,400	262	0	
"	"	5,200	Voi	4,700	4	10	
330	Tana River	5,700	Lamu	600	121	40	
440	Athi River	53,000	Machakos	27,300	57	600	
"	"	6,600	Kangundo	6,900	44	170	Required quantity includes Tala's
"	"	1,900	Tala		29	160	
4A0	"	2,000	Mtito Andei	3,800	77	70	
530	Ewaso Ngiro	6,200	Wajir	9,100	1,456	20	Development of boreholes
710	Oloibortoto River	2,300	Magadi	4,800	34	0	
920	Sio River	8,900	Busia	4,300	14	100	
940	Kimondi River	17,400	Maseno	23,200	8	170	Small dam

Source : 1992 Notional Water Master plan, Integrated water resources development planning

Table • 7.3.1(1/2) Sewerage Development Targets

Province	District	Urban Center	Water & Sanitation Development in 1998						Water & Sanitation Development in 2010				Incremental population requiring sewerage by 2010
			Urban Population <sup>(1)</sup>	Population connected to water supply <sup>(2)</sup>	Population connected to sewer <sup>(3)</sup>	Population with water but no sewerage	% of urban population connected to sewer	Population connected to water supply	Urban Population	Population connected to water supply	Population connected to sewer	% of urban population connected to sewer	
1 Nairobi	110 Nairobi	U-1 Nairobi	2,240,000	1,784,577	1,000,000	784,577	44%	2,932,310	1,511,500	50	511,500		
2 Central	210 Kiambu	U-4 Kiambu	7,500	8,058	2,250	5,808	72%	14,241	6,407	30	4,157		
3 Central	210 Kiambu	U-6 Limuru	3,000	1,958	2,100	0	0%	4,129	3,043	70	943		
4 Central	210 Kiambu	U-3 Ruira	30,302	6,000	0	6,000	100%	106,041	17,500	25	17,500		
5 Central	210 Kiambu	U-9 Thika	155,770	120,000	87,250	32,770	27%	190,350	95,175	50	7,945		
6 Central	250 Muranga	U-20 Maragua	30,411	6,200	0	6,200	100%	79,924	27,266	25	20,021		
7 Central	250 Muranga	U-21 Muranga	30,000	24,000	10,500	13,500	56%	62,635	105,547	35	11,450		
8 Rift Valley	240 Nyandarua	U-28 Nyaburu	60,000	50,000	18,000	32,000	64%	60,136	150,583	30	56		
9 Central	250 Nyeri	U-33 Keratina	7,299	14,513	5,109	9,424	65%	19,471	38,767	70	8,521		
10 Central	250 Nyeri	U-36 Nyeri	142,000	40,000	37,100	2,900	7%	331,393	217,108	50	128,597		
11 Coast	310 Kilifi	U-38 Kilifi	20,555	30,170	0	30,170	100%	57,082	41,335	25	14,300		
12 Coast	310 Kilifi	U-40 Malindi	48,227 <sup>(a)</sup>	141,293	0	141,293	100%	134,152	193,580	40	53,661		
13 Coast	340 Mombasa	U-52 Mombasa	590,000	370,764	69,600	301,164	81%	736,000	476,234	50	298,400		
14 Coast	350 Taita Taveta	U-55 Voi	15,772 <sup>(a)</sup>	20,300	700	19,600	97%	35,159	46,991	25	8,100		
15 Eastern	410 Embu	U-60 Embu	45,000	35,000	9,000	26,000	74%	92,214	93,054	25	14,100		
16 Eastern	420 Isiolo	U-63 Isiolo	26,968	36,000	1,700	34,300	95%	83,440	78,896	25	19,202		
17 Eastern	440 Masaku	U-69 Athi River	18,300	12,500	1,300	11,200	90%	48,441	42,911	25	10,810		
18 Eastern	440 Masaku	U-71 Machakos	154,006	80,000	8,000	72,000	90%	407,822	274,630	50	195,911		
19 Eastern	460 Meru	U-86 Meru	124,412 <sup>(a)</sup>	16,300	800	15,530	95%	337,437	218,467	50	167,918		
20 North Eastern	510 Garissa	U-104 Garissa	40,000 <sup>(a)</sup>	34,758	0	34,758	100%	115,126	82,850	40	46,051		

Table - 7.3.1(2/2) Sewerage Development Targets

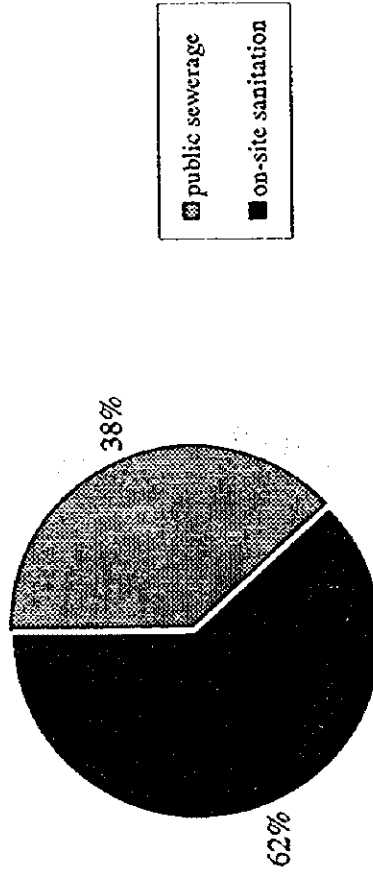
Province	District	Urban Center	Water & Sanitation Development in 1998				Water & Sanitation Development in 2010				Incremental population requiring sewerage by 2010		
			Urban Population (1)	Population connected to water supply (2)	Population connected to sewer (3)	Population with water but no sewerage	Urban Population	Population connected to water supply	Population connected to sewer	% of urban population connected to sewer			
21	North Eastern	520 Mandem	22,856	8,160	0	8,160	100%	0%	51,680	29,605	12,900	25	12,900
22	North Eastern	530 Wajir	26,239	1,500	0	1,500	100%	0%	66,062	61,637	16,500	25	16,500
23	Nyanza	610 Kisii	65,000	45,000	13,000	32,000	71%	20%	120,615	114,584	48,246	40	55,246
24	Nyanza	620 Kisumu	231,327 <sup>(2)</sup>	280,845	130,000	150,845	54%	56%	561,029	441,418	280,514	50	150,514
25	Nyanza	640 Homa Bay	75,000	43,000	15,000	23,000	65%	20%	71,860	90,372	18,000	25	3,000
26	Rift Valley	710 Kajjido	15,000	6,000	750	5,250	88%	5%	41,207	24,471	10,300	25	9,550
27	Rift Valley	710 Kojjido	25,030	7,200	0	7,200	100%	0%	31,185	29,365	20,337	25	20,337
28	Rift Valley	720 Kipisigis	80,000	58,723	41,600	17,123	29%	52%	152,522	148,636	76,261	50	34,661
29	Rift Valley	730 Laikipia	55,000	43,100	24,750	18,350	43%	45%	97,975	131,804	44,089	45	19,339
30	Rift Valley	740 Nakuru	60,000	46,000	30,000	16,000	35%	50%	168,905	110,824	84,452	50	54,452
31	Rift Valley	740 Nakuru	231,687	304,561	123,400	181,061	59%	53%	760,237	753,756	380,119	50	256,619
32	Rift Valley	750 Narok	19,859	12,000	0	12,000	100%	0%	77,231	73,369	19,347	25	19,347
33	Rift Valley	760 Trans Nzola	75,000	60,000	37,500	22,500	34%	50%	229,323	217,862	114,664	50	71,664
34	Rift Valley	770 Uasin Gishu	220,000	90,000	70,400	19,600	22%	32%	450,629	354,259	225,314	50	154,914
35	Rift Valley	810 Baringo	11,804	127,500	0	127,500	100%	0%	32,363	189,666	8,100	25	8,100
36	Rift Valley	830 Nandi	20,000	7,000	4,000	3,000	43%	20%	44,693	42,458	11,200	25	7,200
37	Western	910 Bungoma	70,000	36,000	12,600	23,400	65%	15%	114,086	99,895	45,634	40	31,034
38	Western	920 Busia	60,000	40,000	12,000	28,000	70%	20%	120,647	110,439	48,259	40	36,259
39	Western	930 Kakamega	48,000	17,267	9,600	7,667	44%	20%	103,635	98,433	41,454	40	31,854
40	Western	940 Kakamega	77,306 <sup>(2)</sup>	27,826	5,445	22,381	80%	7%	202,516	160,123	81,006	40	75,561

