Appendix 1.2 Annual Budgetary Schedule by Urban Water Supply Schemes (1/2)

City		Code	Urban Name	·	(1990)				•	(2000)		,····	Total
Cod	le			93 94	95 96	97 98	99 00	01 02	03 04	05 06	07 08	09 10	(US\$'000)
U-	1	110.0	Nairobi	468,922	108,715			209,698	274,305				1,061,640
U.	2	211.1 211.4	Karuri Kiambu	9,063 1,702		4,768					2,616	2,907	11,970
U.	4	2121	Gatundu & Ngonda	1,104		4,700					2,010	314	9,087 314
U-	5	213.1	Limura			9,213						4,953	14,167
U-	6 7	214.1	Ruiru		6,513		10.007					3,166	9,678
IJ-	8	214.4 215.1	Thika Githunguri			3,154	10,386					10,953 1,814	21,339 4,968
Ŭ-	9	216.6	Kikuyu		12,732	4,11						2,134	14,866
U.	10	221.1	Wanguru				580					599	1,179
Մ. Մ.	11 12	222.2 222.3	Sagana Konzgoya	4,985			2,168				3,365	1,394	3,562 8,350
Ū-	13	223.2	Kutus	<b>س</b> رر۲			2,785				2,000	2,105	4,891
U-	14	231.4	Kandara									482	482
υ. υ.	15 16	232.3 233.4	Maragua Kangema	10,437			538					4,629 671	15,066
U-	17	234.3	Murang'a	7,059			220				4,319	0/1	1,208 11,378
U-	18	235.1	Makuyu	3,123							•	1,669	4,792
U.	19	241.3	Ol Kalou				6,781					3,933	10,714
U.	20 21	254.2 256.1	Karatina Othaya			3,022	1,534					2,350 1,978	3,883 5,000
U-	22	257,0	Nyeri		29,242					21,102			50,344
U-	23	311.2	Mariakani		2,872						_	1,749	4,621
U- U-	24 25	313.2 314.3	Kilifi Watamu	3,305			4,543				5,102	1,846	9,645 5,151
Ŭ-	26	314.4	Malindi	31200			48,865					15,504	64,369
	135	314.6	Mambrul	2,510								1,970	4,479
IJ∙	27 28	321.L 323.1	Kwale Kinango				2,903				1,852	1 626	4,755
U.	29	324.1	Msambweni			13,361	3,137 13,361		9,378	9,378		1,636	4,773 45,479
	136	3243	Lungelunga				1,520		- 1	.,		835	2,355
υ. 	30	331.0	Witu			3,348						2,055	5,403
η. Π-	31 32.	333.2 340.0	Lamu Mombasa	279,229	45,554	23,867		58,946	57,846		13,666		37,534 441,575
	137	351.1	Tayota		4,992			55,5 14	51,040			2,226	7,219
U-	33	3524	Vol				4,874					2,794	7,669
Ω. Ω.	34 35	353.2 362.3	Wundanyi Bura & Madogo				643				935	304	935 947
ű.	36	363.3	Hola			4,245	043				2,604	304	6,850
IJ.	37	364.1	Garsen			1,984						1,005	2,989
U-	38 39	411.8 412.1	Runyenjes Siskago			1,526		162	162	162	162	162	2,337
U-	40	413.7	Embu				4,246				4,603		0 8,849
U-	41	421.1	Isjola			36,212	36,212	16,030	16,030	16,030	16,030	16,030	152,573
U-	42	421.2	Ol Doinyo Ng'iro	5,245		- 150						3,078	8,323
	138 139	422.1 423.1	Garbatula Menti		3,164 3,373	8,437	9,491					19,297 2,087	40,389 5,460
U.	43	431.4	Kitul	5,591	-,						3,824	2,50	9,415
υ. 	44	433.2	Mutoma										0
บ. บ.	45 46	434.4 441.1	Mwingi Machakos	10,244	47,363					30,749		5,897	16,141 78,112
U-	47	441.2	Mitaboni	12,533	47,000					50,149		7,759	20,293
U-	48	4423	Athi River				12,571					7,087	19,658
Մ.	49 50	444.3 445.1	Uzani/Tawa Kangundo	10.101	773							340	1,113
	140	445.2	Tala	12,392	5,599							7,145 2,837	19,537 8,437
U-	51	447.4	Nunguni				1,016					483	1,498
	141	448.1	Wole			2,024						1,240	
U- U-	52 53	448.3 449.4	Emali Mtito Andei&Kibwezi	1,182 12,803								509 6,734	1,691 19,537
	142	451.1	North Horr	1 8/400	13,916					4,051	4,051	9,134	22,017
U-	54	452.2	Kargi		5,731	15,282	17,192			9,525	9,525	9,525	66,779
Մ- Մ-	143 55	453.1 454.1	Korr Marsabit		15,265	16,713 40,707	16,713	18,992	11,691	11,691	10 000		56,810
υ.	56	455.2	Sololo		5,494	14,650	45,796 16,481	10,774	18,992	18,992 13,327	18,992 13,327		177,736 63,277
U-	57	456.1	Moyale			19,246	19,246			14,891	14,891		68,275
U-	58 59	461.4	Meru Marku		26,059		n na				17,484	,	43,544
U- U-	59 60	463.1 464.1	Nkubu Chogoria	1,260			2,808					1,831 456	4,639 1,716
U٠	61	464.3	Chuka	- 1			2,645					1,513	
<u>v.</u>	62	467.2	Maus			2,502						1,326	3,827
Մ-	63 64	513.1 515.2	Mudo Gashe Ijara		1 2,914 8,035						3,351	3,351	19,616
U-	65	515.3	Kotila		11,732						1,324 1,948	1,324 1,948	10,682 15,628
U٠	66	515.4	Masalani		•	1,678					- 4	691	2,370
IJ-	67 68	519.1 521.1	Garissa Mandora				6,554				6,363		12,918
U•	69	523.1	Mandera Elwak		50,695		1,423			12,393	1,713 12,393		3,136 75,481
U-	70	524.2	Rhamu		-		1,839				د د درسه	1,026	
U-	71	5324	Wejir		15,702	41,872	47,106	16,897	16,897	16,897	16,897	_	172,266
U•	72 73	536.2 537.2	Buna Bute		9,375 12,044	24,999	28,124	6,455	6,455	6,455	6,455 3,1 <i>6</i> 7	6,455 3,167	94,774 18,378
<u></u>		1 1M									2,107	2,107	10/3/9

Appendix 1.2 Annual Budgetary Schedule by Urban Water Supply Schemes (2/2)

City		Code	Urban Name		(1990)	<del></del>			•	(2000)	F-1 R-1		Total
				93 94	95 96	97 98	99 00	01 02	03 04	05 06	07 08	09 10	(US\$'000)
	14	611.2	Manga			2,037						1,564	3,601
U- 7 U- 14	75 14	611.5 612.2	Keroka Nyamira + Kebisigo			3,612 7,587						1,616 4,003	5,228 11,590
	76	615.0	Kisil			3,958	15,234				8,356	,,	27,548
	77	617.1	Ogembo	1,205								529	1,734
	78 79	622.1 622.3	Maseno Kisumu & + Kiboswa		72,722	10,141				32,118		5,410	15,551 104,840
	80	623.2	Ahoro	3,978	120100					32,210		1,891	5,869
	11	б25.2	Muhoroni		4,880							2,753	7,633
	15 12	632.A 633.2	Bondo Yala			2,814 1,696						1,358	4,172
	13	634.1	Siaya			10,313					5,662	\$30	2,526 15,975
U- 8	84	635.4	Ukwala			1,276						639	1,914
	85	641.1	Homa Bay		2 572	8,135					4,386		12,521
	86 86	644.3 646.3	Migori Kehancha + Tarang'anya	3,255	3,577							1,870 1,501	5,446 4,757
U- 14		646.8	Nyabikayo	0,200	18,866						4,090	4,090	27,046
U- 14		647.4	Oyugis			3,386						1,552	4,938
U- 14	17	648.1 649.4	Kendu Bay Awendo/Sare	3,617		1,946						1,024 1,645	2,970 5,263
	18	711.1	Oloitokitok	3,011		4,045		<del></del>				2,987	7,032
U• 1	19	712.1	Ngong		8,354	•						6,254	14,608
	90	713.1	Kajiado Nomenas		11,952						7,790	***	19,742
	91 92	713.5 714.1	Namanga Magadi		3,164		6,362					2,502 4,325	5,666 10,688
	93	723.1	Sotik		2,986		-leen					1,495	4,481
	94	725.5	Kericho			15,176					9,057		24,233
	95 96	726.1 727.1	Kipkellon Londiani			1,264						818	2,083
	97 97	731.5	Nanyuki			57,107	10,436				8,179	1,529	58,636 18,615
	50	733.4	Rumuruti		7,335						-1	1,868	
	98	733.9	Nyshururu				13,396				9,659		23,055
	99 00	743.2 744.1	Gilgil Naivasha			6,344 21,497				31,910 10,478		<b>5,004</b> 1 <b>7,02</b> 2	43,257 48,997
U- 10		746.1	Njoro		1,195	15,746				10,410		10,358	27,299
U- 10		747.3	El Burgon		1,633	14,703						10,029	26,365
U- 10		747.5 749.0	Moto Nakuru		1,472 121,012	11,822				a1 000		8,114	21,409
U- 10		752.1	Narok		121,012		22,755			91,009	8,188		212,021 30,943
U- 10		752.5	Nairagio Ngaro				1,068				•	706	
U- 1:		754.4	Kilgoria			2,597						l ,686	
	52 07	755.1 762.3	Lolkorian Kitalo			2,277	19,614				15,143	1,457	3,734 34,757
	D8	762.4	Kiminini/Saboti+Spr.Kita	2,106			15,014				10,143	1,857	
	09	763.5	Endobess/Kwanza	1,670								742	2,412
U- 1: U- 1:		771.2 772.4	Moi's Bridge		1,870	1 401						1,064	2,934
U- 19 U- 11		772.5	Turbo Eldoret		80,661	3,487				55,230		1,993	5,480 135,891
<u>U- 11</u>	11	774.6	Burnt Porest		***	1,302						789	2,091
U- 1		812.5	Kabernet	24,186							3,138		27,324
U- 11 U- 11		814.3 814.5	Maji Mazuri Eldama Ravine		3,179		21,849					2,002 4,703	
U- 11		815.1	Mogotio				4,716					1,295	
U- 13	55	816.2	Marigat			1,635						913	2,549
U- 11		822.4	Iten+Tambach		945	2 / **	7,556				4,225	ا ۔۔۔ ا	12,727
U- 11 U- 11		831.3 832.2	Nandi Hills Kapsabet+Baraton			2,655 7,091					4,726	1,352	4,008 11,817
U- 11		841,4	Maralal			9,496					6,544		16,040
U- 13		842.4	Warnba		21,550	21,550				12,953	12,953	12,953	81,960
U- 13 U- 13		843.6 853.5	Baragol Lodwar		33,273	33,273 32,748	32,748	16,771	16,771	19,046 16,771	19,046 16,771	19,046	1 23,684 1 32,580
U- 1:		861.1	Kapenguris/Makutano		5,340	161,40	34,148	10,771	10,771	10,771	3,580	į	8,920
U- 1:	56	911.4	Mawalio + Malakisi	2,201						······		1,118	3,319
U- 13		9124	Bungome				15,892				10,879		26,771
U- 13 U- 13		913.1 914.2	Kimilli Webuye		4,407	11,840						2,911 8,198	7,318 20,038
U- 1:		916.1	Chaptais	1,754		11,040						939	2,693
<b>U</b> - 13	27	921.5	Busia	•			8,111				5,976		14,087
U- 1:		922.2	Nambale				1,398					821 3 250	2,219
U- 1: U- 1:		931.3 932.5	Luanda Vildga+Majongo		3,416							1,759 1,670	
U- 1		933.1	Kaimosi		-,							-,	0
U- 1:		934.3	Khayega	1,209								565	
U+ 1: U- 1:		935.4 939.2	Kakumega Butere			18,509	1,438				10,657	758	29,166 2,196
U- 1:		939.2 93A.4	Mumiss			9,036	1,400					4,460	
			TOTAL.	896,7 <i>6</i> 7	871,642	654,913	556,658	343,950	428,527	455,158	369,964	371,610	

Appendix 1.3 Annual Budgetary Schedule by Sewerage Development (1/2)

City Code		Code	Urban Name		(1990)					(2000)			Total
				93 94	<b>95</b> 96	97 98	99 00	01 02	03 04	05 06	07 08	09 10	(US\$ 000)
<u>U.</u>	<u>1</u>	110.0 211.1	Nairobi Karuri	112,618 1,080	28,154			37,019	37,019			506	214,811
ŭ.	3	211.4	Kiambu	1,000		356					216	300	1,586 572
U-	4	212.1	Gatunda & Ngonda				52					18	69
υ. υ.	5 6	213.1 214.1	Limuru Ruiru		945	110						49 446	159 1,390
U-	7	214.4	Thiks		, , ,		8,960					5,166	14,126
U.	8	215.1	Githunguri			302						185	486
U-	9 10	216.6 221.1	Kikuya Wanguru		482		38					292 14	774 52
U.	11	222,2	Sugaria				233					150	384
U. U.	12 13	222.3 223.2	Kurugoya Kutus	708			493				463	31.0	1,171
U.	14	231.4	Kandara				45					316 18	809 62
U.	15	232.3	Maragua	2,167								910	3,076
U.	16 17	233.4 234.3	Kangoma Murangia	1,537			96				842	39	135 2,379
U.	18	235.1	Makuyu	366							4.5	202	569
U•	19	241.3	Ol Kalou				856					457	1,313
U-	20 21	254.2 256.1	Karatina Othaya			374	418					295 261	714 635
U.	22	257,0	Nyeri		14,121					9,620		201	23,742
U.	23	311,2	Mariekani		666							469	1,135
Մ∙ Մ•	24 25	313.2 314.3	Külfi Walamu	185			1,089				768	132	1,857 317
U٠	26	314.4	Malindi				3,140					7,415	10,556
ת. הי	135 27	314.6 321.1	Mambrui Kwalo	236			334				107	252	488
U.	28	323.1	Kinango				3.54 1.52				193	50	526 201
U-	29	324.1	Maunbweni			376	376		218	218			1,188
U-	136 30	324,5 331.0	Lungalungs Witu			260	196					88 180	284 441
G.	31	333.2	Lamu			705					485	180	1,190
U.	32	340,0	Mombasa	34,012	8,503			7,445	7,445				57,406
U.	137 33	351.1 352,4	Tavola Voi		710		813					291 432	1,002
U.	34	353.2	Wundanyi				183				96	432	1,245 279
U-	35	362.3	Bura & Madogo				74		•			25	99
IJ. U.	36 37	363.3 364.1	Hota Garsen			759 282					465	132	1,224 415
U-	38	411.8	Runyenjes			141		14	14	14	14	14	211
Ω.	39 40	41 2.1 41 3,7	Siakago Embu				20 1,508				***	7	28
IJ.	41	421.1	Isialo			922	922	313	313	313	966 313	313	2,474 3,407
IJ.	42	421.2	Ol Dainyo Ng'iro	418								285	704
IJ. U.	138 139	422.1 423.1	Garbatula Morti		27 540	73	82					123 3 <i>6</i> 7	305 906
U.	43	431.4	Kitui	836	240						566	307	1,402
IJ٠	44	433,2	Mutomo				41					14	55
υ. υ.	45 46	434,4 441.1	Mwingi Machakos	659	13,869					8,943		444	1,102 22,812
U-	47	441.2	Mitaboni	2,321	15,003					0,543		5,323	7,644
D.	48	442.3	Athi River				1,999					1,309	3,308
υ. υ.	49 50	444.3 445.1	Uzani/Tawa Kangundo	901	17							601	24 1,502
U-	140	445.2	Tala		144							77	221
Մ.	51 141	447.4	Nungani			100	27					7	35
υ. υ.	52	448.1 448,3	Wote Email	21		189						122 7	311 28
U-	53	449.4	Mtite Andel&Kibwezi	291								175	466
IJ• U•	142 54	451.1 452.2	North Horr		165	157	1.774			41	41		246
μ. μ.	143	452.2 453.1	Kargi Korr		59	157 223	177 223		112	84 112	84	84	647 670
U-	55	454.1	Marsabit		151	404	454	159	159	1.59	159		1,645
η. Π·	56 57	455,2 456,1	Sololo Moyale		51	136 310	153 310			108	108		557
บ.	58	461.4	Meru		12,583	210	310			198	198 7,957		1,017 20,540
U.	59	463.1	Nkubu	_	-		423					279	702
U∙ U•	60 61	464,1 464,3	Chogoria Chuka	76			286					25	101 430
U-	62	467.2	Maus			286	200					144 144	430 430
υ-	63	313.1	Mudo Gashe		169						38	38	244
U• U•	64 65	515.2 515.3	ljara Kotilo		89 89						14 14	14 14	117 117
U•	66	515.4	Masalani		4,5	89					14	27	117
U•	67	519.1	Garissa Non-lea				2,585				5,498		8,084
U- U-	68 69	521.1 523.1	Mandera Elwak		619		425			136	237 136		663 891
U-	70	524.2	Rhamu				260				130	115	374
U• U•	71 72	532.4	Wajir Tuna		243	648	729	258	258	258	258		2,652
U- U-	73	536,2 537.2	Buna Bute		67 146	179	201	44	44	44	44 37	44 37	669 219
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Appendix 1.3 Annual Budgetary Schedule by Sewerage Development (2/2)

