Appendix 5.1 Urban Water Supply Schemes
Proposed Implementation Programme for Reduced Development (Alternative-A) (1/2)

Code	Urban Name	Code	Future Raw Water Source		lion)	ı														
			Talina Hall Willow doubto	US\$	K£	93	9.	5			200	20		2		 4	6		3	
						Т	Ť	T	Τ	Π	T	1	T	T	T	T	1	Γ	П	
	A 7	5			100		ı					1	1	1	1	1	1		1	
110	Nairobi	UΙ	Thika Dam, Ndarugu, Ruiru-A, Chania-B	577.6	727.8	9	3 e	e	·					۰	6	•				ĺ
210	Kanıri	U-2	Kiambaa Dam (Rui Ruaka R.)	9.1	11.4	9 0	•					ĺ		1	1				lí	0
210	Kiambu	U-3	Kiambaa Dam (Rui Ruakar.)	6.5	8.2		3		9	0		Ì		ļ			ļ		e	(
210	Ruiru	U-6	Ruiru River	6.5	8.2		4	•					١	1	1		1		Н	0
210	Thika	U-7	Chania River (Lower)	10.4	13.1		1	ļ					-		-			Į,		Ф
210	Kikuyu	U-9	Kikuyu Dam	12.7	16.0		P	•				١	١	1	1		1			0
220	Kerugoya	U-12	Kiringa River	5.0	6,3	0	•	1			П	1	1	1				۵	6	
220	Kums	·U-13	Thiba River	2.8	3,5		ı				0	ė		1						6
230	Maragua	U-15	Githanji river	10.4	13,2	9 6	·	1			11	1	1	1	1	1	t			€
230	Murang's	U-17	Maragua river	7.1	8.9	9	9				П	١		١	1		1	•	6	l
230	Makuyu	U-18	Motoho river	3.1	3.9	30 6	•	1				1	1	1						4
240	Ol Kalou	U-19	Malewa River	6.8	8.5		ļ				•	۰		١	J.	J				•
250	Karatina	U-20	Ragati River	1.5	1.9						Ш						1			•
250	Othaya	U-21	Tuthi river	3.0	3.8			1.						-			1	1		•
250	Nyeri	U-22	Chania River	29.2	- 36.8		•	•			1			1		ĺ	. 0	·		ĺ
310	Mariakani	U-23	2nd Mzima P/L	2.9	3.6		1	9 6						l	-	1	1	1	1	•
310	Kilifi	U-24	Rare reservoir	4.5	5.7									1				•	•	ĺ
310	Malindi	U-26	Sabaki Pipeline & Rare Dam	48.9	61.6		-	1	l		8	ð	1	1	-	1	1	1	1	4
320	Kwale	U-27	Marere pipeline	2.9	3.7		ŀ				•	•	Ì	ĺ	İ			•	æ	ĺ
320	Msambweni	U-29	Boreholes + Mkurumuji river	26.7	33.7					•	9	•	1	1	•	9	9 4			
330	Lamu	U-31	P/L from Tana River + B/H	23.9	30.1	11		1		0		-		1				0	•	İ
340	Mombasa	U-32	2nd Mzima/Mwachi Dam, Pemba Dam	324.8	409.2	9 1	•	e	·		11	. [0	•	•	9				
350	Taveta	U-137	Njoro Spring	5.0	6.3		1	ď	•]						j]		4
350	Voi	U-33	2nd Mzim pipeline	4.9	6.1							0		١						•
360	Hola	U-36	Tana River	4.2	5.3		-		9			١		1	ļ	1			ə	ĺ
410.	Embu	บ-40 *	Lower Kapingazi River + Upper Rupingazi River	4.2	5.4							-		١	١				9	
420	Isiolo	Ù-41	Borcholes + Spring	72.4	91.3		1						•	₽Ì.	•	0 4	9 6		9	•
420	Ol Doinyo Ng'iro	U-42	Ewaso Ngiro River	5.2	6.6	0	•						١				ŀ			e
420	Mertí	U-139	Ewaso Ngiro	3.4	4.3		•	9	ŀ	П		-	1	1	1	1	-		1	4
430	Kitui	U-43	Masinga Dam	5.6	7.0		•						1	1		١		•	9	ĺ
430	Mwingi	U-45	Kiambere Dam	10:2	12.9	0	·		1		11	1	1	ĺ						e
440	Machakos	U-46	Athi River P/L	47.4	59.7		•	9 0	·	'		١				1	9	•		l
440	Mitaboni	U-47	Kaalhana River	12.5.	15.8	9	•	ĺ					1	1			1			4
440	Athi River	U-48	Upper Athi Dam	12.6	15.8			1	١.]	6	•			j	-	}.			4
	Kangundo	U-50	Pipeline from Athi River	12.1	15.6	0	s					١	1	١	1				П	e
	Wote	U-141	Kaiti river + Nzuuni river	2.0	2.5	11		1		8		-	1	1						١
	Kargi	U-54	Borcholes + Subsurface Dam	38.2	48.1		•	• 6		•	9		١	1		10	• •	•	9	١
450	Коп	U-143	Boreholes	33.4	42.1	11	1	l	9	6	•		Į	ļ		1	e i	0	ø	l
450	Marsabit	U-55	Boreholes +Small dams/Sub-surface dam/Spring	101.8	128.2		4	a	9	•	•		•	•	•	• •	0 6	9	•	
450	Moyale	U-57	Boreholes + Small Dam	38.5	48.5			1	•		•	•	1	-		1	9 4	•	ø	ļ
	Meru	U-58	Kathita river	26.1	32.8		1	•	1			-						9	•	l
	Nkubu	U-59	Thingithu River	2.8	3.5						6	•				1		1		6
	Garissa .	U-67	Tana River	6.6	8.3							١		-				•		i
_ 1	Mandera	U-68	Daua River	1.4	1.8							-	[[[1		•	•	ĺ
A. 3 1	Elwak	U-69	Borehores	50,7	63.9]]	1	• a				ļ		1	J	1	6 6		•	
	Wajir	U-71	Boreholes + Ewaso Ngiro River	104.7	131.9		1	• 6	•		•	•		9	•	•	8		8	ĺ
530	Buna	U-72	Boreholes(Lago Bor river)	62.5	78.7		ļ	• •			•	•	•	•	•		•			1
	Nyamira + Kebirigo	U-144	Kuja river	7.6	9.6		-					١	1	1		- [1		4
11.1	Kisii	U-76	Bunyunyu Dani	19.2	24.2	11	1	1		4	•	•		1	1	1			•	
	Maseno	U 78	Edzawa Dam	10.1	12.8					9					İ	١		1		,
	Mascho Kisumu & + Kiboswa	U-79	Kibos dam	72.7	91.6		1.	١.			П			-		1,	، ا		ł	ľ