1998		2010	
Urban population connected to sewers	1,753,534		4,379,257
Population living in urban centers where sewerage is available	3,936,236		9,458,078
Total population in all urban centers	6,576,000		11,500,000
			46%
			38%

Note: (1) - Populations reported by municipal and town councils during JICA study team survey.  
 (2) - Information not reported in survey or incorrect therefore population shown is for 1995 as estimated by JICA study team.  
 (3) - from various sources gathered by the Aftercare Study Team

Table - 7.3.2 Anticipated Service Levels by Sanitation Method in 2010

Urban Center Characteristics			Urban Population 2010		Sewerage		On-Site	
Population	Number of cities	% Distribution	000's	%	000's	%	000's	%
P>300,000	8	4	6,608	57	1,687	26	4,921	74
300,000>P>100,000	11	5	1,652	14	1,053	64	599	36
100,000>P>20,000	54	25	2,349	20	1,510	64	838	36
P<20,000	142	66	892	8	122	14	769	86
Total	215		11,501		4,373	38	7,128	62



**Table - 7.4.1 (1/2) Wastewater Flow Calculation in 2010**

Code	Urban Centre	Sewerage Development 1998						Sewerage Development 2010						Waste water flow 2010			
		Urban Population 1998	Population connected to sewer	% of urban population connected to sewers	Present Sewerage Flow		Urban Population	Population connected to sewer	% of urban population served by sewers	A	B	C	D=A+B+C	E	Dry weather flow F=D+E		Incremental treatment capacity m <sup>3</sup> /day
					Treatment Works Capacity m <sup>3</sup> /day	Liters per Capita/day									Total m <sup>3</sup> /day	Per Capita m <sup>3</sup> /day	
1 U-1	Nairobi	2,240,000	1,000,000	45%	112,000	217,000	217	3,023,000	1,511,500	50	140,570	46,857	234,253	46,857	281,139	186	100,139
2 U-159	Nakuru	231,697	125,500	53%	16,200	8,181	66	760,237	380,119	50	35,351	11,784	58,918	11,784	70,702	186	54,502
3 U-52	Mombasa	580,000	69,600	12%	49,600	4,590	66	736,000	368,000	50	24,224	11,408	57,040	11,408	68,448	186	16,646
4 U-120	Kisumu	231,327	130,000	56%	17,800	15,000	115	561,029	280,514	50	26,088	8,696	43,480	8,696	52,176	186	34,376
5 U-166	Eldoret	220,000	70,400	32%	6,375	NFM	NFM	450,620	225,214	50	20,954	6,985	34,924	6,985	41,908	186	35,533
6 U-71	Machakos	80,000	8,000	10%	2,000	3,000	375	407,822	203,911	50	18,964	6,321	31,606	6,321	37,927	186	35,027
7 U-86	Mera	124,412	800	1%	2,500	500	625	337,437	168,718	50	15,691	5,250	26,151	5,250	31,262	186	24,662
8 U-36	Nyasa	142,000	37,100	26%	8,100	2,500	67	331,393	165,697	50	15,410	5,137	25,683	5,137	30,820	186	22,720
9 U-164	Kisumu	75,000	37,500	50%	2,930	NFM	NFM	229,328	114,664	50	10,664	3,555	17,773	3,555	21,327	186	18,397
10 U-210	Kalenje	110,000	51,700	47%	5,500	4,800	93	202,516	101,258	50	9,417	3,139	15,695	3,139	18,834	186	13,324
11 U-9	Thika	355,770	87,220	24%	6,100	10,000	115	190,350	95,175	50	8,851	2,950	14,752	2,950	17,703	186	11,603
12 U-158	Nitvaaha	60,000	30,000	50%	2,035	700	23	168,905	84,452	50	7,854	2,618	13,090	2,618	15,708	186	13,673
13 U-148	Kericho	80,000	41,600	52%	1,500	2,000	48	158,522	76,261	50	7,092	2,364	11,820	2,364	14,185	186	12,665
14 U-40	Malindi	48,227	0	0%	0	0	0	134,152	53,661	40	4,990	1,663	8,317	1,663	9,981	186	9,981
15 U-208	Weboye	60,000	12,000	20%	NA	1,500	125	120,647	48,259	40	4,488	1,496	7,480	1,496	8,976	186	8,976
16 U-117	Kisii	65,000	13,000	20%	NA	NFM	NFM	120,615	48,246	40	4,487	1,496	7,478	1,496	8,974	186	8,974
17 U-104	Garissa	40,000	0	0%	0	0	0	115,126	46,051	40	4,283	1,428	7,138	1,428	8,565	186	8,565
18 U-199	Bungoma	70,000	12,600	18%	45	NFM	NFM	114,086	45,634	40	4,244	1,415	7,075	1,415	8,486	186	8,486
19 U-206	Eusia	48,000	9,600	20%	600	600	63	103,635	41,454	40	3,855	1,285	6,425	1,285	7,710	186	7,710
20 U-153	Nanyuki	55,000	24,750	45%	2,270	8,000	322	97,975	44,080	45	4,100	1,367	6,834	1,367	8,200	186	8,200