City	<del></del>	Code	Urban Name	<u></u>	(1990)	<u></u>	······································	<del>,</del>		(2000)	<del></del>	*****	Total
				93 94	95 96	97 98	99 00	01 02	03 04	05 06	07 08		(US\$ 000)
U- U-	74 75	611.2	Manga			58						15	73
U-	144	611.5 612,2	Keroka Nyamira + Kebirigo			151 733						60 382	212 1,115
U-	76	615.0	Kisil				3,056				6,181		9,238
U-	77	617.1	Ogembo	69								25	94
U- U-	78 79	622.1 622.3	Maseno Kisumu & + Kiboswa		23,131	1,102				14,055		637	1,740 37,185
U-	80	623.2	Ahero	636	20,151					14,033		296	931
<u>U-</u>	81	625.2	Muhoroni		574							350	924
U-	145	632.4	Bondo			210						88	298
U-	82 83	633.2 634.1	Yala Siaya			158 1,267					689	ଗ	226 1,956
U-	84	635.4	Ukwala			65					007	28	94
U-	85	641.1	Homa Bay			1,647					857		2,504
υ. 	86	644.3	Migori	240	544							285	829
IJ∙ U-	146 147	646.3 646.8	Kehancha + Tarang'anya Nyabikayo	240	226						47	98 47	338 321
Ŭ٠	148	647.4	Oyugis			240					•••	98	338
U-	87	648.1	Kendu Bay			199						102	300
<u>U-</u> U-	149 88	649.4 711.1	Awendo/Sare Oloitokitok	271		459						109	380 873
U.	89	712.1	Ngong		1,575	429						1,286	2,861
U-	90	713.1	Kajiado		636						576	-,	1,212
U-	91	713.5	Nemanga		512							460	972
U- U-	92 93	714.1 723.1	Magadi Sotik		388		2 <del>9</del> 9					272 191	572 578
U.	94	725.5	Kericho		200	3,001					6,716	171	9,718
U-	95	726.1	Kipkelion			166					•	106	272
υ·	96	727.1	Londiani			239						1.55	394
υ. υ.	97 150	731.5 733.4	Nanyuki Rumumti		179		2,199				5,745	114	7,943 294
U-	98	733.9	Nyahururu		.,,		1,255				857	***	2,113
U·	99	743.2	Gügü			1,370	-•-					1,180	2,551
U-	100	744.1	Najvasha			7,075						5,855	12,930
U- U-	101 102	746.1 747.3	Njoro El Burgon			859 1,166						745 1,008	1,604 2,175
U-	103	747.5	Molo			1,026						889	1,916
U-	104	749.0	Nakuru		30,086	•				25,386			55,472
U-	105	752.1	Narok				1,515				1,487		3,002
η. Π·	106 151	752.5 754.4	Natragio Ngaro Kilgoria			333	50					40 248	90 581
Ŭ-	152	755.1	Lolkorian			172						130	302
U-	107	762.3	Kitalo				9,426				6,652		16,078
U.	108	762.4	Kiminini/Saboti+Spr.Kita	103 165								43 67	146 233
U.	109 153	763.5 771.2	Endobess/Kwanza Moi's Bridge	100	222							132	353
Ü٠	154	772.4	Turbo			305						184	489
U-	110	772.5	Eldoret		17,496					13,972			31,468
U-	111	774.6 812.5	Burnt Forest Kabarnet	709		156					494	96	252 1,203
U-	113	814.3	Maji Mazuri	107	395						7,4	274	
U-	114	814.5	Eldama Ravine				426					295	720
U-	115	815.1	Mogotio				222					152	
η. Π·	155 116	816.2 822,4	Marigat Iten+Tambach			198	455				243	103	300 698
ŭ.	117	831.3	Nandi Hills			97					2/13	50	146
U-	118	832,2	Kapsabet#Baraton			1,137					797		1,934
U-	119	841.4	Maralal			1,499					1,159		2,658
U- U-	120 121	842.4 843.6	Wamba Baragoj		158 138	158 138				83 71	83 71	83 71	566 490
บ.	122	853.5	Lodwar		• 213	404	404	132	132	132	132	"	1,338
U-	123	861.1	Kapenguria/Makutano		961						694		1,654
U-	156	911.4	Mawalic + Malakisi	244			4 40.2				4 701	126	370
Մ.	124 125	912.4 913.1	Bungoma Kimilili		627		2,795				6,704	456	9,499 1,084
U-	126	914.2	Webuye			2,526						6,078	8,603
U·	157	916.1	Chaptais	223								123	346
Մ•	127	921.5	Busia Mambala				1,413				975	98	2,388 281
υ. υ.	158 128	922.2 931.3	Nambalo Luanda				182 271					98 164	281 43.5
U-	129	932.5	Vihiga+Majengo		339		٠,٠					158	497
U٠	130	933.1	Kuimosi				34					11	45
υ. υ.	131 132	934.3 935.4	Khayega	34		7,761					4,532	14	48 12,295
υ. -	133	939.2	Kakamega Butere			1,104	175				4,332	81	256
Ŭ.	134	93A.4	Mamias			1,755	· <b></b>					818	2,573
			TOTAL	161,126	160,799	45,117	52,554	45,385	45,716	73,949	65,902	54,408	704,955

Appendix 1.4 Annual Budgetary Schedule by Irrigation Projects

1998 1999 2000 2001
0.57 0.57 0.57 0.57 7.85 4.43 5.97 16.19
8.04 0.00
0.70 0.70
3.83 8.11 14.51
2.49
0.62
22.78 16.29 24.85

Note: The master plan period (1993-2010) dose not cover the whole construction period of the large irrigation schemes. In the Study, the disbursement schedule for a period from 1993 to 2010 was considered for the formulation of master action plan.

Appendix 1.5 Annual Budgetary Schedule by Hydropower Projects

(Unit: million US\$)

		Total Total 38 2009 2010	2009 2010	2009 2010	2009 2010	2009 2010	2009 2010	2009 2010
	2007 2008							
	5 2006					·	7	
	2005						27	
	2004					4.0	52	
	2003				64.0	9.0	48	
	2002	.1		14.0	115.0	8.0	22	
	2001			25.0	50.0 100.0 115.0	4.0		
Year	2000		58.0	21.0	50.0			
	1999		87.0 102.0	11.0		•		
	1998	6.0	87.0					
	1997	7.0	44.0					,
	1996	33.0						
	1993 1994 1995 1996 1997	27.0 46.0 33.0 6.0 12.0						
	1994	27.0						
	1993	20.0						
	Project	1 Sondu/Miriu No.1 No.2	2 Low Grand Falls	3 Oldorko	4 Magwagwa	5 Gitaru #3	6 Mutonga	

Appendix 1.6 Annual Budgetary Schedule by Flood Control Projects

(Unit: million US\$)

Total	1	20.7	10.8	17.7	5.0	8.3	1	C79
	2010					2.767		2.8
-	2009					2.767	0	2.8
	2008				1.7	2.767 2.767 2.767		4.4
	2007				1.7	•	į	[]
	2006				1.7			0.0
	2000 2001 2002 2003 2004 2005 2006 2007 2008 2009 2010							
	2004			4.				4.4
	2003			4. 4.			;	4.4
	2002			4.4			:	4.4
	2001			4.			:	4.4
Year	2000		3.6				,	3.6
	1998 1999	5.2	3.6					×.
	1998	5.2	3.6					×.
	1997	5.2						27
	1993 1994 1995 1996 1997	5.2						52
	1995							0.0 0.0 5.2
	1994							0.0
	1993							0.0
Project		1 Kano Plain	2 Nairobi City	3 Yala Swamp	4 Kuja Rivermouth	5 Lumi Rivermouth		Total

Appendix 1.7 Annual Budgetary Schedule by Urban Drainage and River Improvement Projects

10									Year												
Comparison   Com		Urban Drainage Project			1995					000				<b>'</b>						10	Total
Name	=					8	ļ.	9													90%
Table   Tabl	210				3	2		3									4			9	12.9
New Accordance	210														_		4			9	14.8
National Part	ន																			97	C.
National Accordance   1.55	8 3														_					9	31.5
	ξ.											4.4	4.4	4.4			4			3	13.1
Newlead Newlea	310											ţ	ţ	ļ		***			49		\$
No. or	310															• •					7.6
Manualy   Manu	8																			7	77 5
Weakerst Michael Micha	3 3								23.		•							7			9 4
Howevery How	3 %								9								m			7	9 2
Part	88	•																		7.	77
State   Stat	8														_	••			Ϋ́		7.4
Simple   S	410	_											2.5	2.5							7.6
Nationary   Nati	8																			•	9 0
Michaelis Michae	8							,	i											7	a r
Marchiest	3 5							4 4	4 4	4 6											191
Owings         Owings<	8	, ,						3	}	}								6			0.8
Contract	3								60		60							!			2.7
Manchest Katii Kat	510												2.1	2.1	21						6.4
Ways: Name   Was:	S S															_ (			ባዛ		0.5
State   Stat	88											6	40	40		_			ū		<u> </u>
Single   S	8									11.2		2	?	}							33.5
Hojman Bay   Hoj	8																			53	0.1
Kajisto     Navajeti     Nava	8															.,,					92
New	2 5												į	í			m			7	7 7
Nicholation	3 8											7.	5.7	7 6	52						15.6
National N	₹ 1						7.7		2.4				1	ì	<u>-</u>						77
New   New	940						17.3		17.3												51.8
National Column   State   St	8												,			• •			-		4.6
Experiment   Comparison   Com	8 6												4.5		· · ·						3 7
Each	2.0												ţ				Ó			4	ៗ
Chartest	220	. ~															<b>O</b>			9	2.6
Marriaria   1.9	8	_			_															병	13.1
Longward Machinemic	3															(			o, u		55.
National Augustian Process   Sub-total   0.0	200															. <del>.</del>			á a		9 00
Wedge: Busing Busing Sub-total         Sub-total         0.0         0.0         0.6	9 6														5.0				·		15.0
Sub-tore	3 3														9.0						1.8
Kalamanga   Sub-total   0.0   0.0   90.0   125.2   144.2   55.1   20.0   20.7   39.9   55.7   35.8   15.8   14.3   30.2   60.5   46.2   30.3   8   Minor Ad-hoc RiverImprovement of Long-term Improvement of Long-term Impr	g														0.3						6'0
Sub-total 0.0 0.0 90.0 125.2 144.2 55.1 20.0 20.7 39.9 55.7 35.8 15.8 14.3 30.2 60.5 45.2 30.3 Ad-hoc RiverImprovement Works  **Machice RiverImprovement Morks**  **Machice RiverImprovement of Lower Tana River**  **Sub-total**  **Machice RiverImprovement of Lower Tana River**  **Sub-total**  **Machice RiverImprovement of Lower Tana River**  **Sub-total**  **Sub-tot	ጅ													S. S.							16.6
Ad-hoc RiverImprovement Works         0.0         0.0         4.5         4.5         4.5         6.3         6.		Sub-rotal	0.0	90	0.09															D.	874.0
Ad-hoc RiverImprovement Works         0.0         0.0         4.5         4.5         4.5         6.3         6.4         6.3         6.3         6.					_										<del>-</del>						
Tru Improrective of Lower Tuna River 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0		Minor Ad-hoc River Improvement Works	0.0	90	4.5	4.5 2.	4.5	4.5	4.5	4.5		63	6.3	63						9	000
(USS) 5.0 5.0 99.5 134.7 153.7 64.6 29.5 27.0 46.2 62.0 42.1 22.1 20.6 36.5 66.8 52.5 36.5 (KL) 6.3 6.3 125.4 169.7 193.7 81.4 37.1 34.1 582 78.1 53.1 27.8 26.0 46.0 84.2 66.2 46.1		Long-term Improvement of Lower Tana River	20	20	95	20	20	5.0	5.0	5.0					- <del>1-1</del>						40.0
(US) (US) (US) (US) (US) (US) (US) (US)			S	Ş	9				ı		-			1			1		- 1		8
		(650)	, 6, 6, 6,	, e	3 5 1 4 1 4																265.0

## APPENDIX 2

# IMPLEMENTATION PROGRAMME UNDER ALTERNATIVE BUGETARY SCENARIO A

(Budget availability: 50% approximately)

Appendix 2.1	Urban Water Supply Schemes - Proposed Implementation Programme for Alternative-A	Page A.2-1
Appendix 2.2	Sewerage Development - Proposed Implementation Programme for Alternative-A	A.2-2
Appendix 2.3	Irrigation Project - Proposed Implementation Programme for Alternative-A	A.2-3
Appendix 2.4	Major Flood Control Projects - Proposed Implementation Programme for Alternative-A	A,2-4
Appendix 2.5	Urban Drainage and River Improvement Projects - Proposed Implementation Programme for Alternative-A	A.2-5
Appendix 2.6	Summary of Development Cost for Alternative-A	A.2-6
Appendix 2.7	Annual Budgetary Schedule for Alternative-A	A.2-7

Appendix 2.1 Urban Water Supply Schemes Proposed Implementation Programme for Alternative-A

District Code	Urban Name	City	Future Raw Water Source	Co (mil	lion)			lr	np.	em	ıen	tat	ion	ı S	che	:du	ıle			
	Oroan Humo		I dialo Mario Hator Contoc	US\$	K£	93		95			20	00		2	4	1	6		В	_
																T	Τ			
110	Nairobi	U-1	Thika Dam, Ndarugu, Ruiru-A, Chania-B	1,061.6	1,337,7		٠						•		6					9
210	Kiambu	U-3	Kiambaa Dam (Rui Ruaka r.)	9.1	11.4				•	1				1	1	1	1			ı
220	Kerugoya	U-12	Kiringa River	8.3	10.5	6	•											1 1		1
230	Maragua	U-15	Githanji river	15.1	19.0			•		1				ı	ı		ı			
240	Ol Kalou	U-19	Malewa River	10.7	13.5	П											ı			g
250	Nyeri	U-22	Chania River	50,3	63.4	П			١.	٠.							. a			
310	Malindi	U-26	Sabaki Pipeline & Rare Dam	64,4	81.1				T	1						1	Ί-			
320	Kwale	U-27	Marere pipeline	4.8	6.0	11			1	1	•	1				1	ı			-
330	Lamu	U-31	P/L from Tana River + B/H	37.5	47.3	11			1			1				ı		1 1	ě	ı
340	Mombasa	U-32	2nd Mzima/Mwachi Dam, Pemba Dam	441.6	556.4				اء	۰.	1	Ĭ						1 1		a
350	Wundanyi	U-34	Sigaso/Manguri River	0.9	1,2	]		Ĭ	٦,	-							ĺ	П	•	ļ
360	Hola	U-36	Tana River	6.8	8.6	1 1			1			•		. 1				1 1	li	ĺ
410	Embu	U-40	Lower Kapingazi River + Upper Rupingazi River	8.8	11.2	1 1				1		l							•	l
430	Kitui	U-43	Masinga Dam	9.4	11.2	1 I	_											ľ	ĺ	l
440	Machakos	U-46	Athi River P/L	78.1	98.4		•		1.			ŀ								l
440	Wote	U-141	Kaiti river + Nzuuni river	3,3	4.1				1	1	1 3	•					1			۰
450	Marsabit	U-55	Boreholes +Small dams/Sub-surface dam/Spring	3.3 177.7	223.9				را	١.	1	1					ـ ا		ارا	9
460	Meru	U-58	1	43.5	54.9				- 1	1	1 7	•			"	"	<b>"</b> ["	L		
510	t		Kathita river			11			ľ	9	1	_							ll	
	Garissa	U-67	Tana River	12.9	16.3	H			1	ı	9			1				1 1	1	
520	Mandera	U-68	Daua River	3.1	4.0						•	0				1.		•		
530	Wajir	U-71	Boreholes + Ewaso Ngiro River	172.3	217.1	11			9)6	•	1	•	•	•	9	3)4	•	•	ı	
610	Nyamira + Kebirigo	U-144	Kuja river	11.6	14.6	Н	ĺ			-	9	9				ı			Ιİ	٩
610	Kisii	U-76	Bunyunyu Dam	27.5	34.7	Н			•	9	•	•				ı		0	•	
620	Kisumu & + Kiboswa	U-79	Kibos dam	104.8	132.1	Н			1	9 0			Н		-	٥	9 9	1		
630	Sinya	U-83	Yala River	16.0	20.1		,		1		9	•	H					0	0	
640	Homa Bay	U-85	Lake Victoria	12.5	15.8	П			-	ı	9							•	٠	
710	Ngong	U-89	Kerarapon Spring	14.6	18.4	П		Н	ŀ	9 a										4
720	Kericho	U-94	Dimlitch Dam, Kimugung Dam	24.2	30.5	H				ı	0							9	9	
730	Nanyuki	U-97	Liki river	18.6	23.5	Ш			-	ı	9	0				1		9	0	
740	Nakuru	U-104	Turasha P/L + Malewa Dam + Itare Dam	212.0	267.1			ŀ	•	o a						4	ه  د			
750	Narok	U-105	Upper Narok Dam	30.9	39.0	П						9		١	-	ı		0	0	
760	Kitale	U-107	Koitobos river	34.8	43.8	П					9	9				ı		0		,
770	Eldoret	U-110	Moiben Dam + Nzoia river	135.9	171.2				1	9 0			li			•	<b>8</b>			
810	Kabarnet	U-112	Kirandich Dam	27.3	34.4	9	6		ł	-			ll				ı	0	0	
820	Iten+Tambach	U-116	Moiben Dam	12.7	16.0	П			-	9							ı	0	•	
830	Kapsabet+Baraton	U-118	Mokong river	11.8	14.9	Ħ				ı	1 1	e		-		ı			0	
840	Maralal	1	Loikas/Yamo river	16.0	20.2		i		1			0	l	1	1	ı		9		
860	Kapenguria/Makutano	[	Kapenguria River	8.9	11.2													1 1	•	
910	Bungoma	U-124	Kuywa River	26.8	33.7	$\  \ $						0						1 1		
920	Busia	U-127	Sío river	14.1	17.7	$  \  $											-	1 1		
930	Vihiga+Majengo	U-129	Edzawa River (Kimondi River)	5.1	6.4	1 1					l i			١	1	1	1	[	ii	•
930	Kakamega	U-132	Isiukhu River, Mukulusi Dam	29.2	36.7							9		1	1				l	l
	TOTAL			3,015.9	3,800.1															İ
																				L
	Note:		<ul> <li>Construction</li> </ul>																	

Appendix 2.2 Sewerage Development
Proposed Implementation Programme for Alternative-A