Appendix 5.1 Urban Water Supply Schemes
Proposed Implementation Programme for Reduced Development (Alternative-A) (2/2)

District	Urban Name	City	Future Raw Water Source		ost lion)		į	Imple	emen	itatio	n Sch	edule	
Code	Ordan Ivanic	Conc	Tatale Kan Trater evance	USS	K£	93	95		2	000	2	4 6 8	
		 				T	Ť		ſΤ	П	П	Thi	
620	Ahero	U-80	Nyando river	4.0	5.0	0	,				$\ \ \ $		
620	Muhoroni	U-81	Nyando River	4.9	6.1	Ш		9]]]		
	Siaya	U-83	Yala River	10.3	13.0	$\ \cdot \ $				} }	$\{\ \ \}$	9 6	
	Homa Bay	U-85	Lake Victoria	8.1	10.2		1		•			0 0	
	Migori	U-86	Migori river	3.6	4.5			•			{	1111	
710	Oloitokitok	U-88	Nol-Turesh Spring	4.0	5.1		1	8	9			- []. []	
	Ngong	U-89	Kerarapon Spring	8.4	10.5			3					
	Kajiado	U-90	Kiserian P/L	12.0	15.1			•		ll	$\ \cdot\ $	00	Ш
710	Namanga	U-91	Namanga Spring	3.2	4.0		8	•	П]		
720	Sotik	U-93	Kipsonoi river	3.0	3.8			•			111		8 1
720	Kericho	U-94	Dimlitch Dam, Kimugung Dam	15.2	19.1			•	э			6 •	
730	Nanyuki	U-97	Liki river	10.4	13.1			\			{		۱ ا ا
730	Nyahururu	U-98	Nyahururu dam + Borchole	13.4	16.9		1.					66	
740	Gilgíl	U-99	Turasha P/L & Malewa Dam	6.3	8.0			•	•		 		9
	Naivasha	D-100	Turnsha P/L & Malewa Dam	21.5	27.1			•	•				
740	Elburgon	U-102	Itare Dam	16.3	20.6		•	•	•				6
740	Molo	U-103	ltare Dam	13:3	16.8	ļ [•		9				0
ŀ	Nakuru	U-104	Turasha P/L + Malewa Dam + Itare Dam	121.0	152.5		•	•]		
750	Narek	U-105	Upper Narok Dam	22.8	28.7				•	•			
760	Kitale	U-107	Koitobos river	19.6	24.7	П			6	•			
770	Eldoret	U-110	Moiben Dam + Nzoia river	80.7	101.6			•			111		\prod
810	Kabarnet	U-112	Kirandich Dam	24.2	30.5	•	•						
810	Maji Mazori	U-113	Maji Mazuri river	3.2	4.0			•			111		0
810	Eldama Ravine	U-114	Chemususu Dam	21.8	27.5								•
820	lten+Tambach	U-116	Moiben Dam	8.5	10.7			•]]]		9
830	Kapsabet+Baraton	U-118	Mokong river	7.1	8.9				•		[
840	Maralal	U-119	Loikas/Yamo river	9.5	12.0			6	•	11.		•	
850	Lodwar	U-122	Borcholes & sub-surface dam	65.5	82.5	11		•		e e	9 4		
860	Kapenguria/Makutano	U-123	Kapenguria River	5.3	6.7			9					6
910	Bungoma	U-124	Kuywa River	15.9	20.0	11	}	\ \ \ '		•	111	•	0
910	Kimilili	U-125	Kimilili River	4.4	5.6		•	•					8
910	Webuye	U-126	Nzoia River	11.8	14.9				0]]		9
920	Busia	U-127	Sio river	8.1	10.2				•	•			•[
930	Vihiga+Majengo	U-129	Edzawa River (Kimondi River)	3.4	4.3		•	•					e
930	Kakamega	U-132	lsíukhu River, Mukulusi Dam	18.5	23.3	П			•	$\{ \}$		96	
930	Mumias	U-134	Nzoia River	9,0	11.4			•	•				
	٠	}			<u> </u>			{					
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	Note:		 Construction 	100						• '			
											1		

Appendix 5.2 Sewerage Development - Proposed Implementation Programme for Reduced Development (Alternative A) (1/2)