Table - 7.4.1 (2/2) Wastewater Flow Calculation in 2010

Code	Urban Center	Sewerage Development 1998						Sewerage Development 2010						Waste water flow 2010					
		Urban Population 1998	% of urban population connected to sewers	Present Sewerage Flow		Urban Population	Population connected to sewer	% of urban population served by sewers	A	B	C	D=A+B+C	E	Dry weather flow F=D+E		Incremental treatment capacity m <sup>3</sup> /day			
				Treatment Works Capacity m <sup>3</sup> /day	m <sup>3</sup> /day									Liters per Capita/day	Total m <sup>3</sup> /day		Per Capita m <sup>3</sup> /day		
21 U-60	Ermbu	45,000	0%	682	180	20	23,018	25	2,141	714	714	3,568	714	4,281	186	3,599			
22 U-63	Istilo	26,963	6%	2,000	600	353	83,440	25	1,938	646	646	3,230	646	3,876	186	1,876			
23 U-146	Ongas Lenggi	25,080	0%	0	0	0	81,185	25	1,888	629	629	3,146	629	3,775	186	3,775			
24 U-20	Mangua	39,411	0%	0	0	0	79,924	25	1,858	619	619	3,097	619	3,716	186	3,716			
25 U-163	Narek	19,859	0%	0	0	0	77,231	25	1,799	600	600	2,999	600	3,598	186	3,598			
26 U-129	Homa Bay	75,000	20%	750	1,045	70	71,860	25	1,670	557	557	2,784	557	3,341	186	2,991			
27 U-8	Ruiru	32,302	0%	0	0	0	70,142	25	1,634	545	545	2,724	545	3,268	186	3,268			
28 U-116	Wajir	26,239	0%	0	0	0	66,062	25	1,536	512	512	2,560	512	3,072	186	3,072			
29 U-21	Mumaga	30,000	35%	1,564	870	83	62,635	35	2,039	680	680	3,398	680	4,078	186	3,514			
30 U-28	Nyahururu	60,000	30%	2,500	3,436	191	60,196	30	2,799	933	933	4,664	933	5,597	186	3,097			
31 U-33	Kilifi	20,555	0%	0	0	0	57,082	25	1,327	442	442	2,212	442	2,654	186	2,654			
32 U-109	Mandera	22,356	0%	0	0	0	51,690	25	1,204	401	401	2,007	401	2,408	186	2,408			
33 U-69	Ahli River	18,000	7%	12,960	1,000	769	48,441	25	1,126	375	375	1,877	375	2,252	186	2,252			
34 U-185	Kapsabet + Bawaton	20,000	20%	1,000	N/A	N/A	44,693	25	1,039	346	346	1,733	346	2,079	186	1,893			
35 U-144	Ningang	15,000	5%	230	15	20	41,207	25	959	320	320	1,599	320	1,919	186	1,666			
36 U-55	Voi	15,772	4%	0	0	0	35,159	25	819	273	273	1,366	273	1,639	186	1,453			
37 U-179	Kabomet	11,804	0%	0	0	0	32,363	25	752	251	251	1,254	251	1,505	186	1,505			
38 U-4	Kiambu	7,500	30%	960	300	133	21,356	30	596	199	199	993	199	1,192	186	1,192			
39 U-33	Karatina	7,299	70%	317	561	110	19,471	70	1,268	423	423	2,113	423	2,535	186	2,218			
40 U-6	Limuru	3,000	70%	550	118	56	4,347	70	283	94	94	472	94	566	186	186			
												Per capita contributions							
												95	31	31	155	31	186		

Population connected to sewers 4,411,315

average domestic sewage flow (liters per capita)  
 domestic sewage as a percent of total sewage  
 sewage from commercial, institutional and public areas as a percent of total sewage  
 industrial wastewater as % of total sewage  
 infiltration and surface water inflow allowance

Table - 7.4.2 Septage Generated from On-site Sanitation in 2010

I	Province	Code	District	Code	Urban Centre	Population 2010			
						Total Population	with sewer connection	with septic tanks	Total septage m <sup>3</sup> /year
1	Nairobi	110	Nairobi	U-1	Nairobi	3,023,000	1,511,500	377,875	107,065
2	Central	210	Kiambu	U-4	Kiambu	21,356	6,407	3,737	1,059
3	Central	210	Kiambu	U-6	Limuru	4,347	3,043	326	92
4	Central	210	Kiambu	U-8	Ruiru	70,142	17,500	13,161	3,729
5	Central	210	Kiambu	U-9	Thika	190,350	95,175	23,794	6,742
6	Central	230	Muranga	U-20	Maragua	79,924	20,021	14,976	4,243
7	Central	230	Muranga	U-21	Muranga	62,635	21,922	10,178	3,325
8	Rift Valley	240	Nyandarua	U-28	Nyahururu	60,186	30,093	7,523	2,984
9	Central	250	Nyeri	U-33	Karatina	19,471	13,630	1,460	414
10	Central	250	Nyeri	U-36	Nyeri	331,393	165,697	41,424	11,737
11	Coast	310	Kilifi	U-38	Kilifi	57,082	14,300	10,696	3,030
12	Coast	310	Kilifi	U-40	Malindi	134,152	53,661	20,123	5,701
13	Coast	340	Mombasa	U-52	Mombasa	736,000	268,000	92,000	26,067
14	Coast	350	Taita Taveta	U-55	Voi	35,159	8,800	6,590	1,867
15	Eastern	410	Embu	U-60	Embu	92,214	23,100	17,278	4,896
16	Eastern	420	Isiolo	U-63	Isiolo	83,440	20,902	15,634	4,430
17	Eastern	440	Masaku	U-69	Arhi River	48,441	12,110	9,083	2,573
18	Eastern	440	Masaku	U-71	Machakos	407,822	203,911	50,978	14,444
19	Eastern	460	Meru	U-86	Meru	337,432	168,718	42,180	11,951
20	North Eastern	510	Garissa	U-104	Garissa	115,126	46,051	17,269	4,893
21	North Eastern	520	Mandera	U-109	Mandera	51,680	12,900	9,695	2,747
22	North Eastern	530	Wajir	U-116	Wajir	66,062	16,500	12,391	3,511
23	Nyanza	610	Kisii	U-117	Kisii	120,615	48,246	18,092	5,126
24	Nyanza	620	Kisumu	U-120	Kisumu	561,029	280,514	70,129	19,870
25	Nyanza	640	Homa Bay	U-129	Homa Bay	71,860	18,000	13,465	3,815
26	Rift Valley	710	Kajiado	U-144	Ngong	41,207	10,300	7,727	2,189
27	Rift Valley	710	Kajiado	U-146	Ongata Longai	81,185	20,337	15,212	4,310
28	Rift Valley	720	Kipsigis	U-148	Kericho	152,522	76,261	19,065	5,402
29	Rift Valley	730	Laikipia	U-153	Nanyuki	97,975	44,089	13,472	3,817
30	Rift Valley	740	Nakuru	U-158	Naivasha	168,905	84,452	21,113	5,982
31	Rift Valley	740	Nakuru	U-159	Nakuru	760,237	380,119	95,030	26,925
32	Rift Valley	750	Narok	U-163	Narok	77,231	19,347	14,471	4,100
33	Rift Valley	760	Trans Nzoia	U-164	Kitale	229,328	114,664	28,656	8,122
34	Rift Valley	770	Uasin Gishu	U-166	Eldoret	450,629	225,314	56,329	15,960
35	Rift Valley	810	Baringo	U-179	Kabarotet	32,363	8,100	6,066	1,719
36	Rift Valley	830	Nandi	U-185	Kapsabet + Baraton	44,693	11,200	8,373	2,372
37	Western	910	Bungoma	U-199	Bungoma	114,066	45,634	17,113	4,849
38	Western	910	Bungoma	U-205	Webuye	120,647	48,259	18,097	5,128
39	Western	920	Busia	U-206	Busia	103,635	41,454	15,545	4,405
40	Western	930	Kakamega	U-210	Kakamega	202,516	101,258	25,314	8,607