District Code	Urban Name	City Code	Future Raw Water Source	Co (mil	lion)			II	mp	ıe	me	n	ıaı	ion	19	che	edu	ile			
				US\$	K£	93		96				20	00	_	2		1	6		8	)
						Ш															
110	Nairobi	U-1	Thika Dam, Ndarugu, Ruiru-A, Chania-B	214.81	270.66												•				
210	Kiambu	U-3	Kiambaa Dam (Rul Ruaka r.)	0.57	0.72	Н		•		١			•	. 1	ł	ŀ	1		•		,
220	Kerugoya	U-12	Kiringa River	1,17	1.48		•	1		1					1	1	İ		•		,
230	Meragua	U-15	Githanji river	3.08	3,88		1		•						-	1					
240	Ol Kalou	U-19	Malewa River	1.31	1.65		1		ŀ	1		۰	•		-	1		1			
250	Nycri	U-22	Chania River	23.74	29.91		1	-	-	9	0				-	1			,		
310	Malindi	U-26	Sabaki Pipeline & Rare Dam	10.56	13.30		1	-		İ		•			-	1					
320	Kwalc	U-27	Marere pipeline	0.53	0.66			-		Ì	ı	8	۰		-			l			,
330	Lamu	U-31	P/L from Tana River + B/H	1.19	1,50			-	ļ	ŀ		۰			-						,[
340	Mombasa	U-32	2nd Mzima/Mwachi Dam, Pemba Dam	57.41	72,33		-	•	•	9	9			0	•	9 4	•		•	0	a
350	Wundanyi	U-34	Sigaso/Manguri River	0.28	0.35		1		1						-	ĺ			•		ŀ
360	Hola	U-36	Tana River	1.22	1.54		- {	-	١	1		۰	8		1		1	ł			4
410	Embu	U-40	Lower Kapingazi River + Upper Rupingazi River	2.47	3.12						1	۰	9								ŀ
430	Kitul	U-43	Masinga Dam	1.40	1.77	•	•				-								•	•	,
440	Machakos	U-46	Athi River P/L	22.81	28.74	П	-		Į,	9	•	-					6	•		l	l
440	Wote	U-141	Kaiti river + Nzuuni river	0.31	0.39			-				9	9		1					1	
450	Marsabit	U-55	Boroboles +Small dams/Sub-surface dam/Spring	1.65	2,07	П		9	•	0	9	0	۰		1	ه ه	a				
460	Meru	U-58	Kathita river	20.54	25.88	П			١,	В	•				ļ	1	1		9	1	١,
510	Garissa	U-67	Tana River	8,08	10.19	П	- [	-	1	١		•			١	1			•		,
520	Mandera	U-68	Daua River	0,66	0.83	П					1		۰		-	1		ł	•		1
530	Wajir	U-71	Boreholes + Ewaso Ngiro River	2,65	3,34	П				9		•	۰		۰	6	, e				,
610	Nyamira + Kebirigo	U-144	Kuja river	1.12	1.41	П			-			۰	6		1	1		ł			
610	Kisii	U-76	Bunyunyu Dam	9,24	11.64	П		Ⅎ			•				-	1		1			ً  ،
620	Kisumu & + Kiboswa	U-79	Kibos dam	37.19	46.85	П	-	1	-[,	•					-	1	9				1
630	Siaya	U-83	Yala River	1.96	2.47	П				ı					-						,
	Homa Bay	U-85	Lake Victoria	2.50	3.16		1		-			۰	•		-						
710	Ngong	U-89	Kerarapon Spring	2.86	3.61		١		- [,	۱			ŀ		-				:		
720	Kericho	U-94	Dimlitch Dam, Kimugung Dam	9.72	12.24	11	Į	Ţ	- [	Ţ	Į				Į		l	l			
730	Nanyuki	U-97	Liki river	7.94	10.01	П	-	1	1		-	۰	•		-	-	ı				1
740	Nakuru	U-104	Turasha P/L + Malewa Dam + Itare Dam	55,47	69.89	П		1	į,	9					-			, .			1
750	Narok	U-105	Upper Narok Dam	3.00	3.78	Н		1							ļ						,
760	Kitale	U-107	Koitobos river	16.08	20.26	П		1			- 1	•				1	Ī				1
<b>7</b> 70	Eldoret	U-110	Moiben Dam + Nzoia river	31.47	39,65	П	-	1	Ι,	•									ľ	ľ	1
810	Kabarnet	U-112	Kirandich Dam	1.20	1.52			1							ı	1					
820	Iten+Tambach	i	Moiben Dam	0.70	0.88			1	- [,				اه		1	1	1		F		
830	Kapsabet+Baraton	1	Mokong river	1.93	2.44	П	-					•	- 1		-	1					1
840	Maralal	L	Loikas/Yamo river	2,66	3.35	П	١		ı			•	- 1		1	1	1				1
860	Kapenguria/Makutano	I .	Kapenguria River	1.65	2.08	П					•		1								1
910	Bungoma	1	Kuywa River	9.50	11.97	П				-	1		ا								!
920	Busia	U-127	Sio river	2.39	3.01	П		-		-			- 1		-			-	1		F
930	Vihiga+Majengo	1	Edzawa River (Kimondi River)	0.50	0.63		١	1				1	[							٦	
930	Kakamega	1	Isiukhu River, Mukulusi Dam	12.30	15.49	1 1					1	•	•						•	8	1
	TOTAL			#07.0¢	~.~~																
	TOTAL			587.82	740.65	11															
······································				_		$\coprod$										$\perp$					
	Note:		<ul> <li>Construction</li> </ul>																		

Appendix 2.3 Irrigation Project
Proposed Implementation Programme for Alternative - A

District Code	Project	Development Area	Executing Agency		ost lion)			Im	pl	em	ent	atio	n	Sch	iec	lul	e				_
		(ha)		US\$	K£	93	9	5	,,		200	٥	2		4	7	6		8	_	1
	Small Scale Schemes	7,000	MOA	11.4	14.4	8	•	•		0	9	9 4	e	9	9	•	9	0	0		
220	Mwea extension	2,900	NIB	63.7	80.3		*		•	6	•	9	•	0	•						
360	Tana Delta	12,000	TARDA	141,4	178.2	0	•	•													
410	Lower Rupingazi	1,800	TARDA	6.0	7.6				¥	Ŕ	,	* *	•	•	•	0	•				
460	Kunati	1,050	TARDA	3,5	4.4		1	×	*	*	•	9	•	6							
620	Kano Plain	25,640	LBDA	232.5	293.0		* *	•	•	0		<b>p</b> @	0	•	0	•	9	0	9		
630	Lower Nzoia/ Bunyala Extension	10,480	NIB	12,4	15.6	☆	۸,	*		•		9 4									
640	Lower Kuja	1,900	LBDA	5.6	7.1		1	*	  *	*	1	9 6		9	9	0	9	9	0	9	
640	Kimira	2,000	LBDA	18.1	22.8					¥	× ,	* *	0	6	•	0	0				
	Total	57,770		483.2	608.8																
	Note:	<ul><li>★ Study</li><li>★ Design</li><li>Construction</li></ul>																			

Appendix 2.4 Major Flood Control Projects
Proposed Implementation Programme for Alternative-A

District Code	Project	Description	Executing Agency	C (mi	ost Ilion)				Ir	np	lei	me	nta	ati	on	Sc	he	du	ıle			 7
				US\$	K£	9	13		95				20	00		2		4	1	6	8	 10
620	Kano Plain (Nyando river)	- Heightening of existing dykes (2 km) - Construction of new dykes (69 km)	MOWD/ LBDA	20.7	26.1	1	t.	ቱ	☆	•	•	•	9									
110	Nairobi City (Nairobi river, etc)	<ul> <li>Enlargment of existing channels/culverts (13 sites)</li> <li>Channel improvement (11 sites)</li> </ul>	MOLG	10.8	13.6										*	*	中	•	•	•		
	Total			31.5	39.7																	
·	Note:	<ul><li>★ Study/Design</li><li>Construction</li></ul>																				

Appendix 2.5 Urban Drainage and River Improvement Projects
Proposed Implementation Programme for Alternative-A

District Code	Project	Description	Executing Agency		ost lion)			Iı	mp	len	nei	nta	tio	n S	Sch	red	lul	e			
				US\$	K£	93	ç	95			2	000		2		4		6	Ę		10
	Urban Drainage Pr Nairobi Mombasa Sub-total	rojects    P = 1,481,800 , A = 90 km2     P = 529,200 , A = 11.6 km2     P = 2,011,000 , A = 101.6 km2	MOLG	360 47 407	454 59 513				,	it s	₹ •	9	0	•			<b>Å</b>	<b>☆</b>	☆ ■	•	•
All	Minor Ad-hoc Riv Various rivers	erImprovement Works To be taken up as the need is identified	MOWD	45	57	ф	¥	9	•	3	•	•	9	0	0	•	•	9	•		•
360	Long-term Improv Lower Tana improvement	ement of Lower Tana River Experimental work for rectifying river meanders and bank protection	MOWD/ TARDA	20	25	9	•	•	9	•	•	9									
	Sub-total	1		65	82																
	TOTAL			472	595																
	Note:	<ul><li>     ★ Study/Design</li><li>Construction</li></ul>			<u> </u>	اــــــــــــــــــــــــــــــــــــــ	! <b>.</b>	1		L <u>-</u>	_!_	<u></u>	.J	I	L	L	لــــا	LI		.J	<b>-</b>

Appendix 2.6 Summary of Development Cost for Alternative-A

		Budget		Finan	cial Requir	ement (Mi	llion)	·
	Development Sector	Appropriated	1993 -	- 2000	2001	- 2010	Tot	al
		for	US\$	K£	US\$	K£	US\$	Κ£
1.	D&I Water Supply	·	2,081	2,622	2,249	2,834	4,330	5,456
	(1) Urban water supply	MOWD *1	1,836	2,313	1,180	1,487	3,016	3,800
	(2) Rural water supply	MOWD *2	245	309	1,069	1,347	1,314	1,656
2.	Sewerage Development	MOLG *3	353	445	235	296	588	741
•				•				
3.	Irrigation Development		201	253	285	360	486	613
	(1) Major irrigation projects	MORD *4	196	247	280	353	476	600
	(2) Small irrigation schemes	MOA *5	5	6	5	7	10	13
4.	Livestock Water Development	MOLD *6	128	161	249	314	377	475
5.	Hydropower Development	MOE *7	542	683	492	621	1,034	1,304
6.	River and Flood Works		235	296	269	339	504	635
	(1) Major flood control projects	MOWD *8	21	26	11	14	32	40
	(2) Urban drainage works	MOLG *3	180	227	227	286	407	513
	(3) Minor river improvement	MOWD *8	14	18	31	-39	45	. 57
	(4) Improvement of Lower Tana	MOWD *9	20	25	- 	_	20	25
	Total		<u>3,540</u>	<u>4,460</u>	<u>3.779</u>	<u>4,764</u>	<u>7,319</u>	<u>9,224</u>

Notes: Executing agencies will be;

\*1: MOWD, NWCPC, Municipalities (NCC, etc)

\*2: MOWD, NWCPC, County councils, NGO, etc

\*3: Municipal and urban councils under technical assistance by MOWD

\*4: NIA, LBDA, TARDA, KVDA and other basin development authorities

\*5: MOA and some agencies listed for \*4

\*6: Implementation to be entrusted to MOWD and/or basin development authorities

\*7: KPC, KPLC and basin development authorities

\*8: MOWD or to be entrusted to basin development authorities and municipal/urban councils

\*9: To be entrusted to TARDA

Appendix 2.7 Annual Budgetary Schedule for Alternative-A

Development Sector							×	Year									n)	(Unit:millionUS\$)	n US\$)
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
	282.4	282.4	246.1	246.1	294.2	294.2	217.8	217.8	220.7	7.022	210.5	210.5	239.9	239.9	230.6	230.6	222.5	222.6	4,330
Urban water supply Rural water supply	30.6	30.6	215.5 30.6	215.5 30.6	30.6	263.6 30.6	187.2 30.6	187.2 30.6	113.8	113.8	103.6 106.9	103.6	133.0	133.0	123.7 106.9	123.7	115.6 106.9	115.6	3,016 1,314
	57.4	57.4	32.4	32.4	61.9	619	25.1	25.1	18.6	18.6	3.9	3.9	36.2	36.2	35.2	35.2	23.2	23.2	588
	32.7	33.9	6.6	15.4	44.4	22.8	16.3	24.9	34.6	28.7	30.9	31.2	39.0	56.0	44.4	20.4	6.0	9.0	486
Major irrigation projects Small irrigation schemes	32.1	33.3	9.3	14.8	43.8	22.2	15.7	24.3	34.0	28.1	30.3	30.6	38.4	55.4	43.8	19.8	0.3	0.0	476
4 Livestock Water Development	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9	24.9	377
5 Hydropower Development	20.0	27.0	52.0	45.0	63.0	93.0	113.0	129.0	129.0	159.0	121.0	56.0	27.0						1,034
	2.5	2.5	5.5	10.7	10.7	10.7	100.7	95.5	7.76	92.7	2.7	6.3	6.3	6.3	2.7	18.4	18.4	18.4	8
Major flood control projects				5.2	5.2	5.2	5.2	Š	8	Š		3.6	3.6	3.6		i i	ţ	ţ	32
Urban orannage works Minor river improvement Improvement of Lower Tana	2.5	2.5	3.0	3.0	3.0	3.0	3.0 2.5	3.0 2.5	2.7	2.7	2.7	2.7	2.7	2.7	2.7	27	2.7	27	₹ <del>2</del> 8
Total	411.0	419.2	361.9	365.5	490.1	498.5	488.8	508.3	520.5	544.6	393.9	332.8	373.3	363.3	337.8	329.5	289.9	289.7	7,319

### APPENDIX 3

# IMPLEMENTATION PROGRAMME UNDER ALTERNATIVE BUGETARY SCENARIO B

(Budget availability: 75% approximately)

Appendix 3.1	Urban Water Supply Schemes - Proposed Implementation	Page
rippondia 5.1	Programme for Alternative-B	A.3-1
Appendix 3.2	Sewerage Development - Proposed Implementation Programme for Alternative-B	A.3-3
Appendix 3.3	Irrigation Project - Proposed Implementation Programme for Alternative-B	A.3-5
Appendix 3.4	Major Flood Control Projects - Proposed Implementation Programme for Alternative-B	A.3-6
Appendix 3.5	Urban Drainage and River Improvement Projects - Proposed Implementation Programme for Alternative-B	A.3-7
Appendix 3.6	Summary of Development Cost for Alternative-B	A.3-8
Appendix 3.7	Annual Budgetary Schedule for Alternative-B	A.3-9

Appendix 3.1 Urban Water Supply Schemes (1/2)
Implementation Programme for Alternative-B

District Code	Urban Name	City Code	Future Raw Water Source	Co (mil)				Lmp	olen	ent	atio	on S	Sch	edi	ıle			
				US\$	K£	93	95	<u> </u>		- 2	2000		5		4	6		8
											Τ							Ţ
110	Nairobi	U-1	  Thika Dam, Ndarugu, Ruiru-A, Chania-B	1061.6	1,337.7	•		١.					.				11	
210	Kanuri	U-2	Kiambaa Dam (Rui Ruaka R.)	12.0	15.1		•	ľ	1			ľ			1		П	١,
210	Kiambu	U-3	Kiambaa Dam (Rui Ruaka r.)	9.1	11.4		•			•								•
210	Rujru	U-6	Ruini River	9.7	12.2	Ĭ .				٦					1			٦,
220	Kenigoya	U-12	Kiringa River	8.3	10.5		,	ľ		1	1				- 1	1		. `
230	Maragua	U-15	Githanji river	15.1	19.0	•				1	1		Н		-	1		٦,
230	Makuyu	U-18	Motoho river	4.8	6.0					-					-	1	Н	"
240	1 '	U-19	Malewa River	10.7	13.5	•	1			١.	. _	ĺ	П		-	1		- 1 -
	Ol Kalou	U-22	Chania River	50.3	63.4		1_			9	•				I.	. _		٩
250 310	Nyeri	U-22 U-23	i	4.6	5.8			ı				Ι.	$  \  $		ľ	•	11	١.
	Mariakani	1	2nd Mzima P/L				9	•		1.	١.		H			1	П	4
310	Malindi	U-26	Sabaki Pipeline & Rare Dam	64.4	81.1					•	1		$  \  $					. •
320	Kwale	U-27	Marere pipeline	4.8	6.0				П	9	•		Н				1 1	•
330	Lamu	U-31	P/L from Tana River + B/II	37.5	47.3				9	•	1	ĺ	Н		-	1	9	•
340	Mombasa	U-32	2nd Mzima/Mwachi Dam, Pemba Dam	441.6	556.4	•	• •	į.		ŀ		9	9	•	•	1	Н	l
350	Tayeta	1	Njoro Spring	7.2	9.1			•	П	-			П				П	•
350	Wundanyi	U-34	Sigaso/Manguri River	0.9	1.2		ļ		Н							}	0	₽
360	Hola	U-36	Tana River	6.8	8.6				•	•	1		1	1				a
410	Embu	U-40	Lower Kapingazi River + Upper Rupingazi River	8.8	11.2					•	• •					Т	0	•
420	Isiolo	U-41	Boreholes + Spring	152.6	192.2				0	0 0	• •	9	•	0	۰	•   •		• •
420	Ol Doinyo Ng'iro	U-42	Ewaso Ngiro River	8.3	10.5		•	l					П		-	Т		1
420	Meni	U-139	Ewaso Ngiro	5.5	6.9								] [			Т		4
430	Kitui	U-43	Masinga Dam	9.4	11.9	•	<b>a</b>											•
430	Mwingi	U-45	Kiambere Dam	16.1	20.3	•	•			-	1			1				•
440	Machakos	U-46	Athi River P/L	78.1	98.4		9	٠					ll		1	ه ه	$\ \cdot\ $	Т
440	Mitaboni	U-47	Kaathana River	20.3	25.6		•				İ				1	1	Н	4
440	Kangundo	U-50	Pipeline from Athi River	19.5	24.6					-			П		-	1	Н	۱.
440	Wote	U-141	Kaiti river + Nzuuni river	3.3	4.1					•			H		-	1		
450	Kargi	U-54	Boreholes + Subsurface Dam	66.8	84.1			١.	li				П		١,	٠.		ء اه
450	Marsabit	U-55	Boreholes + Small dams/Sub-surface dam/Spring	177.7	223.9			1					۱.		- 1		1 1	•
460	Meru	U-58	Kathita river	43.5	54.9			1	۲	٦١	Ί,	"		"	٦)`	٦,	1 1	
		1 '		12.9	16.3	Н	١٣	٦		۔ ا	┨╸		1			1	1 I	-
510	Garissa	U-67	Tana River			Ш		ŀ		١	1		$  \  $			1	1 1	•
520	Mandera	U-68	Daua River	3.1	4.0		١.	_		٩	•					1.		
520	Elwak	U-69	Borehores	75.5	95.1	ŀ	•	1			.   _				- 1	<u>'</u>	1 1	9
530	Wajir	U-71	Borcholes + Ewaso Ngiro River	172.3	217.1		•				•					• •	1 1	•
530	Вила	U-72	Boreholes(Lago Bor river)	94.8	119.4		•	•		- 1	•	•	•	•	• •	• •	•	9
	Nyamira + Kebirigo	1	Kuja river	11.6						•			П		١		$  \cdot  $	٩
610	Kisii	U-76	Bunyunyu Dam	27.5	34.7				•	• •	•		Ιİ		-	1	•	₽
620	Kisumu & + Kibos wa	U-79	Kibos dam	104.8	132.1		9		H				Н		- -	• •	Н	
620	Ahero	U-80	Nyando river	5.9	7.4	9 (	•		Н	ı		١.	H				Н	4
620	Muhoroni	U-81	Nyando River	7.6	9.6			•	П		ı							4
630	Siaya	U-83	Yala River	16.0	20.1				0	•	ı		$  \cdot  $	- 1			0	•
640	Homa Bay	U-85	Lake Victoria	12.5	15.8			l	0	•		ł	ll	-		ı	<b>.</b>	a
640	Migori	U-86	Migori river	5.4	6.9					1	1				1	-		•
710	Oloitokitok	U-88	Not-Turesh Spring	7.0	8.9				•	•	ĺ				1	1		
710	Ngong	U-89	Kerarapon Spring	14.6	18.4					1	1		$  \  $	- [			Н	4
710	Kajiado	U-90	Kiserian P/L	19.7	24.9					1	1	ĺ	[	- 1				
710	Namanga	U-91	Namanga Spring	5.7	7.1													٠,
720	Sotik	U-93	Kipsonoi river	4.5	5.6			ŀ										
720		U-94	Dimlitch Dam, Kimugung Dam	24.2	30.5		-	-		•	1			1	- 1	1		• `
730	Kericho	U-97	Liki river	18.6	23.5					٦,	. .				-		1 1	
	Nanyuki	1		212.0	267.1			_		"	"				1.	١.	1 1	-
740	Nakuru	U-104	Turasha P/L + Malewa Dam + Itare Dam		39.0		•	9		_					- '	<b>"</b>	Ιŀ	
	Narok		Upper Narok Dam	30.9						9	1	ı					1 !	<b>B</b>
760	Kitale	U-107	Koitobos river	34.8	43.8					4	•		╽╎	1		_	•	8
770	Eldoret	U-110	Moiben Dam + Nzoia river	135.9	171.2		•	•				1	П		1	•	1 1	
810	Kabarnet		Kirandich Dam	27.3	34.4	•	•										•	•
810	Maji Mazuri	U-113	Maji Mazuri river	5.2	6.5		•	1	Н									٩
820	Iten+Tambach	1 0.116	Moiben Dam	12.7	16.0			•		14	ه ا ۱	ı I	ıl		- 4	1	l el «	o i

