

**Table - 8.4.1(2/3) 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 - 91	Mwingi	145	0	0	0	0	17,530	93
U - 93	Kibwezi	0	0	0	0	0	1,185	38
U - 98	Mito Andei	454	0	0	0	0	3,156	293
U - 104	Garissa	353	5,237	240	0	0	0	0
U - 105	Liboi	63	0	0	0	0	1,852	54
U - 108	Elwak	0	98	6	0	0	1,901	49
U - 109	Mandera	140	98	6	565	60	735	29
U - 110	Rhamu	46	13	6	0	0	3,310	92
U - 113	Bute	54	0	0	0	0	541	24
U - 114	Eldas	36	0	0	0	0	1,653	45
U - 116	Wajir	38	0	0	0	0	9,608	202
U - 117	Kisii	1,012	0	0	0	0	13,730	161
U - 119	Ahero	33	0	0	0	0	238	18
U - 120	Kisumu	1,172	0	0	0	0	77,257	955
U - 121	Maseno	0	0	0	0	0	5,844	165
U - 122	Muhoroni	176	0	0	98	28	0	0
U - 123	Asiro	0	0	0	0	0	1,391	43
U - 125	Siaya	230	0	0	0	54	3,518	99
U - 129	Homa Bay	363	0	0	0	0	8,257	227
U - 130	Kendu Bay	221	0	0	0	0	1,961	57
U - 131	Mbita	0	0	0	0	0	1,602	48
U - 133	Oyugis	985	0	0	0	0	1,680	50
U - 134	Awendo	0	0	0	0	401	0	0
U - 135	Kenhacha	40	0	0	490	3,011	0	0
U - 136	Migori	184	0	0	0	45	0	0
U - 137	Nyabikaye	0	0	0	0	0	1,183	36
U - 138	Rongo	152	0	0	0	0	1,581	47
U - 139	Keroka	0	0	0	0	0	2,084	29
U - 140	Nyamira	117	0	0	82	41	2,280	65
U - 141	Kajiado	533	0	0	0	0	727	28
U - 142	Magadi	340	0	0	0	0	3,709	106
U - 143	Namanga	111	0	0	0	9	2,220	56
U - 144	Ngong	204	52	9	1,199	170	0	0
U - 145	Loitokitok	90	0	0	0	0	12,901	297
U - 146	Ongata Longai	1,004	0	0	0	0	0	0
U - 148	Kericho	778	0	0	0	0	24,315	235
U - 149	Kipkelion	41	0	29	0	0	0	0
U - 151	Londjani	228	49	35	0	0	74,987	0
U - 152	Sotik	0	0	0	0	0	1,474	45
U - 153	Nanyuki	1,140	0	0	0	0	6,758	195
U - 154	Rumuruti	0	0	0	0	28	23,219	15
U - 155	Elburgon	81	0	0	0	0	38,127	46
U - 156	Gilgil	228	0	0	0	0	1,564	51
U - 157	Molo	172	0	0	0	0	7,478	62
U - 158	Naivasha	171	0	0	0	0	19,288	280
U - 159	Nakuru	4,395	0	0	0	0	149,505	1,178
U - 160	Njoro	59	0	0	0	0	10,998	44
U - 163	Narok	249	0	0	0	0	27,242	170
U - 164	Kitale	1,847	0	0	0	0	10,926	304
U - 165	Burnt Forest	174	52	12	0	0	0	0
U - 166	Eldoret	2,690	0	0	7	0	29,724	295
U - 167	Lemok	0	0	0	0	0	1,594	48
U - 169	Moi's Bridge	212	262	30	0	0	0	0
U - 170	Simat	0	0	0	0	0	3,462	82
U - 172	Turbo	127	0	0	0	0	1,143	37
U - 174	Kilgoris	249	0	0	0	0	2,566	69

**Table - 8.4.1(3/3) Summary of Preliminary Cost Estimate for Urban Water Supply**  
(Unit: thousand US\$)

Code	Urban Center Name	Rehabilitation	Ongoing Projects		Planned/Designed Projects		Nwely Proposed Projects	
		Initial Cost	Initial Cost	Annual O&M Cost	Initial Cost	Annual O&M Cost	Initial Cost	Annual O&M Cost
U - 178	Elda Ravine	1,129	0	0	0	0	0	0
U - 179	Karbarnet	451	0	0	0	0	38,098	425
U - 180	Maji Mazuri	98	0	0	0	0	248	18
U - 181	Marigat	146	0	0	0	0	0	0
U - 182	Mogotio	171	0	0	0	0	35,672	23
U - 183	Iten	95	0	0	0	0	5,038	0
U - 185	Kapsabet	179	0	0	0	0	1,479	45
U - 188	Maralal	184	0	0	0	0	500	23
U - 189	Wamba	75	2	12	0	0	4,865	109
U - 190	Kakuma T.C	218	0	0	33	4	3,132	71
U - 191	Kalokol	43	8	27	33	24	27	0
U - 194	Lodwar	260	29	105	0	0	150	17
U - 195	Lekitang	79	16	16	0	0	27	0
U - 197	Kapenguria	139	0	0	0	0	2,833	77
U - 198	Makutano	101	0	0	0	0	2,836	77
U - 199	Bungoma	641	0	0	346	32	6,472	186
U - 200	Cheptais	505	0	0	0	0	0	0
U - 202	Kimilili	475	0	0	0	0	23,414	633
U - 203	Malakisi	0	0	0	0	0	1,305	41
U - 205	Webuye	300	0	0	0	0	10,159	282
U - 206	Busia	455	655	150	98	98	3,422	96
U - 207	Malaba Town	0	0	266	0	0	0	0
U - 208	Nambale	43	0	0	0	0	1,129	36
U - 209	Butere	74	0	5	0	0	3,102	86
U - 210	Kakamega	1,161	0	0	0	0	10,751	249
U - 211	Mumias	292	0	45	0	0	5,340	148
U - 213	Maseno/Luanda	309	0	0	0	0	15,331	419
U - 214	Mbale	114	0	0	982	451	34	0
U - 215	Vihiga/Majengo	41	0	0	6,137	3,126	0	0
Total		44,505	7,474	1,676	27,429	14,895	1,243,036	14,235

**Table - 9.2.1(1/5) List of On-going and Planned/Designed Projects Included in Long Term Water Supply Plan (LSRWS, SSRWS)**

Province	Code	District	LSRWS				SSRWS			
			On going	Planned/Designed	Newly Proposed		On going	Planned/Designed	Newly Proposed	
					Applied Model	Number of Models			Applied Model	Number of Models
Central	210	Giambo	- Mutinbei - Karwed - Kamothai Ph II - Gambia Rural - Juja - Mnyu		LS-1 LS-2	0 0	Thimba - Mtuakiri - Gwanda Ngabo - Gwanyaga	- Kinga - Kamoga - Ebitoni - Githiga - Mutithi Kadogo - Magias Chiberego - Mutibande - Gwaga Gufa - Kinde Sec - St. Anne Kishi - Nyakanda - Kamithu Tarabaa - Kagaa - Juja Farm - Gachiro	SS-1 SS-2	168 187
	220	Kirinyaga	- Kabare - Kalo - Karira		LS-1 LS-2	0 0	- Rapiheru Kamonyaga - Maralini - Kamweli - Kibera W.P - Ngidani - Thumata Sec Sek		SS-1 SS-2	0 0
	230	Murang'a	- Kigumo - Muthiya Ph I - Gatango - Othuri		LS-1 LS-2	0 0	- Kibari - Thangira - Gathunguru - Karibisi - Kigumo		SS-1 SS-2	328 130
	240	Nyandarua	- Njabini W.P - Mukongi - Muhonia Turuha - Othuru - Nyakariga Kangui - Ol Joro Orok West - Leshau Karogini Ph I - Nlaragwa - Krambaga - Ngorika - Ruri Ngwanjio - Mugumo - Ol Kalou - Kagaa - Shebutwa - Mufelthia - Kipigiri - Muthangira - Mukeo		LS-1 LS-2	0 0	- Maraki B.Hole - Karuri B.Hole - Kariba - M'langine Nyakianbi - U'Gigi Ph II - Kiburi - Tumani Hosp w's	- Molele	SS-1 SS-2	0 0
	250	Nyeri	- Gataraga Loc. - Meriga Div. - Kanduni - Buguri - Enduasha Settlement - Warika - Kinyali - Kiatini - Maragwa - Ndishi-Mbiti		LS-1 LS-2	0 0	- Gathanga - Ndaraki Int. - Kiguro - Nyariba - Kabadeni Int. - Kabadeni Ngung'iro - Tigie (Tetu Thungwa Ang) - Muboyas - Labura - Kiguro & Kamachibi - Ujiri Karatu		SS-1 SS-2	0 0
Coast	310	Kilifi	- Bamba Nyayo - Ruruma Mwarasa - Kiwasap - Kayungu - Mpanberi Gongoni - Kibocani - Mwarpa Settlement - Mgarini - Kaloleni Rehab. Dams		LS-1 LS-2	0 0	- South Chonyi - Mbagani	- Nyari - Ng'orbeni	SS-1 SS-2	1,170 466
	320	Kwale		- Coast ASAL Prog.	LS-1 LS-2	0 0	- Mbuguni Miza - Warihi Jibia - Saaburu Sitaloni - Kioje Bamba - Mkwiro Jibia - Mbagamba Dam - Saaburu Rasch	- Kasungu Dam - Galace Dam - Mwarupeta Rock Catch	SS-1 SS-2	1,036 413
	330	Lamu	- Lamu / Mkwere aug. - Central Water Supply		LS-1 LS-2	0 0	- Konga Shaloni - Kivaya Chandoni - Kitiga M'kiani - Mpeketoni Sec w's - Mkwere Roof Cat - Fata Djibias		SS-1 SS-2	0 0
	340	Mombasa	- Mwarui, Makaburini	- Timbani Line Ext - Shika Adaba Disp. Line - Barshaba, Fiere Town Line	LS-1 LS-2	6 0	- Parshaba - Sulamaba W.S - Pangladesh W.S - Bokofo Mwaraga - Hodi Hodi W.S - Barshaba Msharazi W's - Kerekeni Utanga - Buganyo Mang'anya W's - Deyungu - Timbani W.S		SS-1 SS-2	0 0

Table - 9.2.1(2/5) List of On-going and Planned/Designed Projects Included in Long Term Water Supply Plan (LSRWS, SSRWS)

Province	Code	District	LSRWS				SSRWS					
			On-going	Planned/Designed	Newly Proposed		On-going	Planned/Designed	Newly Proposed			
					Applied Model	Number of Models			Applied Model	Number of Models		
Coast (cont'd)	350	Talo	Mtale Phase II Mbatara Mvambirwa Josa Madambogho Ronge Nyika Makhu Sagbwa Mghombonyi Chela Chomvini				Gumba Mvanda Phase B Mashigali Wanganga Faranga/Mdanganga Mzoze Mwanwaba Mghodinyi Iyale Madanyi Irilo Shiguo Mwaraka Rongji Nyabe Mvuhii Chazi Mjigbu Baguta Rock Catchment Baguta Mungu Rakanga Ngungu Ndume Makwasinyi Baguta Nyoro Kubwa Flood Control & Drain Kanoriro Mughu Mwalup Panga Muruti Mubulo Kabusha					
					LS-1 LS-2	0 0			SS-1 SS-2	0 0		
	360	Tana River	Oda Coast ASAL Project		LS-1 LS-2	0 0	Bagale Wells Ngao		SS-1 SS-2	23 28		
Eastern	410	Embu	Gachoka		LS-1 LS-2	0 0	Kase Kaswari	Kasjire Kaswari Earth Dam Kithung'ithia Gashagan Springs		SS-1 SS-2	337 134	
	420	Isiolo	Modogache W.P. Range Water Lvs. Prog. Oldonyiro W.P.		LS-1 LS-2	0 0	Ebiti W.P. Eldera W.P. Dhadha W.P.		SS-1 SS-2	0 0		
	430	Kiuri	Ithini Kavuta Nereu Uigana Krasit M'birini Kamaha Mubungu Kithumonia Ahi Yata Ph.I Ilika Phase I Kakeani Thua Kinakoni Mubale Tufa Mutha-Kabiani Ukasi Kitho W.P. Umasi Dam		LS-1 LS-2	0 0	Niina Kaitoni Karute Ngunguni		SS-1 SS-2	557 222		
	440	Masaku	Kwambaga Muroi piping & Kibauni Masinga Ithanga Kibauni Kalama		LS-1 LS-2	0 0	Mutindi Memorial Kibaunani Kanza		SS-1 SS-2	785 313		
450	Masabii	Mwayile Lami H-fale Loyangalani W.S. Solole Hand Pump Badassa W.S. Rehabilitated		LS-1 LS-2	0 0	Dulaan Musaria Dam Urui Kalaba Godora Dabel Solole Rock Catch. Gatal Gravity L. Karibot Pan Nguroni P/L Tank Korri Hand Pump Korri Wind Mills Ithui Hand pumps Mungata Jilo Dam Sakoo Roof Catchment Tank Badassa Pri. Sch. Catchment Tank South Horr Dabel I Aite Well (Protection)		SS-1 SS-2	0 0			
460	Meru	C.C.M. Kimite Lower Kikangira Mbugunda Nyakairo Kithini Mari Katheni Ontulii Central Abethoguchi Mutua Mijwa S.H. Katheni Nhimbiri Gikui Mweru S.H. Ochua W.P. Memea Naari Kirua				Kaaga Ir. W.P. Mugusa Mijera Mugusa Kathara Gwatera Mwitethia Mvua Ndorunuro Diise Kirungwa Mugusa Temau Kigara Miaraga Kirie Nkurui						

**Table - 9.2.1(3/5) List of On-going and Planned/Designed Projects Included in Long Term Water Supply Plan (LSRWS, SSRWS)**

Province	Code	District	LSRWS				SSRWS						
			On going	Planned/Designed	Newly Proposed		On going	Planned/Designed	Newly Proposed				
					Applied Model	Number of Models			Applied Model	Number of Models			
Eastern (cont'd)			- Ngonga Makandune - Kigochia Galmbi - Githina Uwoja										
	479	Nyamirere	- Riki (Kaongoni) - Chwe - Ahuni Rungu - Kiritu M'wi - Anibochia - Ituni - Gatuntwe - Kirirabi - Kando-Mula - K.K Mwehe - Nairiri										
	480	Tharaka Nithi	- Tharaka Water & Sanitation Pro. - Magumoni - Ganchuku - Gata Karibaba	- Karirani									
	490	Mwingi	- Ukasi - Muthiki/Kalini - Ngombeni W.S	- Kabee									
	490	Makueni	- Khasani - Wote (Rehab.) - Mbitini - Kithaayo - Kikumbulyu - Kikiasa - Ndoi - Mithangathi - Haasu - Shallow Well Prog. - Small Earth Dam Prog. - Kwinyibia - Karibi-Kiengoi										
North Eastern	510	Garissa	- Bulgole - Kamboni - Raja - Garissa Urban										
	520	Mandera		- Takaba - Danasa B'h (Quramadhun)									
	530	Wajir	- Diff B'hle - Turbaj B'hle - Grina B'hle - Korondile B'h - Wajir UWS	- Lensayo - Buna - Wargadod - Dugow - Bataw - Burber									
Nyanza	610	Guthi	- Kiseri - Bironjo - Etayo - Geinerei - Kige - Kikindo - Gesuro/Geteri - Igoma										
	620	Kisumu	- Paga Beach - Koronje - Karhoo W.P	- West Kano w/p - Vikenda W.P - NE Kano W.P									
	630	Siaya	- North Sakwa - South Sakwa - Uranga/Ramula - Asambo Bay - KFWSP Well & Bb Prog.										

Table - 9.2.1(4/5) List of On-going and Planned/Designed Projects Included in Long Term Water Supply Plan (LSRWS, SSRWS)

Province	Code	District	LSRWS				SSRWS			
			On going	Planned/Designed	Newly Proposed		On going	Planned/Designed	Newly Proposed	
					Applied Model	Number of Models			Applied Model	Number of Models
Nyanza (cont'd)	640	Ikoma Bay	- Obera - Nyandura - Kanyaloo		LS 1 LS 2	0 0	- Gut Kojwei	- Auenzi/Rangwa	SS 1 SS 2	262 164
	653	Migoroi	- Karungu - Maralder		LS 1 LS 2	0 0	- FOCNP - Kroya/Netherland RDWSP - AFD RWS - DCHERWD	- Ongo Health Centre - KKGC W/P - Nyaraba W/P - Keguaga H/S - Masaba W/P	SS 1 SS 2	2280 911
	660	Nyamira	- Eronge - Tinga - Nyamirya Mzuka w/p		LS 1 LS 2	0 0	- Eterenyo	- Marich	SS 1 SS 2	594 237
Kifr Valley	710	Kajjido	- Eremt - Ongata Rangai - Namelopo		LS 1 LS 2	0 0	- Basi/Mayaraha - Kisiya - Ngog(Oken) - Mosiro - Oltiramatian		SS 1 SS 2	0 0
	720	Kipsigis	- Londiani Rehab. - Kipteleo Rehab.		LS 1 LS 2	0 0	- Fort Ternan - Chemogoch	- Kabianga - Tuguenon - Tellet	SS 1 SS 2	2167 866
	730	Laikipia	- Wumirile w/p - Lorian OMC w/p - Ndurumo Ninjoc - Laikipia West w/p - Maranya Wabini w/p - Ngwainiro W/P		LS 1 LS 2	0 0	- Rwariba W/P - Sofina W/P - East Laikipia w/p - Makuriani W/P - Augus of Duldul w/p - Kaja Dam W/P - Ngambolo Dam	- Mwiruria SH w/p - Romurati Road - Kauga Na Gwika w/p	SS 1 SS 2	346 138
	740	Nakuru	- Ngata Karoba W.P - Sotai Menengai	- Lare Kithingo	LS 1 LS 2	0 0	- Kerogoro W.P - Kiora W/P - Mwaribi Barot - Budo Borchole - Wangororo W.P		SS 1 SS 2	0 0
	750	Narok	- Imashariani - N'Enkare - Mosiro Pans	- Naroktura Irr. Proj.	LS 1 LS 2	6 1	- Otinyei	- Mosiro Pans - M'Moto Pan - Lushoto W/P - Nkinyei W/P - Itururam Pan - Kijirijir - Shabal dungwa - Nalaua W/S	SS 1 SS 2	281 112
	760	Trans Nzoia	- Kiminini - Kimondo - Sibanga - Kachibosa		LS 1 LS 2	0 0	- Sitiranga - Kaisgat	- Endibosa	SS 1 SS 2	1749 698
	770	Uasin Gishu	- M'SS Bridge - Ainabkoi - Yamumbi - Sambur		LS 1 LS 2	0 0	- Kiptabus - Farakwa - Turborua Matharu - Kiptarua Dam - Louito Kapigotany - Madungu - Ousongui - Kerendet - Lensoo - Kesaa - District Hosp Eldoret - Sagot		SS 1 SS 2	0 0
	780	Bomet	- Segufet - Kapuruse Dam - Kapitelengwet		LS 1 LS 2	0 0	- Longisa Hospital - Merigi Sec Sch - Lala'Gich Dam	- Longisa Dam - Koiwa Hospital - Mugango Sec. Sch - Chesoon - Kapigirio - Marayia	SS 1 SS 2	2682 1071
	790	Transmara	- Otolmasani W.P		LS 1 LS 2	8 1	- Raitas W/P - Esosara W/P - Njigahip W/P	- Oidoyo Ranch - Nakiyano W/P - Bido'aho W/P - Dampila W/P - Kariakoo W/P - Esoswa Dahir - Marika W/P - Sagri W/P	SS 1 SS 2	0 0
	810	Baringo	- Sacho'Benoo - Auroo Saimo - Kabarirojo Kukuvi - Timboroa - Torongo - ASAL Programme		LS 1 LS 2	0 0	- Radat/Maji Moto - Rehabilitation - W.Conservation Structures OCU - Sabor	- Nowro	SS 1 SS 2	0 0
820	Elgeyo Marakwet	- Kapcherop Ph I - Seigot - Resim - Chesingei Cheptingei - Seigot - Lekwa		LS 1 LS 2	0 0	- Lekwa - Epke Enis - Nyali/Motany - Chepkel'izi - Kapkitony - Epke Enis - Kapkitony - Nyali/Motany - Eranaon - Kipakara - Rinoi - Mukwano - Mereri	- Kapowar Extension - Kapowar Extension - Kapowar Extension - Kapowar Extension	SS 1 SS 2	471 190	
830	Naadi	- Sarora W/P - Meilelei - Kiptarua Dam - Ketharak W/P - Kaigot - Kapcherwa - Kimam		LS 1 LS 2	0 0	- Mironber - Eason Centre - Kisiyot B.H - Kapigotak Sec Sch - Eason Techno/Poly	- Kilwaai - Kapkwang - Mdot - Meigot	SS 1 SS 2	1815 724	

Table - 9.2.1(5/5) List of On-going and Planned/Designed Projects Included in Long Term Water Supply Plan (LSRWS, SSRWS)