**Table - 8.2.1 (1/3) List of Ongoing Planned/Designed Projects Included in Long Term Urban Water Supply Plan**

Code	District	Code	Urban Centre Name	Ongoing Project	Planned / Design Project	Newly Proposed		
						Project Name	Production Capacity (m <sup>3</sup> /day)	
110	Nairobi	U-1	Nairobi		Sunshine Sec. School			
210	Kiambu	U-2	Githunguri	Kiambu Water Supply Kiambu Rural	Githunguri Cia Gichamu	Ruiru R.	2,500	
		U-3	Karuri		Karuri			
		U-4	Kiambu					
		U-5	Kikuyu		Kikuyu Div. W/S (Muguga)	Kikuyu D.	3,000	
		U-7	Ndumburi			B/H	3,400	
		U-8	Ruiru		Ruiru	Ruiru R.	18,600	
		U-9	Thika		Chania R.	37,200		
220	Kirinyaga	U-12	Kerugoya/Kurus		Kutus/Kimbibi	Kirinya/Thiba	7,200	
		U-16	Wanguru					
230	Muranga	U-19	Makuyu	Muranga	Muragua Ridge, Muragua W/S	Githanji R.	4,400	
		U-20	Maragua				Muranga R.	16,900
		U-21	Muranga					
240	Nyandarua	U-28	Nyahururu	Of Kalou	Of Kalou Rural	Nyahururu D.	22,900	
		U-30	Of Kalou				Malewa R.	4,200
250	Nyeri	U-32	Enderasha	Enderasha Settlement		Ragati R.	6,200	
		U-33	Karatina				Chania R.	34,700
		U-36	Nyeri					
		U-37	Othaya					
310	Kisumu	U-38	Kisumu	Mariakani	Mariakani Palakumi	Rare Reserv.	6,300	
		U-39	Majengo				B/H	800
		U-40	Malindi				Sabaki pipe	29,600
		U-41	Mamburi				2nd Muzima	2,700
		U-42	Mariakani				O.W.	1,400
		U-43	Waramu				S.W.	1,334
320	Kwale	U-44	Kwale			Uruba R.	900	
		U-45	Lunga Lungu				Mkurumaji R.	5,900
		U-46	Msarobweni					
330	Lamu	U-47	Lamu	Lamu/Mkowe Augmentation	Tana/Lamu Water Supply	Tana pipe.	4,000	
		U-49	Mokowe T.C	Mkowe Roof Catchment		Tana R.	1,700	
340	Mombasa	U-52	Mombasa		Distribution Network Improvement and Extensions (Mombasa and Coastal Area)			
350	Taita	U-54	Taveta			2nd Muzima	2,400	
		U-55	Voi				Sigaso R.	2,900
		U-56	Wundanyi					
360	Tana River	U-58	Garsen		Garsen Hoha	Tana R.	4,400	
		U-59	Hoha				Tana R.	4,000
410	Embu	U-60	Embu		Embu Water Supply	Kapingazi R.	14,000	
		U-61	Runyenjes				Ena R.	1,700
420	Isiolo	U-63	Isiolo	Madogashe W/P		B/H	13,882	
		U-64	Modo Geshe				River	460
		U-65	Merti					
430	Kitui	U-68	Kitui	Masinga Kitui Water Supply				
440	Massau	U-69	Athi River		Athi River Water Supply Machakos Urban Water Supply	U. Athi dam	6,500	
		U-71	Machakos				Athi R. pipe	41,300
		U-74	Matuu				River	5,200
		U-77	Kangundo/Tala				Athi R. pipe	7,500
450	Marsabit	U-79	Kargi	Kargi	Marsabit	B/H	2,600	
		U-80	Korr	Korr		B/H	2,600	
		U-82	Marsabit	Marsabit		B/H	6,500	
		U-83	Moyale	Moyale Lami		B/H	3,300	
		U-84	North Horr			B/H	800	
		U-85	Sololo	Sololo		B/H	2,100	
460	Meru	U-86	Meru			Kathita R.	32,600	
		U-87	Nkubu				Thingithu R.	10,000
470	Nyambene	U-89	Maua		Chuka	Ura R.	1,700	
480	Tharaka Nithi	U-90	Chuka			Tungu R.	2,600	
490	Mwingi	U-91	Mwingi			Kambere D.	5,100	
4A0	Makueni	U-93	Kibwezi			Athi R. pipe.	1,100	
		U-98	Mtito Andei			River	6,800	