· A.3-1

Appendix 3.1 Urban Water Supply Schemes (2/2) Implementation Programme for Alternative-B

District Code	Urban Name	City Code	Future Raw Water Source	Co (mill				In	ple	mc	ntat	io	1 S	he	dul	В		
		1		US\$	K£	93	95			20	000		2	-	1	6	 8	10
840 850 860 910 910 920 930	Kapsabot+Baraton Maralal Lodwar Kapenguria/Makutano Bungoma Kimilili Busia Vihiga+Majengo Kakamega	U-119 U-122 U-123 U-124 U-125 U-127 U-129	Mokong river Loikas/Yamo river Boreholes & sub-surface dam Kapenguria River Kuywa River Kimilili River Sio river Edzawa River (Kimondi River) Isiukhu River, Mukulusi Dam	11.8 16.0 132.6 8.9 26.8 7.3 14.1 5.1	14.9 20.2 167.1 11.2 33.7 9.2 17.7 6.4 36.7		•	5	0 4	•	•	•		9 (	9	9		
	Note:		• Construction	3,714.5	4,680.3													

Appendix 3.2 Sewerage Development
Proposed Implementation Programme for Alternative-B (1/2)

District		City		Co		Γ		In	ıple	eme	ent	atio	on :	Scl	ned	ule				_
Code	Urban Name	Code	Future Raw Water Source		lion)	L		_	· .										_	
	****			US\$	K£	93	9	5		<del></del> -	200	0	2		4	4	3	8	_	1(
						Ш					1	1				l	1			
110	Nairobi	U-1	Thika Dam, Ndarugu, Ruiru-A, Chania-B	214,81	270.66		_ _	۰			1	١,		ا۔ا		1				
210	Karuri	U-2	Kiambaa Dam (Rui Ruaka R.)	1.59	2.00		- 1	"	1		1	ľ	"		٦	1				_
210	Kiambu	U-3	Kiambaa Dam (Rui Ruaka r.)	0.57	0.72	"	٦	l	٦		1								•	4
210	Ruiru	U-6	Ruiru River	1.39	1.75	$\  \cdot \ $	-1.	۱,									١	٦		
220	Kerugoya	U-12	Kiringa River	1.17	1.48		•	1	1	H							•	ا	٦	•
230	Maragua	U-15	Githanji river	3.08	3,88	11	0					ı					•	۲		4
230	Makuyu	U-18	Motoho river	0,57	0.72		- 1	l		П	1	ı				ł			ı	e
240	Ol Kalou	U-19	Malewa River	1.31	1,65		1	ı	ľ		۰									
250	Nyeri	U-22	Chania River	23,74	29.91	İΙ	١,	٥ و			٦,	1				۰			ľ	•
310	Mariakani	U-23	2nd Mzima P/L	1,13	1.43	ļļ	- 1				Ţ	Ţ		ļļ		Ί`				a
310	Malindi	U-26	Sabaki Pipeline & Rare Dam	10.56	13,30		1			il	۰	•								
320	Kwale	U-27	Marere pipeline	0.53	0.66		1			ll	- 1					1		١		
330	Lamu	U-31	P/L from Tana River + B/H	1.19	1.50		1		9		1			Ш		1	1	•		
340	Mombasa	U-32	2nd Mzima/Mwachi Dam, Pemba Dam	57.41	72.33	ادا	اه	۰	,			١,	, .	9						
350	Taveta	U-137	Njoro Spring	1.00	1,26	$\  \cdot \ $	- 1	٥		H	1							1		4
350	Wundanyi	U-34	Sigaso/Manguri River	0,28	0.35	Ш	1			H							a			
360	Hola	U-36	Tana River	1,22	1.54		1				1	-		Ш	Н					
410	Embu	U-40	Lower Kapingazi River + Upper Rupingazi River	2,47	3.12		1	İ		П	•	•			Н				t I	
420	Isiolo	U-41	Borcholes + Spring	3,41	4.29		1	ļ	•	•		• 6	. 6						0	6
420	Ol Doinyo Ng'iro	U-42	Ewaso Ngiro River	0.70	0,89	8	•	ı		П		ł		li	Н				•	4
420	Merti	U-139	Ewaso Ngiro	0.91	1.14	Ш	ij,	e e	•	П								į		4
430	Kitui	U-43	Masinga Dam	1,40	1.77	<b>a</b>	•				1	ı	İ			1	•			
430	Mwingi	U-45	Kiambere Dam	1.10	1.39	9	•	1			1	ı		П					۰	4
440	Machakos	U-46	Athi River P/L	22.81	28.74	H	ŀ	9 6	•		ļ	ı		Н		•	•			
440	Mitaboni	U-47	Kaathana River	7.64	9,63	9	•	ļ			1	ı							9	•
440	Kangundo	U-50	Pipeline from Athi River	1.50	1.89	•	9	ı		$  \  $	1						ł		0	•
440	Wote	U-141	Kaiti river + Nzuuni river	0.31	0.39	11	١	١	•	9	١	١	١	1		١	1	۱ ٔ	9	•
450	Kargi	U-54	Boreholes + Subsurface Dam	0.65	0.81	Н	ŀ	• •	•	•	•	•	ı	Ш		9	9	•	0	4
450	Marsabit	U-55	Boreholes +Small dams/Sub-surface dam/Spring	1.65	2.07		ŀ	• •	9	9		• •	9	۰	0	•	F	9	1 1	
460	Meru	U-58	Kathita river	20.54	25.88	П	ŀ	• 6	•		-	1					•	۰		
510	Garissa	U-67	Tana River	8.08	10.19		-	1			9	•					9	9		
520	Mandera	U-68	Daua River	0.66	0.83		-	1	ł		9	0					0	0		
	Elwak	U-69	Borehores	0.89	1.12		- 1	9 6	1				1			9 (	9	-		
530	Wajir	U-71	Boreholes + Ewaso Ngiro River	2.65	3.34	П	- [1			9	- [	- 1	•	ı	1	9 (	9			
530	Buna	U-72	Boreholes(Lago Bor river)	0.67	0.84		-   '	9	9	1 1	•	•	9	9	0	•	•	0	0	e
610	Nyamira + Kebirigo	U-144	Kuja river	1.12	1.41			ı	8	ø	1							١,	•	€
610	Kisii	U-76	Bunyunyu Dam	9.24	11.64	łΙ					9 1	0		П			9	•		
620	Kisumu & + Kiboswa	U-79	Kibos dam	37.19	46,85		- 1	9 6	•		1			П		9 (	1			
620	Ahero	U-80	Nyando river	0.93	1.17	9	ı							П		ı			ı	9
620	Muhoroni	U-81	Nyando River	0.92	1.16	{	ď	9 6			1			Ш		1			9	•
630	Siaya	U-83	Yala River	1.96	2.47	] [	1	ŀ	9	ll	1			Ш				1		
640 640	Homa Bay	U-85	Lake Victoria	2.50 0.83	3.16 1.04			ء ا۔	•	0							8	8	اما	
640 710	Migori Olaitakitak	U-86	Migori river Nol-Turesh Spring	0.83	1.04		- ['	5 6	9	a	-					-	I	П	9	
710 710	Oloitokitok Nacas	U-88 U-89		2.86	3.61			•		"						-			8	
710	Ngong	U-89 U-90	Kerarapon Spring Kiserian P/L.	1.21	1.53	$\  \ $	- 1	9 6												•
	Kajiado			0.97	1.23		- 1											٦	ا ا	,
710 720	Namanga	U-91	Namanga Spring		0.73		- 1	9	1	$\  \cdot \ $		1	1				1		0	
720	Sotik	U-93	Kipsonoi river	0.58 9.72	12,24			٦  ٔ	1	ا۔ا						-				•
720	Kericho	U-94 U-97	Dimlitch Dam, Kimugung Dam	7.94	10.01				0									9	ı	
730 740	Nanyuki Nakuru	ı	Liki river Turasha P/L + Malewa Dam + Itare Dam	55.47	69,89			•			1	1					, "			
/40	Note:	U-104	• Construction	20,71	02,09	<u></u>	L		٦							ŢĽ.	Щ.	т-	ـــا	-

A.3-3

Appendix 3.2 Sewerage Development
Proposed Implementation Programme for Alternative-B (2/2)

District Code	Urban Name	City	Future Raw Water Source		ost lion)			I	np	lem	ent	atic	on S	che	dul	le	
	GIVAN		Tatalo (taw in allo, bobies	US\$	K£	93	95	Γ.		20	00	2	,	4	В		B 1
						Ĭ	Ī		I	Ī		Ī		Ť			
750	Narok	U-105	Upper Narok Dam	3.00	3.78					9	•	į				•	9
	Kitale	U-107	Koitobos river	16.08	20,26	Н					•	Ì			П	•	ا (م
	Eldoret	U-110	Moiben Dam + Nzois river	31.47	39.65	П	0	•	1	1.				•	•		11
	Kabarnet	U-112	Kirandich Dam	1.20	1.52		9		1	1		-	11	1	H		9
	Maji Mazuri	U-113	Maji Mazuri river	0.67	0.84		•	•	1							П	•
820	Iten+Tambach	U-116	Moiben Dam	0.70	0.88	11		П	1	0	•		П			•	•
830	Kapsabet+Baraton	U-118	Mokong river	1.93	2.44	11		П	• 6		Н		П				9
840	Maralal	U-119	Loikas/Yamo river	2.66	3.35				• •	•						•	ا او
1	Lodwar	U-122	Boreholes & sub-surface dam	1.34	1.69				<b>4</b>	• •	•	9				•	•
860	Kapenguria/Makutano	U-123	Kapenguria River	1.65	2,08			•			H		Ш			•	•
910	Bungoma	U-124	Kuywa River	9.50	11.97								Ш			•	<b>p</b>
910	Kimilili	U-125	Kimilili River	1.08	1.37	$\  \cdot \ $	e	•							H		6
920	Busia	U-127	Sio river	2,39	3.01				1		9				П		,
930	Vihiga+Majengo	U-129	Edzawa River (Kimondi River)	0.50	0.63			•					П		П		9
930	Kakamega	U-132	Islukhu River, Mukulusi Dam	12.30	15.49			$\{\  $	• a	·		ļ					
	:																
	·			620.38	781.68												
						Ш							П		П		
													i		П		
\ \		l l		1		} }	1	1	1		1	ł	11		۱ ۱	١١	11
		-	-					П				1					
			1										$\  \ $				
		1															
	Note:	· · · · · · · · · · · · · · · · · · ·	Construction					L1.			L		اـــا	1.,	اا		سلسانہ

Appendix 3.3 Irrigation Project
Proposed Implementation Programme for Alternative-B

District	Park 1	Development		Co (mill	ost lion)			In	ıpl	em	ent	ati	on	Sc	he	dul	e				
Code	Project	Area (ha)	Agency	US\$	K£	-		-								_	_				_
	Small Scale Schemes	7,000	MOA	11,4		93		5	ما		200	0 0 (	_	2	4	•	6		8	_	10
	binan benie benemes	7,000	"""	11,4	17,7		٦,			٦		٦,	1			Ĭ			٦		•
220	Mwea extension	2,900	NIB	63.7	80.3		*	*	9	0	8	0	•	9	•						
310	Sabaki Extension	3,000	TARDA	19.8	24.9						#	*		*	*		9	9	9	0	4
360	Tana Delta	12,000	TARDA	141.4	178.2	8	•	9 6	•	0	•										
410	Lower Rupingazi	1,800	TARDA	6.0	7.6				☆	ħ	ļ	*	4 4	9	8	0	0				
440	Kanzalu	4,055	TARDA	37.9	47.8					☆	¢		ų	*	8	0	Ø	•	٥		
460	Kunati	1,050	TARDA	3.5	4.4		,	ie si	*	*		0	9 6	9	١						
460	Thanantu	2,520	TARDA	17.3	21.8						,	<b>‡</b>	<b>t</b>		*	*	0	8	٥	•	0
620	Kano Plain	1 25,640	LBDA	232.5	293.0		* 2	ŧ	6	0	•	9	9 6	9	9	•	0	0	0		
630	Lower Nzoia/ Bunyala Extension	10,480	NIB	12.4	15.6	☆	<b>1</b> 2	* *	*	6	0	6	•								
640	Lower Kuja	1,900	LBDA	5.6	7.1		1	it is	*	*	, ,	ø (	9 6	9 6	0	0	0	8	9	9	
640	Kimira	2,000	LBDA	18.1	22.8					χ.	ਸ਼ੇ	* *	٠	9	•	9	0				
820	Arror	1,340	KVDA	6.3	7.9						☆	†		*	*	0	0	9	0	9	
920	Yala Swamp	7,540	LBDA	65.0	81.9					ជ	*	*		0	0	0	9	9	0	@	0
	Total	83,225		640.9	807.5																
	Note:	<ul><li>☆ Study</li><li>★ Design</li><li>◆ Construction</li></ul>		- Tana D - Lower I								ıp:	Cc	onti	nue	20	11	OF	wa	rd	

Appendix 3.4 Major Flood Control Projects
Proposed Implementation Programme for Alternative-B

District Code	Project	Description	Executing Agency		ost lion)	Ir	nplen	nent	atio	on S	Ch	edı	ıle			
			<u></u>	US\$	K£	93 95		20	юо	2		4		6	8	1
620	Kano Plain (Nyando river)	<ul> <li>Heightening of existing dykes</li> <li>(2 km)</li> <li>Construction of new dykes</li> <li>(69 km)</li> </ul>	MOWD/ LBDA	20.7	26.1	* * *	<b>6 6</b>	0								
110	Nairobi City (Nairobi river, etc)	<ul> <li>Enlargment of existing channels/culverts (13 sites)</li> <li>Channel improvement (11 sites)</li> </ul>	MOLG	10,8	13.6			#	☆	☆ 6	0	•				
630	Yala Swamp (Yala/Nzoia river)	<ul> <li>Rehabilitation of existing dykes (25 km)</li> <li>Construction of new dykes (16 km)</li> </ul>	MOWD/ LBDA	17.7	22.3							☆	ф.	☆ @		0
	Total			49.2	62.0											
	Note:	<ul><li>★ Study/Design</li><li>Construction</li></ul>					· · · · · · · · · · · · · · · · · ·				•	·			. t	

Appendix 3.5 Urban Drainage and River Improvement Projects Proposed Implementation Programme for Alternative-B