District Code	Urban Name	City Code	Future Raw Water Source	Cc (mil]	Imp	leme	nia	tion	Sch	rech	alc		
C0				USS	K£	93 9	5	2	000	2	!	4	6	8	1
								\prod		\prod					П
110	Nairobi	U-i	Thika Dam, Ndarugu, Ruiru-A, Chania-B	140.77	177,37	000						8			
210	Karuri	U-2	Kiambaa Dam (Rui Ruaka R.)	1.08	1.36		9								
210	Kiambu	U-3	Kiambaa Dam (Rui Ruaka r.)	0.36	0.45				9		11]]	\$ 6	
210	Ruiru	U-6	Ruiru River	0.94	1.19			9 6							Ð
210	Thika	U-7	Chania River (Lower)	8.96	11.29			•	9	11					•
210	Kikuyu	U-9	Kikuyu Dam	0.48	0.61										9
220	Kerugoya	U-12	Kiringa River	0.71	0.89	9 6								0 0	١.,
220	Kutus	U-13	Thiba River	0.49	0.62										•
230	Maragua	U-15	Githanji river	2.17	2.73		اها								
230	Murang'a	U-17	Maragua river	1.54	1.94	9 4							8		
230	Makuyu	U-18	Motoho river	0.37	0.46			11							
240	Ol Kalou	U-19	Malewa River	0.86	1.08								11		
250	Karatina	U-20	Ragati River	0.42	0.53			1 I							
250	Othaya	U-21	Tuthi river	0.37	0.47					11					
250	Nyeri	U-22	Chania River	14.12	17.79			9	1			١,	3 0		Ī
310	Mariakani	U-23	2nd Mzima P/L	0.52	0.65		11								
310	Kilifi	U-24	Rare reservoir	1.31	1.65			- 1	·						6
310	Malindi	U-26	Sabaki Pipeline & Rare Dam	3.14	3.96		\prod		1	[[11		
		U-27	Marere pipeline	0.33	0.42				1.						
320	Kwale	•	Borcholes + Mkurumuji river	0.33	0.95		Ш	f (9	1	
320	Msambweni	U-29	· · · · · · · · · · · · · · · · · · ·	0.71	0.89			17.		1 1		Π,	1		
330	Lamu	U-31	P/L from Tana River + B/H	42.51	53.57			11	1	١			11		
340	Mombasa	U-32	2nd Mzima/Mwachi Dam, Pemba Dam	0.71	0.89		11	9 9				1			•
350	Tavela	U-137	Njoro Spring	0.71	1.02			11			11		11		ĺ
350	Voi	U-33	2nd Mzim pipeline							!!	11				3
350	Wundanyi	U-34	Sigaso/Manguri River	0.18	0.23			11	9	11	11		II	اءاء	9
	Hola	U-36	Tana River	0.76	0.96				1	11			1 !	6 9	
410	Embu	U-40 :	Lower Kapingazi River + Upper Rupingazi River	1.51	1.90	111	$ \cdot $	'	9	11	}_}			9 8	
420	Isiolo	U-41	Boreholes + Spring	1.84	2.32			9 9 1	•		19	7	"	E 9	•
	Ol Doinyo Ng'iro	U-42	Ewaso Ngiro River	0.42	0.53	6	1 1	11	1		11				
420	Merti	U-139	Ewaso Ngiro	0.54	0.68			9		$\ \cdot \ $			11		•
430	Kitui	U-43	Masinga Dam	0.84	1.05	9 9	\prod		1		11	1	11	9 9	
430	Mwingi	U-45	Kiambere Dam	0.66	0.83	9 0							11		•
440	Machakos	U-46	Athi River P/L	13.87	17.47		II	9			! !	•			
440	Mitaboni	U-47	Kaathana River	2.32	2.92	4	9	11					11		
440	Athi River	U-48	Upper Athi Dam	2.00	2.52		11				11		1 }		
440	Kangundo	U-50	Pipeline from Athi River	0.90	1.14	*	•	11			11				•
440	Wole	U-141	Kaiti river + Nzuuni river	0.19	0.24		11		9	11	11			1.	•
450	Kargi	U-54	Borcholes + Subsurface Dam	0.39	0.50	•	•	9 6	9	11		•	9 0	•	•
450	Кол	U-143	Borcholes	0.45	0.56			• • •	8	11	6	10	•	-	1
450	Marsabit	U-55 .	Borcholes +Small dams/Sub-surface dam/Spring	1.01	1.27	•		9 9	9	6	• •	9	9	9 9	ĺ
450	Moyale	U-57	Boreholes + Small Dam	0.62	0.78]]	• • •	•	11		۱ ۱	• •	6 0	
460	Meru	U-58	Kathita river	12.58	15.85			9 6							
460	Nkubu	U-59	Thingithu River	0.42	0.53		11	11	9 4	4					•
510	Garissa	U-67	Tana River	2.59	3.26				9	4					
520	Mandera	U-68	Dana River	0.43	0.54			-	∍ €	4				e 2	
520	Elwak	U-69	Borchores	0.62	0.78			• •					•		
530	Wajir	U-71	Boreholes + Ewaso Ngiro River	1.62	2.04	•		• •	• 6		•	•	• •	9 6	
530	Buna	U-72	Borcholes(Lago Bor river)	0.45	0.56			9 9	• •		• •		e e		•
	Nyamira + Kebirigo	1	Kuja river	0.73	0.92]],		,					
610	Kisii	U-76	Bunyunyu Dam	3.06	3.85			11							
	!	U-78		1.10	1.39										4
620	Maseno	U-10	Edzawa Dam							-		سلسه	,. <u>i</u>		-