**Table - 8.2.1 (2/3) List of Ongoing Planned/Designed Projects Included in Long Term Urban Water Supply Plan**

Code	District	Code	Urban Centre Name	Ongoing Project	Planned / Design Project	Newly Proposed	
						Project Name	Production Capacity (m <sup>3</sup> /day)
510	Garissa	U- 104 U- 105	Garissa Liboi	Garissa		River	2,200
520	Mandera	U- 108 U- 109 U- 110	Elwak Mandera Rhamu	Elwak Mandera Rhamu	Mandera	B/H Daua R. Daua R.	2,200 4,600 4,500
530	Wajir	U- 113 U- 114 U- 116	Bure Eldas Wajir			B/H B/H B/H	800 1,700 9,200
610	Gusii	U- 117	Kisii			Bunyonyu D.	17,000
620	Kisumu	U- 119 U- 120 U- 121 U- 122	Ahero Kisumu Maseno Muhoroni		Songhor/Muhoroni W/P	B/H Kibos D. Edzawa D.	100 75,100 8,100
630	Siaya	U- 123 U- 125	Asiro Siaya		Rehabilitation and Augmentation of Siaya Water Project	Nyando R. Yala R.	1,300 8,100
640	Homa Bay	U- 129 U- 130 U- 131 U- 133	Homa Bay Kendu Bay Mbita Oyugis			L. Victoria L. Victoria River Isanta R.	13,500 3,200 1,700 9,400
650	Migori	U- 134 U- 135 U- 136 U- 137 U- 138	Awendo Kenhacha Migori Nyubikaye Rorogo		Awendo Migori/Kenhacha, Kenhacha Migori/Ndhiwa	B/H River	1,200 2,300
660	Nyamira	U- 139 U- 140	Keroka Nyamira		Nyamira UWS & Sewerage	Bunyonyu D. Kuja R.	800 5,200
710	Kajiado	U- 141 U- 142 U- 143 U- 144 U- 145 U- 146	Kajiado Magadi Namanga Ngong Loitokitok Ongata Lengai	Ngong	Namanga Ngong Ronga (Loitokitok)	Kiserian pipe Oloiborto R. Namanga Sp. G.W. & S.W.	3,300 6,600 3,000 11,257
720	Kipsigis	U- 148 U- 149 U- 151 U- 152	Kericho Kipkelion Londiani Solik	Kipkelion Londiani		Knugungu D. Kipsonoi R.	22,200 1,500
730	Laikipia	U- 153 U- 154	Nanyuki Rumuruti		Rumuruti Rural, Urban	Liki R. B/H	19,200 1,400
740	Nakuru	U- 155 U- 156 U- 157 U- 158 U- 159 U- 160	Elburgon Gligil Molo Naivasha Nakuru Njoro			Ihare D. Malewa D. Ihare D. Malewa D. Mlewa, Ihare D. Ihare D.	2,300 3,100 3,800 17,600 116,600 1,900
750	Narok	U- 163	Narok			U. Narok D.	10,900
760	Trans Nzoia	U- 164	Kiitale			Kiitobos R.	33,300
770	Uasin Gishu	U- 165 U- 166 U- 167 U- 169 U- 170 U- 172	Burnt Forest Eldoret Lemok Moi's Bridge Simat Turbo	Burnt Forest Moi's Bridge	Eldoret Polytechnic	River Moiben D. B/H Sosiari R. Poroko R.	17518 1,627 3,015 995 3,900
790	Transmara	U- 174	Kilgoris				
810	Baringo	U- 178 U- 179 U- 180 U- 181 U- 182	Elda Ravine Karbarnet Maji Mazuri Marigat Mogotio			Kirandich D. Maji Mazuri R. Chemususu D.	28,600 500 1,100
820	Elgeyo Marakwet	U- 183	Iten		Iten Yogot Dam		
830	Nandi	U- 185	Kapsabet		Kapsabet, Kipsigak Water Supply	Mokong R.	6,300
840	Samburu	U- 188 U- 189	Maralal Wamba	Wamba		Leikas R. B/H	1,200 5,500

**Table - 8.2.1 (3/3) List of Ongoing Planned/Designed Projects Included in Long Term Urban Water Supply Plan**

Code	District	Code	Urban Centre Name	Ongoing Project	Planned / Design Project	Newly Proposed	
						Project Name	Production Capacity (m <sup>3</sup> /day)
850	Turkana	U- 190	Kakuma T.C		Kakuma	B/H	4,600
		U- 191	Kalekel	Kalekel			
		U- 194	Lodwar	Lodwar		B/H	6,900
		U- 195	Lekitang	Lekitang			
860	West pokot	U- 197	Kipenguria			Kipenguria R.	3,600
		U- 198	Makutano			Kipenguria R.	3,600
910	Bungoma	U- 199	Bungoma		Bungoma Rural I & II	Kuywa R.	15,100
		U- 200	Cheptais				
		U- 202	Kimilili			Kimilili R.	39,300
		U- 203	Malakisi			Malakisi R.	1,200
		U- 205	Webuye			Nzola R.	16,700
920	Busia	U- 206	Busia	Busia /caundika	Busia hills	Sio R.	14,800
		U- 207	Malaba Town	Malaba /Keebolla			
		U- 208	Nambate			Sio R.	1,100
930	Kakamega	U- 209	Butere	Butere W/S		Viratsui R.	4,300
		U- 210	Kakamega			Makurusi D.	23,900
		U- 211	Mumias	Mumias W/S		Nzola R.	10,700
940	Vihiga	U- 213	Maseno/Luanda			Edzawa R.	24,800
		U- 214	Mbale		Mbale fill		
		U- 215	Vihiga/Majengo		Vihiga-Hamisi		