District Code	Project	Description	Executing Agency	Co (mill	ion)			Im	ple	me	nt	atic	on S	Scl	red	lul	e		
				US\$	K£	93	9	5			200	0	2	····	4		6	8	10
110 210 250 340	Urban Drainage P Nairobi Thika Nyeri Mombasa Machakos	P = 1,413,100 , A = 90.0 Km2 P = 59,000 , A = 1.9 Km2 P = 97,000 , A = 1.6 Km2 P = 479,600 , A = 11.6 Km2	MOLG	360.0 14.8 13.1 46.6	453.6 18.6 16.5 58.7 27.8		* 6		<b>⊕</b> Ω	☆			•		☆		<b>☆</b> 1		3 6
460 610 620 720 740	Meru Kisii Kisumu Kericho Nakuru Kitale	P = 91,100 , A = 2.8 Km2 P = 78,900 , A = 0.3 Km2 P = 45,800 , A = 2.6 Km2 P = 188,700 , A = 5.6 Km2 P = 41,200 , A = 1.2 Km2 P = 172,200 , A = 13.0 Km2 P = 56,400 , A = 4.2 Km2	11 H 0	22.1 2.7 21.1 33.5 9.4 51.8 25.2	3.4 26.6 42.2 11.8 65.3 31.8						4	* *	*	<b>☆</b>	☆ •	ń h	* *		0 0
	Eldoret Kakamega Sub-total	P = 112,900 , A = 8.6 Km2 P = 49,200 , A = 2.1 Km2 P = 2,885,100 , A = 145.4 Km2		34.3 16.6 651.2	43.2 20.9 820.5								ጵ	ដ	☆	Ð	•	9	9 6
All	Minor Ad-hoc Riv Various rivers	verImprovement Works To be taken up as the need is identified	MOWD	68.0	86.0	<b>\$</b> 1	÷ 6	9	•	•	•	5 6	•	•	•	•	0	<b>3 Q</b>	<b>9</b> 6
360	Long-term Improv Lower Tana improvement	Experimental work for rectifying river meanders and bank protection	MOWD/ TARDA	30.0	38.0	•		9	•	•		Đ							
	Sub-total			98.0	124.0														
	TOTAL			749.2	944.4														
	Note:	<ul><li>☆ Study/Design</li><li>◆ Construction</li></ul>			, "	<u>l. İ.</u>		<u> </u>	1_1				1						

Appendix 3.6 Summary of Development Cost for Alternative-B

		Budget			cial Requir	ement (Mi	llion)	
	Development Sector	Appropriated	1993	- 2000	2001	- 2010	Tot	al
·		for	US\$	K£	US\$	K£	US\$	K£
1.	D&I Water Supply		2,606	3,284	3,079	3,879	5,685	7,163
	(1) Urban water supply	MOWD *1	2,238	2,820	1,476	1,860	3,714	4,680
	(2) Rural water supply	MOWD *2	368	464	1,603	2,019	1,971	2,483
2.	Sewerage Development	MOLG *3	371	467	249	314	620	781
								r.
3.	Irrigation Development		200	252	398	502	598	754
	(1) Major irrigation projects	MORD *4	195	246	393	495	588	741
•	(2) Small irrigation schemes	MOA *5	5	6	5	7	10	13
4.	Livestock Water Development	MOLD *6	192	242	374	471	566	713
5.	Hydropower Development	MOE *7	542	683	492	621	1,034	1,304
6.	River and Flood Works		462	582	336	423	798	1,005
	(1) Major flood control projects	MOWD *8	21	26	28	36	49	62
	(2) Urban drainage works	MOLG *3	391	493	260	327	651	820
	(3) Minor river improvement	MOWD *8	20	25	48	60	68	85
	(4) Improvement of Lower Tana	MOWD *9	30	38	-	, <b>-</b>	30	38
	Total		<u>4,373</u>	<u>5,510</u>	4,928	<u>6,210</u>	<u>9.301</u>	<u>11,720</u>

Notes: Executing agencies will be;

\*1: MOWD, NWCPC, Municipalities (NCC, etc)

\*2: MOWD, NWCPC, County councils, NGO, etc

\*3: Municipal and urban councils under technical assistance by MOWD

\*4: NIA, LBDA, TARDA, KVDA and other basin development authorities

\*5: MOA and some agencies listed for \*4

\*6: Implementation to be entrusted to MOWD and/or basin development authorities

\*7: KPC, KPLC and basin development authorities

\*8: MOWD or to be entrusted to basin development authorities and municipal/urban councils

\*9: To be entrusted to TARDA

Appendix 3.7 Annual Budgetary Schedule for Alternative-B

						>	×200									Curr	Unit: million US\$	Teral
1993 1994 1995 1996	1995 1996			1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	7
471.8 471.8 395.0 395.0 20	395.0 395.0		8	201.5	201.5	234.8	234.8	332.2	332.2	363.9	363.9	323.9	323.9	296.6	296.6	223.0	223.0	5,685
425.8 425.8 349.0 349.0 II. 46.0 46.0 46.0 46.0	349.0 349.0 1 46.0 46.0	_	μ,	155.5	155.5 46.0	188.8	188.8	171.9 160.3	171.9 1603	203.6	203.6	163.6	163.6	136.3 160.3	136.3 160.3	62.7 160.3	62.7	3,714 1,971
18.7 18.7 19.2 19.2	79.2 79.2		-	11.1	11.1	16.4	16.4	7.7.7	7.22	22.7	22.7	36.6	36.6	31.4	31.4	11.4	11.4	620
32.7 33.9 9.9 15.4 4	9.9 15.4		4	44.4	22.8	15.6	24.9	33.4	28.6	36.9	46.0	54.1	76.0	63.9	39.1	11.3	0.6	598
32.1 33.3 9.3 14.8 4 0.6 0.6 0.6 0.6	9.3 14.8 0.6 0.6		4	43.8	22.2	15.0	24.3	32.8	28.0	36.3	45.4	53.5	75.4	63.3	38.5	10.7	8.4	588
24.0 24.0 24.0 24.0 2	24.0 24.0		6.4	24.0	24.0	24.0	24.0	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	37.4	566
20.0 27.0 52.0 45.0	52.0 45.0		•	63.0	93.0	113.0	129.0	129.0	159.0	121.0	56.0	27.0						1.034
3.7 3.7 97.1 102.3 10	97.1 102.3		10	102.4	102.4	27.9	7.22	203	44.2	44.2	43.9	21.5	21.6	25.8	38.1	38.4	38.2	798
5.2	52	5.2		5.2	5.2	5.2			3.6	3.6	3.6			4.4	4.4	4.4	4.4	49
90.0	90.0		0	0.06	90.0	15.5	15.5	15.6	35.9	35.9	35.6	16.7	16.8	16.6	28.9	29.2	29.0	SS :
3.7 3.7 3.7 3.7	3.7			9.58 4.88	હ્યું હ્યું 4 જ	6. 6. 4. 86	બ લ 4. જ	7.4	7.	<del>,</del>	<b>4.</b>	4. ∞	4. Xi	4. 8.	4. xi	4. %	%; %	3 8
630.8 639.0 657.2 660.9 4	657.2 660.9	1 1	4	446.3	454.7	431.6	451.7	575.0	624.1	626.1	569.9	500.5	495.5 4	455.1	442.6	321.5	319.0	9,302

Note: Development cost of rural and livestock water supply systems were estimated at 25 % of full scale development plan.

#### APPENDIX 4

#### IMPLEMENTATION PROGRAMME OF DOMESTIC/INOUSTRIAL WATER SUPPLY SCHEMES UNDER REDUCED DEVELOPMENT SCENARIO

(Reduced development just enough to meet the demand level projected for year 2000)

A and: 4 1	Habar Water Canaly Calaman Dranged Implementation	Page
Appendix 4.1	Urban Water Supply Schemes - Proposed Implementation Programme for Reduced Development (Alternative-A)	A.4-1
Appendix 4.2	Sewerage Development - Proposed Implementation Programme for Reduced Development (Alternative-A)	A.4-3
Appendix 4.3	Summary of Development Cost for Reduced Development (Alternative-A)	A.4-5
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Appendix 4.7	Summary of Development Cost for Reduced Development (Alternative-B)	A.4-13
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Appendix 4.1 Urban Water Supply Schemes
Proposed Implementation Programme for Reduced Development (Alternative-A) (1/2)

District Code	Urban Namo	City	Future Raw Water Source	Co (mill				In	ıplo	emi	enta	atic	on S	3ch	edu	le		
COGO	Ologii Hallio	Cido	Tutale Naw Wales Goules	US\$	K£	93		95			200	0	2		4	6		8
						П	T	Ī							T	П		T
110	Nairobi	U-1	Thika Dam, Ndarugu, Ruiru-A, Chania-B	577.6	727.8		٥	•			l	•			•		1	
210	Karuri	U-2	Kiambaa Dam (Rui Ruaka R.)	9.1	11.4	0	٥									$ \cdot $	ı	•
210	Kiambu	บ-3	Kiambaa Dam (Rui Ruaka r.)	6.5	8.2	8	4	1		9	ı		1	1		1 1	•	•
210	Ruiru	U-6	Ruiru River	6.5	8.2	$\mathbb{I}$	١	0		П	1				1		1	•
210	Thika	U-7	Chania River (Lower)	10.4	13.1	H	١	1				ı						q
210	Kikuyu	U-9	Kikuyu Dam	12.7	16.0	П	1	۰				l	l	1			1	4
220	Kerugoya	U-12	Kiringa River.	5.0	6.3		اه	1	l	П		İ					٠,	•
220	Kutus	U-13	Thiba River	2,8	3.5		ı						П			$\  \cdot \ $		4
230	Maragua	U-15	Githanji river	10.4	13.2	0	۰			۱ ۱	Ì	١	11		1	lί	١	6
230	Murang'a	U-17	Maragua river	7.1	8.9	9	•											•
230	Makuyu	U-18	Motoho river	3.1	3.9	6	•				1		H					
240	Ol Kalou	U-19	Malewa River	6.8	8.5	11	ŀ					9	П			lΙ	1	
250	Karatina	U-20	Ragati River	1.5	1.9	1	1			H	١		П			Н		6
250	Othaya	U-21	Tuthi river	3.0	3.8		1					1	l					4
250	Nyeri	U-22	Chania River	29.2	36.8		١	9	1			1			9			
310	Mariakani	U-23	2nd Mzima P/L	2.9	3.6		Į	•			-					$\prod$		
310	Kilifi	U-24	Rare reservoir	4.5	5.7		ſ		l	Н	1	1				$  \  $	e	
310	Malindi	U-26	Sabaki Pipeline & Rare Dam	48.9	61.6		-			П						$\  \cdot \ $	٦,	٦,
320	Kwale	U-27	Marcre pipeline	2.9	3.7	П	1	-		П		1				П		
320	Msambweni	U-29	Borcholes + Mkurumuji river	26.7	33.7	H	-	-			9					!	٦,	1
330	Lamu	U-31	P/L from Tana River + B/H	23.9	30.1	П	-	Ì		1 1	1				]	FΙ		a
340	Mombasa	U-32	2nd Mzima/Mwachi Dam, Pemba Dam	324.8	409.2	ارا			1	П		ا			a	П	7	1
350	Taveta	U-137	Njoro Spring	5.0	6,3		- 1		1	П	1	ľ		֓֟֟֟ <i>֡</i>	٦	ΙÌ		
350	Yoi	U-33	2nd Mzim pipeline	4.9	6,1		-	1	1	П				П		П		
360	Hola	U-36	Tana River	4.2	5.3	H	-			6	٦,	1		П		Н		
410	Embu	U-40	Lower Kapingazi River + Upper Rupingazi River	4.2	5.4	U	Į	-	ľ	١٦	ı	l				H	- 1	
420	Isiolo	U-41	Borcholes + Spring	72.4	91.3	Ш					6	9 6				H	ı	
420	Ol Doinyo Ng'iro	U-42	Ewaso Ngiro River	5.2	6.6				[	ľ	۳)٬	٦,		Ĭ.	9	"	٦,	- {
420	Merti	U-139	1 "	3.4	4.3		9	٦,		l	ļ						-	1
430	Kitui	U-43	Ewaso Ngiro	5,6	7,0		ŀ	9	1	П	l	1	П	П		П	ا۔	١
430		1	Masinga Dam	10.2	12.9	1 1	•		1	]			П	1		! !	6	•
	Mwingi	U-45	Kiambere Dam			"	9	ا۔		H		ļ			_		ļ	€
440	Machakos	U-46	Athi River P/L	47.4	59.7		$\rfloor$	9	•	П	l	ı	li	1	9	6		1.
440	Mitaboni	U-47	Kaathana River	12.5	15.8		9		1	Н	_l.		11	П				٩
440	Athi River	U-48	Upper Athi Dam	12.6	15.8		-				9	9				П		•
440	Kangundo	U-50	Pipeline from Athi River	12.4	15.6	1 1	ᅃ	1								П		•
440	Wote	U-141	Kaiti river + Nzuuni river	2.0	2.5			.	•	H	1.	Ĺ		ŀ	١.			•
450	Kargi	U-54	Borcholes + Subsurface Dam	38.2	48.1	1 1	1	9 6	,	1 1	0	1	11		١.	1 ì	- 1	<b>a</b>   6
450	Korr	U-143	Boreholes	33.4	42.1	1 1	1	I.	1 1	1 !	9				- 1		- 1	
450	Marsabit	U-55	Boreholes +Small dams/Sub-surface dam/Spring	101.8	128.2	Н	-	9 4					9	8			- 1	
450	Moyale	U-57	Boreholes + Small Dam	38.5	48.5	П			1	9	0	9			9		- 1	
460	Meru	U-58	Kathita river	26.1	32.8		ŀ	9 6	1								9	- 1
460	Nkubu	U-59	Thingithu River	2.8	3.5		-				9	9				$  \  $		ď
510	Garissa	U-67	Tana River	6.6	8.3		1	1	}		1	1			1		- 1	•
520	Mandera	U-68	Daus River	1.4	1.8											1 1	- 1	•
520	Elwak	U-69	Borehores	50.7	63.9		1	9 4	1		ł				•	11	9	•
530	Wajir	U-71	Borcholes + Ewaso Ngiro River	104.7	131.9		- 1	9 9	ŀ	0		9		11	<b>0</b>	1 !	•	•
530	Buna	U-72	Borcholes(Lago Bor river)	62.5	78.7		ŀ	•		۰	9	<b>B</b>	•	•	<b>0</b> 0		۰	9 (
610	Nyamira + Kebirigo	U-144	Kuja river	7.6	9.6	1 6				9					1			1
610	Kisii	U-76	Bunyunyu Dam	19.2	24.2		1	1	•	•	•	•					•	۰
620	Maseno	U-78	Edzawa Dam	10.1	12.8	1 1			•									ŀ
620	Kisumu & + Kiboswa	U-79	Kibos dam	72.7	91.6	$\coprod$	_[	•	<u> </u>	L		1	L.	Ц	4	10	$\perp$	$\bot$
	Note:		<ul> <li>Construction</li> </ul>															

Appendix 4.1 Urban Water Supply Schemes
Proposed Implementation Programme for Reduced Development (Alternative-A) (2/2)

istrict Code	Urban Name	City	Future Raw Water Source	Co (mil)	ion)			Im	pl	em	cni	tatio	on S	che	dule	;		
COUC	Oroan Iyame	L	Counce Naw Water Source	USS	K£	93	9	5			20	00	2	4		6	8	
						П	T	1	Γ				П		П	Τ	Γ	Γ
620	Ahero	U-80	Nyando river	4.0	5.0	0	•		l						П		İ	0
620	Muhoroni	U-81	Nyando River	4.9	6.1	<b>↓</b> ↓	ŀ	s a	1			ļ	11	-	<b>!</b> !	-	Į I	a
630	Siaya	U-83	Yala River	10.3	13.0		ı		9	9						•	0	
640	Homa Bay	U-85	Lake Victoria	8.1	10.2				8			- [			11	0		
640	Migori	U-86	Migori river	3.6	4,5		1	<b>a</b>	ŀ			-1	Ш		Н			6
710	Oloitokitok	U-88	Nol-Turesh Spring	4.0	5.1		Ì			ø		1	Ш		Н			6
710	Ngong	U-89	Kerarapon Spring	8.4	10.5		١,	<b>a</b>				ı	Ш	1	Н		ŀ	
710	Kajiado	U-90	Kiserian P/L	12.0	15.1		ı,	ه اه				ł	Ш		Н			ŀ
	Namanga	U-91	Namanga Spring	3.2	4.0	H	ı					ł	Ш	-	Н			
	Souk	U-93	Kipsonoi river	3.0	3.8	11	-	a	1			1	Ш	-	Н			l.
	Kericho	U-94	Dimlitch Dam, Kimugung Dam	15.2	19.1		Ι.		1				Н		$  \  $			
	Nanyuki	U-97	Liki river	10.4	13.1			1	ľ	_		ا	Ш		Н			ŀ
	-	U-98	1			H					•		11			•		
	Nyahururu Gileil		Nyahururu dam + Borchole	13.4 6.3	16.9			1	_	اءا	ø	4	$\  \ $		П	0	•	
	Gilgil Naissack	U-99	Turasha P/L & Malewa Dam		8.0													1
140	Naivasha	U-100	Turasha P/L & Malewa Dam	21.5	27.1			1	•	Ιí								1
	Elburgon	U-102	Itare Dam	16.3	20.6		1	9	1									1
140	Molo	U-103	Itare Dam	13.3	16.8	11	1	9 6	9	8		1	11	1	11	١	}	ľ
740	Nakuru	U-104	Turasha P/L + Malewa Dam + Itare Dam	121.0	152.5		1	9	1							9	]-	
750	Narok	1	Upper Narok Dam	22.8	28.7						0	•	$\  \ $		$\  \ $	0	•	1
760	Kitale	U-107	Koitobos river	19.6	24.7	П	١	ı			•	•			Ш	9	•	ı
770	Eldoret	U-110	Moiben Darn + Nzoia river	80.7	101.6		ŀ	<b>9</b> 4				١			9	•		
310	Kabarnet	U-112	Kirandich Dam	24.2	30.5	9	•	ı				ı				9	0	ı
310	Maji Mazuri	U-113	Maji Mazuri river	3.2	4.0		١,	9					11		11	1		ŀ
310	Eldama Ravine	U-114	Chemususo Dam	21.8	27,5		ı	ĺ	١.		0	0						ŀ
320	lten+Tambach	U-116	Moiben Dam	8.5	10.7		١	<b>.</b> .			•		11		1			L
	Kapsabet+Baraton	U-118	Mokong river	7.1	8,9	H	1					1			11			L
340	Maratal	U-119	Loikas/Yamo river	9.5	12.0		ı			ı						9		L
350	Lodwar	U-122	Boreholes & sub-surface dam	65.5	82.5				۰	i i	9	، ام	, .					П
_	Kapenguria/Makutano	U-123	Kapenguria River	5,3	6.7		L	B	1	"	٦	٦,	ן"ן	7	11	9	l l	ı
	Bungoma	U-124	Kuywa River	15.9	20.0		ľ	1					H		Н			ŀ
	-						1	. _	ŀ		0	6	Ш		Н	0	0	ŀ
	Kimilili	U-125	Kimilili River	4.4	5.6		ľ	9	1			1			П	l		ľ
910	Webuye	U-126	Nzoia River	11.8	14.9	$  \cdot  $		ľ	9	•					Н			١
920	Busia		Sio river	8.1	10.2	$ \cdot $				١.	9	•	Ш		11	0	9	1
	Vihiga+Majengo		Edzawa River (Kimondi River)	3.4	4.3	11	ŀ	0 4	1						П			1
	Kakamega	1	lsiukhu River, Mukulusi Dam	18.5	23.3				9	0						0	•	1
930	Mumias	U-134	Nzoia River	9.0	11.4				0	8								1
				2,522.9	3,178.9													
				:														
	·																	
	N		Company														L	
	Note:		<ul> <li>Construction</li> </ul>															