Province	Code	District	LSKWS				SSKWS			
			On going	Planned/Designed	Newly Proposed		On going	Planned/Designed	Newly Proposed	
					Applied Model	Number of Models			Applied Model	Number of Models
Rift Valley (cont'd)	840	Samburu	- Arches Post	- Arches Post	LS-1 LS-2	0 0	- Kiama - Suguta - Boro - Lesipkan - Muri - Opiroi - Bargoi - South Horr - Lokas - Losik - Bargoi 2 Tank - Bargoi Pri Sch - Kwoop - Maibeta - Baralaga - Loijok		SS-1 SS-2	0 0
	850	Turkana	- Kaimok - Kalobeyei - Lokori		LS-1 LS-2	5 0	- Lowarengak - Lerugun - Kapelo - Nanaak - Rock Catchment (Lobitong) - Erroiban - Kalog - Kalter - Kalloro - Kibab		SS-1 SS-2	0 0
	860	West Pokot	- Cheptopessa - Ywalatke/Morbus		LS-1 LS-2	0 0	- Chesogon W/P - Tartu Dam (Relab) - Kachelo Shallow wells - Lomot - Tartu School w/p - Pigiilo W/P - Sarwach Shallow wells - Kauriong W/P		SS-1 SS-2	0 0
Western	910	Bungoma	- Little Nzoia West - Mochi/Milo/Khalumuli - Sichei/Nalondo/L. Kabuchai	- Kaptama/Sik'hendu/Sik'hendu - Matika - Lawakhaha - E/W Sabod - Naliri	LS-1 LS-2	1 0	- Kenya Fished W.W.S.P - Kabuckai - Ndala	- Maruri - Kabala Women Group	SS-1 SS-2	400 159
	920	Busia	- Busia/Mundika - Fanyula/Somata - Mahab/Kochofa - Ojbo/Namasombi - Malaba/Kochofa		LS-1 LS-2	0 0	- Kochofa Rock Catchment - Nzoia Floods - Kadete Wai - Amakro Hills - Magombe Desalting Pr. - Budalang High Sch w/p - Nzoia Flood Control Dyke - Busia Show Ground - Kochofa Rock Catchment	- Lakofis W/P - Siberia W/P - Bejamba - Muanzi W/P - Lihali II W/P - Chesikali/Chemuri w/p - Karoagoto W/P - Alupe W/P	SS-1 SS-2	240 95
	930	Kakamega	- Mwitikya		LS-1 LS-2	0 0	- Siloli	- Shisro W/S - Kibuk - Kinabo - Chesker - Little Nzoia - Lunakonda - Kosgoi - Mwanike	SS-1 SS-2	1908 799
	940	Vihiga			LS-1 LS-2	7 1	- Ochoi - Kigana - Madira Girls w/s - Madira Girls w/s - Chakali P.H - Trinity - Muehola		SS-1 SS-2	659 263

Table - 9.4.1 Number of Required Water Pans for Livestock Water Supply in 2010

Province	Code	District	Supply Capacity for Livestock (m <sup>3</sup> /day)	Livestock Water Demand in 2010 (m <sup>3</sup> /day)	Required New Water Supply for Livestock by 2010 (m <sup>3</sup> /day)	Number of Water Pans Required by 2010 (Nos)	Required Water Supply Period by Water Pans
Nairobi	110	Nairobi	978	1,378	400	1	C
Central	210	Kiambu	2,907	4,095	1,188	3	C
	220	Kirinyaga	1,723	2,428	704	3	B
	230	Murang'a	3,098	4,364	1,266	3	C
	240	Nyandarua	5,110	7,199	2,089	4	C
	250	Nyeri	3,116	4,390	1,274	3	C
Total in Central Province			15,955	22,475	6,521		
Coast	310	Kilifi	1,943	2,737	794	3	B
	320	Kwale	4,468	6,294	1,826	7	B
	330	Lamu	735	1,035	300	2	B
	340	Mombasa	140	198	57	1	C
	350	Taita	944	1,330	386	2	B
	360	Tana River	9,413	13,261	3,847	14	B
	Total in Coast Province			17,643	24,854	7,211	
Eastern	410	Embu	3,298	4,646	1,348	5	B
	420	Isiolo	751	1,058	307	2	A
	430	Kitui	8,995	12,671	3,676	14	B
	440	Masaku	6,881	9,693	2,812	11	B
	450	Marsabit	6,603	9,301	2,698	15	A
	460	Meru	3,406	4,797	1,392	6	B
	470	Nyambene	2,943	4,146	1,203	5	B
	480	Tharaka Nithi	3,550	5,000	1,451	6	B
	490	Mwingi	4,337	6,109	1,772	7	B
	4A0	Makueni	53,214	74,963	21,749	79	B
Total in Eastern Province			93,978	132,386	38,408		
North-Eastern	510	Garissa	44,381	62,520	18,138	98	A
	520	Mandera	10,132	14,272	4,141	23	A
	530	Wajir	17,413	24,530	7,117	39	A
Total in North-Eastern Province			71,926	101,322	29,396		
Nyanza	610	Gusii	5,469	7,705	2,235	5	C
	620	Kisumu	7,270	10,241	2,971	6	C
	630	Siaya	7,826	11,025	3,199	6	C
	640	Homa Bay	4,392	6,187	1,795	4	C
	650	Migori	2,644	3,725	1,081	2	C
	660	Nyamira	4,890	6,888	1,998	4	C
Total in Nyanza Province			32,491	45,770	13,279		
Rift Valley	710	Kajiado	18,467	26,015	7,548	28	B
	720	Kipsigis	4,198	5,914	1,716	4	C
	730	Laikipia	4,923	6,935	2,012	8	B
	740	Nakuru	44,364	62,495	18,131	33	C
	750	Narok	10,476	14,758	4,282	16	B
	760	Trans Nzoia	2,364	3,330	966	2	C
	770	Uasin Gishu	6,552	9,230	2,678	5	C
	780	Bomet	7,440	10,481	3,041	6	C
	790	Transmara	3,939	5,549	1,610	3	C
	810	Baringo	29,367	41,370	12,002	44	B
	820	Elgeyo Marakwet	1,565	2,205	640	2	C
	830	Nandi	6,528	9,195	2,668	5	C
	840	Samburu	7,841	11,045	3,205	18	A
850	Turkana	5,417	7,631	2,214	12	A	
860	West Pokot	7,652	10,780	3,127	12	B	
Total in Rift Valley Province			161,094	226,932	65,839		
Western	910	Bungoma	5,377	7,575		4	C
	920	Busia	3,323	4,680		3	C
	930	Kakamega	7,867	11,082		6	C
	940	Vihiga	3,376	4,755		3	C
Total in Western Province			19,942	28,092	0		
<b>TOTAL</b>			<b>414,006</b>	<b>583,210</b>	<b>161,053</b>	<b>597</b>	

Source: Calculated by the Study Team

Note: A: 9 months B: 6 months C: 3 months



Table - 9.5.1 Summary of Preliminary Cost Estimate for LSRWS  
(Unit : 1,000 US\$)

Province	District	Rehabilitation	On-going 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
Nairobi	Nairobi	0	0	0	0	0	0	0
Central	Kiambu	5,805	1,637	322	0	0	0	0
	Kirinyaga	4,515	492	83	0	0	0	0
	Moranga	1,613	1,154	1,620	0	0	0	0
	Nyandarua	2,580	1,076	633	0	0	0	0
	Nyen	1,290	1,682	494	0	0	0	0
Coast	Kilifi	1,290	1,016	427	0	0	0	0
	Kwale	645	0	0	120	26	0	0
	Lamu	323	98	79	0	0	0	0
	Mombasa	1,613	31	45	52	0	9,395	201
	Tata	1,935	0	87	0	0	0	0
	Tana River	645	82	38	0	0	0	0
Eastern	Embu	1,935	164	113	0	0	0	0
	Isiolo	645	58	244	0	0	0	0
	Kitui	968	6,718	255	0	0	0	0
	Masaku	3,870	7,379	467	0	0	0	0
	Marsabit	4,193	105	327	0	0	0	0
	Meru	968	843	339	0	0	0	0
	Nyambene	3,225	3,306	227	0	0	0	0
	Tharaka Nithi	1,290	241	183	49	44	0	0
	Mwingi	645	124	62	196	2	15,328	345
	Makueni	1,290	3,432	458	0	0	0	0
North-Eastern	Garissa	2,258	5,258	146	0	0	0	0
	Mandera	1,935	0	0	292	18	7,829	168
	Wajir	3,870	96	59	334	0	914	42
Nyanza	Gusii	1,935	994	271	0	0	0	0
	Kisumu	3,548	250	81	820	86	0	0
	Siaya	4,515	1	1,330	0	0	0	0
	Homa Bay	645	1,895	1,084	0	0	0	0
	Migori	323	160	383	0	0	0	0
	Nyamira	1,613	17	108	0	0	0	0
Rift Valley	Kajiado	2,258	259	65	0	0	0	0
	Kipsigis	645	49	32	0	0	0	0
	Laikipia	323	1,601	565	0	0	0	0
	Nakuru	2,258	823	36	900	55	0	0
	Narok	1,935	424	49	88	7	12,196	279
	Trans Nzoia	0	761	85	0	0	0	0
	Uasin Gishu	2,580	744	187	0	0	0	0
	Bomet	968	103	49	0	0	0	0
	Transmara	645	131	23	0	0	15,328	347
	Baringo	1,290	1,040	155	0	0	0	0
	Elgeyo Marakwet	1,613	2,486	222	0	0	0	0
	Nandi	968	1,391	122	0	0	0	0
	Sambaru	2,580	7	9	39	11	0	0
	Turkana	1,935	9	34	0	0	7,829	167
	West Pokot	1,613	382	985	0	0	0	0
Western	Bungoma	4,515	1,309	182	843	167	1,566	33
	Busia	2,903	4,619	407	0	0	0	0
	Kakamega	2,258	82	9	0	0	0	0
	Vihiga	1,935	0	0	0	0	13,762	313
Total		95,138	54,226	13,184	3,734	416	84,147	1,895

Note: LSRWS - Large Scale Rural Water Supply

Table - 9.5.2 Summary of Preliminary Cost Estimate for SSRWS

(Unit : 1,000 US\$)

Province	District	On-going Projects		Planned/Designed Projects		Newly Proposed Projects	
		Initial Cost	Annual O&M Cost	Initial Cost	Annual O&M Cost	Initial Cost	Annual O&M Cost
Nairobi	Nairobi	0	0	0	0	0	0
Central	Kianbu	0	0	625	40	2,334	23
	Kirinyaga	199	17	0	0	0	0
	Muranga	0	0	0	37	3,633	36
	Nyandarua	32	20	5	8	0	0
	Nyeri	147	31	0	0	0	0
Coast	Kilifi	25	11	22	4	4,784	48
	Kwale	226	24	404	62	4,118	41
	Lamu	351	2	0	0	73	1
	Mombasa	142	0	0	0	0	0
	Taita	129	29	0	0	0	0
	Tana River	0	0	133	6	244	2
Eastern	Embu	0	4	226	27	1,283	13
	Isiolo	282	6	0	0	0	0
	Kitui	41	10	0	0	1,774	18
	Masaku	0	11	0	0	2,699	27
	Marsabit	35	60	0	0	0	0
	Meru	1,092	135	0	0	0	0
	Nyambene	89	17	0	0	1,513	15
	Tharaka Nithi	372	1	0	0	218	2
	Mwingi	162	27	147	6	1,036	10
Makueni	39	27	1,047	4	2,661	27	
North-Eastern	Garissa	17	7	0	0	55	1
	Mandera	201	12	0	0	420	4
	Wajir	0	0	0	0	20	0
Nyanza	Gusii	27	19	196	4	16,301	163
	Kisumu	15	4	25	0	1,207	12
	Siaya	558	3	0	60	0	0
	Homa Bay	20	0	65	15	986	10
	Migori	0	0	49	2	6,754	68
	Nyamira	16	5	25	3	2,134	21
Rift Valley	Kajiado	716	10	0	0	196	2
	Kipsigis	37	8	57	19	7,003	70
	Laikipia	851	9	82	2	1,174	12
	Nakuru	1,561	0	0	0	828	8
	Narok	13	3	116	119	1,038	10
	Trans Nzoia	172	9	2	0	5,671	57
	Uasin Gishu	1,282	24	0	0	0	0
	Bomet	144	6	553	15	8,431	84
	Transmara	79	12	164	69	0	0
	Baringo	0	11	57	87	0	0
	Elgeyo Marakwet	0	54	36	4	1,616	16
	Nandi	52	11	167	6	6,176	62
	Samburu	206	33	0	0	0	0
Turkana	106	37	0	0	0	0	
West Pokot	31	9	0	0	0	0	
Western	Bungoma	1	10	0	0	1,519	15
	Busia	728	14	395	8	1,822	18
	Kakamega	982	0	452	9	8,506	85
	Vihiga	2,302	5	0	0	3,014	30
Total		13,477	746	5,049	616	101,239	1,012

Note: SSRWS - Small Scale Rural Water Supply

Table - 9.5.3 Summary of Preliminary Cost Estimate for Livestock Water Supply  
(Unit : 1,000 US\$)

Province	District	Newly Proposed Projects	
		Initial Cost	Annual O&M Cost
Nairobi	Nairobi	31	305
Central	Kiambu	92	915
	Kirinyaga	92	915
	Muranga	92	915
	Nyandarua	122	1,220
	Nyeri	92	915
Coast	Kilifi	92	915
	Kwale	214	2,135
	Lamu	61	610
	Mombasa	31	305
	Taita	61	610
	Tana River	427	4,270
Eastern	Embu	153	1,525
	Isiolo	61	610
	Kitui	427	4,270
	Masaku	336	3,355
	Marsabit	458	4,575
	Meru	183	1,830
	Nyambene	153	1,525
	Tharaka Nithi	183	1,830
	Mwingi	214	2,135
North-Eastern	Makueni	2,410	24,095
	Garissa	2,989	29,890
	Mandera	702	7,015
Nyanza	Wajir	1,190	11,895
	Gusii	153	1,525
	Kisumu	183	1,830
	Siaya	183	1,830
	Homa Bay	122	1,220
	Migori	61	610
Rift Valley	Nyamira	122	1,220
	Kajiado	854	8,540
	Kipsigis	122	1,220
	Laikipia	244	2,440
	Nakuru	1,007	10,065
	Narok	488	4,880
	Trans Nzoia	61	610
	Uasin Gishu	153	1,525
	Bomet	183	1,830
	Transmara	92	915
	Baringo	1,342	13,420
	Elgeyo Marakwet	61	610
	Nandi	153	1,525
	Samburu	549	5,490
	Turkana	366	3,660
West Pokot	366	3,660	
Western	Bungoma	122	1,220
	Busia	92	915
	Kakamega	183	1,830
	Vihiga	92	915
Total		18,209	182,085

Table - 10.2.1 (1/3) Sewage Planning for Urban Centre

No.	Urban Name	Type & Age of Treatment	Population connected to sewer 1998 (a)	Population connected to sewer 2010 (b)	Incremental population connected to sewer (b-a)	Total Incremental population connected to sewer	Existing Treatment works capacity m <sup>3</sup> /day (c)	Dry weather flow 2010 m <sup>3</sup> /day (d)	Incremental treatment capacity m <sup>3</sup> /day (d-c)	Total Incremental treatment capacity m <sup>3</sup> /day	Treatment Works				Sewer Reticulation	
											Facility Plan	Build New Facility	Expand Existing Facility	Rehabilitation	New construction or Expand	Rehabilitation
1	Nairobi Dundura	WSP, 92	500,000	755,750	255,750	-	80,000	140,570	60,570	-	Expand Existing Facility & Rehabilitation	none	Provide Incremental treatment capacity for all of Nairobi	Rehabilitation needs De-sludge Maturation pond	Incremental population connected to sewer = 511,500 (person); provide new treatment capacity before extending sewer network	Replacements Existing 25% small Dia. pipe. Cleaning=All main trunk
2	Nairobi Kariobangi	TF, 61	500,000	755,750	255,750	511,500	32,000	140,570	108,570	169,140	Abandon Existing Facility & Build New Facility	provide required capacity at Dandora	none	none		
3	Nakuru-town	TF + WSP, 97	61,750	190,060	128,310	-	6,600	35,351	28,751	-	Expand Existing Facility & Build New	Provide a new facility to meet required treatment capacity	Increase treatment capacity to cover part of future requirement	none	Incremental population connection to sewer = 256,619 (person); extend sewer network up to full design capacity of treatment works before expanding treatment facilities	Rehabilitation needs = none
4	Nakuru-Njoro		61,750	190,060	128,310	256,619	9,600	35,351	25,751	54,502	Expand Existing Facility	none	Increase treatment capacity to cover part of future requirement	none		
5	Mombasa Chengamwe	EA, 98	34,800	184,000	149,200	-	17,100	34,224	17,124	-	Expand Existing Facility	on going construction of new extended aeration treatment works	Increase treatment capacity to cover part of future requirement	none	Incremental population connected to sewer = 298,400 (person); extend sewer network up to full treatment capacity at Chengamwe	Replacements Existing 25% small Dia. pipe. Cleaning=All main trunk
6	Mombasa Kizingo	PS, 61	34,800	184,000	149,200	298,400	32,500	34,224	1,724	18,848	Abandon Existing Facility & Build New Facility	Provide primary treatment facility on North Mainland	none	none		
7	Kisumu Conventional	TF, 84	65,000	140,257	75,257	-	6,800	26,088	19,288	19,288	Expand Existing Facility	none	Increase treatment capacity to cover part of future requirement	none	Incremental population connection to sewer = 150,514 (person); extend sewer network in Nyalenda drainage basin up to treatment capacity, improve water supply conditions.	Replacements Existing 25% small Dia. pipe. Cleaning=All main trunk
8	Kisumu	WSP, 75	65,000	140,257	75,257	150,514	10,855	26,088	15,233	34,521	Rehabilitate existing and Build New	Provide a new treatment facility in accordance with Kisumu JICA Study recommendations	Increase treatment capacity to cover part of future requirement	Rehabilitation needs= De-sludge depth=0.75(m)		
9	Eldoret Conventional	TF, 59	35,200	112,657	77,457	-	1,575	20,954	19,379	-	none	none	none	on-going rehabilitation project	Incremental population connection to sewer = 154,914 (person), extend sewer reticulation after treatment plants are rehabilitated and more capacity is available.	Replacements Existing 25% small Dia. pipe. Cleaning=All main trunk
10	Eldoret Ponds	WSP, 78	35,200	112,657	77,457	154,914	4,800	20,954	16,154	35,533	none	on-going project for design and construction of new WSP	none	on-going rehabilitation project		
11	Machakos	WSP, 72	8,000	203,911	195,911	-	2,000	37,927	35,927	35,927	Abandon Existing Facility & Build New Facility	Provide a new treatment facilities in accordance with existing wastewater master plan	none	none	Incremental population connection to sewer = 195,911 (person); extend sewer network after more treatment capacity is available	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk Pumping station
12	Meru	WSP, 74	800	168,718	167,918	-	2,500	31,382	28,882	28,882	Abandon Existing Facility & Build New Facility	provide a new treatment works at a new site	none	none	Incremental population connection to sewer = 167,918 (person), extend sewer network after more treatment capacity is available	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
13	Nyeri Conventional	TF + ponds, 88	36,000	82,840	46,840	-	6,100	15,410	9,310	-	Expand Existing Facility & Rehabilitation	none	Increase treatment capacity to cover future requirement	Rehabilitation needs= Embankment protection in maturation ponds, Outlet chamber	Incremental population connected to sewer = 128,579 (person), extend sewer reticulation before providing more treatment capacity	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
14	Nyeri Kiganjo	WSP, 88	1,100	82,840	81,740	128,579	2,000	15,410	13,410	22,720	Expand Existing Facility & Rehabilitation	none	Increase treatment capacity to cover future requirement	Rehabilitation needs= Pond inlet, Embankment protection in maturation ponds		
15	Kitale	TF, 57	18,750	57,332	38,582	-	1,830	10,664	8,834	-	Rehabilitation	none	none	Rehabilitation needs = All pumps, Distribution System, digester	Incremental population connection to sewer = 77,164 (person), extend sewer reticulation up to treatment capacity if water supply system is improved.	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk Pumping station
16	Kitale	WSP, 83	18,750	57,332	38,582	77,164	2,930	10,664	7,734	16,568	Rehabilitate existing and Build New	Provide new treatment works to cover incremental capacity required	Increase treatment capacity to cover part of future requirement	Rehabilitation needs = De-sludge depth 0.75(m)		
17	Kakamega Shirere	WSP, 74	25,850	50,629	24,779	-	5,000	9,417	4,417	-	Expand Existing Facility & Rehabilitation	Provide new treatment works to cover incremental capacity required	Increase treatment capacity to cover part of future requirement	Rehabilitation needs= Screen at inlet, Embankment protection	Incremental population connected to sewer = 49,558 (person), improve sewer reticulation after treatment works are rehabilitated.	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk

Table - 10.2.1 (2/3) Sewage Planning for Urban Centre

No.	Urban Name	Type & Age of Treatment	Population connected to sewer 1998 (a)	Population connected to sewer 2010 (b)	Incremental population connected to sewer (b-a)	Total Incremental population connected to sewer	Existing Treatment works capacity m <sup>3</sup> /day (c)	Dry weather flow 2010 m <sup>3</sup> /day (d)	Incremental treatment capacity m <sup>3</sup> /day (d-c)	Total Incremental treatment capacity m <sup>3</sup> /day	Treatment Works			Sewer Reticulation		
											Facility Plan	Build New Facility	Expand Existing Facility	Rehabilitation	New construction or Expand	Rehabilitation
18	Kakamega Kiambi	WSP, 85	25,850	50,629	24,779	49,558	500	9,417	8,917	13,334	Abandon	none	none	none		
19	Thika	WSP, 72	87,230	95,175	7,945	-	6,100	17,703	11,603	11,603	Rehabilitate existing and Build New	Provide new treatment works to cover incremental capacity required in accordance with wastewater master plan	none	Rehabilitation needs = De-sludge depth 0.75 (m). Embankment protection	Incremental population connection to sewer = 7,945 (person), extend sewers after treatment plant expansion in accordance with master plan	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
20	Naivasha	AI, 83	30,000	84,452	54,452	-	2,035	15,708	13,673	13,673	Rehabilitate existing and Build New	Provide new treatment works to cover incremental capacity required	Increase treatment capacity to cover part of future requirement	Rehabilitation needs = De-sludge depth 0.75 (m), All mechanical	Incremental population connection to sewer = 54,452 (person), extend sewers if water supply conditions improve.	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
21	Kericho	TF, 62	41,600	76,261	34,661	-	1,500	14,185	12,685	12,685	Build New Facility	Provide new treatment works to cover incremental capacity required	none	none	Incremental population connection to sewer = 34,661 (person), extend sewer reticulation after more treatment capacity is added.	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
22	Malindi		0	53,661	53,661	-	0	9,981	9,981	9,981	Build New Facility	Provide new treatment works to cover incremental capacity required in accordance with wastewater master plan	none	none	Incremental population connection to sewer = 53,661 (person)	none
23	Webuye	WSP, 73	12,000	48,259	36,259	-	0	8,976	8,976	8,976	Expand Existing Facility & Rehabilitation	none	Increase treatment capacity to cover future requirement	Rehabilitation needs = De-sludge depth 0.75 (m), Inlet chamber	Incremental population connection to sewer = 36,259 (person), extend sewer reticulation before increasing treatment capacity	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
24	Kisii	WSP, 98	13,000	48,246	35,246	-	4,500	8,974	4,474	4,474	Expand Existing Facility	none	Proceed with Phase 2 expansion in accordance with design report.	none	Incremental population connection to sewer = 35,246 (person), extend sewer reticulation prior to treatment plant expansion	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
25	Garissa		0	46,051	46,051	-	0	8,565	8,565	8,565	Build New Facility	Provide new treatment works to cover incremental capacity required	none	none	Incremental population connection to sewer = 46,051 (person)	none
26	Bungoma	WSP	12,600	45,634	33,034	-	45	8,488	8,443	8,443	Build New Facility	Complete on-going project to provide new treatment works	none	none	Incremental population connection to sewer = 33,034 (person), improve water supply conditions before extending sewer reticulation	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
27	Busia (South Teso)	WSP, 88	9,600	41,454	31,854	-	600	7,710	7,110	7,110	Expand Existing Facility & Rehabilitation	none	Increase treatment capacity to cover future requirement	none	Incremental population connection to sewer = 31,854 (person) improve water supply conditions before extending sewer reticulation	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
28	Nanyuki	WSP, 84	24,750	44,089	19,339	-	2,270	8,200	5,930	5,930	Expand Existing Facility & Rehabilitation	none	Increase treatment capacity to cover future requirement	Rehabilitation needs = De-sludge depth 0.75(m), Staff house	Incremental population connection to sewer = 19,339 (person), increase treatment capacity before extending sewer reticulation	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
29	Embu	WSP, 73	9,000	23,100	14,100	-	682	4,297	3,615	3,615	Rehabilitate existing and Build New	Provide new treatment works to cover incremental capacity required	none	Rehabilitation needs = De-sludge depth 0.75(m), Screen	Incremental population connection to sewer = 14,100 (person)	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
30	Isiolo	WSP, 84	1,700	20,902	19,202	-	2,000	3,888	1,888	1,888	Expand Existing Facility & Rehabilitation	none	Increase treatment capacity to cover future requirement	Rehabilitation needs = De-sludge depth 0.75(m), Embankment protection	Incremental population connection to sewer = 19,202 (person)	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
31	Ongata Longai		0	20,337	20,337	-	0	3,783	3,783	3,783	Build New Facility	Provide new treatment works to cover incremental capacity required	none	none	Incremental population connection to sewer = 20,337 (person)	none
32	Maragua		0	20,021	20,021	-	0	3,724	3,724	3,724	Build New Facility	Provide new treatment works to cover incremental capacity required	none	none	Incremental population connection to sewer = 20,021 (person)	none
33	Narok		0	19,347	19,347	-	0	3,598	3,598	3,598	Build New Facility	Provide new treatment works to cover incremental capacity required	none	none	Incremental population connection to sewer = 19,347 (person)	none
34	Homabay	AI, 84	15,000	18,000	3,000	-	750	3,348	2,598	2,598	Rehabilitate existing and Build New	Provide new treatment works to cover incremental capacity required	none	Rehabilitation needs = De-sludge depth 0.75 (m) at aerated lagoon, sedimentation tank, maturation pond, Embankment protection at maturation pond, Inlet	Incremental population connection to sewer = 3,000 (person), improve water supply conditions before extending sewer network	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk

Table - 10.2.1 (3/3) Sewage Planning for Urban Centre

No.	Urban Name	Type & Age of Treatment	Population connected to sewer 1998 (a)	Population connected to sewer 2010 (b)	Incremental population connected to sewer (b-a)	Total Incremental population connected to sewer	Existing Treatment works capacity m <sup>3</sup> /day (c)	Dry weather flow 2010 m <sup>3</sup> /day (d)	Incremental treatment capacity m <sup>3</sup> /day (d-c)	Total Incremental treatment capacity m <sup>3</sup> /day	Treatment Works			Sewer Reticulation		
											Facility Plan	Build New Facility	Expand Existing Facility	Rehabilitation	New construction or Expand	Rehabilitation
35	Ruiru		0	17,500	17,500	-	0	3,255	3,255	3,255	Build New Facility	Provide new treatment works to cover incremental capacity required	none	none	Incremental population connection to sewer =17,500 (person)	none
36	Wajir		0	16,500	16,500	-	0	3,069	3,069	3,069	Build New Facility	Provide new treatment works to cover incremental capacity required	none	none	Incremental population connection to sewer =16,500 (person)	none
37	Muranga	WSP, 73	10,500	15,700	5,200	-	1,564	2,920	1,356	1,356	Expand Existing Facility & Rehabilitation	none	Increase treatment capacity to cover future requirement	none	Incremental population connection to sewer =5,200 (person)	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
38	Nyahururu	A1, 86	18,000	18,056	56	-	2,500	3,358	858	858	Rehabilitation	none	none	Rehabilitation needs = Desludge depth 0.75(m) at aerated lagoon maturation pond, Embankment protection at maturation pond, Floating aerators	Incremental population connection to sewer =56 (person)	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
39	Kilifi		0	14,300	14,300	-	0	2,660	2,660	2,660	Build New Facility	Provide new treatment works to cover incremental capacity required	none	none	Incremental population connection to sewer =14,300 (person)	none
40	Mandera		0	12,900	12,900	-	0	2,399	2,399	2,399	Build New Facility	Provide new treatment works to cover incremental capacity required	none	none	Incremental population connection to sewer =12,900 (person)	none
41	Mavoko (Aithi River)	WSP, 94	1,310	12,110	10,800	-	12,960	2,252	-10,708	-10,708	Rehabilitation	none	none	Rehabilitation needs = Desludge depth 0.75(m)	Incremental population connection to sewer =10,800 (person)	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
42	Kapsabet	WSP, 95	4,000	11,200	7,200	-	1,000	2,083	1,083	1,083	none	none	none	none	Incremental population connection to sewer =7,200 (person)	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
43	Ngong	WSP, 63	750	10,300	9,550	-	230	1,916	1,686	1,686	Build New Facility	Provide new treatment works to cover incremental capacity required	none	none	Incremental population connection to sewer =9,550 (person), provide new treatment facility before extending sewer network	none
44	Voi	WSP, 80	700	8,800	8,100	-	0	1,637	1,637	1,637	Build New Facility	Provide new treatment works to cover incremental capacity required	none	none	Incremental population connection to sewer =8,100 (person)	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
45	Kabarnet		0	8,100	8,100	-	0	1,507	1,507	1,507	Build New Facility	Provide new treatment works to cover incremental capacity required	none	none	Incremental population connection to sewer =8,100 (person)	none
46	Kiambu	OD, 79	2,250	6,407	4,157	-	960	1,192	232	232	none	none	none	none	Incremental population connection to sewer =4,157 (person), extend sewer reticulation up to treatment plant design capacity	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
47	Karatina	WSP	5,109	13,630	8,521	-	317	2,535	2,218	2,218	Expand Existing Facility	none	Increase treatment capacity to cover future requirement	none	Incremental population connection to sewer =8,521 (person)	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk
48	Limuru	OD, 84	2,100	3,043	943	-	550	566	16	16	Build New Facility	Provide new treatment works to cover incremental capacity required	none	none	Incremental population connection to sewer =943 (person)	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk



Table -10.3.1 Sewer Design Parameters

## (1) Relation between Diameter and Pipe Length

Diameter(mm)	% of Pipe Length to the Total	Meters per capita
150	40%	1.14
200	40%	
300	10%	
450	5%	
600	5%	

## (2) Relation between Diameter and Depth of Excavation, Manhole

Diameter (mm)	Depth of excavation(m)	Depth of Manhole(m)
150	1.0-2.0	2
200	1.0-2.0	2
300	2.0-3.0	3
450	2.0-3.0	3
600	3.0-4.0	4

## (3) Rehabilitation and Replacement, Pipe Cleaning of Existing Sewer

Diameter (mm)	Rehabilitation
150	Replacement of 25% existing pipe
200	Replacement of 25% existing pipe
300	Cleaning of all existing pipe
450	Cleaning of all existing pipe
600	Cleaning of all existing pipe





**Table - 10.4.2 Unit Costs for Construction of Sewer Reticulation**

Diameter (mm)	(US\$/m)
150	45
200	53
300	66
450	86
600	136

**Table - 10.4.3 Unit Construction Costs of New Treatment Facilities**

Item	Unit	Rate (US\$)
Excavation	m <sup>3</sup>	3.10
Protection of Embankment	m <sup>2</sup>	6.62
Fence	m	2.94
Site lighting	no.	460
Power & lighting supply line	set	15,500
Staff house	set	34,400

**Table - 10.4.4 Unit Costs of Rehabilitation**

Item	Unit	Rate (US\$)
Desludging stabilization Pond	m <sup>3</sup>	3.02
Repairing & protection of Embankment	m <sup>2</sup>	6.62
Cleaning pipeline	m	1.47
Repairing or replace pipeline	m	150% of providing new pipeline





Table-10.5.1 Annual Maintenance and Repair Cost of Equipment

Urban Name	Direct Cost (US\$)	Funds (a)*0.5%	Treatment works in masonry or in pre-cast concrete	Mass concrete structures e.g. intake-outlets	Earth works generally	Pipes	Rolling Machinery	Road of access	Total
	(a)		(a)*1%	(a)*1%					
Nairobi Dandora	59,419,616	297,098	594,196	594,196	594,196	594,196	594,196	594,196	3,862,274
Nairobi Kariakangi	32,800,824	164,004	328,008	328,008	328,008	328,008	328,008	328,008	2,132,652
Nakuru town	14,535,971	72,679	145,359	145,359	145,359	145,359	145,359	145,359	944,833
Nakuru-Njoro	8,150,009	40,750	81,500	81,500	81,500	81,500	81,500	81,500	529,784
Mombasa Phase I	29,623,566	148,117	296,235	296,235	296,235	296,235	296,235	296,235	1,925,527
Mombasa Phase II	22,176,759	110,883	221,767	221,767	221,767	221,767	221,767	221,767	1,441,485
Kisumu Phase I	14,234,000	71,170	142,340	142,340	142,340	142,340	142,340	142,340	925,210
Kisumu Phase II	23,003,000	115,005	230,010	230,010	230,010	230,010	230,010	230,010	1,495,065
Eldoret Conventional	5,959,240	29,796	59,592	59,592	59,592	59,592	59,592	59,592	387,348
Eldoret Ponds	5,959,240	29,796	59,592	59,592	59,592	59,592	59,592	59,592	387,348
Machakos Phase I	3,662,193	18,310	36,621	36,621	36,621	36,621	36,621	36,621	251,036
Machakos Phase II	3,853,761	19,268	38,537	38,537	38,537	38,537	38,537	38,537	250,490
Meru	20,844,373	104,223	208,447	208,447	208,447	208,447	208,447	208,447	1,354,905
Nyeri Conventional	5,693,669	28,468	56,936	56,936	56,936	56,936	56,936	56,936	370,084
Nyeri Kiganjo	8,368,572	41,842	83,685	83,685	83,685	83,685	83,685	83,685	540,052
Kisumu conventional	3,729,355	18,646	37,293	37,293	37,293	37,293	37,293	37,293	242,404
Kisumu Pond	6,316,319	31,581	63,163	63,163	63,163	63,163	63,163	63,163	410,559
Kakamega Shire	4,902,525	24,512	49,025	49,025	49,025	49,025	49,025	49,025	318,667
Kakamega Kiambi	2,158,259	10,791	21,582	21,582	21,582	21,582	21,582	21,582	140,283
Thika	4,443,358	22,216	44,433	44,433	44,433	44,433	44,433	44,433	288,814
Naivasha	7,146,128	35,730	71,461	71,461	71,461	71,461	71,461	71,461	464,436
Kenya	5,673,391	28,366	56,733	56,733	56,733	56,733	56,733	56,733	368,764
Malindi	5,735,660	28,678	57,356	57,356	57,356	57,356	57,356	57,356	372,811
Webuye	4,579,361	22,896	45,793	45,793	45,793	45,793	45,793	45,793	297,654
Kisumu	3,587,991	17,939	35,879	35,879	35,879	35,879	35,879	35,879	233,213
Garissa	4,749,607	23,748	47,496	47,496	47,496	47,496	47,496	47,496	308,724
Bungoma	4,225,851	21,129	42,258	42,258	42,258	42,258	42,258	42,258	274,677
Busia (South Teso)	3,837,070	19,185	38,370	38,370	38,370	38,370	38,370	38,370	249,405
Nanyuki	2,555,644	12,778	25,556	25,556	25,556	25,556	25,556	25,556	166,114
Embu	2,046,145	10,230	20,461	20,461	20,461	20,461	20,461	20,461	132,996
Isiolo	1,760,890	8,804	17,608	17,608	17,608	17,608	17,608	17,608	114,452
Omigata Longai	3,210,612	16,053	32,106	32,106	32,106	32,106	32,106	32,106	207,685
Maragua	2,177,207	10,886	21,772	21,772	21,772	21,772	21,772	21,772	141,518
Narok	2,105,460	10,527	21,054	21,054	21,054	21,054	21,054	21,054	136,851
Homabay	1,689,455	8,447	16,894	16,894	16,894	16,894	16,894	16,894	109,811
Ruiru	1,910,078	9,550	19,100	19,100	19,100	19,100	19,100	19,100	124,154
Wajir	1,804,025	9,020	18,040	18,040	18,040	18,040	18,040	18,040	117,266
Muranga	689,290	3,446	6,892	6,892	6,892	6,892	6,892	6,892	44,288
Nyahurusu	428,319	2,141	4,283	4,283	4,283	4,283	4,283	4,283	27,839
Kilifi	1,571,295	7,856	15,712	15,712	15,712	15,712	15,712	15,712	102,128
Mandera	1,671,586	8,357	16,715	16,715	16,715	16,715	16,715	16,715	108,647
Marsabit (Ahi River)	1,226,696	6,133	12,266	12,266	12,266	12,266	12,266	12,266	79,725
Kapsabet	566,500	2,832	5,665	5,665	5,665	5,665	5,665	5,665	36,823
Njoro	1,062,507	5,312	10,625	10,625	10,625	10,625	10,625	10,625	69,063
Voi	951,826	4,759	9,518	9,518	9,518	9,518	9,518	9,518	61,867
Kabarnet	913,743	4,568	9,137	9,137	9,137	9,137	9,137	9,137	59,324
Kiambu	326,662	1,633	3,266	3,266	3,266	3,266	3,266	3,266	21,119
Karatina	1,110,927	5,554	11,109	11,109	11,109	11,109	11,109	11,109	72,208
Limuru	267,684	1,338	2,676	2,676	2,676	2,676	2,676	2,676	17,394
Total									22,616,843

Table - 10.5.2 Desirable Staffing for Operation and Maintenance of Sewerage Projects

Category	Annual Manpower Cost (US\$)	No. of Population Served to Sewer (P)					
		25,000 < P ≤ 50,000	50,000 ≤ P < 100,000	100,000 ≤ P < 300,000	300,000 ≤ P		
Management /Process Control	Assistant General Manager	4,458	0	0	0	0	1
	Sewage Work Superintendent	3,790	0	1	1	1	1
	Sewage Work Technician	3,436	1	1	1	1	1
	Inspector	1,963	1	1	2	2	2
Treatment Work	Laboratory Assistant	903	0	1	1	1	2
	Foreman/Supervisor	3,790	1	1	1	1	1
	Mechanical Engineer	3,436	0	0	1	1	1
	Laboratory Technician	1,963	0	1	1	1	2
	Assistant Foreman	1,963	0	1	2	2	2
	Labor	903	1	2	4	6	10
	Driver	903	0	1	1	1	2
Collection System	Watchman	903	1	1	3	5	1
	Sewer Superintendent	3,790	1	1	1	1	1
	Sewer Foreman	3,436	0	0	0	2	2
	Assistant Sewer Foreman	1,963	0	0	1	2	4
	M/E Tradesman	1,963	0	1	2	4	6
	Labor	903	4	6	10	20	30
Total No. of Staff		10	16	28	49	73	
Total Cost (US\$) / Year		18,397	25,935	43,898	74,700	105,228	



Table - 12.4.1(2/2) Priority Ranking of Urban Centres for Implementation of Urban Water Supply Development