Source: The Aftercare Study Team

Table - 8.3.1 (1/3) General Features of Urban Water Supply Project

Province	Code	District	Code	Water Supply Projects of Urban Centre	Planned Population Served	Planned Supply Quantity (m <sup>3</sup> /day)	Existing Capacity	Expanded Supply Quantity and Water Source			Treatment Works (full treatment) (m <sup>3</sup> /day)	Service Reservoir Capacity	Raw Water Main (dia) / Reticulation (dia x length)	
								River / Lake (m <sup>3</sup> /day)	Boreholes (m <sup>3</sup> /day)	Dam (m <sup>3</sup> /day)				
Nairobi Central	110	Nairobi	U-1	Nairobi	3,023,000	723,065	319,000		Thika/Ruiru/Chania	Production C	2,000	1,000	ø 150/ø 200 - ø 80 x 16 km	
	210	Kiambu	U-2	Githunguri	12,100	2,500	540	Ruiru R.	2,000		Production C	1,400	1,400	ø 150/ø 200 - ø 80 x 29 km
			U-5	Kiambu	20,700	3,000	1,600	0 River	1,300	65 B/H	2,200	1,400	ø 125-ø 150/ø 300-ø 80 x 25 km	
	220	Kiambu	U-7	Ndumbeni	20,600	3,400	4,400	Ruiru R.	14,200		Production C	2,000	7,100	ø 400/ø 600 - ø 80 x 123 km
			U-8	Ruiru	70,100	18,600	4,400	Ruiru R.	600		Production C	600	600	ø 100/ø 150 - ø 80 x 4 km
	230	Kiambu	U-9	Thika	190,400	37,200	36,600	Chania R.	600		Production C	2,000	2,700	ø 250/ø 400 - ø 80 x 42 km
			U-12	Kerugoya/Kurus	36,000	7,200	1,900	Kiriga/Thibo	5,300		Production C	3,300	2,000	ø 150/ø 200 - ø 80 x 31 km
	240	Nyangarua	U-20	Mumaga	80,000	4,400	2,400	Githanjui R.	2,000		Production C	2,000	5,800	ø 400/ø 600 - ø 80 x 103 km
			U-21	Mumaga	62,700	16,900	5,400	Mumaga R.	11,500		Production C	11,500	9,200	ø 500/ø 700 - ø 80 x 144 km
	250	Nyangarua	U-28	Nyahuru	60,200	22,900	4,500			Nyahuru D.	18,400	600	600	ø 100/ø 150 - ø 80 x 28 km
U-30			Oi karou	10,000	4,200	3,600	Malawa R.	600		Production C	4,900	2,500	ø 250/ø 350 - ø 80 x 30 km	
310	Kiili	U-33	Karatina	19,500	6,200	1,500	Ragati R.	4,900		Production C	23,300	14,400	ø 600/ø 800 - ø 80 x 207 km	
		U-34	Nyeri	331,400	34,700	5,940	Chania R.	29,800		Production C	2,000	1,000	ø 150/ø 200 - ø 80 x 15 km	
320	Kiili	U-38	Kiili	57,082	6,300	4,300	Rare Reserv.	2,000		Production C	620	800	ø 100-ø 50/ø 150 - ø 80 x 6 km	
		U-39	Majengo	5,600	900	0	River	620	6 B/H	180	13,600	6,800	ø 400/ø 600 - ø 80 x 93 km	
330	Kiili	U-40	Malindi	134,200	29,600	16,000	Sabaki pipe	13,600		Chlorination		700	ø 100/ø 150 - ø 80 x 10 km	
		U-42	Mambani	34,900	2,700	2,000	2nd Muzira	700		Production C	1,400	1,400	ø 150/ø 200 - ø 80 x 10 km	
340	Kiili	U-43	Waiyumu	7,900	1,400	1,400	0 Sabaki pipe	1,400		Production C	700	700	ø 100/ø 150 - ø 80 x 5 km	
		U-45	Lunga Lungu	22,300	900	220	Umbo R.	700		Production C	5,000	2,500	ø 250/ø 350 - ø 80 x 38 km	
350	Lamu	U-46	Mambweni	20,800	5,900	900	Mkurumaji R.	5,000		Production C	600	600	ø 100/ø 150 - ø 80 x 25 km	
		U-47	Lamu	29,600	4,000	3,400	Tana Pipe	600		Production C	1,500	1,500	ø 150/ø 200 - ø 80 x 12 km	
360	Taita	U-49	Mokowa T.C	5,200	1,700	200	Tana R.	1,500		Production C	4,700	2,400	ø 250/ø 350 - ø 80 x 34 km	
		U-55	Voi	35,200	7,400	2,700	2nd Muzira	4,700		Production C	3,000	1,500	ø 100/ø 150 - ø 80 x 10 km	
410	Taita	U-56	Wundanyi	8,400	2,900	2,700	Sigaso R.	700		Production C	3,000	1,500	ø 150/ø 250 - ø 80 x 31 km	
		U-58	Gansen	10,100	4,400	1,700	Tana R.	3,000		Production C	2,300	1,200	ø 150/ø 200 - ø 80 x 27 km	
420	Taita	U-59	Hola	36,800	4,000	1,700	Tana R.	2,900		Production C	9,300	4,700	ø 350/ø 500 - ø 80 x 72 km	
		U-60	Embu	92,200	14,000	4,700	Kapunguzi R.	9,300		Production C	1,600	1,600	ø 150/ø 200 - ø 80 x 12 km	
440	Taita	U-61	Runyenyas	5,500	1,700	100	Era R.	1,600		Chlorination	9,500	4,800	ø 350/ø 500 - ø 80 x 69 km	
		U-63	Ikiolo	83,400	13,882	4,354	70 River	400	397 B/H	9,530	400	400	ø 80/ø 100 - ø 80 x 3 km	
450	Mombasa	U-65	Meni	19,600	460	5,900	70 River	400		Production C	1,200	1,200	ø 125/ø 150 - ø 80 x 52 km	
		U-69	Athi River	45,400	6,500	3,000			U. Athi dam	1,200	27,300	13,700	ø 600/ø 800 - ø 80 x 256 km	
460	Mombasa	U-71	Machakos	407,800	41,300	14,000			Athi R. pipe	6,900	4,500	2,300	ø 250/ø 350 - ø 80 x 34 km	
		U-74	Makuu	7,900	5,200	700	River	4,500		Production C	1,800	1,800	ø 500/ø 650 - ø 80 x 51 km	
470	Mombasa	U-77	Kangundo/Tala	37,800	7,500	600			Athi R. pipe	6,900	1,800	1,800	ø 150/ø 200 - ø 80 x 18 km	
		U-79	Karuri	14,500	2,600	800	90 B/H	1,800		Chlorination	1,800	1,800	ø 150/ø 200 - ø 80 x 19 km	
480	Mombasa	U-80	Koror	14,800	2,600	800	90 B/H	1,800		Chlorination	2,100	1,100	ø 150/ø 200 - ø 80 x 45 km	
		U-82	Mambiti	37,800	6,500	4,400	105 B/H	2,100		Chlorination	2,000	1,000	ø 150/ø 200 - ø 80 x 24 km	
490	Mombasa	U-83	Moyale	23,200	3,300	1,900	100 B/H	2,900		Chlorination	800	800	ø 100/ø 150 - ø 80 x 6 km	
		U-84	North Horr	5,600	900	0	40 B/H	800		Chlorination	840	900	ø 100/ø 150 - ø 80 x 16 km	
500	Mombasa	U-85	Sololo	12,100	2,100	1,260	42 B/H	840		Chlorination	840	840	ø 100/ø 150 - ø 80 x 16 km	