Appendix 5.2 Sewerage Development - Proposed Implementation Programme for Reduced Development (Alternative A) (2/2)

District Code	Urban Name	City Code	Future Raw Water Source		ost lion)		In	nplementatio	n Schedule
Code	Orban Ivame	Cone	Figure Raw Water Source	USS	K£ 9	3 9	5	2000 2	4 6 B
.~									
	H.								
620	Kisumu & + Kiboswa	U-79	Kibos dam	23.13	29.14		•		
620	Ahero	U-80	Nyando river	0.64	0.80		• e		
620	Muhoroni	U-81	Nyando River	0.57	0.72		11		
630	Siaya	U-83	Yala River	1.27	1.60		11	99	8 8
640	Homa Bay	U-85	Lake Victoria	1.65	2.08			00	₽ •
640	Migori	U-86	Migori river	0.54	0.68	11	1 1		
710	Oloitokitok	U-88	Not-Turesh Spring	0.46	0.58	11			
710	Ngong	U-89	Kerarapon Spring	1.58	1.98		11		
710	Kajiado	U-90	Kiscrian P/L	0,64	0.80			• •	3 3
710	Namanga	U-91	Namanga Spring	0.51	0.65		11		
	Sotik	U-93	Kipsonoi river	0.39	0.49	11.			
720	Kericho	U-94	Dimlitch Dam, Kimugung Dam	3.00	3.78				9 0
730	Nanyuki	U-97	Liki river	2.20	2.77				0.9
	Nyahururu	U-98	Nyahururu dam + Borchole	1.26	1.58				
	Gilgil	U-99	Turasna P/L & Malewa Dam	1.37	1.73	11			
	Naivasha	U-100	Turasha P/L & Malewa Dam	7.07	8.91				
740	Elburgon	U-102	Itare Dam	1.17	1.47	11			
	Mólo	U-103	ltare Dam	1.03	1.29				
740	Nakuru	U-104	Turasha PA. + Malewa Dam + Itarc Dam	30.09	37.91			,	
750	Narok	U-105	Upper Narok Dam	1.51	1.91	1			
760	Kitale	U-107	Koitobos river	9.43	11.88	11	11		
- 1	Eldoret	1	Moiben Dam + Nzoia river	17.50	22.05				
[Kabamet	U-112	Kirandich Dam	0.71		6 6	11	1111	
	Maji Mazuri	U-113	Maji Mazuri river	0.39	0.50				
· · · · · · · · · · · · · · · · · · ·	Eldama Ravine	U-114	Chemususu Dam	0.43	0.54	11	11		0.8
	Iten∻Tambach	U-116	Moiben Dam	0.45	0.57	11		0.0	
1	Kapsabet+Baraton	U-118	Mokong river	1.14	1.43	11	1		
	Maralal		Loikas/Yamo river	1.50	1.89	11			9 0
	Lodwar	U-122	Boreholes & sub-surface dam	0.81	1.02		11.		
1	Kapenguria/Makutano	U-123	Kapenguria River	0.96	1.21	11			
	Bungoma	U-124	Kuywa River	2.80	3.52				
	Kimilili	U-125	Kimilili River	0.63	0.79		l l		
	Webuye		Nzoia River	2.53	3.18				
	Busia		Sio river	1.41	1.78				
	Vihiga+Majengo	U-129	Edzawa River (Kimondi River)	0.34	0.43				
	Viniga+Majengo Kakamega		Isiukhu River, Mukulusi Dam	7.76	9.78				
	Mumias	U-134	Nzoja River	1.76	2.21	11			
250	triullias	0-134	I SONG MIVE	1.70	2.21		1		
				407.11	512.96				
				407.11	312.70				
1		1			1.5	1			
	Note:		Construction	L	I	-1		▲ ┃ ┃ ┃ ┃ ┃	
	11010								

Appendix 5.3 Summary of Development Cost for Reduced Development (Alternative-A)

Commence of the Commence of th	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		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		2 107	2.655	2 127	2 602	4,244	5,348
1 Utal		<u>2,107</u>	2,655	<u>2,137</u>	<u>2,693</u>	4,244	2,340

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 5.4 Annual Budgetary Schedule for Reduced Development (Alternative-A)

						W-140-WALLESTON											5	One: million USS	200
Development Sector							٠,	Year											Total
	1993	1993 1994	1995	1996	1961	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	
1 D&I Water Supply	336.2		336.2 257.4	257.4	170.9	170.9	187.3	187.3	9:061	190.6	195.5	195.5	213.9	213.9	204.1	204.1	162.5	162.5	3,837
(1) Urban water supply	254.1		254.1 175.3	175.3	888	88.8	105.2	105.2	125.0	125.0	129.8		148.2	148.2	138.4	138.4	8.96	96.8	2,523
(2) Rural water supply	82.1	82.1	82.1	82.1	82.1	82.1	82.1	82.1	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7	65.7	1,314
2 Sewerage Development (for 158 urban centrus)	30.6	30.6	31.7	31.7	22.5	22.5	16.9	16.9	£91	16.7	16.8	16.8	32.1	32.1	21.3	21.3	14.8	14.8	407
				ļ															
Total	366.9	366.9	366.9 366.9 289.1 289.1	289.1	193.4	93.4 193.4	204.2	204.2	207.3 207.3	207.3	212.3	212.3	246.0	246.0 246.0		225.4 225.4		177.3 4,244	4,344