Cock	District	Cock	Name of Urban Scheme	1) Service Ratio		2) Supply Conditions		3) Health Conditions		4) Industry & Commerce	5) Tourism	6) Affordability	7) Cost Efficiency	Overall Ranking	
				Q	Rank	Production/ Demand	Rank	Q	Rank					Total Score	Rank
640	Homa Bay	U-129	Homa Bay	113.4	1	19.0	4	87.9	4	2	1	2	15	A	
		U-130	Kendu Bay	250.6	1	11	4	87.9	4	1	1	2	14	B	
		U-131	Mbita	-	2	0.0	4	87.9	4	1	1	1	14	B	
		U-133	Oyugis	397.6	1	18	4	87.9	4	1	1	2	14	B	
650	Nigoni	U-134	Awendo	-	2	0.0	4	72.5	3	1	1	2	14	B	
		U-135	Kenbacha	42.2	2	5.4	4	72.5	3	1	1	2	14	B	
		U-136	Nigoni	23.2	2	24.3	4	72.5	3	2	1	2	15	A	
		U-137	Nyahikase	-	2	0.0	4	72.5	3	1	1	2	14	B	
		U-138	Rongo	85.0	1	56.0	2	72.5	3	1	1	2	11	C	
660	Nyamira	U-139	Keroka	-	2	-	4	93.2	4	1	1	1	14	B	
		U-140	Nyamira	42.5	2	19.5	4	93.2	4	2	1	1	16	A	
710	Kajiado	U-141	Kajiado	55.6	1	64.2	2	72.3	3	2	1	2	11	C	
		U-142	Mugali	100.0	1	92.2	2	72.3	3	1	1	2	12	C	
		U-143	Naragya	37.5	2	54.0	2	72.3	3	1	1	2	11	C	
		U-144	Ngugi	13.3	2	119.7	1	72.3	3	1	1	2	11	C	
		U-145	Taitetikitik	182.6	1	51.3	2	72.3	3	1	1	2	12	C	
		U-146	Ongata Loogai	48.0	2	96.6	2	72.3	3	1	1	2	11	C	
720	Kipng'wa	U-148	Kiricho	100.0	1	65.0	2	68.7	3	2	2	2	14	B	
		U-149	Kipkelion	7.5	2	22.9	4	68.7	3	1	1	2	14	B	
		U-151	Londiani	22.2	2	30.3	3	68.7	3	1	1	2	13	B	
		U-152	Sotik	-	2	0.0	4	68.7	3	1	1	2	14	B	
730	Taitapia	U-153	Nanyuki	81.2	1	45.8	3	56.0	3	1	1	2	13	B	
		U-154	Rumurui	88.9	1	0.0	4	56.0	3	1	1	2	11	B	
740	Nakuru	U-155	Eibungun	20.0	2	45.9	3	47.4	2	1	1	1	11	C	
		U-156	Gilgil	100.0	1	66.8	2	47.4	2	1	1	1	9	C	
		U-157	Mala	33.3	2	54.5	2	47.4	2	1	1	1	10	C	
		U-158	Nakwasha	95.8	1	11.7	4	47.4	2	1	1	1	12	C	
		U-159	Nakuru	64.1	1	95.0	2	47.4	2	2	2	1	12	C	
		U-160	Njoro	25.0	2	31.5	3	47.4	2	1	1	1	11	C	
750	Narok	U-163	Narok	40.0	2	80.2	2	99.0	4	2	1	2	15	A	
760	Trans Nzoia	U-164	Kiate	87.7	1	103.1	1	90.0	4	2	1	2	13	B	
770	Masoiticha	U-165	Burai Forest	36.2	2	200.6	1	86.6	4	1	1	2	1	12	C
		U-166	Eldoret	49.9	2	232.8	1	86.6	4	2	1	2	1	13	B
		U-167	Lenak	-	2	0.0	4	86.6	4	1	1	2	1	15	A
		U-169	Malyi Bridge	24.0	2	75.5	2	86.6	4	1	1	2	1	13	B
		U-170	Simat	-	2	0.0	4	86.6	4	1	1	2	1	15	A
		U-172	Turbo	53.3	1	88.9	2	86.6	4	1	1	2	1	12	C
		790	Transmara	U-174	Kilgoris	80.0	1	1.7	4	99.0	4	2	1	2	15
810	Barigo	U-178	Ela Rarice	197.6	1	92.0	2	47.6	2	1	1	2	11	C	
		U-179	Ka-kamal	51.0	1	12.0	4	47.6	2	2	1	2	14	B	
		U-180	Maji Mazoni	20.0	2	35.9	3	47.6	2	1	1	2	11	C	
		U-181	Mariget	21.2	2	94.5	2	47.6	2	1	1	2	12	C	
		U-182	Mogotio	33.3	2	102.6	1	47.6	2	1	1	2	1	10	C
820	Elgeyo Marakwet	U-183	Jee	14.6	2	164.7	1	47.0	2	2	1	2	11	C	
830	Nandi	U-185	Kapsabet	35.0	2	110.8	1	84.6	4	2	1	1	12	C	
840	Samburu	U-188	Maralal	15.2	2	179.8	1	89.1	4	2	1	1	1	12	C
		U-189	Wamba	100.0	1	33.4	4	89.1	4	1	1	1	2	14	B
		U-190	Kakuma I C	86.7	1	8.8	4	76.1	4	1	1	1	2	14	B
850	Turkana	U-191	Kotokol	49.0	2	2.7	4	76.1	4	1	1	1	1	14	B
		U-193	Lodwar	75.0	1	33.9	3	76.1	4	2	1	1	1	13	B
		U-195	Lokilang	40.0	2	4.0	4	76.1	4	1	1	1	1	14	B
		U-197	Kapenguria	84.6	1	33.0	3	92.3	4	2	1	2	1	14	B
860	West pokot	U-198	Makurao	89.0	1	37.0	3	92.3	4	1	1	2	1	13	B
		U-199	Bungoma	62.5	1	53.5	2	89.6	4	2	1	2	2	14	B
		U-200	Cheraps	-	2	6.0	4	89.6	4	1	1	2	2	16	A
		U-202	Kimili	83.9	1	32.3	3	89.6	4	1	1	2	2	14	B
		U-203	Mafakisi	-	2	0.0	4	89.6	4	1	1	2	1	15	A
		U-205	Webuye	76.9	1	21.3	3	89.6	4	1	1	2	2	14	B
920	Busia	U-206	Busia	34.5	2	89.1	2	74.1	3	2	1	1	2	13	B
		U-207	Malaba Town	-	2	0.0	4	74.1	3	1	1	1	1	13	B
		U-208	Nambale	35.2	2	89.1	2	74.1	3	1	1	1	1	11	C
930	Kakamega	U-209	Buleni	138.7	1	38.7	3	80.0	4	1	1	1	2	14	B
		U-210	Kakamega	29.4	2	184.4	1	80.0	4	2	1	2	1	13	B
		U-211	Mumias	62.2	1	88.3	2	80.0	4	1	1	2	2	13	B
940	Vihiga	U-213	Maseso Luanda	95.8	1	12.8	4	93.2	4	1	1	2	2	15	A
		U-214	Mhale	4.4	2	32.6	3	93.2	4	1	1	2	2	15	A
		U-215	Vihiga Masingo	89.0	1	3.9	4	93.2	4	2	1	2	2	16	A

Note: (1) Nairobi and Mombasa are excluded from the above evaluation.  
 (2) "-" implies urban centers which have sufficient production capacity. Therefore, they are excluded from evaluation



Table - 12.5.1 Priority Ranking of Districts for Implementation of Rural Water Supply Development

Province	Code	District	1) Served Ratio		2) Water Shortage		3) Health Condition		4) Tourism	5) Affordability	6) Cost Efficiency	Overall Ranking	
			%	Rank	Time Spent	Rank	%	Rank	Rank	Rank	Rank	Total Score	Rank
Nairobi	110	Nairobi	96.1	1	5.4	1	67.4	3	2	2	-	-	-
Central	210	Kiambu	60.1	2	23.5	1	56.3	3	1	2	2	11	C
	220	Kirinyaga	74.1	2	20.5	1	64.3	3	1	1	2	10	C
	230	Muranga	79.8	1	18.6	1	48.1	2	1	2	2	9	C
	240	Nyandarua	63.0	2	21.7	1	41.7	2	1	2	2	10	C
	250	Nyeri	61.1	2	17.2	1	35.4	2	1	1	2	9	C
Coast	310	Kilifi	67.2	2	52.7	3	80.5	4	2	1	2	14	A
	320	Kwale	46.5	3	60.5	3	100	4	1	2	2	15	A
	330	Lamu	60.7	2	19.7	1	9.5	4	2	2	1	12	B
	340	Mombasa	95.4	1	16.5	1	96.8	4	2	2	1	11	C
	350	Taita	62.1	2	21.5	1	55.6	3	1	1	2	10	C
	360	Tana River	24.1	4	52.3	3	78.2	4	1	2	2	16	A
Eastern	410	Embu	53.8	2	35.3	2	70.1	3	1	2	1	11	C
	420	Isiolo	73.9	2	20.6	1	69.4	3	1	1	1	9	C
	430	Kitui	47.8	4	74.4	3	66.3	3	1	2	2	15	A
	440	Masaku	38.9	3	35.3	2	85.4	4	1	1	1	12	B
	450	Marsait	96.1	1	100.0	4	62.1	3	2	1	2	13	B
	460	Meru	62.5	2	46.1	2	54.9	3	1	2	1	11	C
	470	Nyambene	36.8	3	0.0	1	54.9	3	1	2	1	11	C
	480	Tharaka Nith	33.7	3	29.0	2	71.1	3	1	1	1	11	C
	490	Nwingi	18.9	4	0.0	1	65.3	3	1	2	2	13	B
	4A0	Makueni	17.9	4	56.3	3	75.9	4	1	1	1	14	A
North-Eastern	510	Garissa	58.3	2	37.6	2	75.4	4	1	2	1	12	B
	520	Mandera	31.3	3	85.3	4	60.6	3	1	2	1	14	A
	530	Wajir	64.3	2	90.2	4	86.6	4	1	2	2	15	A
Nyanza	610	Gusii	31.3	3	34.1	2	99.4	4	1	2	1	13	B
	620	Kisumu	65.5	2	18.7	1	81.3	4	1	2	1	11	C
	630	Siaya	31.1	3	46.3	2	82.7	4	1	1	1	12	B
	640	Homa Bay	26.0	3	43.7	2	87.9	4	1	1	2	13	B
	650	Migori	66.0	4	4.8	2	72.5	3	1	2	2	14	A
	660	Nyamira	43.0	3	38.8	2	93.2	4	1	1	2	13	B
Rift Valley	710	Kajiado	72.9	2	34.2	2	72.3	3	1	2	2	12	B
	720	Kipsigis	44.0	3	30.4	2	68.7	3	2	2	2	14	A
	730	Lakipia	29.3	3	25.2	2	59	3	1	2	1	12	B
	740	Nakuru	74.5	2	41.4	2	47.4	2	2	1	2	11	C
	750	Narok	26.0	3	47.4	2	99	4	1	2	2	14	A
	760	Trans Nzoia	39.6	3	15.7	1	90	4	1	2	1	12	B
	770	Uasin Gishu	58.4	2	0.0	1	86.6	4	1	2	2	12	B
	780	Bomet	29.6	3	36.4	2	45.5	2	1	2	1	11	C
	790	Transmara	11.0	4	0.0	1	99	4	1	2	2	14	A
	810	Baringo	53.3	2	50.8	3	47.6	2	1	2	2	12	B
	820	Elgeyo Marak	29.0	3	28.6	2	47	2	1	2	2	12	B
	830	Nandi	36.8	3	16.6	1	84.6	4	1	2	1	12	B
	840	Samburu	53.4	2	43.8	2	89.1	4	1	1	1	11	C
	850	Turkana	59.3	2	37.8	2	76.1	4	1	1	1	11	C
860	West Pokot	27.6	3	41.5	2	92.3	4	1	2	1	13	B	
Western	910	Bungoma	65.6	2	29.9	2	89.6	4	1	2	2	13	B
	920	Busia	66.6	2	6.8	2	74.1	3	1	1	2	11	C
	930	Kakamega	55.5	2	18.9	1	80	4	1	2	2	12	B
	940	Vihiga	60.5	2	39.0	2	93.2	4	1	2	2	13	B

- Note:1) Non-served ratio for each district is obtained from the 1996 Project Status Report and/or Welfare Monitoring Survey.  
2) Water shortage is considered as a factor of total time spent to collect water by people. Data are obtained from WMS.  
3)&4) Data on Health Condition and affordability of the households are results obtained from the Household Survey conducted in the course of current Study.  
5) Ranking is made according to
- |                |               |
|----------------|---------------|
| 100% - 75% : 4 | 75% - 50% : 3 |
| 50% - 25% : 2  | 25% - 0% : 1  |

Table - 12.6.1 Priority Ranking of Districts for Livestock Water Supply Development

Province	Code	District	Livestock Unit	Score by Rainfall	Score by Livestock Unit	Total Score	Overall Ranking
Nairobi	110	Nairobi	24,458	2	1	3	C
Central	210	Kiambu	72,665	2	1	3	C
	220	Kirinyaga	43,086	2	1	3	C
	230	Muranga	77,446	2	1	3	C
	240	Nyandarua	127,762	2	1	3	C
	250	Nyeri	77,907	2	1	3	C
Coastal	310	Kilifi	48,567	2	1	3	C
	320	Kwale	111,693	2	1	3	C
	330	Lamu	18,367	2	1	3	C
	340	Mombasa	3,511	2	1	3	C
	350	Taita	23,603	3	1	4	B
	360	Tana River	235,333	3	1	4	B
Eastern	410	Embu	82,456	2	1	3	C
	420	Isiolo	18,780	3	1	4	B
	430	Kitui	224,872	3	1	4	B
	440	Masaku	172,023	2	1	3	C
	450	Marsabit	165,067	3	1	4	B
	460	Meru	85,138	2	1	3	C
	470	Nyambene	73,585	2	1	3	C
	480	Tharaka Nithi	88,740	2	1	3	C
	490	Mwingi	108,421	2	1	3	C
	4A0	Makueni	1,330,357	3	2	5	A
North-Eastern	510	Garissa	1,109,528	4	2	6	A
	520	Mandera	253,290	4	1	5	A
	530	Wajir	435,328	4	2	6	A
Nyanza	610	Gusii	136,732	1	1	2	C
	620	Kisumu	181,744	2	1	3	C
	630	Siaya	195,656	2	1	3	C
	640	Homa Bay	109,801	2	1	3	C
	650	Migori	66,101	2	1	3	C
	660	Nyamira	122,243	2	1	3	C
Rift Valley	710	Kajiado	461,684	2	2	4	B
	720	Kipsigis	104,957	1	1	2	C
	730	Laikipia	123,066	3	1	4	B
	740	Nakuru	1,109,094	2	2	4	B
	750	Narok	261,903	4	1	5	A
	760	Trans Nzoia	59,100	2	1	3	C
	770	Uasin Gishu	163,801	3	1	4	B
	780	Bomet	186,004	2	1	3	C
	790	Transmara	98,484	2	1	3	C
	810	Baringo	734,187	3	2	5	A
	820	Elgeyo Marakwet	39,128	2	1	3	C
	830	Nandi	163,190	2	1	3	C
	840	Samburu	196,019	2	1	3	C
	850	Turkana	135,419	3	1	4	B
	860	West Pokot	191,305	3	1	4	B
Western	910	Bungoma	134,429	2	1	3	C
	920	Busia	83,064	2	1	3	C
	930	Kakamega	196,664	1	1	2	C
	940	Vihiga	84,390	1	1	2	C
TOTAL			10,350,151				

Source: The Aftercare Study Team

Table - 12.7.1(1/2) Priority Ranking for Implementation of Sewerage Development

Province	Code	District	Code	Urban Centre	Water & Sanitation Development in 1998				Water & Sanitation Development in 2010				Evaluation				
					Urban Population	Population connected to sewer	% of urban population connected to sewer	Urban Population	Population connected to sewer	% of urban population connected to sewer	Incremental population requiring sewerage	Population with water supply connection not served by sewer	Incremental population requiring sewer services	Potential Health & Environmental Impact	Industrial potential	Tourism Potential	Total score
1	Coast	340	Mombasa	U-52	580,000	69,600	12%	756,000	368,000	50	298,400	3	3	2	3	3	14
2	Nairobi	110	Nairobi	U-1	2,240,000	1,000,000	45%	3,023,000	1,511,500	50	511,500	1	3	3	3	3	13
3	Nyanza	620	Kisumu	U-120	231,327	130,000	56%	561,029	280,514	50	150,514	2	2	2	3	3	12
4	Eastern	440	Machakos	U-71	154,000	8,000	5%	407,822	203,911	50	105,911	3	2	3	2	1	11
5	Eastern	460	Meru	U-86	124,412	800	1%	337,437	168,718	50	167,918	3	2	3	2	1	11
6	Rift Valley	740	Nakuru	U-159	231,687	123,500	53%	760,237	380,119	50	256,619	2	2	2	2	3	11
7	Rift Valley	750	Narok	U-163	19,659	0	0%	77,231	19,347	25	19,347	3	1	3	0	3	10
8	Coast	310	Kilifi	U-40	48,227	0	0%	134,152	53,661	40	53,661	3	1	2	1	3	10
9	Rift Valley	760	Trans Nzoia	U-164	75,000	37,500	50%	229,328	114,664	50	77,164	1	1	3	3	2	10
10	Nyanza	610	Kisii	U-117	65,000	13,000	20%	120,615	48,246	40	35,246	2	1	3	2	1	9
11	Rift Valley	740	Nakuru	U-158	60,000	30,000	50%	108,905	84,452	50	54,452	1	1	2	2	3	9
12	Central	230	Muranga	U-20	39,411	0	0%	79,924	20,021	25	20,021	3	1	3	1	0	8
13	Central	210	Kiambu	U-8	32,302	0	0%	70,142	17,500	25	17,500	3	0	3	2	0	8
14	North Eastern	500	Wajir	U-116	26,239	0	0%	66,062	16,500	25	16,500	3	0	3	0	2	8
15	Central	210	Kiambu	U-9	155,770	5,445	3%	190,350	95,175	50	89,750	3	1	1	3	0	8
16	Rift Valley	720	Kipsiga	U-148	80,000	41,000	52%	152,522	76,261	50	34,661	1	1	3	2	1	8
17	Rift Valley	730	Laikipia	U-153	55,000	24,750	45%	97,975	48,089	45	19,339	1	1	3	3	0	8
18	North Eastern	510	Garissa	U-14	40,000	0	0%	115,126	46,051	40	46,051	3	1	3	0	0	7
19	Rift Valley	710	Kajiado	U-146	25,080	0	0%	81,185	20,337	25	20,337	3	1	3	0	0	7
20	Coast	310	Kilifi	U-38	20,555	0	0%	57,082	14,300	25	14,300	3	0	2	0	2	7
21	Rift Valley	240	Nyandarua	U-28	60,000	18,000	30%	60,186	18,056	30	56	2	0	3	1	1	7
22	Western	910	Bungoma	U-205	60,000	12,000	20%	120,647	48,259	40	36,259	2	1	2	2	0	7
23	Coast	350	Thika	U-55	15,772	700	4%	35,159	8,800	25	8,100	3	0	1	1	2	7
24	Rift Valley	770	Uasin Gishu	U-166	220,000	70,400	32%	450,629	225,314	50	154,914	0	2	1	3	2	7
25	Central	250	Nyeri	U-36	142,000	37,100	26%	331,393	165,697	50	128,597	0	2	1	2	2	7
26	North Eastern	520	Mandera	U-109	22,850	0	0%	51,680	12,900	25	12,900	3	0	3	0	0	6
27	Rift Valley	810	Baringo	U-179	11,804	0	0%	32,363	8,100	25	8,100	3	0	3	0	0	6
28	Central	230	Muranga	U-21	30,000	10,500	35%	62,635	21,980	35	11,480	2	0	3	1	0	6

Table - 12.7.1(2/2) Ranking of Sewerage Development Priorities among Urban Centres

Province	Code	District	Code	Urban Centre	Water & Sanitation Development in 1998				Water & Sanitation Development in 2010				Incremental population requiring sewerage	Evaluation			
					Urban Population	Population connected to sewer	% of urban population connected to sewer	Urban Population	Population connected to sewer	% of urban population connected to sewer	Incremental population requiring sewer services	Potential Health & Environmental Impact		Industrial potential	Tourism Potential	Total score	
																	Population connected to sewer
29 Western	910	Bungoma	U-199	Bungoma	70,000	12,000	18%	114,086	45,634	40	39,034	2	1	2	1	0	6
30 Western	920	Busia	U-206	Busia	48,000	9,600	20%	103,635	41,454	40	21,854	1	1	3	1	0	6
31 Eastern	420	Isiolo	U-63	Isiolo	26,968	1,700	6%	83,440	20,902	25	19,202	3	1	1	0	1	6
32 Rift Valley	830	Nandi	U-185	Kapsabet + Baraton	20,000	4,000	20%	44,693	11,200	25	7,200	2	0	3	0	0	5
33 Nyanza	640	Homa Bay	U-129	Homa Bay	75,000	15,000	20%	71,860	18,000	25	3,000	2	0	3	0	0	5
34 Central	250	Nyeri	U-33	Keratina	7,299	5,109	70%	19,471	13,630	70	8,521	2	0	2	1	0	5
35 Eastern	410	Embu	U-60	Embu	45,000	9,000	20%	92,214	23,100	25	14,100	2	0	1	2	0	5
36 Western	930	Kakamega	U-210	Kakamega	110,000	27,826	25%	202,516	101,236	50	73,432	0	1	1	2	1	5
37 Rift Valley	710	Kajiado	U-144	Ngingu	15,000	750	5%	41,207	10,300	25	9,550	3	0	1	0	0	4
38 Eastern	440	Musaku	U-69	Athi River	50,000	12,500	25%	48,441	12,110	25	-300	1	0	3	0	0	4
39 Central	210	Kiambu	U-4	Kiambu	7,500	2,250	30%	21,356	6,407	30	4,157	2	0	1	0	0	3
40 Central	210	Kiambu	U-6	Lumuro	3,000	2,100	70%	4,347	3,043	70	943	0	0	0	2	0	2

  

Evaluation Factors				Potential Health & Environmental Impact	Industrial potential	Tourism Potential	Rating
% of population with water supply connection not served by sewer	Population requiring sewer services	Potential Health & Environmental Impact	Tourism Potential				
<25%	P<20,000	nil	nil	nil	0		
25 to 50%	20,000< P <100,000	Minor impact on water environment	low	low	1		
50 to 75%	100,000< P <300,000	Serious impact on sensitive ecosystem	medium	medium	2		
>75%	P>300,000	Contamination of drinking water source	high	high	3		

Table - 12.8.1 (1/13) Investment Schedule for Water Supply Development

(Unit: US\$10<sup>3</sup>)