Table - 8.3.1 (2/3) General Features of Urban Water Supply Project

Province	Code	District	Code	Water Supply Projects of Urban Centre	Planned Population Served	Planned Supply Quantity (m <sup>3</sup> /day)	Existing Capacity	Expanded Supply Quantity and Water Source			Treatment Works (full treatment) (m <sup>3</sup> /day)	Service Reservoir Capacity	Raw Water Main (dia) / Reticulation (dia x length)	
								River / Lake (m <sup>3</sup> /day)	Boreholes (m <sup>3</sup> /day)	Dam (m <sup>3</sup> /day)				
Eastern (cont'd)	460	Meru	U-86	Meru	337,500	32,600	19,900	Kathia R.	12,700		Chlorination	12,700	6,400 (ø400/ø600 - ø 80 x 91 km)	
			U-87	Ntubu	19,300	10,000	5,200	Thingitho R.	4,800		Chlorination	4,800	2,400 (ø250/ø350 - ø 80 x 36 km)	
	470	Nyamira	U-88	Maua	12,200	1,700	300	Ura R.	1,400		Chlorination	1,400	1,400 (ø150/ø200 - ø 80 x 10 km)	
	480	Tharaka Nithi	U-90	Chuka	12,700	2,600	1,400	Tungu R.	1,200		Chlorination	1,200	ø125/ø150 - ø 80 x 16 km	
	490	Mwingi	U-91	Mwingi	15,800	5,100	600			4,500	Chlorination	4,500	ø250/ø350 - ø 80 x 35 km	
	4A0	Mikueni	U-93	Kibwezi	7,700	1,100	0	Athi R. pipe.	1,100		Chlorination	1,100	ø125/ø150 - ø 80 x 8 km	
			U-98	Mtito Andei	12,200	6,900	3,000	River	3,800		Chlorination	3,800	ø250/ø350 - ø 80	
	510	Garissa	U-105	Liboi	6,900	2,200	200	River	2,000		Chlorination	2,000	ø150/ø200 - ø 80 x 15 km	
	520	Mandera	U-108	Ewak	15,800	2,200	300			0.42 B/H	1,900	Chlorination	1,900	ø150/ø200 - ø 80 x 16 km
			U-109	Mandera	51,700	4,600	3,900	Daua R.	700		Production C.	700	ø100/ø150 - ø 80 x 30 km	
North Eastern			U-110	Rhamu	10,000	4,500	400	Daua R.	4,100		Production C.	4,100	ø250/ø350 - ø 80 x 32 km	
	530	Wajir	U-113	Bure	5,500	800	270			0.13 B/H	530	Chlorination	530	ø100/ø150 - ø 80 x 4 km
			U-114	Eldas	5,200	1,700	60			0.39 B/H	1,640	Chlorination	1,640	ø150/ø200 - ø 80 x 12 km
			U-116	Wajir	66,100	9,200	100			0.212 B/H	9,100	Chlorination	9,100	ø350/ø500 - ø 80 x 60 km
	610	Gusii	U-117	Kisii	120,600	17,000	3,000				9,000	Chlorination	9,000	ø350/ø500 - ø 80 x 79 km
	620	Kisumu	U-119	Ahero	24,100	100	0				100	Chlorination	100	ø50/ø65 - ø 40 x 8 km
			U-120	Kisumu	561,000	75,100	14,300				60,800	Production C.	60,800	ø800/ø900 - ø 100 x 437 km
			U-121	Maseno	8,100	8,100					8,100	Production C.	8,100	ø350/ø450 - ø 80 x 58 km
	630	Siaya	U-123	Aniro	9,400	1,300	0	Nyando R.	1,300		Production C.	1,300	ø150/ø200 - ø 80 x 5 km	
			U-125	Siaya	47,500	8,100	3,700	Yala R.	4,400		Production C.	4,400	ø250/ø350 - ø 80 x 10 km	
Nyanza	640	Homa Bay	U-129	Homa Bay	71,900	13,500	2,000	L. Victoria	11,500		Production C.	11,500	ø400/ø600 - ø 80 x 53 km	
			U-130	Kerudu Bay	7,500	3,200	1,000	L. Victoria	2,200		Production C.	2,200	ø150/ø200 - ø 80 x 37 km	
			U-131	Mbita	11,500	1,700	0	River	1,700		Production C.	1,700	ø150/ø200 - ø 80 x 18 km	
			U-133	Oyugis	12,200	9,400	7,600	Isana R.	1,800		Production C.	1,800	ø150/ø200 - ø 80 x 12 km	
	650	Migori	U-137	Nyehizaye	8,400	1,200	0			1.8 B/H	1,200	Chlorination	1,200	ø150/ø200 - ø 80 x 27 km
			U-138	Rongo	8,000	2,300	700	River	1,600		Production C.	1,600	ø100/ø150 - ø 80 x 15 km	
	660	Nyanira	U-139	Keroka	5,400	800	0				800	Production C.	800	ø200/ø250 - ø 80 x 10 km
			U-140	Nyanira	17,600	5,200	2,500	Kaji R.	2,700		Chlorination	2,700	ø100/ø150 - ø 80 x 10 km	
	710	Kajiado	U-141	Kajiado	32,900	3,300	2,600	Kiserian pipe.	700		Production C.	2,600	ø250/ø350 - ø 80 x 28 km	
			U-142	Magadi	15,500	6,600	1,800	Oloiborto R.	4,800		Chlorination	4,800	ø150 - ø80/ø250 - ø 80 x 14 km	
Rift Valley			U-143	Namanga	25,400	3,000	1,240	Namanga Sp.	1,400	1.400	12 B/H	560	ø400 - ø 80/ø600 - ø 80 x 98 km	
	720	Kapsiga	U-145	Laitokitok	31,400	13,200	460	N. Turesh Sp.	12,200	18 B/H	540	Production C.	13,700	ø400/ø600 - ø 80 x 99 km
			U-148	Koricho	152,500	22,200	8,500				Production C.	1,500	ø150/ø200 - ø 80 x 11 km	
			U-152	Sorik	10,300	1,500	0	Kisumu R.	1,500		Production C.	10,100	ø350/ø500 - ø 80 x 89 km	
	730	Laitopia	U-153	Nanyuki	98,000	19,200	1,350	Liki R.	10,100		Chlorination	60	ø 50 - ø 40 x 10 km	
			U-154	Rumuruti	7,500	1,400	1,350			3 B/H	60			

Table - 8.3.1 (3/3) General Features of Urban Water Supply Project

Province	Code	District	Code	Water Supply Projects of Urban Centre	Planned Population Served	Planned Supply Quantity (m <sup>3</sup> /day)	Existing Capacity	Expanded Supply Quantity and Water Source			Treatment Works (full treatment) (m <sup>3</sup> /day)	Service Reservoir Capacity	New Water Main (dia)/ Reirculation (dia x length)
								River / Lake (m <sup>3</sup> /day)	Boreholes (m <sup>3</sup> /day)	Dam (m <sup>3</sup> /day)			
Rift Valley (conty)	740	Nakuru	U-155	Elburgon	54,600	2,300	500		Itare D.	1,800	Production C.	1,800	ø150/ø200 - ø 80 x 14 km
			U-156	Gigili	65,500	3,100	1,000		Malewa D.	2,100	Production C.	2,100	ø150/ø200 - ø 80 x 17 km
			U-157	Molo	52,400	3,800	1,000		Itare D.	2,800	Production C.	2,800	ø200/ø250 - ø 80 x 22 km
			U-158	Naiwaaha	168,900	17,600	1,000		Malewa D.	16,600	Production C.	16,600	ø450/ø600 - ø 80 x 121 km
			U-159	Nakuru	780,200	116,600	41,000		Malewa, Itare D.	75,600	Production C.	75,600	ø700/ø1,100 - ø100 x 630 km
			U-160	Njoro	41,400	1,900	300		Itare D.	1,600	Production C.	1,600	ø150/ø200 - ø 80 x 12 km
			U-163	Narok	77,200	10,900	1,300		U. Narek D.	9,600	Production C.	9,600	ø400/ø500 - ø 80 x 69 km
			U-164	Kialale	229,300	33,400	17,000		Malben D.	17,500	Production C.	17,500	ø450/ø600 - ø 80 x 148 km
			U-166	Endoret	450,600	54,900	37,400				Production C.	1,600	ø150/ø200 - ø 80 x 12 km
			U-167	Lemok	11,000	1,600	0		0 River	1,600	Production C.	1,600	ø150/ø200 - ø 80 x 22 km
			U-170	Simot	20,500	3,000	500		Sodiani R.	1,000	Production C.	1,000	ø125/ø150 - ø 80 x 9 km
			U-172	Turbo	9,200	1,500	1,000		Povoko R.	2,300	Production C.	2,300	ø150/ø200 - ø 80 x 12 km
			U-174	Kilgoms	25,100	3,900	1,600		0 River	2,300	Chlorination	26,000	ø600/ø800 - ø 80 x 192 km
			U-179	Karumet	32,400	23,600	2,600		Maji Mazun R.	100	Production C.	100	ø 50/ø 65 - ø 40 x 2 km
		U-180	Maji Mazun	22,200	500	400		Chemusau D.	500	Chlorination	500	ø100/ø150 - ø 80 x 3 km	
		U-182	Mogotio	10,600	1,100	600				Production C.	1,500	ø150/ø200 - ø 80 x 41 km	
		U-185	Kapsabet	44,700	6,300	4,800		Makong R.	1,500	Production C.	400	ø100/ø150 - ø 80 x 5 km	
		U-188	Mamial	34,400	1,200	900		Loitas R.	400	Production C.	4,600	ø250/ø350 - ø 80 x 39 km	
		U-189	Wamba	13,600	5,500	900			177 B/H	4,600	Chlorination	2,960	ø200/ø250 - ø 80 x 25 km
		U-190	Makana T.C	7,000	4,600	1,600			148 B/H	2,960	Chlorination	140	ø65/ø 80 - ø 50 x 39 km
		U-194	Lothar	45,300	6,900	6,800			7 B/H	140	Chlorination	140	ø200/ø300 - ø 80 x 25 km
		U-197	Kipenguria	29,600	3,800	600		Espongura R.	3,200	Production C.	3,200	1,600	ø200/ø300 - ø 80 x 24 km
		U-198	Makutano	23,500	3,600	400		Kipenguria R.	3,200	Production C.	3,200	1,600	ø200/ø300 - ø 80 x 24 km
		U-199	Bungoma	114,100	15,100	5,000		Kuywa R.	9,500	Production C.	9,500	4,800	ø350/ø500 - ø 80 x 87 km
		U-202	Kimilili	25,300	39,300	3,000		Kimilili R.	36,300	Production C.	36,300	18,200	ø700/ø900 - ø 80 x 268 km
		U-203	Malakisi	8,400	1,200	1,200		0 Malakisi R.	1,200	Production C.	1,200	1,200	ø150/ø200 - ø 80 x 9 km
		U-205	Weboye	120,600	16,700	1,800		Nzoia R.	14,900	Production C.	14,900	7,500	ø450/ø600 - ø 80 x 108 km
		U-206	Busia	103,600	14,800	10,600		Sio R.	4,200	Production C.	4,200	2,100	ø250/ø350 - ø 80 x 42 km
		U-208	Numbale	7,900	1,100	1,000		Sio R.	1,000	Production C.	1,000	1,000	ø125/ø150 - ø 80 x 7 km
		U-209	Buere	6,500	4,300	600		Vratusi R.	3,700	Production C.	3,700	1,900	ø200/ø300 - ø 80 x 29 km
		U-210	Kakamega	202,500	23,900	9,300				Production C.	14,600	7,300	ø450/ø600 - ø 80 x 121 km
		U-211	Mumias	65,200	10,700	3,700		Nzoia R.	7,000	Production C.	7,000	3,500	ø300/ø400 - ø 80 x 66 km
		U-213	Maseno/Luanda	11,100	24,800	1,600		Eszava R.	23,200	Production C.	23,200	11,600	ø500/ø700 - ø 80 x 170 km