Appendix 5.5 Urban Water Supply Schemes (1/3)
Proposed Implementation Programme for Reduced Development (Alternative-B)

District Code	Urban Name	City	Future Raw Water Source	Co (mil)				lm	ple	eme	nta	tio	n Sc	the	dul	е	
Cuao				USS	K£	93	9	5				J	2	4		6	8
						П	T				T	П		T	П		П
110	Nairobi	U-I	Thika Dam, Ndarugu, Ruiru-A, Chania-B	1,061.6	1,337.7		6 4					9	9 6	9 0	,		
210	Karuci	U-2	Kiambaa Dam (Rui Ruaka R.)	9.1	11.4	8	9									ŀ	$ \ $
210	Kiambu	U-3	Kiambaa Dam (Rui Ruaka r.)	6.5	8.2	6	ь			9							e
210	Limuru	U-5	Chania P/L	9.2	11.6	П		1		0		11		1	11	İ	И
210	Ruiru	U-6	Ruiru River	6.5	8.2									1			11
210	Thika	U-7	Chania River (Lower)	10.4	13.1	11	1		1	1	1			1	11	1	Н
210	Githunguri	U-8	Ruiru river	3.2	4.0				e			П			11		П
210	Kikuyu	U-9	Kikuyu Dam	12.7	16.0	1						11				1	П
220	Wanguru	U-10	Thiba River	0.6	0.7		1			ı		П					
220	Sagana	U-11	Ragati River	2.2	2.7				ĺ	١,						İ	П
220	Kerugoya	U-12	Kiringa River	5.0	6.3							П			11	6	6
220	Kutus	U-13	Thiba River	2.8	3.5					١,		П				1	
230	Maragua	U-15	Githanji river	10.4	13.2	9	В										
230	Kangema	U-16	Mathioya River	0.5	0.7												
230	Murang a	U-17	Maragua tiver	7.1	8.9	ø :			J						П		1 1
230	Makuyu	U-18	Motoho river	3.1	3.9	li											M,
240	Ol Kalou	U-19	Malewa River	6.8	8.5	\prod				إ							
250	Karatina	U-20	Ragati River	1.5	1.9												
250	Othaya	U-21	Tuthi river	3.0	3.8						1	П]],
250	Nyeri	U-22	Chania River	29.2	36.8		ļ,			1						•	
310	Mariakani	U-23	2nd Mzima P/L	2.9	3.6		1			1		П	1			1	,
310	Kilifi	U-24	Rare reservoir	4.5	5.7							$\ \ $			П	6	1 1
310	Watemu	U-25	Sabaki pipeline	3.3	4.2	6				1	1	П	1		П		Ĭ,
310	Malindi	U-26	Sabaki Pipeline & Rare Dam	64.4	81.1					١	9						
310		U-135	Sabaki river	2.5	3.2	€ (1	ľ		П	1	1	11		
	Mambrui	l .		2.9	3.7	Ι,				١,						•	11
320	Kwale	U-27	Marere pipeline	3.1	4.0		ł	П		- (1	1 (1		11		
320	Kinango	U-28	Marere pipeline	26.7	33.7					ı	9	1 1	١.	9		0	П
320	Msambweni	U-29	Boreholes + Mkurumuji river	1.5	1.9				•	ļ	1	1 1		73		٦	П
320	Lungalunga	U-136	Umba river	3.3	4.2					- [9						
330	Witu	U-30	Mkondo wa Cambi river	4					*	•		П			Н		11
330	Lamu	U-31	P/L: from Tana River + B/H	37.5	47.3		1.		•	9			. ا			9	e
340	Mombasa		2nd Mzima/Mwachi Dam, Pemba Dam	441.6	556.4	9 (1	1 1			1	8	•	*			11
350	Taveta	,	Njoro Spring	5.0	6.3		4	•									
	Voi	U-33	2nd Mzim pipeline	4.9	6.1					- 1	9						
360	Bura & Madogo	U-35	Tana River	0.6	0.8		1	П		- }	•	П]]		
360	Hola	U-36	Tana River	4.2	5.3				-			$\ \ $			11	•	1 . J
360	Garsen	U-37	Tana River	2.0	2.5		1		•	,							
410	Runyenjes	U-38	Ena river	1.5	1.9		١		•	•		*	9 1	"	9	9 9	11
	Embu	U-40	Lower Kapingazi River + Upper Rupingazi River	4.2	5.4		1	11	1	-			1			9	11
420	Isiolo	U-41	Boreholes + Spring	72.4	91.3				•	•	9		9	19		9	•
420	Ol Doinyo Ng'iro	U-42	Ewaso Ngiro River	5.2	6.6	9	ſ									1	
420	Garbatula	U-138	Borcholes	21.1	26.6		e	1 i	*	•							
420	Meru	U-139	Ewaso Ngiro	3.4	4.3		1	9		1	1		-				$\ \cdot \ $
	Kitui	U-43	Masinga Dam	5.6	7.0	•			ļ					İ		9	11
430	Mwingi	U-45	Kiambere Dam	10.2	12.9	•	1			1				1			
440	Machakos	U-46	Athi River P/L	47.4	59.7		4	•				$\ \ $			9		$\ \ $
440 -	Mitaboni	U-47	Kaathana River	12.5	15.8	•				1						1	11
440	Athi River	U-48	Upper Athi Dam	12.6	15.8			Į		1	9	11					
440	Uaani/Tawa	U-49	Tawa river	8.0	1.0	Н	1	•									
440	Kangundo	U-50	Pipeline from Athi River	12.4	15.6		•										
440	Tala	U-140	Pipeline from Athi river	5.6	7.1	\sqcup	10	•				Ш	1	1			Ц
	Note:		Construction														