Code	Districts	Component	Work Items	Implementation Schedule															
				1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011			
110	Nairobi	UWS	Rehabilitation Work																
			Ongoing Projects																
			Planned/Designed Projects																
			Newly Proposed Projects																
		Sub-total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		LSRWS	Rehabilitation Work																
			Ongoing Projects																
			Planned/Designed Projects																
			Newly Proposed Projects																
		Sub-total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
		SSRWS	Ongoing Projects																
			Planned/Designed Projects																
			Newly Proposed Projects																
			Sub-total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Livestock		0	0	0	0	0	0	0	2	2	7	7	7	7	7	7			
Nairobi Total				0	0	0	0	0	0	2	2	7	7	7	7	7	7		
210	Kiambu	UWS	Rehabilitation Work	4	4	20	38	35	103	222	222	713	630	630	630				
			Ongoing Projects																
			Planned/Designed Projects	376	376	376	376	376											
			Newly Proposed Projects				383	577	1,144	5,239	7,221	7,221	3,083	3,083	340				
		Sub-total	380	380	396	797	992	1,246	5,461	7,443	7,933	3,713	3,713	970					
		LSRWS	Rehabilitation Work										576	1,729	1,729	1,729			
			Ongoing Projects	327	327	327	327	327											
			Planned/Designed Projects																
			Newly Proposed Projects																
		Sub-total	327	327	327	327	327	0	0	0	576	1,729	1,729	1,729					
		SSRWS	Ongoing Projects																
			Planned/Designed Projects	136	136	136	136	136											
			Newly Proposed Projects								347	347	347	347	347				
			Sub-total	136	136	136	136	136	0	0	347	347	347	347	347				
Livestock		0	0	0	0	0	0	5	5	21	21	21	21	21	21				
Kiambu Total				843	843	859	1,260	1,455	1,246	5,466	7,794	8,877	5,809	5,809	3,067				
220	Kirinyaga	UWS	Rehabilitation Work				17	17	76	76	106	106	64	64	64				
			Ongoing Projects	19	19														
			Planned/Designed Projects			2,618	2,618	2,618											
			Newly Proposed Projects				132	132	132	1,184	1,184	1,184							
		Sub-total	19	19	2,618	2,767	2,767	208	1,260	1,289	1,289	448	1,345	1,345	1,345				
		LSRWS	Rehabilitation Work																
			Ongoing Projects	98	98	98	98	98											
			Planned/Designed Projects																
			Newly Proposed Projects																
		Sub-total	98	98	98	98	98	0	0	0	448	1,345	1,345	1,345					
		SSRWS	Ongoing Projects	43	43	43	43	43											
			Planned/Designed Projects																
			Newly Proposed Projects																
			Sub-total	43	43	43	43	43	0	0	0	0	0	0	0	0	0	0	
Livestock		0	0	0	0	0	0	5	5	21	21	21	21	21	21				
Kirinyaga Total				160	160	2,760	2,909	2,909	208	1,265	1,294	1,756	1,430	1,430	1,430				
230	Murang'a	UWS	Rehabilitation Work				16	16	72	79	79	108	35	35	35				
			Ongoing Projects	209	209														
			Planned/Designed Projects																
			Newly Proposed Projects				272	272	272	2,511	2,511	2,511	537	537	537				
		Sub-total	209	209	0	288	288	345	2,591	2,591	2,619	572	572	572					
		LSRWS	Rehabilitation Work										160	480	480	480			
			Ongoing Projects	231	231	231	231	231											
			Planned/Designed Projects																
			Newly Proposed Projects																
		Sub-total	231	231	231	231	231	0	0	0	160	480	480	480					
		SSRWS	Rehabilitation Work																
			Ongoing Projects																
			Planned/Designed Projects																
			Newly Proposed Projects									242	242	242	242	242	242	242	
Sub-total	0	0	0	0	0	0	0	0	242	242	242	242	242	242	242				
Livestock		0	0	0	0	0	0	0	5	5	21	21	21	21	21				
Murang'a Total				440	440	231	519	519	345	2,595	2,838	3,042	1,315	1,315	1,315				

Table - 12.8.1 (2/13) Investment Schedule for Water Supply Development

(Unit: US\$10<sup>3</sup>)

Code	Districts	Component	Work Items	Implementation Schedule													
				1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
240	Nyandarua	UWS	Rehabilitation Work				40	40	179	179	179	179					
			Ongoing Projects														
			Planned Designed Projects	1,256	1,256	1,256	1,256	1,256									
			Newly Proposed Projects			11,235	11,536	50,851	50,861	53,272	53,272	2,713	537	537	537		
		Sub-total	1,256	1,256	12,491	12,833	52,157	51,040	53,451	53,451	2,892	537	537	537			
		LSRWS	Rehabilitation Work										256	768	768	768	
			Ongoing Projects	215	215	215	215	215									
			Planned Designed Projects														
			Newly Proposed Projects														
		Sub-total	215	215	215	215	215	0	0	0	0	256	768	768	768		
		SSRWS	Ongoing Projects	6	6	6	6	6									
			Planned Designed Projects	1	1	1	1	1									
			Newly Proposed Projects						0	0	0	0	0	0	0	0	0
			Sub-total	8	8	8	8	8	0	0	0	0	0	0	0	0	0
		Livestock		0	0	0	0	0	0	0	6	6	27	27	27	27	
		Nyandarua Total				1,479	1,479	12,714	13,655	52,380	51,040	53,457	53,457	3,175	1,332	1,332	1,332
250	Nyeri	UWS	Rehabilitation Work						21	33	127	411	411	411	411		
			Ongoing Projects	4	4	4											
			Planned Designed Projects														
			Newly Proposed Projects								766	766	766	6,890	6,890	6,890	
		Sub-total	4	4	4	0	0	21	799	893	1,177	7,301	7,301	7,301	7,301		
		LSRWS	Rehabilitation Work										128	384	384	384	
			Ongoing Projects	336	336	336	336	336									
			Planned Designed Projects														
			Newly Proposed Projects														
		Sub-total	336	336	336	336	336	0	0	0	128	384	384	384	384		
		SSRWS	Ongoing Projects	32	32	32	32	32									
			Planned Designed Projects														
			Newly Proposed Projects														
			Sub-total	32	32	32	32	32	0	0	0	0	0	0	0	0	0
		Livestock		0	0	0	0	0	0	0	5	5	21	21	21	21	
		Nyeri Total				372	372	372	368	368	21	804	897	1,325	7,706	7,706	7,706
310	Kisii	UWS	Rehabilitation Work				63	63	287	326	337	458	201	201	201		
			Ongoing Projects	70	70												
			Planned Designed Projects			32	12	12									
			Newly Proposed Projects			1,207	1,441	5,800	5,800	8,469	8,469	3,039	761	761	761		
		Sub-total	70	70	1,219	1,517	5,876	6,087	8,795	8,806	3,526	962	962	962			
		LSRWS	Rehabilitation Work				128	384	384								
			Ongoing Projects	203	203	203	203	203									
			Planned Designed Projects														
			Newly Proposed Projects														
		Sub-total	203	203	203	331	587	384	384	0	0	0	0	0	0	0	
		SSRWS	Ongoing Projects	5	5	5	5	5									
			Planned Designed Projects	4	4	4	4	4									
			Newly Proposed Projects			866	866	866	866	866							
			Sub-total	10	10	875	875	875	866	866	0	0	0	0	0	0	0
		Livestock		0	0	0	0	0	0	0	5	5	21	21	21	21	
		Kisii Total				283	283	2,298	2,724	7,339	7,337	10,050	8,811	3,547	983	983	983
320	Kwale	UWS	Rehabilitation Work	7	7	32	35	108	208	176	176	176					
			Ongoing Projects														
			Planned Designed Projects	23	23	23	23	23									
			Newly Proposed Projects	127	127	127	1,160	1,160	1,160	219	219	219					
		Sub-total	157	157	182	1,218	1,291	1,368	395	395	395	0	0	0	0	0	
		LSRWS	Rehabilitation Work				64	192	192	192							
			Ongoing Projects														
			Planned Designed Projects														
			Newly Proposed Projects														
		Sub-total	0	0	0	64	192	192	192	0	0	0	0	0	0	0	
		SSRWS	Ongoing Projects	49	49	49	49	49									
			Planned Designed Projects	85	85	85	85	85									
			Newly Proposed Projects			767	767	767	767	767							
			Sub-total	136	136	903	903	903	767	767	0	0	0	0	0	0	0
		Livestock		0	0	0	0	0	0	11	11	48	48	48	48	48	
		Kwale Total				293	293	1,685	2,165	2,365	2,327	1,365	406	443	48	48	48

Table - 12.8.1 (3/13) Investment Schedule for Water Supply Development

(Unit: US\$10<sup>3</sup>)

Code	Districts	Component	Work Items	Implementation Schedule													
				1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
330	Lamu	UWS	Rehabilitation Work	6	6	26	26	26	26	3	3	15	15	15	15		
			Ongoing Projects	42	42												
			Planned/Designed Projects														
			Newly Proposed Projects	23	23	23	203	203	203	51	51	51	454	454	454		
			Sub-total	71	71	49	230	230	230	54	54	66	469	469	469		
		LSRWS	Rehabilitation Work								32	96	96	96			
			Ongoing Projects	20	20	20	20	20									
			Planned/Designed Projects														
			Newly Proposed Projects														
			Sub-total	20	20	20	20	20	0	32	96	96	96	0	0		
		SSRWS	Ongoing Projects	76	76	76	76	76									
			Planned/Designed Projects														
			Newly Proposed Projects														
			Sub-total	76	76	76	76	76	0	0	0	0	0	0	0		
		Livestock		0	0	0	0	0	0	3	3	14	14	14	14		
Lamu Total				166	166	145	325	325	230	89	153	176	579	483	483		
340	Mombasa	UWS	Rehabilitation Work														
			Ongoing Projects														
			Planned/Designed Projects														
			Newly Proposed Projects														
			Sub-total														
		LSRWS	Rehabilitation Work							81	81	290	290	290	290	290	
			Ongoing Projects	6	6	6	6	6									
			Planned/Designed Projects	10	10	10	10	10									
			Newly Proposed Projects						313	313	313	2,114	2,114	2,114	2,114		
			Sub-total	16	16	16	16	16	394	394	603	2,404	2,404	2,404	2,404		
		SSRWS	Ongoing Projects	31	31	31	31	31									
			Planned/Designed Projects														
			Newly Proposed Projects														
			Sub-total	31	31	31	31	31	0	0	0	0	0	0	0		
		Livestock		0	0	0	0	0	0	2	2	7	7	7	7		
Mombasa Total				47	47	47	47	47	394	395	605	2,411	2,411	2,411	2,411		
350	Taita	UWS	Rehabilitation Work								39	84	281	281	281		
			Ongoing Projects														
			Planned/Designed Projects														
			Newly Proposed Projects							147	147	147	1,318	1,318	1,318		
			Sub-total	0	0	0	0	0	0	186	231	428	1,600	1,600	1,600		
		LSRWS	Rehabilitation Work											192	576	576	576
			Ongoing Projects														
			Planned/Designed Projects														
			Newly Proposed Projects														
			Sub-total	0	0	0	0	0	0	0	0	0	192	576	576	576	
		SSRWS	Ongoing Projects	28	28	28	28	28									
			Planned/Designed Projects														
			Newly Proposed Projects														
			Sub-total	28	28	28	28	28	0	0	0	0	0	0	0		
		Livestock		0	0	0	3	3	18	18	18	0	0	0	0		
Taita Total				28	28	28	31	31	18	204	249	620	2,176	2,176	2,176		
360	Tana River	UWS	Rehabilitation Work	8	8	37	37	37	37								
			Ongoing Projects	112	112												
			Planned/Designed Projects			373	373	373									
			Newly Proposed Projects	159	159	159	1,424	1,424	1,424								
			Sub-total	278	278	569	1,835	1,835	1,461	0	0	0	0	0	0		
		LSRWS	Rehabilitation Work				64	192	192	192							
			Ongoing Projects	16	16	16	16	16									
			Planned/Designed Projects														
			Newly Proposed Projects														
			Sub-total	16	16	16	80	208	192	192	0	0	0	0	0		
		SSRWS	Ongoing Projects														
			Planned/Designed Projects	29	29	29	29	29									
			Newly Proposed Projects			67	67	67	67								
			Sub-total	29	29	96	96	96	67	0	0	0	0	0	0		
		Livestock		21	21	128	128	128	0	0	0	0	0	0	0		
Tana River Total				345	345	829	2,139	2,267	1,720	192	0	0	0	0	0		

Table - 12.8.1 (4/13) Investment Schedule for Water Supply Development

(Unit: US\$10<sup>3</sup>)

Code	Districts	Component	Work Items	Implementation Schedule													
				1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
410	Embu	UWS	Rehabilitation Work								36	36	162	162	162	162	
			Ongoing Projects														
			Planned Designed Projects														
			Newly Proposed Projects								264	264	264	2,376	2,376	2,376	
			Sub-total								300	300	426	2,538	2,538	2,538	
		LSRWS	Rehabilitation Work														
			Ongoing Projects	33	33	33	33	33									
			Planned Designed Projects														
			Newly Proposed Projects														
			Sub-total	33	33	33	33	33	0	0	0		192	576	576	576	
		SSRWS	Ongoing Projects														
			Planned Designed Projects	49	49	49	49	49									
			Newly Proposed Projects											312	312	312	312
			Sub-total	49	49	49	49	49	0	0	0		312	312	312	312	
Livestock	Ongoing Projects	0	0	0	0	0	0	0	8	8	34	34	34	34			
	Embu Total	82	82	82	82	82	0	308	308	964	3,460	3,460	3,460				
420	Kiilo	UWS	Rehabilitation Work								29	29	131	131	131		
			Ongoing Projects	12	12	12											
			Planned Designed Projects														
			Newly Proposed Projects								352	352	352	3,170	3,170	3,170	
			Sub-total	12	12	12	0	0	0	381	381	483	3,300	3,300	3,300		
		LSRWS	Rehabilitation Work											64	192	192	
			Ongoing Projects	12	12	12	12	12									
			Planned Designed Projects														
			Newly Proposed Projects														
			Sub-total	12	12	12	12	12	0	0	0		64	192	192		
		SSRWS	Ongoing Projects	61	61	61	61	61									
			Planned Designed Projects														
			Newly Proposed Projects														
			Sub-total	61	61	61	61	61	0	0	0	0	0	0	0	0	
Livestock	Ongoing Projects	0	0	0	3	3	18	18	18	0	0	0	0				
	Kiilo Total	84	84	84	75	75	18	400	400	547	3,492	3,492	3,492				
430	Kisii	UWS	Rehabilitation Work				18	18	82	82	82	82					
			Ongoing Projects														
			Planned Designed Projects														
			Newly Proposed Projects				18	18	82	82	82	0	0	0			
			Sub-total				18	18	82	82	82	0	0	0			
		LSRWS	Rehabilitation Work				96	288	288	288							
			Ongoing Projects	1,343	1,343	1,343	1,343	1,343									
			Planned Designed Projects														
			Newly Proposed Projects														
			Sub-total	1,343	1,343	1,343	1,439	1,631	288	288	0	0	0	0			
		SSRWS	Rehabilitation Work														
			Ongoing Projects	9	9	9	9	9									
			Planned Designed Projects														
			Newly Proposed Projects			515	515	515	515								
Livestock	Ongoing Projects	9	9	524	524	524	515	0	0	0	0	0					
	Kisii Total	1,373	1,373	1,995	2,109	2,301	886	371	82	82	0	0	0				
440	Masaku	UWS	Rehabilitation Work	5	5	41	50	50	197	192	192	248	72	72	72		
			Ongoing Projects														
			Planned Designed Projects														
			Newly Proposed Projects	177	177	177	2,319	2,319	2,319	7,149	9,068	9,068	2,760	2,760	292		
			Sub-total	182	182	218	2,369	2,369	2,516	7,341	9,260	9,316	2,832	2,832	365		
		LSRWS	Rehabilitation Work								384	1,153	1,153	1,153			
			Ongoing Projects	1,475	1,475	1,475	1,475	1,475									
			Planned Designed Projects														
			Newly Proposed Projects														
			Sub-total	1,475	1,475	1,475	1,475	1,475	0	384	1,153	1,153	1,153	0	0		
		SSRWS	Ongoing Projects														
			Planned Designed Projects														
			Newly Proposed Projects								581	581	581	581	581		
			Sub-total	0	0	0	0	0	0	0	581	581	581	581	0		
Livestock	Ongoing Projects	0	0	0	0	0	0	17	17	75	75	75					
	Masaku Total	1,657	1,657	1,693	3,844	3,844	2,516	8,323	11,010	11,125	4,641	3,458	440				



Table - 12.8.1 (5/13) Investment Schedule for Water Supply Development

(Unit: US\$10<sup>3</sup>)

Code	Districts	Component	Work Items	Implementation Schedule													
				1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
450	Marsabit	UWS	Rehabilitation Work	3	3	15	22	22	45	32	32	37	7	7	7		
			Ongoing Projects	20	20												
			Planned/Designed Projects			1	1	1									
			Newly Proposed Projects	72	72	72	803	896	896	2,006	2,006	2,006	257	257	257		
			Sub-total	94	94	88	826	918	941	2,038	2,038	2,043	264	264	264		
		LSRWS	Rehabilitation Work							416	1,249	1,249	1,249				
			Ongoing Projects	21	21	21	21	21									
			Planned/Designed Projects														
			Newly Proposed Projects														
			Sub-total	21	21	21	21	21	0	416	1,249	1,249	1,249	0	0		
		SSRWS	Ongoing Projects	8	8	8	8	8									
			Planned/Designed Projects														
			Newly Proposed Projects														
			Sub-total	8	8	8	8	8	0	0	0	0	0	0	0	0	
		Livestock		0	0	0	23	23	137	137	137	0	0	0	0	0	
		Marsabit Total				123	123	116	877	970	1,078	2,521	3,424	3,292	1,513	264	264
		460	Meru	UWS	Rehabilitation Work			19	26	26	158	158	158	158			
Ongoing Projects																	
Planned/Designed Projects																	
Newly Proposed Projects							419	419	419	3,776	3,776	3,776					
Sub-total						19	445	445	577	3,934	3,934	3,934	0	0	0		
LSRWS	Rehabilitation Work												96	288	288	288	
	Ongoing Projects			169	169	169	169	169									
	Planned/Designed Projects																
	Newly Proposed Projects																
	Sub-total			169	169	169	169	169	0	0	0	96	288	288	288		
SSRWS	Ongoing Projects			236	236	236	236	236									
	Planned/Designed Projects																
	Newly Proposed Projects																
	Sub-total			236	236	236	236	236	0	0	0	0	0	0	0	0	
Livestock				0	0	0	0	0	0	9	9	41	41	41	41		
Meru Total				405	405	424	850	850	577	3,943	3,943	4,071	329	329	329		
470	Nyambene			UWS	Rehabilitation Work				5	5	24	24	24	24			
		Ongoing Projects															
		Planned/Designed Projects															
		Newly Proposed Projects					46	46	46	414	414	414					
		Sub-total					51	51	70	438	438	438	0	0	0		
		LSRWS	Rehabilitation Work										320	961	961	961	
			Ongoing Projects	661	661	661	661	661									
			Planned/Designed Projects														
			Newly Proposed Projects														
			Sub-total	661	661	661	661	661	0	0	0	320	961	961	961		
		SSRWS	Ongoing Projects	19	19	19	19	19									
			Planned/Designed Projects														
			Newly Proposed Projects														
			Sub-total	19	19	19	19	19	0	0	0	0	0	0	0	0	
		Livestock		0	0	0	0	0	0	3	8	34	34	34	34		
		Nyambene Total				680	680	680	731	731	70	446	446	793	995	995	995
		480	Ntthi Tharaka	UWS	Rehabilitation Work								5	5	22	22	22
Ongoing Projects																	
Planned/Designed Projects																	
Newly Proposed Projects											44	44	44	392	392	392	
Sub-total											49	49	66	414	414	414	
LSRWS	Rehabilitation Work												128	384	384	384	
	Ongoing Projects			48	48	48	48	48									
	Planned/Designed Projects			10	10	10	10	10									
	Newly Proposed Projects																
	Sub-total			58	58	58	58	58	0	0	0	128	384	384	384		
SSRWS	Ongoing Projects			80	80	80	80	80									
	Planned/Designed Projects																
	Newly Proposed Projects												52	52	52	52	
	Sub-total			80	80	80	80	80	0	0	0	52	52	52	52		
Livestock				0	0	0	0	0	0	9	9	41	41	41	41		
Ntthi Tharaka Total				139	139	139	139	139	0	58	58	287	892	892	892		

Table - 12.8.1 (6/13) Investment Schedule for Water Supply Development

(Unit: US\$10<sup>3</sup>)