Appendix 4.2 Sewerage Development - Proposed Implementation Programme for Reduced Development (Alternative A) (1/2)

District Code	Urban Name	City Code	Future Raw Water Source	Co (mil)				Im	ple	eme	ent	ati	on :	Sch	ned	lule		
Code	Oloan Raine	Code	Latinic transsation police	US\$	K£	93		15			200	٦	2	,	4	T	 }	8
						Ť	Ť	7	П	П	Ĩ	†	T	Π	$\dot{\sqcap}$	十	П	Ť٦
							1			$  \  $							П	
	Nairobi	U-1	Thika Dam, Ndarugu, Ruire-A, Chania-B	140.77	177.37	9	•	9	4	Ш		•	•	0	•		Ш	Ш
	Karuri	U-2	Klambaa Dam (Rui Ruaka R.)	1.08	1.36		ŀ	9 9	4	Ш							$\  \cdot \ $	•
210	Kiambu	U-3	Kiambaa Dam (Rui Ruaka r.)	0.36	0.45							•			П		9	•
210	Ruiru	U-6	Ruiru River	0,94	1,19		١		•	•	П	1			П		П	•
210	Thika	U-7	Chania River (Lower)	8,96	11.29	Н				П	0	9						
	Kikuyu	U-9	Kikuyu Dam	0.48	0.61		- 1	9 9	1		П	1					11	9
	Kerugoya	U-12	Kiringa River	0.71	0.89	•   •	9		,			1				ı	0	<b>°</b>
220	Kutus	U-13	Thiba River	0.49	0.62					H	9	•						9
230	Maragua	U-15	Githanji river	2.17	2,73		- 1	9 0	1		11	1						•
	Murang'a	U-17	Maragua river	1.54	1.94	0	9	l			iΙ	1				9 6		
230	Makuyu	U-18	Motoho river	0.37	0.46	11	ľ	٥	'  '						H			•
240	Ol Kalou	U-19	Malewa River	0.86	1.08	Н	ı	1			•	- 1						
250	Karatina	U-20	Ragati River	0.42	0.53	Н	ı			$\  \ $	1	•			П		1 }	•
250	Othaya	U-21	Tuthi river	0.37	0.47						•	•	1					9
250 310	Nyeri	U-22	Chania River	14.12	17.79				0	1 1					П	9	1	
	Mariakani	U-23	2nd Mzima P/L	0.52	0.65		ı		0	•					П			•
310 310	Kilifi	U-24 U-26	Rare reservoir	1.31 3.14	1.65 3.96					H		•			П			9
320	Malindi		Sabaki Pipeline & Rare Dam	1		П	ı				11	•						•
320	Kwale	U-27	Mårere pipeline	0.33	0.42	П	ı				1 1	•					1 1	•
	Msambweni	U-29	Boreholes + Mkurumuji river	0.75	0.95		ı		•		1 1	9			•	9 4	1 1	
330 340	Lamu	U-31	P/L from Tana River + B/H	0.71	0.89		ا	۔ ا۔		П	•	•	. _				9	•
	Mombasa	U-32	2nd Mzima/Mwachi Dam, Pemba Dam	42.51 0.71	53.57 0.89		9	9 6				ľ	9	8	•			
350 350	Taveta	U-137	Njoro Spring	0.71	1.02	Н	1			•	! !				11		11	
350	Voi Wundanyi	U-33 U-34	2nd Mzim pipeline Sigaso/Manguri River	0.18	0.23	Н	ļ			11		•						9
360	Hola	U-34 U-36	Tana River	0.76	0.25		1			$\  \ $	9	- 1						
410	Embu	U-40		1.51	1.90						11				П		1 1	
420	Isiolo	U-41	Lower Kapingazi River + Upper Rupingazi River Boreholes + Spring	1.84	2.32						1 1	1				٦,	1 1	
420	Ol Doinyo Ng'iro	U-42	Ewaso Ngiro River	0.42	0.53	Н	1		1 :			"	1		ľ	"		
420	Merti	U-139	Ewaso Ngiro	0.54	0.68	Н	- [	1			П						Н	
430	Kitui	U-43	Masinga Dam	0.84	1.05				"									
	Mwingi	U-45	Kiambere Dam	0.66	0.83	1 1	- 1		} '	П								
	Machakos	1	Athi River P/L	13.87	17.47		٦				ıΙ					۱,	.	
	Mitaboni	U-47	Kaathana River	2.32	2.92	H	L	٠.	٦							1	11	6
440	Athi River	U-48	Upper Athi Dam	2.00	2.52	Н	ľ	-		П						1		
440	Kangundo	U-50	Pipeline from Athi River	0.90	1.14	Н	١,		,									
440	Wote	U-141	Kaiti river + Nzuuni river	0.19	0.24	11		1							П		11	
450	Kargi	U-54	Boreholes + Subsurface Dam	0.39	0.50			9 0			1				П	0		
450	Korr	U-143	Borcholes	0.45	0.56	$[\ ]$	١		•						1 1		<b>.</b>	
450	Marsabit	U-55	Boreholes +Small dams/Sub-surface dam/Spring	1.01	1.27		1,			1 1		l			ΙL	- 1		. !
450	Moyale	U-57	Boreholes + Small Dam	0.62	0.78							•	1		Н	L	• •	- 1 1
460	Meru	U-58	Kathita river	12.58	15,85	Н	١		0		11				۱ ۱			- 1 - 1
460	Nkubu	U-59	Thingithu River	0.42	0.53					П		•	İ		ļΙ			
510	Garissa	U-67	Tana River	2.59	3.26							- 1					0	- 1 1
520	Mandera	U-68	Daua River	0.43	0.54				1	$  \  $		•						
520	Elwak	U-69	Borehores	0.62	0.78				9	•						8		•
530	Wajir	U-71	Boreholes + Ewaso Ngiro River	1.62	2.04		- [,	<b>6</b>	ø	•			<b>o</b>   a	ه ار		9	• •	•
530	Buna	U-72	Borcholes(Lago Bor river)	0.45	0.56		1	<b>o</b> e	0		0	•	e a	•	•			
610	Nyamira + Kebirigo	U-144	Kuja river	0.73	0.92						•	•			H			
	Kisii	U-76	Вилуилуи Dam	3.06	3.85	$\  \ $	1				•	•			H			•
620	Maseno	U-78	Edzawa Dam	1.10	1.39							•			$oxed{igspace}$		ot	9
<del></del>	Note:		Construction												_			

Appendix 4.2 Sewerage Development - Proposed Implementation
Programme for Reduced Development (Alternative A) (2/2)

District Code	Urhan Name	City	Future Raw Water Source	Co (mili				Imp	lem	enta	ıtion	Sch	edu	ıle <sub>,</sub>		
	070417744110		Tatalona Mator Bours	US\$	K£	93	95		2(	000	2	4	6	3	8	_
620 620 620 630 640 710 710 710 720 730 730 740 740 740 740 750 760	Urban Name  Kisumu & + Kiboswa Ahero Muhoroni Siaya Homa Bay Migori Oloitokitok Ngong Kajiado Namanga Sotik Kericho Nanyuki Nyahururu Gilgil Naivasha Elburgon Molo Nakuru Narok Kitale Eldoret Kabarnet Maji Mazuri	U-79 U-80 U-81 U-83 U-85 U-86 U-88 U-99 U-91 U-93 U-97 U-98 U-99 U-100 U-102 U-103 U-104 U-105 U-107 U-110 U-112 U-113	Kibos dam Nyando river Nyando River Yala River Lake Victoria Migori river Nol-Turesh Spring Kerarapon Spring Kiscrian P/L Namanga Spring Kipsonoi river Dimlitch Dam, Kimugung Dam Liki river Nyahururu dam + Borchole Turasha P/L & Malewa Dam Turasha P/L & Malewa Dam Itare Dam Itare Dam Turasha P/L + Malewa Dam + Itare Dam Upper Narok Dam Koitobos river Moiben Dam + Nzoia river Kirandich Dam Maji Mazuri river	(mil	ion)	93	95	9 9 9 9		9		4			90 0 0 0	
810 820 830 840 850 860 910 910 920 930	Eldama Ravine Iten+Tambach Kapsabet+Baraton Maralal Lodwar Kapenguria/Makutano Bungoma Kimilili Webuye Busia Vihiga+Majengo Kakamega Mumias	U-114 U-116 U-118 U-122 U-123 U-124 U-125 U-126 U-127 U-129	Chemususu Dam Moiben Dam Mokong river Loikas/Yamo river Boreholes & sub-surface dam Kapenguria River Kuywa River Kimilili River Nzola River Sio river Edzawa River (Kimondi River) Isiukhu River, Mukulusi Dam Nzola River	0.39 0.43 0.45 1.14 1.50 0.81 0.96 2.80 0.63 2.53 1.41 0.34 7.76 1.76	0.50 0.54 0.57 1.43 1.89 1.02 1.21 3.52 0.79 3.18 1.78 0.43 9.78 2.21			9		0		•	•			9 9 9
	Note:		• Construction													_

Appendix 4.3 Summary of Development Cost for Reduced Development (Alternative-A)

	Budget		Finan	cial Requir	ement (Mi	llion)	
Development Sector	Appropriated	1993	- 2000	2001	- 2010	To	al
	for	US\$	K£	US\$	K£	US\$	K£
1. D&I Water Supply		1,904	2,399	1,933	2,436	3,837	4,835
(1) Urban water supply	MOWD *1	1,247	1,571	1,276	1,608	2,523	3,179
(2) Rural water supply	MOWD *2	657	828	657	828	1,314	1,656
2. Sewerage Development	MOLG *3	203	256	204	257	407	513
Total		<u>2,107</u>	<u>2,655</u>	2.137	2,693	4.244	<u>5.348</u>

Notes:

Executing agencies will be;

\*1: MOWD, NWCPC, Municipalities (NCC, etc)
\*2: MOWD, NWCPC, County councils, NGO, etc

\*3: Municipal and urban councils under technical assistance by MOWD

Appendix 4.4 Annual Budgetary Schedule for Reduced Development (Alternative-A)

							×	Year											Total
	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	5009	2010	
1 D&I Water Supply 3	336.2	336.2	257.4	257.4	170.9	170.9	187.3	187.3	190.6	190.6	195.5	195.5	213.9	213.9	204.1	204.1	162.5	162.5	3,837
(1) Urban water supply 2 (2) Rural water supply	254.1	254.1	175.3 82.1	175.3 82.1	88.8	88.8	105.2 82.1	105.2 82.1	125.0 65.7	125.0 65.7	129.8 65.7	129.8 65.7	148.2	148.2 65.7	138.4	138.4	96.8	96.8	2,523 1,314
2 Sewerage Development (for 158 urban centres)	30.6	30.6	31.7	31.7	22.5	22.5	16.9	16.9	16.7	16.7	16.8	16.8	32.1	32.1	21.3	21.3	14.8	14.8	407
Total 3	366.9 366.9		289.1	289.1 193.4	193.4	193.4	204.2	204.2	207.3	207.3	212.3	212.3	246.0	246.0	225.4	225.4	177.3	177.3	4,244

Appendix 4.5 Urban Water Supply Schemes (1/3)
Proposed Implementation Programme for Reduced Development (Alternative-B)

District Code	Urban Name	City Code	Future Raw Water Source	Co (mill	lion)			111	ilyte	CITA	CIII	MI	lou	J-V1	IICC	dul	Е		
				US\$	K£	93	ç	5			200	00	2	5	4		6	в	3
									Ī		П	Ī							
110	Nairobi	U-1	Thika Dam, Ndarugu, Ruiru-A, Chania-B	1,061.6	1,337.7			6											
210	Karuri	U-2	Kiambaa Dam (Rui Ruaka R.)	9.1	11.4	11	•	٦`	1				1	"			ŀ		
210	Kiambu	U-3	Kiambaa Dam (Rui Ruaka r.)	6.5	8.2	1 [					] ]	J			] ]		ı,		
210	Limuru	U-5	Chanie P/L	9.2	11.6		٦		ĺ			-							
210	Ruiru	U-6	Ruiru River	6,5	8.2	$\  \ $						-					1		
210	Thika	U-7	Chania River (Lower)	10,4	13.1		1	1			Н	-							
210	Githunguri	U-8	Ruiru river	3,2	4.0		1				П	-							
210	Kikuyu	U-9	Kikuyu Dam	12.7	16.0	П	۱		1			-							
220	Wanguru	U-10	Thiba River	0.6	0.7	$\  \cdot \ $						-	1						
220	Sagana	U-11	Ragati River	2.2	2.7								ı				1		9
220	Kerugoya	U-12	Kiringa River	5,0	6.3		•					1	ſ		ĺĺ			٠.	11
220	Kutus	U-13	Thiba River	2.8	3.5										11		'	1	١.
230	Maragua	U-15	Githanji river	10.4	13.2			ŀ				1							
230	Kangema	U-16	Mathioya River	0.5	0.7														
230	Murang'a	U-17	Maragua river	7.1	8.9	6						-	-		H			ه اه	i I
230	Makuyu	U-18	Motoho river	3.1	3.9	11	•	ı	1		H			1				٦	
240	Ol Kalou	U-19	Malewa River	6.8	8.5											П			
250	Karatina	U-20	Ragati River	1.5	1.9	П	1	-	1			1			11			1	
250	Othaya	U-21	Tuthi river	3.0	3.8				a	•		-				Н			
250	Nyeri	U-22	Chania River	29.2	36.8				1							۰	•		
310	Mariakani	U-23	2nd Mzima P/L	2.9	3.6				•			1							
310	Kilifi	U-24	Rare reservoir	4.5	5.7	11						-				Н	١,	٠.	,  `
310	Watamu	U-25	Sabaki pipeline	3.3	4.2	9	0	ı								1 1			
310	Malindi	U-26	Sabaki Pipeline & Rare Dam	64.4	81.1		1	1								1	۱		
310	Mambrui	U-135	Sabaki river	2.5	3.2			ļ	1		$  \cdot  $	1			П		1		
320	Kwale	U-27	Marere pipeline	2.9	3.7		1	İ					İ			H			1
320	Kinango	U-28	Marcre pipeline	3.1	4.0	П	ł					- 1					ľ		
320	Msambweni	U-29	Borcholes + Mkurumuji river	26.7	33.7						1		1	9	a				
320	Lungalunga	U-136	Umba river	1.5	1.9	11	-							1	1 1				
330	Witu	U-30	Mkondo wa Cambi river	3.3	4.2	11	-				ΙI		-			l			
330	Lamu	U-31	P/L from Tana River + B/H	37.5	47.3	11		ł			Н				ļi	il			,
340	Mombasa	U-32	2nd Mzima/Mwachi Dam, Pemba Dam	441.6	556.4			٥			IJ		6		9		ļ	J	1
350	Taveta		Njoro Spring	5.0	6.3	Ш	- 1	ه اه			Н								
350	Voi	U-33	2nd Mzim pipeline	4.9	6.1	Н		ł					İ				1		
360	Bura & Madogo	U-35	Tana River	0.6	0.8	H		1				- 1		'	1				
360	Hola	U-36	Tana River	4.2	5.3		I				H								
360	Garsen	U-37	Tana River	2.0	2.5				1		1 1				ļ ļ				0
410	Runyenjes	U-38	Ens river	1.5	1.9		Į	1	1		ı		6			6	9 6	9 8	1
410	Embu	U-40	Lower Kapingazi River + Upper Rupingazi River	4.2	5.4			1			Н	-							1
420	Isiolo	U-41	Boreholes + Spring	72.4	91.3		1	Ì			0	•	0 6		9		9	1	
420	Ol Doinyo Ng'iro	U-42	Ewaso Ngiro River	5.2	6.6		0		1						H		1	1	0
420	Garbatula	U-138	Boreholes	21.1	26.6								1		1				0
420	Merti	U-139	Ewaso Ngiro	3.4	4.3			0 0			П				H				
430	Kitui	.U-43	Masinga Dam	5,6	7.0		0								}		-	ه اه	1
430	Mwingi	U-45	Kiambere Dam	10.2	12.9	9	•				ļΙ							1	
440	Machakos	U-46	Athi River P/L	47.4	59.7		1		,	1						0	0	1	
440	Mitaboni	U-47	Kaathana River	12.5	15.8	9	0	1	1			- [	1		П	1 1		1	a
440	Athi River	U-48	Upper Athi Dam	12.6	15.8						0	•							0
440	Uaani/Tawa	U-49	Tawa river	0.8	1.0			6	,		П			1					
440	Kangundo	U-50	Pipeline from Athi River	12,4	15.6							.				H			
440	Tala	U-140	Pipeline from Athi river	5.6	7.1				,							l f			
	Note:		Construction			-اســه				-			_						