Appendix 5.5 Urban Water Supply Schemes (2/3)
Proposed Implementation Programme for Reduced Development (Alternative-B)

440 Wo 440 Em 440 Mt 450 No 450 Ka 450 Ko 450 Ma 450 Mc 450 Mc 450 Mc 460 Mc 460 Ch 460 Ch 510 Ma 510 Gai 510 Gai 520 Blv 520 Rh 530 Wa	farsabit ololo foyale feru kubu hogoria huka faua fudo Gashe	U-S1 U-141 U-52 U-53 U-142 U-54 U-143 U-55 U-56 U-57 U-58 U-59 U-60 U-61 U-62	Kyangonyo river Kaiti river + Nzuuni river Nol Tresh P/L Pipeline from Athi river Borcholes Borcholes + Subsurface Dam Borcholes Borcholes Borcholes Borcholes Borcholes Borcholes Borcholes Thingithu River North Mara River	1.0 2.0 1.2 12.8 13.9 38.2 33.4 177.7 36.6 38.5 26.1		93	ı.	0 9		•	-	0	2	2	4	•	8	8
440 Wo 440 Em 440 Mt 450 No 450 Ka 450 Ko 450 Ma 450 Mc 450 Mc 450 Mc 460 Mc 460 Ch 460 Ma 510 Mo 510 Jjar 510 Ko 510 Ma 510 Gan 520 Ma 520 Elv 520 Rh 530 Wa	Vote mali futo Andei&Kibwezi forth Horr forth Horr forth for	U-141 U-52 U-53 U-142 U-54 U-143 U-55 U-56 U-57 U-58 U-59 U-60 U-61	Kaiti river + Nzuuni river Nol Tresh P/L Pipeline from Athi river Borcholes Borcholes + Subsurface Dam Borcholes Borcholes + Small dams/Sub-surface dam/Spring Borcholes Borcholes Borcholes Thingithu River	2.0 1.2 12.8 13.9 38.2 33.4 177.7 36.6 38.5	2.5 1.5 16.1 17.5 48.1 42.1 223.9 46.1	1 1	9	6	6	•	3						*	
440 Wo 440 Em 440 Mt 450 No 450 Ka 450 Ko 450 Ma 450 Mc 450 Mc 450 Mc 460 Mc 460 Ch 460 Ma 510 Mo 510 Jjar 510 Ko 510 Ma 510 Gan 520 Ma 520 Elv 520 Rh 530 Wa	Vote mali futo Andei&Kibwezi forth Horr forth Horr forth for	U-141 U-52 U-53 U-142 U-54 U-143 U-55 U-56 U-57 U-58 U-59 U-60 U-61	Kaiti river + Nzuuni river Nol Tresh P/L Pipeline from Athi river Borcholes Borcholes + Subsurface Dam Borcholes Borcholes + Small dams/Sub-surface dam/Spring Borcholes Borcholes Borcholes Thingithu River	2.0 1.2 12.8 13.9 38.2 33.4 177.7 36.6 38.5	2.5 1.5 16.1 17.5 48.1 42.1 223.9 46.1	1 1	9	6	6	•	3						*	
440 Em 440 Mt 450 No 450 Ka 450 Ko 450 Ma 450 Mo 450 Mo 460 Mc 460 Ch 460 Ma 510 Mo 510 Gar 510 Gar 520 Rh 520 Rh 530 Wa	mali futo Andei&Kibwezi forth Horr forth f	U-52 U-53 U-142 U-54 U-143 U-55 U-56 U-57 U-58 U-59 U-60 U-61	Nol Tresh P/L. Pipeline from Athi river Borcholes Borcholes + Subsurface Dam Borcholes Borcholes + Small dams/Sub-surface dam/Spring Borcholes Borcholes Borcholes Thingithu River	1.2 12.8 13.9 38.2 33.4 177.7 36.6 38.5	1.5 16.1 17.5 48.1 42.1 223.9 46.1	1 1	9	6	6	- 1	-	B					*	, 6
440 Ma 450 No 450 Ka 450 Ko 450 Ma 450 Mo 450 Mo 450 Mc 460 Mc 460 Ch 460 Ma 510 Mo 510 Jjar 510 Ko 510 Gar 520 Ma 520 Elv 530 Wa	fuio Andei&Kibwezi lorth Horr largi lorr larsabit ololo loyale feru kubu hogoria huka laua	U-53 U-142 U-54 U-143 U-55 U-56 U-57 U-58 U-59 U-60 U-61	Pipeline from Athi river Borcholes Borcholes + Subsurface Dam Borcholes Borcholes +Small dams/Sub-surface dam/Spring Borcholes Borcholes Borcholes Borcholes + Small Dam Kathita river Thingithu River	12.8 13.9 38.2 33.4 177.7 36.6 38.5	16.1 17.5 48.1 42.1 223.9 46.1	1 1	9	6		- 1	-	B					*) e