Code	District	Component	Work Items	Implementation Schedule													
				1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
490	Mwingi	LWS	Rehabilitation Work	7	7	33	33	33	33								
			Ongoing Projects														
			Planned/Designed Projects														
			Newly Proposed Projects	1,553	3,369	3,369	4,105	4,105	685								
		Sub-total	1,560	3,376	3,402	4,138	4,138	918		0	0	0	0	0	0	0	
		LSRWS	Rehabilitation Work				32	32	115	115							
			Ongoing Projects	25	25	25	25	25									
			Planned/Designed Projects	40	40	40	40	40									
			Newly Proposed Projects	511	511	511	3,447	3,447	3,447	3,447							
		Sub-total	576	576	576	3,544	3,544	3,562	3,562	115	115	115					
		SSRWS	Ongoing Projects	35	35	35	35	35									
			Planned/Designed Projects	33	33	33	33	33									
			Newly Proposed Projects						290	290	290	290					
			Sub-total	67	67	67	67	67	290	290	290	290					
		Livestock		0	0	0	0	0	0	11	11	48	48	48	48		
		Mwingi Total				2,203	4,019	4,045	7,749	7,749	4,770	3,863	416	454	163	48	48
440	Makueni	LWS	Rehabilitation Work		45	103	103	103	103								
			Ongoing Projects														
			Planned/Designed Projects														
			Newly Proposed Projects		158	158	944	1,003	1,003	355	355	355					
		Sub-total		203	260	1,047	1,106	1,106	355	355	355	0	0	0	0		
		LSRWS	Rehabilitation Work				128	384	384	384							
			Ongoing Projects	686	686	686	686	686									
			Planned/Designed Projects														
			Newly Proposed Projects														
		Sub-total	686	686	686	814	1,070	384	384	0	0	0	0	0	0		
		SSRWS	Ongoing Projects	9	9	9	9	9									
			Planned/Designed Projects	227	227	227	227	227									
			Newly Proposed Projects			436	436	436	436	436							
			Sub-total	235	235	671	671	671	436	436	0	0	0	0	0	0	
		Livestock		120	120	723	723	723	0	0	0	0	0	0	0		
		Makueni Total				3,042	1,245	2,340	3,255	3,570	1,926	1,175	355	355	0	0	
510	Garissa	LWS	Rehabilitation Work	18	58	79	82	82	93	14	14	14					
			Ongoing Projects	1,489	1,489	1,489											
			Planned/Designed Projects														
			Newly Proposed Projects				62	62	62	554	554	554					
		Sub-total	1,507	1,507	1,568	144	144	155	568	568	568	0	0	0			
		LSRWS	Rehabilitation Work														
			Ongoing Projects	1,051	1,051	1,051	1,051	1,051									
			Planned/Designed Projects														
			Newly Proposed Projects														
		Sub-total	1,051	1,051	1,051	1,051	1,051	0	224	672	672	672	672	0	0		
		SSRWS	Ongoing Projects	4	4	4	4	4									
			Planned/Designed Projects														
			Newly Proposed Projects						0	0	0	0	0	0	0		
			Sub-total	4	4	4	4	4	0	0	0	0	0	0	0		
		Livestock		149	149	896	896	896	0	0	0	0	0	0	0		
		Garissa Total				2,711	2,711	3,519	2,095	2,095	155	792	1,240	1,240	672	0	
520	Mandera	LWS	Rehabilitation Work	2	2	10	17	17	42	32	32	32					
			Ongoing Projects	90	90												
			Planned/Designed Projects			180	180	180									
			Newly Proposed Projects	110	204	204	1,583	1,583	1,583	219	219	219					
		Sub-total	201	296	395	1,780	1,780	1,625	252	252	252	0	0	0			
		LSRWS	Rehabilitation Work	96	96	346	346	346	346	346							
			Ongoing Projects														
			Planned/Designed Projects	60	60	60	60	60									
			Newly Proposed Projects	261	261	261	1,761	1,761	1,761	1,761							
		Sub-total	417	417	666	2,166	2,166	2,106	2,106	0	0	0	0	0			
		SSRWS	Ongoing Projects	44	44	44	44	44									
			Planned/Designed Projects														
			Newly Proposed Projects			105	105	105	105								
			Sub-total	44	44	149	149	149	105	0	0	0	0	0	0		
		Livestock		35	35	210	210	210	0	0	0	0	0	0			
		Mandera Total				696	791	1,420	4,306	4,306	3,837	2,358	252	252	0	0	

Table - 12.8.1 (7/13) Investment Schedule for Water Supply Development

(Unit: US\$10<sup>3</sup>)

Code	Districts	Component	Work Items	Implementation Schedule															
				1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011			
530	Wajir	UWS	Rehabilitation Work	7	7	28	28	28	28										
			Ongoing Projects																
			Planned/Designed Projects																
			Newly Proposed Projects	392	392	392	3,531	3,531	3,531										
		Sub-total	399	399	420	3,559	3,559	3,559			0	0	0	0	0	0	0	0	
		LSRWS	Rehabilitation Work				192	192	692	692	692	692	692						
			Ongoing Projects	19	19	19	19	19											
			Planned/Designed Projects	69	69	69	69	69											
			Newly Proposed Projects	30	30	30	206	206	206	206									
		Sub-total	116	118	118	485	485	897	897	692	692	692	692			592	0	0	
		SSRWS	Ongoing Projects																
			Planned/Designed Projects																
			Newly Proposed Projects																
			Sub-total	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Livestock			59	59	357	357	357	0	0	0	0	0	0	0	0	0	0
			Wajir Total		577	577	895	4,401	4,401	4,456	897	692	692	692			692	0	0
610	Gusii	UWS	Rehabilitation Work				51	51	229	229	229	229							
			Ongoing Projects																
			Planned/Designed Projects																
			Newly Proposed Projects			436	601	2,126	2,126	3,455	3,455	1,494							
		Sub-total	0	0	436	653	2,178	2,356	3,684	3,684	1,723	0	0	0					
		LSRWS	Rehabilitation Work								192	576	576	576					
			Ongoing Projects	199	199	199	199	199											
			Planned/Designed Projects																
			Newly Proposed Projects																
		Sub-total	199	199	199	199	199	0	192	576	576	576	576			0	0		
		SSRWS	Ongoing Projects	5	5	5	5	5											
			Planned/Designed Projects	43	43	43	43	43											
			Newly Proposed Projects								3,851	3,851	3,851	3,851	3,851				
			Sub-total	49	49	49	49	49	49	3,851	3,851	3,851	3,851	3,851	3,851		0	0	
		Livestock			0	0	0	0	0	0	8	8	34	34	34	34	34	34	
			Gusii Total		247	247	683	900	2,425	6,206	7,734	8,119	6,185	4,461	34	34			
620	Kisumu	UWS	Rehabilitation Work	80	41	272	281	281	375	39	39	39							
			Ongoing Projects																
			Planned/Designed Projects	19	19	19	19	19											
			Newly Proposed Projects	5,523	11,049	11,049	19,870	19,870	9,923		291	291	1,748	1,748	1,748				
		Sub-total	5,623	11,110	11,341	20,171	20,171	10,298	39	330	330	1,748	1,748	1,748					
		LSRWS	Rehabilitation Work																
			Ongoing Projects	50	50	50	50	50											
			Planned/Designed Projects	169	169	169	169	169											
			Newly Proposed Projects																
		Sub-total	219	219	219	219	219	0	0	0		352	1,057	1,057	1,057				
		SSRWS	Ongoing Projects	3	3	3	3	3											
			Planned/Designed Projects	5	5	5	5	5											
			Newly Proposed Projects																
			Sub-total	9	9	9	9	9	9	0	0	0	336	336	336	336			
		Livestock			0	0	0	0	0	0	9	9	41	41	41	41			
			Kisumu Total		5,851	11,338	11,569	20,398	20,398	10,298	48	340	1,060	3,182	3,182	3,182			
630	Siaya	UWS	Rehabilitation Work				12	12	52	52	52	52							
			Ongoing Projects																
			Planned/Designed Projects																
			Newly Proposed Projects				117	187	187	1,469	1,469	1,469							
		Sub-total	0	0	0	129	199	239	1,521	1,521	1,521	0	0	0					
		LSRWS	Rehabilitation Work									448	1,345	1,345	1,345				
			Ongoing Projects	0	0	0	0	0											
			Planned/Designed Projects																
			Newly Proposed Projects																
		Sub-total	0	0	0	0	0	0	0	448	1,345	1,345	1,345	1,345		0	0		
		SSRWS	Ongoing Projects	121	121	121	121	121											
			Planned/Designed Projects																
			Newly Proposed Projects																
			Sub-total	121	121	121	121	121	0	0	0	0	0	0	0	0	0	0	0
		Livestock			0	0	0	0	0	0	9	9	41	41	41	41	41	41	
			Siaya Total		121	121	121	250	319	239	1,979	2,875	2,907	3,386	41	41			

Table - 12.8.1 (8/13) Investment Schedule for Water Supply Development

(Unit: US\$10<sup>3</sup>)

Code	Districts	Component	Work Items	Implementation Schedule													
				1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	
640	Homa Bay	UWS	Rehabilitation Work	18	18	82	143	143	356	273	273	273					
			Ongoing Projects														
			Planned/Designed Projects														
			Newly Proposed Projects	274	274	274	2,591	2,671	2,671	1,569	1,569	1,569					
		Sub-total	292	292	357	2,734	2,814	3,027	1,842	1,842	1,842		0	0	0		
		ISRWS	Rehabilitation Work									64	192	192	192		
			Ongoing Projects	379	379	379	379	379									
			Planned/Designed Projects														
			Newly Proposed Projects														
		Sub-total	379	379	379	379	379	0	64	192	192	192	192	0	0		
		SSRWS	Rehabilitation Work														
			Ongoing Projects	4	4	4	4	4									
			Planned/Designed Projects	14	14	14	14	14									
			Newly Proposed Projects						242	242	242	242					
		Sub-total	18	18	18	18	18	242	242	242	242	0	0	0			
		Livestock	Ongoing Projects	0	0	0	0	0	0	6	6	27	27	27	27		
Sub-total	0		0	0	0	0	0	6	6	27	27	27	27				
Homa Bay Total				690	690	754	3,131	3,211	3,269	2,154	2,283	2,304	220	27	27		
650	Migori	UWS	Rehabilitation Work	9	9	41	43	43	50	17	17	43	34	34	34		
			Ongoing Projects														
			Planned/Designed Projects	94	94	94	94	94									
			Newly Proposed Projects						59	59	407	407	407	473	473	473	
		Sub-total	103	103	135	137	156	109	424	424	450	507	507	507	507		
		ISRWS	Rehabilitation Work					32	96	96	96						
			Ongoing Projects	32	32	32	32	32									
			Planned/Designed Projects														
			Newly Proposed Projects														
		Sub-total	32	32	32	64	128	96	96	96	0	0	0	0	0		
		SSRWS	Ongoing Projects														
			Planned/Designed Projects	11	11	11	11	11									
			Newly Proposed Projects			1,689	1,689	1,689	1,689	1,689							
			Sub-total	11	11	1,699	1,699	1,699	1,689	1,689	0	0	0	0	0		
		Livestock	Ongoing Projects	0	0	0	0	0	0	3	3	14	14	14	14		
			Sub-total	0	0	0	0	0	0	3	3	14	14	14	14		
Migori Total				146	146	1,867	1,901	2,023	1,894	2,212	427	464	521	521	521		
660	Nyamira	UWS	Rehabilitation Work	6	6	26	26	26	26								
			Ongoing Projects														
			Planned/Designed Projects	15	15	15	15	15									
			Newly Proposed Projects	76	76	143	752	1,030	1,030	520	520	205					
		Sub-total	97	97	184	793	1,072	1,056	520	520	205	0	0	0			
		ISRWS	Rehabilitation Work								160	480	480	480			
			Ongoing Projects	3	3	3	3	3									
			Planned/Designed Projects														
			Newly Proposed Projects														
		Sub-total	3	3	3	3	3	0	160	480	480	480	0	0			
		SSRWS	Ongoing Projects	3	3	3	3	3									
			Planned/Designed Projects	5	5	5	5	5									
			Newly Proposed Projects				73	73	73	660	660	660					
			Sub-total	9	9	9	82	82	73	660	660	660	0	0	0		
		Livestock	Ongoing Projects	0	0	0	0	0	0	6	6	27	27	27	27		
			Sub-total	0	0	0	0	0	0	6	6	27	27	27	27		
Nyamira Total				109	109	196	879	1,157	1,130	1,345	1,666	1,373	506	27	27		
710	Kajiado	UWS	Rehabilitation Work							116	116	516	516	516	516		
			Ongoing Projects	22	22												
			Planned/Designed Projects	230	230	230	230	230									
			Newly Proposed Projects							650	650	650	5,851	5,851	5,851		
		Sub-total	253	253	230	230	230	0	766	766	1,166	6,367	6,367	6,367			
		ISRWS	Rehabilitation Work								224	672	672	672			
			Ongoing Projects	52	52	52	52	52									
			Planned/Designed Projects														
			Newly Proposed Projects														
		Sub-total	52	52	52	52	52	0	224	672	672	672	0	0			
		SSRWS	Ongoing Projects	155	155	155	155	155									
			Planned/Designed Projects														
			Newly Proposed Projects														
			Sub-total	155	155	155	155	155	0	0	0	0	0	0	0		
		Livestock	Ongoing Projects	0	0	0	43	43	256	256	256	0	0	0	0		
			Sub-total	0	0	0	43	43	256	256	256	0	0	0	0		
Kajiado Total				459	459	437	480	480	256	1,246	1,694	1,833	7,040	6,367	6,367		

Table - 12.8.1 (9/13) Investment Schedule for Water Supply Development

(Unit: US\$10<sup>3</sup>)

Code	Districts	Component	Work Items	Implementation Schedule															
				1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011			
720	Kipsigis	UWS	Rehabilitation Work				52	52	236	236	236	236							
			Ongoing Projects	21	21														
			Planned/Designed Projects																
			Newly Proposed Projects			4,581	4,828	20,937	20,937	23,280	23,280	2,654							
			Sub-total	21	21	4,581	4,850	20,989	21,173	23,516	23,516	2,900		0	0	0			
		LSRWS	Rehabilitation Work				64	192	192	192									
			Ongoing Projects	10	10	10	10	10											
			Planned/Designed Projects																
			Newly Proposed Projects																
			Sub-total	10	10	10	74	202	192	192		0	0	0	0	0	0	0	0
		SSRWS	Ongoing Projects	8	8	8	8	8											
			Planned/Designed Projects	13	13	13	13	13											
			Newly Proposed Projects			1,605	1,605	1,605	1,605	1,605									
			Sub-total	21	21	1,625	1,625	1,625	1,605	1,605		0	0	0	0	0	0	0	0
			Livestock	0	0	0	0	0	0	0	6	6	27	27	27	27	27	27	27
		Kipsigis Total				52	52	6,216	6,580	22,817	22,970	25,319	23,522	2,928		27	27	27	
		730	Lakipia	UWS	Rehabilitation Work				57	57	257	257	257	257					
Ongoing Projects																			
Planned/Designed Projects																			
Newly Proposed Projects						1,155	1,379	5,424	5,424	7,417	7,417	2,031							
Sub-total	0				0	1,155	1,437	5,482	5,682	7,675	7,675	2,298		0	0	0			
LSRWS	Rehabilitation Work										32	96	96	96					
	Ongoing Projects			320	320	320	320	320											
	Planned/Designed Projects																		
	Newly Proposed Projects																		
	Sub-total			320	320	320	320	320	0	32	96	96	96	96	0	0			
SSRWS	Ongoing Projects			184	184	184	184	184											
	Planned/Designed Projects			18	18	18	18	18											
	Newly Proposed Projects									320	320	320	320						
	Sub-total			202	202	202	202	202	202	320	320	320	320	0	0	0	0	0	0
	Livestock			0	0	0	12	12	73	73	73	0	0	0	0	0	0	0	0
Lakipia Total				522	522	1,977	1,971	6,016	6,075	8,100	8,164	2,714	96	0	0	0			
740	Nakuru			UWS	Rehabilitation Work						147	163	183	1,154	1,154	1,154	1,154		
		Ongoing Projects																	
		Planned/Designed Projects																	
		Newly Proposed Projects								9,241	11,110	43,454	43,454	58,406	58,406	16,821			
		Sub-total	0		0	0	0	0	0	9,388	11,293	43,637	44,608	59,560	59,560	17,975			
		LSRWS	Rehabilitation Work										224	672	672	672			
			Ongoing Projects	165	165	165	165	165											
			Planned/Designed Projects	184	184	184	184	184											
			Newly Proposed Projects																
			Sub-total	349	349	349	349	349	349	0	0	0	224	672	672	672			
		SSRWS	Rehabilitation Work																
			Ongoing Projects	337	337	337	337	337											
			Planned/Designed Projects																
			Newly Proposed Projects																
			Sub-total	337	337	337	337	337	337	0	0	0	0	0	0	0	0	0	0
		Livestock		0	0	0	50	50	302	302	302	0	0	0	0	0	0	0	0
			Nakuru Total	687	687	687	737	737	9,690	11,595	43,938	44,832	60,232	60,232	16,648				
750	Narok	UWS	Rehabilitation Work	12	12	56	56	56	56										
			Ongoing Projects																
			Planned/Designed Projects																
			Newly Proposed Projects	2,369	5,111	5,111	6,505	6,505	1,568										
			Sub-total	2,381	5,123	5,168	6,561	6,561	1,624	0	0	0	0	0	0	0	0	0	0
		LSRWS	Rehabilitation Work			96	96	346	346	346	346								
			Ongoing Projects	85	85	85	85	85											
			Planned/Designed Projects	17	17	17	17	17											
			Newly Proposed Projects		466	406	406	2,743	2,743	2,743	2,743								
			Sub-total	102	605	605	855	3,191	3,088	3,088	3,088		0	0	0	0	0	0	0
		SSRWS	Rehabilitation Work																
			Ongoing Projects	3	3	3	3	3											
			Planned/Designed Projects	25	25	25	25	25											
			Newly Proposed Projects							208	208	208	208	208	208				
			Sub-total	28	28	28	28	28	28	208	208	208	208	208	208	0	0	0	0
		Livestock		24	24	146	146	146	146	0	0	0	0	0	0	0	0	0	0
			Narok Total	2,536	5,781	5,947	7,590	9,926	4,920	3,296	3,296	208	208	208	208	0	0	0	0

Table - 12.8.1 (10/13) Investment Schedule for Water Supply Development

(Unit: US\$10<sup>3</sup>)

Code	Districts	Component	Work Items	Implementation Schedule														
				1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011		
760	Trans Nzoia	UWS	Rehabilitation Work				92	92	418	418	418	418						
			Ongoing Projects															
			Planned Designed Projects															
			Newly Proposed Projects				363	363	363	3,269	3,269	3,269						
		Sub-total	0	0	0	456	456	781	3,687	3,687	3,687	0	0	0				
		LSRWS	Rehabilitation Work	32	32	115	115	115	115									
			Ongoing Projects	152	152	152	152	152										
			Planned Designed Projects															
			Newly Proposed Projects															
		Sub-total	184	184	267	267	267	115	115	0	0	0	0	0	0	0	0	
		SSRWS	Ongoing Projects	37	37	37	37	37										
			Planned Designed Projects	1	1	1	1	1										
			Newly Proposed Projects						1,295	1,295	1,295	1,295	1,295					
			Sub-total	38	38	38	38	38	1,295	1,295	1,295	1,295	1,295					
		Livestock	0	0	0	0	0	0	0	3	3	14	14	14	14	14	14	
		Trans Nzoia Total				222	222	305	761	761	2,191	5,101	4,985	4,996	1,309	14	14	
		770	Usim Gibu	UWS	Rehabilitation Work				102	102	656	663	663	686	29	29	29	
Ongoing Projects	22				22													
Planned Designed Projects																		
Newly Proposed Projects																		
Sub-total	22			22	0	102	102	656	663	663	686	29	29	29				
LSRWS	Rehabilitation Work										256	768	768	768				
	Ongoing Projects			149	149	149	149	149										
	Planned Designed Projects																	
	Newly Proposed Projects																	
Sub-total	149			149	149	149	149	0	256	768	768	768	768	0	0	0	0	
SSRWS	Ongoing Projects			277	277	277	277	277										
	Planned Designed Projects																	
	Newly Proposed Projects																	
	Sub-total			277	277	277	277	277	0	0	0	0	0	0	0	0	0	0
Livestock	0			0	0	8	8	46	46	46	0	0	0	0	0	0	0	
Usim Gibu Total				443	448	426	535	535	702	964	1,477	1,454	798	29	29			
780	Bomet			UWS	Rehabilitation Work													
		Ongoing Projects	74		74	74												
		Planned Designed Projects					2	2	2									
		Newly Proposed Projects			252	1,261	2,836	6,367	6,367	7,418	7,418	7,418	342	342	342			
		Sub-total	74	327	1,337	2,838	6,369	6,367	7,418	7,418	7,418	342	342	342				
		LSRWS	Rehabilitation Work															
			Ongoing Projects	21	21	21	21	21										
			Planned Designed Projects															
			Newly Proposed Projects										96	288	288	288		
		Sub-total	21	21	21	21	21	0	0	0	96	288	288	288				
		SSRWS	Ongoing Projects	31	31	31	31	31										
			Planned Designed Projects	119	119	119	119	119										
			Newly Proposed Projects								1,986	1,986	1,986	1,986	1,986			
			Sub-total	151	151	151	151	151	0	0	1,986	1,986	1,986	1,986	1,986			
		Livestock	0	0	0	0	0	0	0	9	9	41	41	41	41	41	41	
		Bomet Total				245	498	1,508	3,010	6,540	6,367	7,427	9,413	9,541	2,657	2,657	2,657	
		790	Transmara	UWS	Rehabilitation Work	12	12	56	56	56	56							
Ongoing Projects																		
Planned Designed Projects																		
Newly Proposed Projects	86				86	86	768	768	768									
Sub-total	98			98	142	824	824	824	0	0	0	0	0	0	0	0	0	
LSRWS	Rehabilitation Work			32	32	115	115	115	115	115								
	Ongoing Projects			26	26	26	26	26										
	Planned Designed Projects																	
	Newly Proposed Projects			511	511	511	3,447	3,447	3,447	3,447								
Sub-total	569			569	652	3,588	3,588	3,562	3,562	0	0	0	0	0	0	0	0	
SSRWS	Ongoing Projects			17	17	17	17	17										
	Planned Designed Projects			36	36	36	36	36										
	Newly Proposed Projects																	
	Sub-total			53	53	53	53	53	0	0	0	0	0	0	0	0	0	0
Livestock	0			0	0	0	0	0	0	5	5	21	21	21	21	21	21	
Transmara Total				720	720	847	4,466	4,466	4,366	3,567	5	21	21	21	21	21		