Source: The Aftercare Study Team  
 Note : (1) Figures are rounded in planned population served, planned supply quantity, existing capacity and expanded supply quantity.  
 (2) Existing capacity is estimated as the capacity after completion of rehabilitation works, ongoing projects and planned projects.



Table - 8.4.1(1/3) Summary of Preliminary Cost Estimate for Urban Water Supply

(Unit: thousand US\$)

Code	Urban Center Name	Rehabilitation	Ongoing Projects		Planned/Designed Projects		Newly Proposed Projects	
		Initial Cost	Initial Cost	Annual O&M Cost	Initial Cost	Annual O&M Cost	Initial Cost	Annual O&M Cost
U - 1	Nairobi	0	0	0	0	0	0	0
U - 2	Githunguri	56	0	0	13	7	1,802	53
U - 3	Karuri	88	0	0	1	0	0	0
U - 4	Kiambu	120	0	53	0	0	0	0
U - 5	Kikuyu	147	0	0	1,445	6	12,492	40
U - 7	Ndumbeni	0	0	0	0	0	3,849	89
U - 8	Ruiru	185	0	74	0	0	9,712	269
U - 9	Thika	2,641	0	0	0	0	651	27
U - 12	Kerugoya/Kutus	338	0	0	0	0	3,956	114
U - 16	Wanguru	286	44	9	8,183	321	0	0
U - 19	Makuyu	109	0	0	0	0	0	0
U - 20	Maragua	45	0	0	0	46	1,794	53
U - 21	Muranga	319	491	70	0	0	8,195	225
U - 28	Nyahururu	735	0	0	0	0	233,722	288
U - 30	Olkalou	59	0	66	6,547	0	653	27
U - 32	Endarasha	0	16	48	0	0	27	0
U - 33	Karatina	247	0	0	0	0	3,779	107
U - 36	Nyeri	634	0	0	0	0	19,248	516
U - 37	Othaya	933	0	0	0	0	0	0
U - 38	Kilifi	544	0	0	0	0	1,851	54
U - 39	Majengo	0	0	0	0	0	1,120	35
U - 40	Malindi	1,267	0	0	0	0	31,564	233
U - 41	Mamburi	111	0	0	0	0	0	0
U - 42	Mariakani	236	164	13	38	4	693	28
U - 43	Watamu	0	0	0	0	0	1,390	43
U - 44	Kwale	723	0	0	0	0	0	0
U - 45	Lunga Lunga	51	0	0	0	0	735	29
U - 46	Msambweni	142	0	0	0	0	3,796	108
U - 47	Lamu	117	98	54	0	0	678	27
U - 49	Mokowe T.C	66	0	0	0	0	1,517	46
U - 52	Mombasa	0	0	0	0	6,901	0	0
U - 54	Taveta	452	0	0	0	0	0	0
U - 55	Voi	380	0	0	0	0	3,648	104
U - 56	Wundanyi	407	0	0	0	0	759	29
U - 58	Garsen	57	0	0	835	0	2,723	73
U - 59	Ilola	105	0	0	295	0	2,038	59
U - 60	Embu	655	0	0	0	0	6,393	183
U - 61	Runyenjes	62	0	0	0	0	1,548	47
U - 63	Isiolo	547	0	0	0	0	10,073	212
U - 64	Modo Gashe	0	43	21	0	0	0	0
U - 65	Merti	33	0	0	0	0	519	24
U - 68	Kitui	365	0	113	0	0	14,575	0
U - 69	Ahi River	319	0	0	0	0	11,971	36
U - 71	Machakos	627	0	0	0	0	18,379	493
U - 74	Matuu	152	0	0	0	0	3,570	101
U - 77	Kangundo/Tala	95	0	0	0	0	5,309	146
U - 79	Kargi	56	7	13	0	0	1,807	48
U - 80	Korr	0	0	17	0	0	1,867	49
U - 82	Marsabit	65	7	75	2	8	2,156	54
U - 83	Moyale	44	33	26	0	0	2,106	53
U - 84	North Horr	33	0	0	0	0	828	29
U - 85	Sololo	33	0	26	0	0	858	30
U - 86	Meru	570	0	0	0	0	8,894	245
U - 87	Nkubu	130	0	0	0	0	3,728	106
U - 89	Maua	106	0	0	0	0	1,384	43
U - 90	Chuka	99	0	0	0	20	1,310	41