450 No 450 Ka: 450 Ko 450 Ma 450 Sol 450 Mc 460 Mc 460 Ch 460 Ma 510 Mo 510 Jjar 510 Ko 510 Ma 510 Gan 520 Ma 520 Elv 530 Wa	forth Horr Largi Lorr Larsabit Ololo Loyale Leru Rubu hogoria huka Laua	U-142 U-54 U-143 U-55 U-56 U-57 U-58 U-59 U-60 U-61	Boreholes Boreholes + Subsurface Dam Boreholes Boreholes +Small dams/Sub-surface dam/Spring Boreholes Boreholes Boreholes + Small Dam Kathita river Thingithu River	13.9 38.2 33.4 177.7 36.6 38.5	17.5 48.1 42.1 223.9 46.1	0	6	6		- 1	-	8					*	
450 Kai 450 Ko 450 Ma 450 Mo 450 Mo 460 Mo 460 Ch 460 Ma 510 Mo 510 Jjar 510 Ko 510 Ma 510 Gan 520 Ma 520 Elv 530 Wa	argi farsabit ololo Ioyale feru kubu hogoria huka Iaua	U-54 U-143 U-55 U-56 U-57 U-58 U-59 U-60 U-61	Boreholes + Subsurface Dam Boreholes Boreholes +Small dams/Sub-surface dam/Spring Boreholes Boreholes + Small Dam Kathita river Thingithu River	38.2 33.4 177.7 36.6 38.5	48.1 42.1 223.9 46.1		6	6		- 1	-	B					*) e
450 Ko 450 Ma 450 Sol 450 Mc 450 Mc 460 Mc 460 Ch 460 Ma 510 Mo 510 Jjar 510 Gar 520 Ma 520 Elv 520 Rh 530 Wa	om Iarsabit ololo Ioyale Ieru kubu hogoria huka Iaua Iudo Gashe	U-143 U-55 U-56 U-57 U-58 U-59 U-60 U-61	Boreholes Boreholes +Small dams/Sub-surface dam/Spring Boreholes Boreholes + Small Dam Kathita river Thingithu River	33,4 177,7 36,6 38,5	42.1 223.9 46.1					- 1	-	9	ł			H	- 1	
450 Ko 450 Ma 450 Sol 450 Mo 450 Mo 460 Me 460 Ch 460 Ma 510 Mo 510 Jjar 510 Gar 520 Ma 520 Elv 520 Rh 530 Wa	om Iarsabit ololo Ioyale Ieru kubu hogoria huka Iaua Iudo Gashe	U-55 U-56 U-57 U-58 U-59 U-60 U-61	Boreholes +Small dams/Sub-surface dam/Spring Boreholes Boreholes + Small Dam Kathita river Thingithu River	177.7 36.6 38.5	223.9 46.1		9		8	0	ہ ا		1	•	1_1		9	9 6
450 Sold 450 Med 460 Med 460 Nk 460 Ched 460 Ma 510 Mu 510 Ko 510 Gaar 520 Ma 520 Elv 520 Rh 530 Wa	ololo Ioyale Ieru kubu hogoria huka Iaua Iudo Gashe	U-56 U-57 U-58 U-59 U-60 U-61	Boreholes Boreholes + Small Dam Kathita river Thingithu River	36.6 38.5	46.1			ا ـ ا			0 0	9	1	9	9		-1	
450 Med 460 Med 460 Nk 460 Chi 460 Ma 510 Med	Ioyale Ieru kubu hogoria huka Iaua Iudo Gashe	U-57 U-58 U-59 U-60 U-61	Boreholes + Small Dam Kathita river Thingithu River	38.5		1 1		- ●	8	e 4	8 4	9	a a			8	6	s e
450 Me 460 Me 460 Nk 460 Ch 460 Ma 510 Mu 510 Ko 510 Ma 510 Gar 520 Ma 520 Elv 520 Rh 530 Wa	feru Kubu hogoria huka faua Iudo Gashe	U-58 U-59 U-60 U-61	Kathita river Thingithu River	Į.	A9 €	11	9	9	a		6	•					9 (9 6
460 Me 460 Nk 460 Ch 460 Ma 510 Mo 510 Ijar 510 Ko 510 Gar 520 Ma 520 Elv 520 Rh 530 Wa	feru Kubu hogoria huka faua Iudo Gashe	U-59 U-60 U-61	Thingithu River	26.1	40,2	П	ı	П	•	•					$\ \ $	3		9 4
460 Nk 460 Ch 460 Ch 460 Ma 510 Mu 510 Ijar 510 Ko 510 Gar 520 Ma 520 Elv 520 Rh 530 Wa	kubu hogoria huka faua Iudo Gashe	U-59 U-60 U-61	i -		32,8	11		9		1	١	1	1		1	H	١,	9 6
460 Chi 460 Ma 510 Mu 510 Ijar 510 Ko 510 Ma 510 Gan 520 Ma 520 Elv 530 Wa	hogoria huka laua ludo Gashe	U-60 U-61	i -	2.8	3.5					١,		•	1		$ \ $			
460 Chu 460 Ma 510 Mu 510 Ijar 510 Ko 510 Ma 510 Gar 520 Ma 520 Elv 520 Rh:	huka Iaua Ivdo Gashe	U-61		1.3	1.6						1		Į		$ \ $		1	ļ
460 Ma 510 Mu 510 Ijar 510 Ko 510 Ma 510 Gar 520 Ma 520 Elv 520 Rh:	laua Iudo Gashe		Tungu river	2.6	3.3					1.	•					П		
510 Mu 510 Ijar 510 Ko 510 Ma 510 Gan 520 Ma 520 Elw 520 Rh:	Iudo Gashe	0-02	Ura river	2.5	3.2				æ	•	1	1						
510 ljar 510 Ko 510 Ma 510 Gar 520 Ma 520 Elw 520 Rh: 530 Wa	*	U-63	Boreholes + Subsurface Dam	12.9	16.3		1			1		1				1	1	