Table - 12.8.1 (11/13) Investment Schedule for Water Supply Development

(Unit: US\$10<sup>3</sup>)

Code	Districts	Component	Work Items	Implementation Schedule														
				1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011		
810	Baringo	UWS	Rehabilitation Work		129	289	312	312	390	116	116	162	60	60	60			
			Ongoing Projects															
			Planned/Designed Projects															
			Newly Proposed Projects			1,198	1,666	5,857	8,265	11,633	18,664	13,274	8,111	8,111	202			
			Sub-total	0	129	1,486	1,977	6,169	8,655	11,748	18,780	13,436	8,172	8,172	263			
		LSRWS	Rehabilitation Work								128	384	384	384				
			Ongoing Projects	208	208	208	208	208										
			Planned/Designed Projects															
			Newly Proposed Projects															
			Sub-total	208	208	208	208	208	0	128	384	384	384	384	0	0		
		SSRWS	Ongoing Projects															
			Planned/Designed Projects	12	12	12	12	12										
			Newly Proposed Projects															
			Sub-total	12	12	12	12	12	0	0	0	0	0	0	0	0		
		Livestock		67	67	402	402	402	0	0	0	0	0	0	0	0		
Baringo Total	287		416	2,109	2,600	6,792	8,655	11,877	19,164	13,821	8,556	8,172	263					
820	Elgyo Marakwet	UWS	Rehabilitation Work							5	5	21	21	21	21			
			Ongoing Projects															
			Planned/Designed Projects															
			Newly Proposed Projects															
			Sub-total	0	0	0	0	0	0	5	5	21	21	21	21			
		LSRWS	Rehabilitation Work								160	480	480	480				
			Ongoing Projects	437	437	437	437	437										
			Planned/Designed Projects															
			Newly Proposed Projects															
			Sub-total	437	437	437	437	437	0	160	480	480	480	480	0	0		
		SSRWS	Ongoing Projects															
			Planned/Designed Projects	8	8	8	8	8										
			Newly Proposed Projects						441	441	441	441						
			Sub-total	8	8	8	8	8	441	441	441	441	0	0	0			
		Livestock		0	0	0	0	0	0	0	3	3	14	14	14	14		
Elgyo Marakwet Total	445		445	445	445	445	441	609	930	956	515	35	35					
830	Nandi	UWS	Rehabilitation Work								9	9	40	40	40	40		
			Ongoing Projects															
			Planned/Designed Projects								49	49	49	443	443	443		
			Newly Proposed Projects															
			Sub-total	0	0	0	0	0	0	0	58	58	89	483	483	483		
		LSRWS	Rehabilitation Work									96	288	288	288			
			Ongoing Projects	278	278	278	278	278										
			Planned/Designed Projects															
			Newly Proposed Projects															
			Sub-total	278	278	278	278	278	0	96	288	288	288	288	0	0		
		SSRWS	Ongoing Projects	11	11	11	11	11										
			Planned/Designed Projects	37	37	37	37	37										
			Newly Proposed Projects						1,344	1,344	1,344	1,344	1,344					
			Sub-total	48	48	48	48	48	1,344	1,344	1,344	1,344	1,344	0	0			
		Livestock		0	0	0	0	0	0	0	8	8	34	34	34	34		
Nandi Total	326		326	326	326	326	1,344	1,505	1,697	1,755	2,149	517	517					
840	Samburu	UWS	Rehabilitation Work				4	4	17	26	26	58	41	41	41			
			Ongoing Projects	1	1													
			Planned/Designed Projects															
			Newly Proposed Projects				162	162	162	1,473	1,473	1,473						
			Sub-total	1	1	0	166	166	179	1,499	1,499	1,531	41	41	41			
		LSRWS	Rehabilitation Work										256	768	768	768		
			Ongoing Projects	1	1	1	1	1										
			Planned/Designed Projects	8	8	8	8	8										
			Newly Proposed Projects															
			Sub-total	9	9	9	9	9	0	0	0	256	768	768	768			
		SSRWS	Ongoing Projects	44	44	44	44	44										
			Planned/Designed Projects															
			Newly Proposed Projects															
			Sub-total	44	44	44	44	44	0	0	0	0	0	0	0			
		Livestock		0	0	0	0	0	0	0	27	27	123	123	123	123		
Samburu Total	54		54	54	219	219	179	1,527	1,527	1,911	933	933	933					

Table - 12.8.1 (12/13) Investment Schedule for Water Supply Development

(Unit: US\$10<sup>3</sup>)

Code	Districts	Component	Work Items	Implementation Schedule															
				1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011			
850	Turkana	UWS	Rehabilitation Work				30	30	136	136	136	136							
			Ongoing Projects	10	10														
			Planned/Designed Projects			21	21	21											
			Newly Proposed Projects				109	109	109	981	981	981							
		Sub-total	10	10	21	160	160	244	1,117	1,117	1,117								
		LSRWS	Rehabilitation Work							96	96	346	346	346	346				
			Ongoing Projects	2	2	2	2	2											
			Planned/Designed Projects																
			Newly Proposed Projects							261	261	261	1,761	1,761	1,761	1,761			
		Sub-total	2	2	2	2	2		2	357	357	607	2,106	2,106	2,106	2,106			
		SSRWS	Ongoing Projects	23	23	23	23	23											
			Planned/Designed Projects																
			Newly Proposed Projects																
			Sub-total	23	23	23	23	23						0	0	0	0	0	0
		Livestock		0	0	0	18	18	110	110	110	110	0	0	0	0	0	0	0
			Turkana Total	35	35	46	203	203	711	1,584	1,833	3,223	2,106	2,106	2,106				
850	West Pokot	UWS	Rehabilitation Work				12	12	54	54	54	54							
			Ongoing Projects																
			Planned/Designed Projects																
			Newly Proposed Projects				188	188	188	1,696	1,696	1,696							
		Sub-total	0	0	0	201	201	243	1,751	1,751	1,751	0	0	0					
		LSRWS	Rehabilitation Work								160	480	480	480					
			Ongoing Projects	76	76	76	76	76											
			Planned/Designed Projects																
			Newly Proposed Projects																
		Sub-total	76	76	76	76	76			0	160	480	480	480	0	0			
		SSRWS	Ongoing Projects	7	7	7	7	7											
			Planned/Designed Projects																
			Newly Proposed Projects																
			Sub-total	7	7	7	7	7			0	0	0	0	0	0	0	0	0
		Livestock		0	0	0	18	18	110	110	110	110	0	0	0	0	0	0	0
			West Pokot Total	83	83	83	302	302	353	2,021	2,341	2,231	480	0	0				
910	Bungoma	UWS	Rehabilitation Work		51	115	186	186	434	320	320	320							
			Ongoing Projects																
			Planned/Designed Projects	66	66	66	66	66											
			Newly Proposed Projects		65	65	1,721	1,721	1,721	11,981	11,981	11,981							
		Sub-total	66	132	246	1,974	1,974	2,156	12,301	12,301	12,301	0	0	0					
		LSRWS	Rehabilitation Work				224	224	807	807	807	807	807	807					
			Ongoing Projects	262	262	262	262	262											
			Planned/Designed Projects	172	172	172	172	172											
			Newly Proposed Projects				52	52	52	352	352	352	352						
		Sub-total	434	434	434	710	710	859	1,159	1,159	1,159	1,159	1,159	0	0				
		SSRWS	Ongoing Projects																
			Planned/Designed Projects																
			Newly Proposed Projects				49	49	49	444	444	444	444	0	0	0			
			Sub-total	0	0	0	49	49	49	444	444	444	444	0	0	0			
		Livestock		0	0	0	0	0	0	0	6	6	27	27	27	27	27	27	27
			Bungoma Total	500	616	680	2,733	2,733	3,064	13,909	13,909	13,931	1,186	27	27				
920	Busia	UWS	Rehabilitation Work				23	23	103	105	165	113	10	10	10				
			Ongoing Projects	186	186	186													
			Planned/Designed Projects			32	32	32											
			Newly Proposed Projects				114	114	114	1,062	1,062	1,062	338	338	338				
		Sub-total	186	186	218	168	168	216	1,167	1,167	1,175	348	343	348					
		LSRWS	Rehabilitation Work											286	865	865	865		
			Ongoing Projects	923	923	923	923	923											
			Planned/Designed Projects																
			Newly Proposed Projects																
		Sub-total	923	923	923	923	923		0	0	0	286	865	865	865				
		SSRWS	Ongoing Projects	158	158	158	158	158											
			Planned/Designed Projects	86	86	86	86	86											
			Newly Proposed Projects											222	222	222	222		
			Sub-total	244	244	244	244	244		0	0	0	222	222	222	222			
		Livestock		0	0	0	0	0	0	0	5	5	21	21	21	21			
			Busia Total	1,353	1,353	1,384	1,335	1,335	216	1,171	1,171	1,765	1,455	1,455	1,455				



Table - 12.8.1 (13/13) Investment Schedule for Water Supply Development

(Unit: US\$10<sup>3</sup>)

Code	Districts	Component	Work Items	Implementation Schedule															
				1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011			
930	Kakamega	UWS	Rehabilitation Work				77	77	346	346	346	346							
			Ongoing Projects	166	166	166	166	166											
			Planned/Designed Projects	68	68	88	88	88											
			Newly Proposed Projects			142	685	1,181	1,181	5,531	5,531	4,894							
			Sub-total	255	255	396	1,017	1,513	1,527	5,877	5,877	5,240	0	0	0				
		LSRWS	Rehabilitation Work									224	672	672	672				
			Ongoing Projects	16	16	16	16	16											
			Planned/Designed Projects																
			Newly Proposed Projects																
			Sub-total	16	16	16	16	16	0	224	672	672	672	672	0	0			
		SSRWS	Ongoing Projects																
			Planned/Designed Projects																
			Newly Proposed Projects				247	247	247	2,220	2,220	2,220							
			Sub-total	0	0	0	247	247	247	2,220	2,220	2,220	0	0	0				
Livestock	Ongoing Projects	0	0	0	0	0	0	0	9	9	41	41	41	41					
	Sub-total	0	0	0	0	0	0	0	9	9	41	41	41	41					
Kakamega Total				271	271	413	1,280	1,776	1,773	8,330	8,779	8,173	714	41	41				
940	Vihiga	UWS	Rehabilitation Work	23	23	106	106	106	106										
			Ongoing Projects																
			Planned/Designed Projects	1,367	1,367	1,367	1,367	1,367											
			Newly Proposed Projects	510	510	510	4,587	4,587	4,587										
			Sub-total	1,900	1,900	1,982	6,059	6,059	4,692			0	0	0	0	0	0		
		LSRWS	Rehabilitation Work									192	576	576	576				
			Ongoing Projects																
			Planned/Designed Projects																
			Newly Proposed Projects				458	458	458	3,095	3,095	3,095	3,095	3,095					
			Sub-total	0	0	0	458	458	458	3,287	3,671	3,671	3,671	3,671	0	0	0		
		SSRWS	Ongoing Projects	498	498	498	498	498											
			Planned/Designed Projects																
			Newly Proposed Projects				81	81	81	732	732	732							
			Sub-total	498	498	498	579	579	81	732	732	732	732	0	0	0			
Livestock	Ongoing Projects	0	0	0	0	0	0	0	5	5	21	21	21	21					
	Sub-total	0	0	0	0	0	0	0	5	5	21	21	21	21					
Vihiga Total				2,397	2,397	2,480	7,097	7,097	5,232	4,023	4,407	4,423	3,692	21	21				
Overall		UWS	Rehabilitation Work	228	414	1,458	2,382	2,454	6,315	5,339	5,518	8,541	3,939	3,939	3,939				
			Ongoing Projects	2,568	2,568	1,931	166	166	0	0	0	0	0	0	0	0			
			Planned/Designed Projects	3,536	3,536	6,776	6,776	6,776											
			Newly Proposed Projects	11,448	22,103	43,131	80,204	154,618	143,730	181,962	225,528	135,244	98,245	98,245	43,543				
			Sub-total	17,781	28,621	53,326	89,528	164,014	155,048	187,301	231,647	143,785	102,184	102,184	47,480				
		LSRWS	Rehabilitation Work	160	256	672	1,947	3,100	4,442	7,836	12,778	16,211	23,767	11,971	11,971				
			Ongoing Projects	10,840	10,840	10,840	10,840	10,840	0	0	0	0	0	0	0	0			
			Planned/Designed Projects	740	740	740	740	740											
			Newly Proposed Projects	1,313	1,719	1,719	9,777	12,113	12,687	15,623	6,763	7,321	7,321	3,874	3,874				
			Sub-total	13,052	13,555	13,971	23,303	26,792	17,129	23,459	19,542	23,532	31,089	15,846	15,846				
		SSRWS	Ongoing Projects	2,700	2,700	2,700	2,700	2,700	0	0	0	0	0	0	0	0			
			Planned/Designed Projects	1,000	1,000	1,000	1,000	1,000											
			Newly Proposed Projects	0	0	6,049	6,500	6,500	14,490	17,989	15,202	16,123	10,774	4,077	3,496				
			Sub-total	3,700	3,700	9,749	10,200	10,200	14,490	17,989	15,202	16,123	10,774	4,077	3,496				
Livestock	Ongoing Projects	498	498	2,991	3,169	3,169	1,070	1,303	1,303	1,049	1,049	1,049	1,049						
	Sub-total	498	498	2,991	3,169	3,169	1,070	1,303	1,303	1,049	1,049	1,049	1,049						
Total				35,032	48,374	80,037	128,290	204,176	187,737	230,053	287,093	184,460	145,096	123,156	67,372				

Table - 12.8.2(1/4) Investment Schedule for Sewerage Development

Urban Name	Code	Annual Maintenance & Operation Cost (US\$/year)	Initial cost (t) (US\$)	Planting	Cost (US\$)	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
						(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)
Nairobi Dandora	U-1	9,009,000	81,701,000	Treatment works	42,203,000							1,981,000	1,981,000	1,671,331	42,203,000		
				Rehabilitation	21,000												
				Sewer reticulation	33,535,000												16,768,000
Nairobi Karohangi	U-1	5,442,000	46,839,000	Treatment works	9,897,000	1,093,000	1,093,000	4,948,000	4,949,000								
				Sewer reticulation	33,662,000							8,415,000	8,415,000	8,415,000	8,416,000	7,100,817	
Nakuru-town	U-159	2,471,000	20,571,000	Treatment works	7,742,000	727,000	727,000		7,742,000								
				Sewer reticulation	11,335,000												
Nakuru-Njoro	U-159	1,366,000	11,206,000	Treatment works	6,425,000				408,000	408,000		6,425,000					
				Sewer reticulation	3,966,000								3,966,000				
Mombasa Phase I	U-52	7,107,000	58,353,000	Treatment works	48,225,000	2,122,000	2,122,000										
				Sewer reticulation	5,884,000					980,000	980,000	981,000	981,000	981,000	981,000	981,000	
Mombasa Phase II	U-52	1,544,000	12,872,000	Sewer reticulation	11,936,000												468,000
				Treatment works	3,162,000	712,000	712,000	3,162,000									
Kiambu Phase I	U-120	2,423,000	19,571,000	Treatment works	1,399,000												
				Rehabilitation	13,587,000						6,793,000	6,794,000					
Kiambu Phase II	U-120	3,795,000	31,626,000	Treatment works	5,022,000												
				Sewer reticulation	24,304,000									12,152,000	12,152,000		
Eldoret Conventional	U-166	1,057,000	8,193,000	Sewer reticulation	7,597,000					199,000	199,000	199,000	3,798,000	3,205,143			
				Sewer reticulation	7,597,000							199,000	199,000	199,000	3,798,000	3,205,143	
Eldoret Ponds	U-166	1,005,000	8,193,000	Treatment works	1,579,000	84,000	84,000	1,579,000									
				Sewer reticulation	561,000												
Machakos Phase I	U-71	351,000	2,308,000	Treatment works	1,793,000				84,000	84,000							
				Sewer reticulation	343,000												
Machakos Phase II	U-71	276,000	2,303,000	Treatment works	12,172,000	1,042,000	1,042,000	12,172,000									
				Sewer reticulation	14,831,000												
Meru	U-86	3,514,000	29,087,000	Treatment works	2,323,000												
				Rehabilitation	17,000												
Nyeri Conventional	U-16	1,014,000	7,828,000	Treatment works	4,919,000												
				Sewer reticulation													

Table - 12.8.2(2/4) Investment Schedule for Sewerage Development

Urban Name	Code	Annual Maintenance & Operation Cost (US\$/year)	Initial cost (a) (US\$)	Planning	Cost (US\$)	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010		
						(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)
Nyeri Kajiyo	U-36	1,293,000	11,424,000	Treatment works	3,346,000					277,000				233,700					
				Rehabilitation	22,000														
Sewer reticulation				7,225,000														7,225,000	
Kitale conventional	U-164	690,000	5,127,000	Rehabilitation of treatment works	943,000	124,000	943,000					124,000	124,000	3,215,207					
				Sewer reticulation	3,811,000														
Kitale PWD	U-164	1,064,000	8,838,000	New or expand	4,323,000														
				Rehabilitation	65,000			65,000											
Sewer reticulation				3,818,000															
Kakamega Shiree	U-210	883,000	6,942,000	New or expand	3,682,000														
				Rehabilitation	8,000														
Sewer reticulation				2,761,000															
Kakamega Kuamba	U-210	378,000	2,967,000	Sewer reticulation	2,751,000														
				Sewer reticulation	3,203,000			148,000	148,000	148,000	148,000	3,203,000							
Thika	U-9	807,000	6,329,000	Treatment works	52,000														
				Rehabilitation	2,630,000														
Sewer reticulation				2,630,000															
Naiyushu	U-158	1,223,000	10,048,000	New or expand	3,659,000														
				Rehabilitation	205,000														
Sewer reticulation				5,469,000															
Kericho	U-148	980,000	7,946,000	Treatment works	3,441,000														
				Sewer reticulation	3,978,000														
Sewer reticulation				5,469,000															
Malindi	U-40	990,000	7,981,000	Treatment works	2,675,000														
				Sewer reticulation	4,732,000														
Sewer reticulation				5,469,000															
Webuye	U-205	781,000	6,390,000	New or expand	2,359,000														
				Rehabilitation	109,000														
Sewer reticulation				3,464,000															
Kisii	U-117	617,000	4,935,000	Treatment works	1,183,000														
				Sewer reticulation	3,391,000														
Sewer reticulation				4,059,000															
Gurissa	U-14	809,000	6,563,000	Treatment works	2,029,000														
				Sewer reticulation	4,059,000														

Table - 12.8.2(3/4) Investment Schedule for Sewerage Development

Urban Name	Code	Annual Maintenance & Operation Cost (US\$/year)	Initial cost (a) (US\$)	Planning	Cost (US\$)	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010		
						(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)
Bungoma	U-199	723,000	5,892,000	Treatment works	2,278,000						141,000	141,000	141,000						
				Sewer reticulation	3,191,000											2,692,185			
Rusizi (South Teso)	U-206	659,000	5,275,000	New or expand	1,774,000					124,000	124,000	1,774,000							
				Rehabilitation	100,000									100,000					
Nanyuki	U-153	447,000	3,514,000	New or expand	829,000		85,000	85,000	85,000	85,000	829,000								
				Rehabilitation	180,000								180,000			128,000			
Embu	U-60	356,000	2,881,000	New or expand	1,049,000								68,000	57,370	66,000	1,049,000			
				Rehabilitation	184,000														
Isiolo	U-63	308,000	2,421,000	Sewer reticulation	1,443,000														
				Treatment works	471,000									59,000	59,000	49,777			
Ongata Longoi	U-146	363,000	3,111,000	New or expand	1,795,000														
				Rehabilitation	45,000														
Mwingua	U-20	377,000	3,064,000	Treatment works	1,078,000						1,078,000								
				Sewer reticulation	1,768,000														
Narok	U-163	365,000	2,963,000	Treatment works	1,044,000	70,000	70,000	70,000	1,044,000										
				Sewer reticulation	1,708,000							1,708,000							
Homabay	U-129	198,000	1,547,000	New or expand	774,000		36,000	36,000	774,000										
				Rehabilitation	67,000														
Ruiru	U-8	333,000	2,684,000	Sewer reticulation	597,000						597,000								
				Treatment works	952,000														
Wajir	U-116	316,000	2,492,000	Sewer reticulation	1,545,000														
				Treatment works	857,000														
Muranga	U-21	132,000	947,000	Sewer reticulation	1,455,000														
				Treatment works	189,000														
				Sewer reticulation	689,000														689,000