Appendix 4.5 Urban Water Supply Schemes (2/3)
Proposed Implementation Programme for Reduced Development (Alternative-B)

Code	Urban Name	Code	Future Raw Water Source	•	ion)	1														
		ļ	. 3.310 //410	US\$	K£	93		95			2	000	,	2		4	6	<u> </u>	8	_
440	**	1, 6,	V				-				1.									
	Nunguni	U-51	Kyangonyo river	1.0	1.3					1.		9	11	П						0
	Wole	U-141	Kaiti river + Nzuuni river	2.0	2.5				ď	9	1	l								9
	Emali	U-52	Nol Tresh P/L	1.2	1.5	0	- 1	1	İ	l	l					1	1			0
	Mtito Andei&Kibwezi	U-53	Pipeline from Athi river	12.8	16.1	•	ٵ		1	-						1				9
	North Horr	U-142	Borcholes	13.9	17.5	П	١	•	- 1	1					-	- 1	- 1	•		
ŀ	Kargi	U-54	Boreholes + Subsurface Dam	38.2	48.1	11	İ	9	9 1		ı	9	1	11		- 1	9 4		9	9
	Korr	U-143	Boreholes	33.4	42.1	П	1	ŀ	ď	9	9 4	9	1	H	•	•	<b>6</b> 4	4		
	Marsabit	U-55	Boreholes +Small dams/Sub-surface dam/Spring	177.7	223.9	П	1	•	•	•	9	9	•	0	9	9	1	0	ı	ĺ
	Soloto	U-56	Borcholes	36.6	46.1	П	١	•	9 (	9	9	9	<u>' </u>			۱	0 4	9	•	ĺ
1	Moyale	U-57	Borcholes + Small Dam	38.5	48.5	ļΙ	-	ļ	ď	9 4	•	9	<u> </u>		.	1	<b>0</b>   0	•	0	ı
	Meru	U-58	Kathita river	26.1	32,8			0	•		ļ	ı					-	0	0	
	Nkubu	U-59	Thingithu River	2.8	3.5						4	9	<u> </u>		.	Ì				4
1	Chogoria	U-60	North Mara River	1.3	1.6		0				İ					1	1		П	e
460	Chuka	U-61	Tungu river	2.6	3.3		ı				4	9	<u> </u>							4
460	Мана	U-62	Ura river	2.5	3.2		١		-  -	9	9		]			1		1		٩
510	Mudo Gashe	U-63	Borcholes + Subsurface Dam	12.9	16.3			9	0	1		1						9	0	4
510	Ijara	U-64	Borcholes + Small dam	8.0	10.1			۰	•									•		•
510	Kotile	U-65	Boreholes/Subsurface Dam/l'ana	11.7	14.8	Н	1		9	ı						1		9		4
510	Masalani	บ-66	Tana River	1.7	2.1	11	١		١,	•	•		۱ <u>۱</u>	<b>    </b>		1	1	1		•
510	Garissa	U-67	Tana River	6.6	8.3	$  \  $			-	1		1			ı	1		9		ı
520	Mandera	U-68	Daus River	1.4	1.8	] [				ł	ļ	ı				ł	1	•		
520	Elwak	U-69	Borchores	50.7	63.9	П	┨				ı					١,			ll	ĺ
520	Rhamu	U-70	Daua River	1.8	2.3	H	1		Ī	-	l	٠,		H		l				ŀ
	Wajir	U-71	Boreholes + Ewaso Ngiro River	104.7	131.9	Н										، اھ	ء اھ	9		ľ
	Buna	U-72	Boreholes(Lago Bor river)	62.5	78.7			l	- 1	9 6					0		,	ا ا	٦	١
!	Bute	U-73	Borcholes + Small Dams	12.0	15.2	П		•	- !	٦,	1	1		ľ		٦,	7			Į.
	Manga	U-74	Bunyunyu Dam	2,0	2.6	11		٦										•	٦	ı
ì	Keroka	U-75	Bunyunyu Dam	3.6	4.6	11	١		ì	- )	1	1		11	1	١	١	} !		•
		U-144	1 ' '	7.6	4.6 9.6				- 1		9							1		٩
	Nyamira + Kebirigo	1	Kuja river			П				9		١.		Н						٩
	Kisii	U-76	Bunyunyu Dam	19.2	24.2	Ш		ı	ď	9	9 6	9	1		1			0	9	Ĺ.
ı	Ogembo	U-77	Kuja river	1.2	1.5		•		ļ	ļ	ļ	ļ		ļ	.	1	1			•
	Maseno	U-78	Edzawa Dam	10.1	12.8	Н			- 1	9 (	3					1	1	[ '		٩
	Kisumu & + Kiboswa	U-79	Kibos dam	104.8	132.1	$  \  $		•	•	1	1	ı			.	ľ	6 4	1		
	Ahero		Nyando river	4.0	5.0	9	•				i			П	- 1	1		ľ		e
	Muhoroni	U-81	Nyando River	4.9	6.1	П	1	•	•	ļ						1			П	4
	Bondo	U-145	Yala river	2.8	3.5	11	Ì		ď	9 (	9					1	1	1		٩
	Yala	U-82	Yala river	1.7	2.1				ď	9 (	9	ı								١
	Siaya	U-83	Yala River	10.3	13.0				ŀ	• •	•							9	•	
	Ukwala	U-84	Nzoia River	1.3	1.6				- 1	9 4	•			П		1		1		١
	Homa Bay	U-85	Lake Victoria	8.1	10.2	11	}	1	-	<b>8</b>	ð	1	1	1 1	H	1	1	•	8	١
	Migori	U-86	Migori river	3.6	4.5			•	0					۱l	П					ŀ
1	Kehancha + Tarang'anya	U-146	Migori river	3.3	4.1	•	٠													١
	Nyabikaye	U-147	Borcholes	18.9	23.8			0	9	ł		1						٠	•	6
	Oyugis	U-148	Isanta river(Awach Tende)	3.4	4.3		ļ		Ţ	• 6	Ð	ļ				Ţ				•
640	Kendu Bay	U-87	Lake Victoria	1.9	2,5				-[-	•	3	1		H		ĺ	1			١
640	Awendo/Sare	U-149	Sare river	3.6	4.6	•	•							П						4
710	Oloitokitok	U-88	Nol-Turesh Spring	4.0	5.1				- 1		•			П						١,
710	Ngong	U-89	Kerarapon Spring	8.4	10,5			•	•							-				١,
	Kajiado	U-90	Kiserian P/L	12.0	15.1		١	•	- 1	1	1	1				}		•		
	Namanga	U-91	Namanga Spring	3.2	4.0	П		•						H		1				4
	Magadi	U-92	Oloibortoto river	6.4	8.0								,			-				ľ
	Sotik	U-93	Kipsonoi river	3.0	3,8			•		1		١								•

Appendix 4.5 Urban Water Supply Schemes (3/3)
Proposed Implementation Programme for Reduced Development (Alternative-B)

District Code	Urban Name	City Code	Future Raw Water Source	Co (mil	ost lion)			Im	oler	ncı	nlat	ion S	che	dul	;	•	
				USS	K£	93	95			21	000	2	4	$\Box$	6	8	1
						П	Τ	П	Т	Τ	П	П	T	П	Τ		Π
720	Kericho	U-94	Dimlitch Dam, Kimugung Dam	24,2	30.5				0	•				П	9	9	
	Kipkelion	U-95	Nyando river	1.3	1.6		1	П	9	•	П		1	П	1,	П	9
720	Londiani	U-96	Londiani dam	57.1	72.0				9	•	П			H		1	•
730	Nanyuki	U-97	Liki river	10.4	13.1	$  \cdot  $				a					•		
730	Rumuruti	U-150	Rumuruti Dam + Borchole	7.3	9.2		0	9			П						•
	Nyahururu	U-98	Nyahururu dam + Borchole	13.4	16,9				ı	6	9	11			•		ı
740	Gilgil	U-99	Turasha P/L. & Malewa Dam	6.3	8.0	11		П	6	,		Ш					
740	Naivasha	U-100	Turasha P/L, & Malewa Dam	21.5	27.1			Н		•	П			ΙÌ			•
740	Njoro	U-101	Itare Dam	16.9	21.3		0	•		•		11		ľ	11	1	0
740	Elburgon	U-102	Itare Dam	16.3	20.6					•							•
740	Molo	U-103	Itare Dum	13.3	16.8	11	9		0	•	П			H			
740	Nakuru	U-104	Turasha P/I. + Malewa Dam + Itare Dam	212.0	267.1		0	•			П			•	•		.
750	Narok	U-105	Upper Narok Dam	22.8	28.7			Н							0	9	1
750	Nairagie Ngare	U-106	Nasampolai river	1.1	1,3	П				e	•						8
750	Kilgoris	U-151	Poroko river	2.6	3.3	Ш		П	0	•	П	11		11		П	
750	Lolkorian	U-152	Migori river	2.3	2.9		1	]		•							•
760	Kitale	U-107	Koitobos river	19.6	24.7					e					6		
760	Kiminini/Saboti+Spr.Kita	U-108	Kabewyan river	2.1	2.7	6	0									. 1	
760	Endebess/Kwanza	U-109	Koitobos river	1.7	2.1	•	9										6
770	Moi's Bridge	U-153	Nzoia river	1.9	2.4	П	9	9	-								8
770	Turbo	U-154	Sosiani river	3.5	4.4	Н		П	9	ь	П			$\  \cdot \ $	l l		
770	Eldoret	U-110	Moiben Dam + Nzoia river	80.7	101.6	11	9	0	1	Ĺ	11	11		•	•		1
770	Burnt Forest	U-111	Kipkaren river	1.3	1.6	Ш		П	9	•	Н	Ш					
810	Kabarnet	U-112	Kirandich Dam	24.2	30.5	• •	•	11			Н				9	•	
810	Maji Mazuri	U-113	Maji Mazuri river	3.2	4.0	Ш	9		١		П	- 1 1		Н	Ш		6
810	Eldama Ravine	U-114	Chemususu Dam	21.8	27,5	H		İ	ĺ	e	•				13		6
810	Mogotio	U-115	Molo river /Chemususu Dam	4.7	5.9	П		П		0	9	+				1	0
810	Marigat	U-155	Perkerra river	1.6	2.1	11	1	П	9	•	П	11		1	11	}	
820	Iten+Tambach	U-116	Moiben Dam	8.5	10.7	Ш	9		ı						9	6	
830	Nandi Hills	U-117	Mokong River	2.7	3.3					9	П						4
830	Kapsabet+Baraton	U-118	Mokong river	7.1	8.9	] [			9	9	[ ]				0	6	
840	Maralal	U-119	Loikas/Yamo river	9.5	12.0				9 (	•	П	$  \cdot  $			9	0	
840	Wamba	U-120	Boreholes	43.1	54.3	Ш	0	0	9	Þ	Н			0	e	0	6
840	Baragoi	U-121	Borcholes + Sub-surface dam	66.5	83.8	Ш	9	0		9	11	11		6	9 6	0	0
850	Lodwar	U-122	Boreholes & sub-surface dam	65.5	82.5	11	Ĺ	11	8	9	9	0 0	<b>6</b> 8	9	9 9		
860	Kapenguria/Makutano	U-123	Kapenguria River	5.3	6.7	Н	9				П	11			9	0	
910	Mawalic + Malakisi	U-156	Matikisi river	2.2	2.8	9	<b>.</b>	$  \  $			П						
910	Bungoma	U-124	Kuywa River	15.9	20.0	1				0	9				6	0	
910	Kimilili	U-125	Kimilili River	4.4	5.6		9	9	1		П						6
910	Webuye	U-126	Nzoia River	11.8	14.9				3	•	П					1	
910	Chaptais	U-157	Sasuri river	1.8			•										
	Busia	U-127	Sio river	8.1	10.2			ļĺ		9					9	0	
920	Nambale	U-158	Sio river	1.4	1.8					ø	0						9
930	Vihiga+Majengo	U-129	Edzawa River (Kimondi River)	3.4	4.3		0	6			$  \  $						
. 1	Khayega	U-131	Yala river	1.2	1.5		•										9
	Kakamega	U-132	Isiukhu River, Mukulusi Dam	18.5	23.3				9	<b>a</b>					0	0	
930	Butere	U-133	Viratsi River	1.4	1.8					ø	6		-				9
1	Mumias	U-134	Nzoia River	9.0	11.4			1	•	4		$ \cdot $		11			
																	-
				3,818.1	4,810.8				ļ								
									1								
	<b>.</b>	<u> </u>			<u> </u>	Ц	1	L	_L		Ш	$\perp \perp \perp$		Ц	للـ		$\perp$
	Note:		<ul> <li>Construction</li> </ul>														

Appendix 4.6 Sewerage Development - Proposed Implementation
Programme for Reduced Development (Alternative-B) (1/3)

District Code	Urban Name	City Code	Future Raw Water Source	Co (mill				In	npl	en	ien	ıtat	ion	Sc	he	dul	е		
			Their major courses	US\$	K£	93		96			20	000		2	4		6	8	,
110	Nairobi	U-1	Thika Dam, Ndarugu, Ruiru-A, Chania-B	214.81	270.66	0	٥	9	•	T	T	П	8	9 1	9 0		П	T	T
210	Karuri	U-2	Kiambaa Dam (Rui Ruaka R.)	1.08	1.36	11			•			H		ı		П	П		ŀ
210	Kiambu	U-3	Kismbaa Dam (Rui Ruaka r.)	0.36	0.45	Н	1	1			9	9	i I	ı			П	0	,
210	Gatundu & Ngenda	U-4	Thiririka River	0.03	0.03	$  \  $	١	1						İ		$\ \cdot\ $			ŀ
210	Limuru	U-5	Chania P/L	0.11	0.14	$  \  $	Į	l	(	• 0	·l			-	l		ιl		ŀ
210	Ruiru	U-6	Ruiru River	0.94	1.19				6	9	۰								ŀ
	Thika	U-7	Chanis River (Lower)	8.96	11.29							ø	ll	1			П		ŀ
210	Githunguri	U-8	Ruiru river	0.30	0.38	11	1		6	• •	ŀ	l		ı			П		ŀ
210	Kikuyu	U-9	Kikuyu Dam	0,48	0.61	$  \  $	١	•	اد			П		1		$\ \cdot\ $	i Ì		ŀ
220	Wanguru	U-10	Thiba River	0.04	0,05	<b>!</b>	1	1	١	1	9	0	1	1	1		١ŀ	1	ŀ
220	Sagana	U-11	Ragati River	0.23	0.29	П		١	ı		8	0							ŀ
220	Kerugoya	U-12	Kiringa River	0.71	0.89	0	•					l	i I	ı				9 9	,
220	Kutus	U-13	Thiba River	0.49	0.62	1	1	-			9	6			1	$\ \cdot\ $	П		ŀ
230	Kandara	U-14	Thika River	0.02	0,03	П	1	-				H				$\ \cdot\ $		-	ŀ
	Maragua	U-15	Githanji river	2.17	2,73	11	١	•	9	1	ì	}	<b>i</b>	1		11	1	1	ŀ
	Kangema	U-16	Mathioya River	0.10	0.12		Į				9	•					П		ŀ
230	Murang'a	U-17	Maragua river	1,54	1.94	9	•										•		ļ
230	Makuyu	U-18	Motoho river	0.37	0.46				B		1						П		ŀ
240	Ol Kalou	U-19	Malewa River	0.86	1,08						ı	9				H			ľ
250	Karatina	U-20	Ragati River	0.42	0.53	Н	1	1	1	1	0	•							ŀ
250	Othaya	U-21	Tuthi river	0.37	0.47	11	١	1			•	9	Н	ł			П		ľ
	Nyeri	U-22	Chania River	14.12	17.79				e	9 9	1			ı			9		ľ
310	Mariakani	U-23	2nd Mzima P/L	0.52	0,65	Ιİ	Ì	İ	•	9 0	١			l		$\ \cdot\ $	ΙÌ		ľ
•	Kilifi	U-24	Rare reservoir	1.31	1,65	<b>!</b>	Ţ	-			•	9	1	-	1		H		ŀ
310	Watemu	U-25	Sabaki pipeline	0.19	0.23	•	이	1						-				1.	ŀ
310	Malindi	U-26	Sabaki Pipeline & Rare Dam	10.56	13,30		l	-	ı			9	П	1					ľ
310	Mambrui	U-135	Sabaki river	0.24	0.30		이					1	lÌ	١			П		ľ
320	Kwale	U-27	Marere pipeline	0.33	0.42	11				ļ		0		ı		$\  \ $		0 0	1
320	Kinango	U-28	Marere pipeline	0.15	0.19	11	١	1	1	1	9	0	1 1	1	1		Н	-	ľ
320	Msambweni	U-29	Boreholes + Mkurumuji river	0.75	0.95	Н	1	1	•	9	<u>'</u>  •	0		•	9	9	0		
320	Lungalunga	U-136	Umba river	0.20	0.25				ı		•	9	il						ľ
330	Witu	U-30	Mkondo wa Cambi river	0.26	0.33			ı	•	9 0	1		il	1			11		ľ
330	Lamu	U-31	P/L from Tana River + B/H	1.19	1.50		1		4	9	1	П		ı	1			0	1
340	Mombasa	U-32	2nd Mzima/Mwachi Dam, Pemba Dam	57.41	72.33	9	이	9			ì		0	•	9	1			Ì
350	Taveta		Njoro Spring	0.71	0.89	$  \  $	1	1	6	9	1			İ			П		1
350	Voi	U-33	2nd Mzim pipeline	0.81	1.02		١	1	1	İ		9	1		ı		П		ľ
350	Wundanyi	U-34	Sigaso/Manguri River	0.18	0.23		ŀ				1	9				]	П		1
360	Bura & Madogo	U-35	Tana River	0.07	0.09		-	-		Ţ	ι	9		-			ιl		ŀ
360	Hola	U-36	Tana River	0.76	0.96						1	8						9	1
360	Garsen	U-37	Tana River	0.28	0,36		1		6	1						П			ľ
	Runyenjes	U-38	Ena river	0.14	0.18				•	9	'[		9	9 1	9	•	9	9 0	ı
410	Siakago	U-39	Ena River	0.01	0.01														ا ا
410	Embu	U-40	Lower Kapingazi River + Upper Rupingazi River	1.51	1.90	$\{\ \}$	1	-		1	1	9		1			1 1	9 0	1
420 420	Isiolo	U-41	Borcholes + Spring	1.84	2.32				4	<u>' </u> •	•	•	•	9 6	"	"	9	0 0	1
420 420	Ol Doinyo Ng'iro	U-42	Ewaso Ngiro River	0.42	0.53		- 1		•		1_	ا۔ا							ľ
420 420	Garbatula	U-138	Borcholes	0.18	0.23			•	-	1		•					$  \cdot  $		ľ
420	Merti	4	Ewaso Ngiro	0.54	0,68				9	9	]							۔ ا	
	Kitui	U-43	Masinga Dam	0.84	1,05			1	1	ì	1	۱ ٔ		١	1	1	H	9	ſ
430 430	Mutomo	U-44	Sub-Surface dam on Tiva river	0.02	0.03							1					П		ŀ
	Mwing(	U-45	Kiambere Dam	0.66	0,83	•	•	ļ											ŀ
440	Machakos	U-46	Athi River P/L	13.87	17,47				.   •	•	1					•	•		1
	Mitaboni	U-47	Kaalhana River	2.32	2.92			9	۱۹		-								ľ
440	Athi River	U-48	Upper Athi Dam	2.00	2.52	Ll	1	1	1	L				1	1		Ш	丄	1