Table - 12.8.2(4/4) Investment Schedule for Sewerage Development

Urban Name	Code	Annual Maintenance & Operation Cost (US\$/year)	Initial cost (b) (US\$)	Planning	Cost (US\$)	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
						(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)	(US\$)
Nyahuru	U-28	89,000	588,000	Rehabilitation of Treatment works	144,000					14,000	14,000	14,000	144,000	338,316			
				Sewer reticulation	401,000												
Kilifi	U-34	277,000	2,185,000	Treatment works	767,000					52,000	52,000	52,000	767,000				
				Sewer reticulation	1,261,000									1,063,881			
Mandera	U-109	294,000	2,207,000	Treatment works	686,000							56,000	56,000	47,246	686,000		
				Sewer reticulation	1,454,000											1,454,000	
Athi River	U-69	220,000	1,686,000	Rehabilitation of Treatment works	593,000								41,000	34,591	41,000	593,000	980,000
				Sewer reticulation	980,000												
Napakhet	U-185	111,000	778,000	Sewer reticulation	721,000								19,000	16,030	19,000	360,500	360,500
Ngungu	U-144	193,000	1,552,000	Treatment works	582,000								35,000	29,529	35,000	582,000	
				Sewer reticulation	864,000												864,000
Voi	U-55	175,000	1,324,000	Treatment works	499,000												
				Sewer reticulation	730,000												730,000
Kaharret	U-179	169,000	1,285,000	Treatment works	478,000							30,000	30,000	25,310	478,000		716,000
				Sewer reticulation	716,000												
Karumbu	U-40	72,000	448,000	Sewer reticulation	415,000								11,000	9,280	11,000	207,000	208,000
Karatina	U-33	201,000	1,527,000	Treatment works	553,000								37,000	31,216	37,000	553,000	
				Sewer reticulation	863,000												863,000
Lamuru	U-6	62,000	399,000	Treatment works	282,000										9,000	9,000	242,000
				Sewer reticulation	130,000												130,000
On-going project							15,500										
Total		58,351,000	477,084,000		442,691,000	6,190,500	7,246,500	27,475,000	40,666,000	36,049,000	30,851,000	44,112,000	42,570,000	76,108,437	59,567,000	48,312,500	43,865,500

Table - 13.1.1 Priority Project Assessment for Urban Water Supply Rehabilitation Works

Code	District	Code	Name of Urban Schemes	Water Undertaker	Metered Connection		Operation		Chlorine Dosage		Overall Evaluation
					%	Evaluation	Operation Hour (h)	Evaluation	Daily or not	Evaluation	
210	Kianbu	U-3	Karuri	Municipal Council of Karuri		3	24	1		2	6
320	Kwale	U-45	Msambweni	MWR		3	13	3	Daily	1	7
330	Lamu	U-47	Lamu	MWR		3	15	3		2	8
360	Taan River	U-58	Garsen	MWR		3		3	Daily	1	7
		U-59	Hola	MWR		3	8	3	Daily	1	7
440	Masaku	U-77	Kangundo	Kangundo-Tala Town Council	72%	2	15	3	Daily	1	6
450	Marsabit	U-82	Marsabit	MWR	95%	1	18	2	Daily	1	4
490	Mwingi	U-91	Mwingi	MWR	6%	3		3	Twice a week	2	8
500	Makueni	U-98	Mtito Andei	MWR	94%	1	24	1		2	4
510	Garissa	U-104	Garissa	MWR	33%	3		3	Daily	1	7
520	Mandera	U-110	Rhamu	Local Community		3		3	Daily	1	7
530	Wajir	U-113	Bute	MWR		3	18	2		2	7
		U-114	Eldas	MWR		3	18	2		2	7
		U-116	Wajir	MWR		3		3	Daily	1	7
620	Kisumu	U-119	Ahero	Ahero Catholic Church		3		3		2	8
		U-120	Kisumu	Kisumu Municipal Council.	97%	1	24	1	Daily	1	3
640	Homa Bay	U-129	Homa Bay	MWR	99%	1	16	2	Daily	1	4
650	Migori	U-136	Migori	MWR	54%	3		3	Daily	1	7
710	Kajiado	U-141	Kajiado	NWCPC	32%	3		3	Daily	1	7
750	Narok	U-163	Narok	Narok Municipal Council.	89%	1	24	1	Daily	1	3
790	Transmara	U-174	Kidgoris	MWR		3	16	2	Daily	1	6
910	Bungoma	U-200	Cheptais	MWR		3		3	0	2	8
940	Vihiga	U-213	Maseno-Luanda	MWR	43%	3		3	0	2	8
		U-214	Mbale			3	18	2		2	7
		U-215	Vihiga Majengo	MWR	76%	1	12	3	0	2	6

Note: (1) Nairobi and Mombasa are excluded from the above evaluation.

Source: The Aftercare Study Team, 1998

Table - 13.1.2 Priority Project Assessment for Urban Water Supply Development

Code	District	Code	Urban Centre	1995 Population	Studies to Date	Operational Body	Status of On-going Project	Production Capacity of the Existing Schemes	Production Capacity to be Expanded	Proposed Water Source	Environ. Impact	Overall Assessment
210	Kiambu	U - 3	Karuri	18,716	design	Municipal Council	No funding identified for expansion	624	4,025	-	none	B
320	Kwale	U - 46	Msambweni	7,247	none	MWR	No funding identified for expansion	624	5,223	Msambweni Dam	none	A
360	Tana River	U - 58	Garsen	4,232	design	MWR	No funding identified for expansion	100	4,329	Tana River	none	B
		U - 59	Haha	12,853	design	MWR	No funding identified for expansion	228	3,756	Tana River	none	B
440	Masaku	U - 77	Tala Kangundo	14,656	none	Town Council	No funding identified for expansion	411	7,050	Borehole	none	A
490	Mwingi	U - 91	Mwingi	5,469	none	MWR	Kiambera Water Supply by TARDA will serve in 1999	300	4,829	Tana River	none	C
4A0	Makueni	U - 108	Mitinda Azei	4,933	none	MWR	No funding identified for expansion	3,000	3,743	Borehole	none	B
520	Mandera	U - 108	Ehwak	8,087	under construction	Community	ongoing	0	1,869	Borehole	none	B
		U - 110	Rhamu	5,144	under construction	Community	ongoing	140	4,027	Borehole	none	B
530	Wajir	U - 113	Bute	2,543	none	MWR	No funding identified for expansion	202	573	Borehole	none	C
		U - 114	Eldas	2,242	none	MWR	No funding identified for expansion	65	1,652	Borehole	none	B
		U - 116	Wajir	26,239	none	MWR	No funding identified for expansion	48	9,104	Borehole	none	A
620	Kisumu	U - 119	Ahero	11,661	none	MWR	No funding identified for expansion	23	102	Borehole	none	C
		U - 120	Kisumu	231,327	ES by JICA	Municipal Council	JICA study completed. E/S. No funding identified for next stage	14,565	60,750	Victoria Lake, Awach river, Sondu & Kibos river	none	A
640	Homa Bay	U - 129	Homa Bay	30,995	none	MWR	No funding identified for expansion	1,500	12,024	Boreholes	none	A
650	Migori	U - 136	Migori	14,913	design	MWR	No funding identified for expansion	960	1,361	River Borehole	none	B
660	Nyamira	U - 140	Nyamira Kebirigo	7,130	design	MWR	No funding identified for expansion	466	4,763	Boreholes	none	B
750	Narok	U - 163	Narok	19,859	none	Municipal Council	No funding identified for expansion	1,315	9,558	Boreholes	none	A
770	Uasin Gishu	U - 167	Lemok	4,405	none	none	No funding identified for expansion	0	1,627	-	none	B
		U - 170	Simat	7,717	none	none	No funding identified for expansion	0	3,015	-	none	B
790	Transmara	U - 174	Kilgoris	7,665	none	MWR	No funding identified for expansion	864	3,022	-	none	B
910	Bungoma	U - 203	Mwalie Malakisi	3,119	none	MWR	No funding identified for expansion	0	1,215	River	none	B
940	Vihiga	U - 213	Luanda	4,246	none	MWR	No funding identified for expansion	1,192	23,571	-	none	A
		U - 214	Mhale	3,672	design	MWR	No funding identified for expansion	960	6,281	-	none	A
		U - 215	Vihiga Majengo	5,274	design	MWR	No funding identified for expansion	63	4,281	-	none	B

Note: "Production capacity to be expanded" implies water deficit to be expected in 2010 after completion of the ongoing project (under construction). It is assumed that the urban center with the required capacity more than 5,000m<sup>3</sup>/day considered urgent.

Source: The Aftercare Study Team

Table - 13.1.3 Preliminary Scope of Priority Expansion Urban Water Supply Projects

Code	Urban Centre Name	Name	Source of Water	Planned/Designed Project				Newly Proposed Project					Rehabilitation Works							
				Design Population	Supply Capacity (m <sup>3</sup> /day)	Source of Funds	Management Agency	Cost (US\$10 <sup>7</sup> )	Name	Planned Population Served	Production Capacity (m <sup>3</sup> /day)	Production of Capacity to be Expanded (m <sup>3</sup> /day)	Water Source	Treatment Process	Storage Tank Capacity (m <sup>3</sup> )	Length of Distribution Pipes (km)	Cost (US\$10 <sup>7</sup> )	Water Undertaker	Augmented Capacity (m <sup>3</sup> /day)	Cost (US\$10 <sup>7</sup> )
U-46	Masambweni																			
U-77	Kangundo/Tala																			
U-116	Wajir																			
U-120	Kisumu																			
U-129	Homa Bay																			
U-163	Narok																			
U-213	Makindu/Luanda																			
U-214	Mbale																			
		Mbale III	River	106,000	22,501	GOK	MLRRWD	942.0												
				106,000	22,501			982.0												
Total									845,900	122,125	125,916									

Note: S...Surface Water, G...Groundwater, D...Impounded Dam, F...Full Treatment, C...Chlorination

Source: The Aftercare Study Team





Table - 13.2.1 Preliminary Scope of Priority Rural Water Supply Projects

Code	District	Large Scale Rural Water Supply																									
		On-going										Planned/Designed										Newly Proposed Project				Rehabilitation	
		Name	Supply Capacity (m <sup>3</sup> /day)	Physical Status (%)	Source of Funds	Management Agency	Design Population	Population Served	COST (KSh)	Cost (US\$10 <sup>3</sup> )	Name	Supply Capacity (m <sup>3</sup> /day)	Source of Funds	Management Agency	Design Population	Source of Water	COST (KSh)	Cost (US\$10 <sup>3</sup> )	Name	Nos	Supply Capacity (m <sup>3</sup> /day)	Cost (US\$10 <sup>3</sup> )	Augmented Capacity (m <sup>3</sup> /day)	Cost (US\$10 <sup>3</sup> )			
310	Kilifi	Bamba Nyayo Ruruna Mwawesa Kwasap Kayungo Mjanaberi Gogoni Kisoeni Mtwapa Settlement Magurini Kaloleni Rehab. Dams	5,250 600 5,250 750 375 525 450 7,350 750	9 32 59 11 97 75 3 N/A 15			70,000 8,000 70,000 10,000 5,000 7,000 6,000 98,000 10,000			655 21 705 65 12 10 64 327 8	Mariuni-Palokumi Magurini Settlement	201 3,823			5,500 98,600	River Water			38 982				805	1,290			
320	Kwale										Coast ASAL Prog. Matumbi Samburu Vigurungoni Vyongoni wp Aga Khan Prim Health Care	1,300 400 300 150 200	IFRD	C.ASAL MLRRWD MLRRWD MLRRWD A.Khan/MLRRWD	65,000	Rain Water	367,390 500,000 500,000 150,000 N/E	120,259 163,666 163,666 49,100	120 154 164 49				828	645			
650	Migori	Karungu Masalder	18,750 375	25 65	GOK/FEC GOK	MLRRWD MLRRWD	250,000 5,000	N/A 5,000	175,000 315,000	57,283 13,421	82 13	Muhuru Isabela W/P Krugugi W/P	1,422 300 60		MLRRWD GOK Instit.			500,000 500,000 420,000	163,666 163,666 137,480	164 164 137			136	322			
720	Kipsigis	Londiani Rehab. Kipkelion Rehab.	869 713	75 99	NORAD/GOK RIPC	MLRRWD MLRRWD	11,583 9,500	6,000 6,500	150,000 R/N/A	49,100	49	Kotabnat Kapsit Soloi Jitei Phase II Nyakich Est. Lelu/Kimoloi	3,183 2,652 10,017 2,652 5,644 5,029		P/C P/C NWPC MLRRWD MLRRWD MLRRWD			400,000 750,000 14,282,750 475,000 357,500	130,933 245,499 4,675,205 155,483 117,021	131 245 4,675 155 117			33	645			
750	Narok	Imashariani N'Erkare Mosiro Pans	455 1,005 925	95 20 40		GOK GOK GOK			420,000 600,000 225,000	153,846 196,399 350,245	154 196 350	Narokura Int. Proj.	340		Community			268,800	87,987	88	LS-1 LS-2	6 1	5,975 2,801	9,395 2,801	686	1,935	
790	Transmara	Oloimasani W/P	1,125	30		MLRRWD			400,000	130,933	131										LS-1 LS-2	8 1	1111 2,801	12,526 2,801	3,519	645,003	

Code	District	Small Scale Rural Water Supply																							
		On-going										Planned/Designed										Newly Proposed Project			
		Name	Supply Capacity (m <sup>3</sup> /day)	Physical Status (%)	Source of Funds	Management Agency	Design Population	Population Served	COST (KSh)	Cost (US\$10 <sup>3</sup> )	Name	Supply Capacity (m <sup>3</sup> /day)	Source of Funds	Management Agency	Design Population	Source of Water	COST (KSh)	Cost (US\$10 <sup>3</sup> )	Name	Nos	Supply Capacity (m <sup>3</sup> /day)	Cost (US\$10 <sup>3</sup> )			
310	Kilifi	South Chonyi Mitsajeni	225 300	70% 45%			3,000 4,000		60,000 15,000	19,640 4,910	20 5	Nyari Ng'orabeni	74 140		MLRRWD MLRRWD	4,382 1,600		31,000 35,000	10,147 11,457	10 11	SS-1 SS-2	1,726 690	13,804	3,417 1,356	
320	Kwale	Mbuguni Mteza Wasini Jibia Samburu Sitaloni Kiteje Bombo Mkwiro Jabias Mkangombe Dara Samburu Ranch	225 75 225 225 75 225 150	50% 60% 31% 80% 10% 10% 50%	RDF GOK RDF RDF RDF RDF GOK	MLRRWD MLRRWD MLRRWD MLRRWD MLRRWD MLRRWD	3,000 1,000 3,000 3,000 1,000 3,000 2,000	1,500 1,100 1,500 2,500 Nil 500 1,000	32,450 200,000 173,500 N/E 73,500 200,000 11,700	10,622 65,466 56,792 N/A 24,059 65,466 3,830	11 65 57 24 65 4	Kanango Dam Gufaze Dam Mwaluphesa Rock Catch.	64 300 80	GOK/RDF GOK/RDF RDF	MLRRWD MLRRWD MLRRWD	1,000 100 2,000	Run-off River Rain Water Rain Water	105,000 1,000,000 130,000	34,370 327,332 42,553	34 327 43	SS-1 SS-2	1,486 594	11,883	2,942 1,176	
650	Migori	FOCSP Kenya/Netherlands RDWSSP AHE/RWS DOHRWD	N/A - - -	- - - -	GOK/IFAD GOK/ON GOK/SIDA DON	IFAD -	N/A - - -	1,050 16,200 10,500 16,000			49	Ongo Health Centre Nyaraba W/P Kegungo H/S Masaya W/P	5 25 25 30	GOK/COMM Instit. Instit. P/C	MOH/Community -	500 500 300 300	Borehole Springs Springs Dam	100,000 20,000 10,000 20,000	32,733 6,547 3,273 6,547	33 7 3 7	SS-1 SS-2	2437 974	19,486	4,825 1,929	
720	Kipsigis	Fort Ternan Chernogoch	279 113	82 80	GOK RDF	MLRRWD S/II	3,725 1,500	2,000 1,000	100,000 12,000	32,733 3,928	33 4	Kibanga Tugueni Telde	480 285 188	GOK P/C P/C	MLRRWD P/C P/C	4,950 3,800 2,500	River Spring/Dam River	175,500 N/A N/A	57,447	57	SS-1 SS-2	2,528 1,009	20,199	5,005 1,998	
750	Narok	Olkinyei	166	76		GOK			40,000	13,093	13	Mosiro Pans Leshita W/P Nkinyeni W/P Itumuturi Pan Kijijir	320 95 113 5,000 96		MLRRWD Community Community Community Community			140,000 12,500 27,900 21,786 18,000	45,827 4,092 9,133 7,131 5,892	46 4 9 7 6	SS-1 SS-2	375 149	2,987	743 295	
790	Transmara	Raitan W/P Enosani W/P Njipulip W/P	225 150 225	30 90 10		MLRRWD P/C MLRRWD			50,000 100,000 90,000	16,367 32,733 29,460	16 33 29	Oldonyo Rasha Nakujana W/P Poroko W/P Idolicho W/P Isampin W/P Kerinkani W/P Emwaa Dikir Murkun W/P Soget W/P Sharkoi W/P Lolgorien W/S Angata Baragoi w/s	500 400 300 400 500 300 450 500 400 450 200 150	P/C P/C P/C P/C P/C P/C P/C P/C P/C P/C MLRRWD MLRRWD			100,000 80,000 750,000 70,000 100,000 65,000 7,500 7,500 70,000 100,000 125,000 150,000	32,733 26,187 245,499 22,913 32,733 21,277 2,455 2,455 22,913 32,733 40,917 49,100	33 26 245 23 33 21 2 2 23 33 41 49						

NOTE: LS-1 : Large Scale Rural Water Supply (5,000 Population Scale)  
LS-2 : Large Scale Rural Water Supply (20,000 Population Scale)

SS-1 : Small Scale Rural Water Supply (200 Population Scale)  
SS-2 : Small Scale Rural Water Supply (500 Population Scale)

Table - 13.4.1 Preliminary Scope of Priority Sewerage Projects

Code	Urban Name	Name of Treatment Works	Population Connected to Sewer in 1998	Target Population Connected to Sewer in 2010	Existing Treatment Works Capacity (m <sup>3</sup> /day)	Dry Weather Flow 2010 (m <sup>3</sup> /day)	Previously Proposed or On-going Projects			New Projects - Treatment Works				New Projects - Sewer Reticulation			
							Scope	Treatment Capacity (m <sup>3</sup> /day)	Cost (US\$)	Build New Facility	Expand Existing Facility	Rehabilitation	Cost (US\$)	New construction or Expand	Rehabilitation	Cost (US\$)	
U-52	Mombasa	Chengamwe	69,600	368,000	0	95,827	New treatment works under construction	17,100	unavailable		Increase treatment capacity for future requirement	none	48,225,000	Incremental population connected to sewer =298,400 (person); extend sewer network up to full treatment capacity at Chengamwe	Replacements Existing 25% small Dai. pipe. Cleaning=All main trunk	5,884,000	
		Kizingo			0		Abandon existing facility and provide primary treatment facility on North Mainland	18,848	57,000,000	none	none	0	11,936,000				
U-120	Kisumu	Conventional serving central WTD	130,000	280,514	6,800	52,176	JICA Feasibility Study Phase 1 project	14,600	14,234,000	none	none	none	0	none	none	0	
		Nyalenda Ponds serving eastern WTD			10,855			18,000		JICA Master Plan Phase 2 Project New Otongolo Ponds in Western District 29,400 m <sup>3</sup> /day	JICA Master Plan Phase 2 Project increase capacity by 12,500 m <sup>3</sup> /day	none	3,939,000	JICA Master Plan Phase 2 Project New Western District	19,000,000		
U-72	Machakos	Ponds	8,000	203,911	2,000	37,927	Master plan proposed in 1985	35,927	3,750,000 (1985 prices)	Provide new treatment facilities in accordance with existing wastewater master plan	none	none	3,372,000	Incremental population connection to sewer =195,911 (person); extend sewer network after more treatment capacity is available	Replacement= Existing 25% small dia. pipe. Cleaning=All main trunk Pumping station	904,000	
U-163	Narok	None	0	19,345	0	3,598	none	0	0	Provide new waste stabilisation ponds	none	none	1,044,000	Provide sewer reticulation	none	1,708,000	
U-40	Malindi	None	0	53,661	0	9,981	Master plan proposed in 1994	12,580	9,700,000 (1994 prices)	Provide new treatment facilities in accordance with existing wastewater master plan.	none	none	4,000,000	Provide sewer reticulation in accordance with existing wastewater master plan	none	6,000,000	
Total Cost of On-going Projects(US\$) <sup>(1)</sup>									71,234,000	Total Cost (US\$)				60,580,000	Total Cost (US\$)		45,432,000
										Total Cost of New Projects (US\$) <sup>(1)</sup>						106,012,000	

Notes: (1) Donor/GOK funding not yet committed