Appendix 4.6 Sewerage Development - Proposed Implementation Programme for Reduced Development (Alternative-B) (2/3)

	Urban Name	Code	F. P D	( ( )														
		1	Future Raw Water Source		lion)	<u> </u>												
				US\$	K£	93	٦,	5	т-	, <u></u>	200	0	2	- 1	4	8	TTT	8
	Uaani/Tawa	U-49 U-50	Tawa river Pipeline from Athi River	0.02 0.90	0.02 1.14	П	- 1	•	1	$\  \ $	-				İ	1		•
	Kangundo Tala	U-140	Pipeline from Athi river	0.90	0.18	П	- 1	•	1		١	ı	H		-	ı		
		U-51	Kyangonyo river	0.14	0.18			9	1	H	اـ		П	-		ı		•
	Nunguni Wote	U-141	Kaiti river + Nzuuni river	0.19	0.03			ı		1 1	9 0	ŀ			1	1		9
	Emali	U-52	Not Tresh P/L	0.02	0.24			ı		H	•	1	$\  \ $	ı	-		11	
	Mtito Andei&Kibwezi	U-53	Pipeline from Athi river	0.29	0.37			ı	ŀ			ı	Ш	1			$  \  $	
	North Horr	U-142	Boreholes	0.16	0.21		ŀ	۰				l			١,	٠.		
	Kargi	U-54	Borcholes + Subsurface Dam	0.10	0.50		- 1				ام			ı		1	1 1	
1	Korr	U-143	Boreholes	0.45	0.56			٦,		l f	- [			۰	1			
	Marsabit	U-55	Boreholes +Small dams/Sub-surface dam/Spring	1.65	2.07		-				- [	١.	ΙI					
	Sololo	U-56	Boreholes	0.34	0.43		1	•	1	1 1	- 1	]		1	٦,		1 1	
1	Moyale	U-57	Boreholes + Small Dam	0,62	0.78			]		9		1	Ιİ					
' 1	Meru	U-58	Kathita river	12.58	15.85	11	1	1		1 1			$ \  $	-	1	1	1 1	
1	Nkubu	U-59	Thingithu River	0.42	0.53	$\  \ $	-		ľ	1 1		ا		ł				8
I I	Chogoria	U-60	North Mara River	0.08	0.10		•					1						0
	Chuka	U-61	Tungu river	0.29	0.36	$\  \ $						•					П	ø
460	Maua	U-62	Ura river	0.29	0.36	$\  \ $				•		ı					$\  \ $	
510	Mudo Gashe	U-63	Boreholes + Subsurface Dam	0.17	0.21	$\  \ $		9 4				1	$  \  $				8	9
510	Ijara	U-64	Boreholes + Small dam	0.09	0.11	П	ĺ	۰	,		1		$\  \ $	1	1			9 0
510	Kotile	U-65	Boreholes/Subsurface Darn/Tana	0.09	0.11	П	١	٥	•	1	1	1	l	1	1			9 6
510	Masalani	U-66	Tana River	0.09	0.11	11	١	1	•	0	1	1	$\  \ $	1	ı			
510	Garissa	U-67	Tana River	2.59	3.26	П		1			•	•	П	1	ı		9	∍
520	Mandera	U-68	Daua River	0.43	0.54	П		ı			8	•		1	ı			<b>s</b>
520	Elwak	U-69	Borehores	0.62	0.78	H		1	0	•		ı		1	4	0	0	•l l
520	Rhamu	U-70	Daua River	0,26	0.33			1			•	•		1	ı		Н	9
530	Wajir	U-71	Borcholes + Ewaso Ngiro River	1.62	2.04		١	٥	•	9	9	۰ ۰		•	• •	9	0	•
530	Buna	U-72	Boreholes(Lago Bor river)	0.45	0.56		1	•	•	9	9	9 0	0	9	9 4	9	9	9 0
	Bute	U-73	Borcholes + Small Dams	0.15	0.18			9	·		-	ı		1	ı	l	9	9 6
	Manga	U-74	Bunyunyu Dam	0.06	0.07	H	1	-	•	9	-	1		١	1	1		•
	Keroka	U-75	Bunyunyu Dam	0.15	0.19				•	•	1	ľ	╽┃		Į			9
1	Nyamira + Kebirigo	U-144	Kuja river	0,73	0.92	П	1				0	9	H	1	ı		П	9
	Kisii	U-76	Bunyunyu Dam	3.06	3.85	П	1		Ī		•	3		1	ŀ		•	9
	Ogembo	1	Kuja river	0.07	0.09		미	1			1			-	ŀ			9
	Maseno	U-78	Edzawa Dam	1.10	1.39	П	-	1			9	9		1	ŧ		Н	9
	Kisumu & + Kiboswa	U-79	Kibos dam	37.19	46.85		- 1	• •					П	-	٩	9 0	Н	
	Ahero	U-80 ·	Nyando river	0.64	0.80			• •			ı	1		1	ı		Н	9
ı	Muhoroni	U-81	Nyando River	0.57	0.72		1		1	9							$\  \ $	0
1 . }	Bondo	U-145	Yala river	0.21	0.26				F	•								9
1	Yala	U-82	Yala river	0.16	0.20				9	9				-	-			. 0
1	Siaya t Panada	U-83	Yala River	1.27	1.60		-		۰	1 1	9 (	9	H				8	
1	Ukwala	U-84	Nzoia River	0.07	0.08				9	1 I								٥
	Homa Bay	U-85	Lake Victoria	1.65	2.08 0.68					1 I	9	9					0	1 1
	Migori	U-86	Migori river	0.54	0.30				8	9	-			ļ		-		9
	Kehancha + Tarang'anya	U-146	Migori river	0.24 0.23	0.30	9	- 1	. ا			1			1				0
	Nyabikaye Ownois	U-147	Borcholes	0.23	0.29		1	• •	9	0				1	1	1	6	9 9
	Oyugis Kendu Bay	U-148 U-87	Isanta river(Awach Tende) Lake Victoria	0.24	0.25		ļ			0	Ì				1	ŀ		9
	Awendo/Sare	U-149	Sare river	0.27	0.23													9
	Oloitokitok	U-88	Nol-Turesh Spring	0.46	0.58		1			$  \  $	9					1	$\  \ $	9
	Ngong	U-89	Kerarapon Spring	1.58	1.98					1 1	-							
	Kajiado	U-90	Kiserian P/L	0.64	0.80				L	6			П		-			• "
	Namanga	U-91	Namanga Spring	0.51	0.65		-	ļ	1		1	1			-			
	Note:	L	Construction	2121		ا	L		.1.~	17			1	1	L			

Appendix 4.6 Sewerage Development - Proposed Implementation Programme for Reduced Development (Alternative-B) (3/3)

Urban Name  Magadi Soük Kericho Kipkelion Londiani Nanyuki Rumuruti Nyahururu	U-92 U-93 U-94 U-95 U-96 U-97	Future Raw Water Source  Oloibortoto river Kipsonoi river Dimlitch Dam, Kimugung Dam Nyando river	US\$ 0.30 0.39	K£ 0,38 0,49	93	95			_	20		7	 T ]	4	<b>—</b>	6		}	_
Soük Kericho Kipkelion Londiani Nanyuki Rumuruti Nyahururu	U-93 U-94 U-95 U-96 U-97	Kipsonoi river Dimlitch Dam, Kimugung Dam	0.39			T	Г	Γ	П	0		Т	T	П	T	Т	Т	_	- 1
Kericho Kipkelion Londiani Nanyuki Rumuruti Nyahururu	U-94 U-95 U-96 U-97	Dimlitch Dam, Kimugung Dam		0 40			ŀ					- 1						1	,
Kipkelion Londiani Nanyuki Rumuruti Nyahururu	U-95 U-96 U-97	l	0.70	ひげり			ŀ	0	•						-	ł		1	,
Londiani Nanyuki Rumuruti Nyahururu	U-96 U-97	Nunndo rivar	9.72	12,24		1		•	0							- 1	9 4	,	ĺ
Nanyuki Rumuruti Nyahururu	U-97	/\y\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	0.17	0.21			ŀ	•	0			1			-	ł		4	١,
Rumuruti Nyahururu		Londiani dam	0.24	0.30				9	0		İ	1				1		1	١,
Nyahururu	l	Liki river	2.20	2,77			-	\ 		9					- }	-},	6	•	1
•	U-150	Rumuruti Dam + Borcholc	0.18	0.23	$\ \cdot\ $	9	•							П	ł	1			١,
Cital)	U-98	Nyahururu dam + Borchole	1.26	1,58						9	6	1			ŀ	1			١.
GHgn :	U-99	Turasha P/L & Malewa Dam	1.37	1.73	11		l				•			$\  \ $		1		4	•
Naivasha	U-100	Turasha P/L & Malewa Dam	7.07	8.91	11		1			9	•			Ш	╽	1			,
Njoro	U-101	Itare Dam	0.86	1,08	11		l	9	9	١	1	ı		Ш					3
Elburgon	U-102	Itare Dam	1.17	1,47	11		l				6	ı		Ш	1	1	ŀ	١,	,
Molo	U-103	Itare Dam	1.03	1.29						0		ı		$\  \ $	1	ı			
Nakuru	U-104	Turasha P/L + Malewa Dam + Itare Dam	55.47	69,89				ļ		ţ	Į	Ţ	U	Ц		•	ļ	ļ	l
Narok	U-105	Upper Narok Dam	1.51	1.91						9						H	٠ (	,	1
Nairagie Ngare	U-106	Nasampolai river	0.05	0.06						•	0							Т	,
Kilgoris	U-151	Poroko river	0,33	0.42						-								1	,
Lolkorian	U-152	Migori river	0.17	0.22				ı	9	-								1	,
Kitale	U-107	Koitobos river						آ	li								،ا	П	
Kiminini/Saboti+Spr.Kita	Į.	l '				<b>.</b>		l						1				Т	,
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Kaimosi	l	Galagoli river	i			1	1	1		١	1	1	1	1	1	-	1	1	•
Khayega	U-131	Yala river			9	•					-					1	I		•
Kakamega	U-132	Isiukhu River, Mukulusi Dam								9	0			П	-		9	•	
Butere	U-133	Viratsi River	- 1					l		0	•							1	•
Mumias	U-134	Nzoia River	1.76	2,21						٠	•				Ì			•	•
			562.81	709.14															
	Njoro Elburgon Molo Nakuru Narok Nairagie Ngare Kilgoris Lolkorian Kitale Kiminini/Saboti+Spr.Kita Endebess/Kwanza Mol's Bridge Turbo Eldoret Burnt Forest Kabarnet Maji Mazuri Eldama Ravine Mogotio Marigat Ilten+Tambach Nandi Hills Kapsabet+Baraton Maralal Wamba Baragoi Lodwar Kapenguria/Makutano Bungoma Kimiliti Webuye Chaptais Busia Nambale Luanda Vihiga+Majengo Kaimosi Khayega Kakamega Butere	Njoro	Njoro U-101 Itare Dam Molo U-103 Itare Dam Molo U-103 Itare Dam Makuru U-104 Turasha P/L + Malewa Dam + Itare Dam Narok U-105 Upper Narok Dam Nariagie Ngare U-106 Nasampolai river Kitaloris U-151 Poroko river Kitale U-107 Koitobos river Kitale U-108 Kabewyan river Kitale U-108 Kabewyan river Kitale U-109 Koitobos river Mol's Bridge U-153 Nzoia river Mol's Bridge U-154 Sosiani river Bildoret U-110 Molben Dam + Nzoia river Bildoret U-111 Molben Dam + Nzoia river Kabarnet U-112 Kirandich Dam Maji Mazuri U-113 Maji Mazuri river Bildama Ravine U-114 Chemususu Dam Mogotio U-115 Molor Dam Mogotio U-115 Molor Dam Mariat U-116 Molben Dam Nandi Hills U-117 Mokong River Kapsabet+Baraton U-118 Mokong river Wamba U-120 Borcholes Baragoi U-121 Borcholes Baragoi U-121 Borcholes & sub-surface dam Lodwar U-122 Kapenguria River Kapenguria/Makutano U-123 Kapenguria River Kapenguria/Makutano U-124 Kuywa River Kapenguria Webuye U-126 Nzoia River Nanbale U-158 Sio river Busia U-127 Sio river Busia U-128 Edzawa river Vihiga+Majengo U-129 Edzawa River (Kimondi River) Kaimosi U-133 Viratsi River Nzoia River Nzoia River Viratsi River Nzoia River			Dilbargon   U-101   Hare Dam   1.17   1.47   Molo   U-102   Hare Dam   1.17   1.47   Molo   U-103   Hare Dam   1.03   1.29   Makuru   U-104   U-105   U-105   U-106   Makuru   U-105   U-105   U-106   Masampolai river   0.05   0.06   Masampolai river   0.05   0.06   Masampolai river   0.05   0.06   Masampolai river   0.05   0.06   Masampolai river   0.07   0.22   Migori river   0.17   0.22   Migori river   0.17   0.22   Migori river   0.17   0.22   Migori river   0.17   0.22   Migori river   0.17   0.22   Migori river   0.17   0.22   Migori river   0.17   0.22   Migori river   0.17   0.22   Migori river   0.17   0.22   Migori river   0.17   0.22   Migori river   0.17   0.22   Migori river   0.17   0.22   Migori river   0.17   0.22   Migori river   0.17   0.22   Migori river   0.17   0.22   Migori river   0.17   0.22   Migori river   0.19   Migori river   0.10   0.13   Migori river   0.10   0.13   Migori river   0.10   0.13   Migori river   0.20   0.22   0.28   Migori river   0.20   0.22   0.28   Migori river   0.20   0.25   Migori river   0.20   0.25   Migori river   0.20   0.25   Migori river   0.20   0.20   Migori river   0.20   0.20   Migori river   0.20   0.20   Migori river   0.20   0.20   Migori river   0.20   0.20   Migori river   0.20   0.20   Migori river   0.20   0.20   Migori river   0.20   0.25   Migori river   0.20		Rare Dam		Dilbargon	Dilbargon	Dibrigon	Dilburgon	Nigoro	District   Company   Com	District   Communication   C	Nigero	Difference   U-101   Race Dam   U-102   Race Dam   U-102   Race Dam   U-103   Race Dam   U-104   Race Dam   U-105   Race Dam   U-105   Race Dam   U-105   Race Dam   U-106   Race Dam   U-106   Race Dam   U-107   Race Dam   U-107   Race Dam   U-108   Race Dam   U-109   Race Dam	Nigero

Appendix 4.7 Summary of Development Cost for Reduced Development (Alternative-B)

	Budget		Finan	cial Requir	ement (Mi	llion)	
Development Sector	Appropriated	1993 -	- 2000	2001	- 2010	Tot	al
	for	US\$	K£	US\$	K£	US\$	K£
1. D&I Water Supply		3,032	3,821	2,756	3,472	5,788	7,293
(1) Urban water supply	MOWD *1	2,047	2,580	1,771	2,231	3,818	4,811
(2) Rural water supply	MOWD *2	985	1,241	985	1,241	1,970	2,482
2. Sewerage Development	MOLG *3	310	390	253	319	563	709
Total		3,342	4.211	3,009	<u>3,791</u>	<u>6,351</u>	<u>8,002</u>

Notes:

Executing agencies will be;

\*1: MOWD, NWCPC, Municipalities (NCC, etc)
\*2: MOWD, NWCPC, County councils, NGO, etc

\*3: Municipal and urban councils under technical assistance by MOWD

Appendix 4.8 Annual Budgetary Schedule for Reduced Development (Alternative-B)

Development Sector							Ϋ́	Year											Total
•	1993	1994	1995 1996	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
																			!
1 D&I Water Supply	537.9	537.9 424.7		424.7	293.1	293.1	260.5	260.5	264.6	264.6	306.5	306.5	280.6	280.6	261.4	261.4	265.1	265.0	1,943
(1) Urban water supply	414.7	414.7	301.6	301.6	169.9	169.9	137.4	137.4	166.0	166.0	208.0	208.0	182.1	182.1	162.9	162.9	166.6	166.6	3,818
Rural water supply	123.2	123.2	123.2	123.2	123.2	123.2	123.2	123.2	586	98.5	98.5	5.86	98.5	98.5	5.89	98.5	98.5	98.5	1,970
2 Sewerage Development (for 158 urban centres)	74.9	74.9	47.6	47.6	14.5	14.5	17.8	17.8	22.6	22.6	22.8	22.8	36.8	36.8	24.1	24.1	20.3	20.3	563
Total	612.7	612.7 612.7 472.3 472.3 307.6	472.3	472.3	307.6	307 6 278 3		778.3	2872	7877 7783	2002	2002	317 3	3173	2005 5 2005 5	3 380	4 30C 4 30C	7 700	6.251