510 Ko 510 Ma 510 Gan 520 Ma 520 Elw 520 Rhs 530 Wa	ara .		}				•	1 1		ļ			1	1				
510 Ma 510 Gai 520 Ma 520 Elv 520 Rh: 530 Wa		U-64	Boreholes + Small dam	8.0	10.1		1	8		-		ł	ļ				- 1	9
510 Gar 520 Ma 520 Elv 520 Rh: 530 Wa	oule	U-65	Boreholes/Subsurface Dam/Tana	11.7	14.8		ľ	8					1				ľ	9
520 Ma 520 Elv 520 Rh: 530 Wa	lasalani	U-66	Tana River	1.7	2.1				•	9							i	
520 Elw 520 Rh: 530 Wa	arissa	U-67	Tana River	6.6	8.3		ì			1		1			11		- 1	*
520 Rh: 530 Wa	landera	U-68	Daua River	1.4	1.8	$\ \cdot\ $									$\ \ $		- 1	
530 Wa	lwak	U-69	Borehores	50.7	63.9			•		-	ļ					9	9 (9 6
i i	hamu .	U-70	Daua River	1.8	2.3					ı	- 1	6			$\ \ $		1	1
530 Bu	/ajir	U-71	Boreholes + Ewaso Ngiro River	104.7	131.9	$\ \ $	46	0	9		8 4	9	9 6	P		9	9	•
	บกล	U-72	Boreholes(Lago Bor river)	62.5	78.7		9	9	6	•	• •	•	9 6	•	•	•	•	• •
530 Bui	ute	U-73	Boreholes + Small Dams	12.0	15.2		•	9			1				П		1	• 6
610 Ma	langa	U-74	Bunyunyu Dam	2.0	2.6		1		8	6	-	1			11	ı I	-	1
610 Ke	eroka	U-75	Bunyunyu Dam	3.6	4.6				9	•		ļ			$ \ $			
610 Ny	yamira + Kebirigo	U-144	Kuja river	7.6	9.6		1		•	9		Ì			П	. 1	١	1
610 Ki	isii	U-76	Вилуинуи Дат	19.2	24.2					•	• 6	9			$\ \cdot \ $		1	8 4
610 08	gembo	U-77	Kuja river	1.2	1.5		•					1			П	ŀ		ı
620 Ma	faseno	U-78	Edzawa Dam	10.1	12.8		1		•	•		1	}	}		ı	١	1
620 Kis	isumu & + Kiboswa	U-79	Kibos dam	104.8	132.1					-	1					•	•	ĺ
1	hero	U-80	Nyando river	4.0						l		Ţ						1
	luhoroni	U-81	Nyando River	4.9	6.1					-	١	1		ļ			1	1
1	ondo	U-145	Yala river	2.8	3.5	П		Ŭ	9	•			Ī		П			1
630 Ya		U-82	Yala river	1.7	2.1	11	1	۱۱	1	•	١							1
	iaya	U-83	Yala River	10.3	13.0											ı	1	١.
1	kwala	U-84	Nzoia River	1.3	1.6				1			ļ	ļ				-[7
1	loma Bay	U-85	Lake Victoria	8.1	10.2				-							ıİ	I.	١
	•	U-86	 	3.6	4.5				9	٦					$\ \cdot \ $			7
	ligori	i	Migori river	3.3			1	8			1		1		П	1		1
	chancha + Tarang'anya	U-146	Migori river			•	Į.									1	1.	
	yabikaye	U-147	Borehoics T	18.9	23.8		9	•			1	1					4	"["
1 -	lyugis	U-148	Isanta river(Awach Tende)	3.4	4.3	П			•			}			П		l	
1	endu Bay	U-87	Lake Victoria	1.9	2.5				*	•		ĺ						
	wendo/Sare	U-149	Sare river	3.6	4.6	•	•								$ \ $			
- 1	Holtokitok	U-88	Nol-Turesh Spring	4.0	5.1				•	•]						-	1
	gong	U-89	Kerarapon Spring	8.4	10.5		•	•		1	١	1	ļ	1		.	1	
	ajizdo	U-90	Kiserian P/L	12.0	15.1		•	•		1		ĺ	Ì				. •	1
	amanga	U-91	Namanga Spring	3.2	4.0			*			l		Į					
710 Ma	lagadi	U-92	Oloibortoto river	6.4	8.0					1.	6 6	a i	1		11	- 1	- [
720 Sot	otik	U-93	Kipsonoi river	3.0	3.8	: I		į l	- 1	13	Į.	1	•	10			1	

Appendix 5.5 Urban Water Supply Schemes (3/3)
Proposed Implementation Programme for Reduced Development (Alternative-B)

District	Urban Name	City Code	Future Raw Water Source		ost lion)	_		lm	ple	me	ntat	ion :	Sch	dul	e		
Code	Otbail Manie	Code	Pullic Naw Water Source	US\$	K£	93	95	T			000	2				8	
		f		0.55	1 102	۴Ť	Ť	-		٦٢	T	T	m	T-{	8	ďΤ	+19
720	Kericho	U-94	Dimlitch Dam, Kimugung Dam	24.2	30.5				8	ø						4	
	Kipkelion	U-95	Nyando river	1.3	1.6					0						1	
	Londiani	U-96	Londiani dam	57.1	72.0				i J	ě					1		9 0
730	Nanyuki	U-97	Liki river	10.4	13.1										9	0	
730	Rumuruti	U-150	Rumuruti Dam + Borchole	7.3	9.2		e			ľ	1		11			1	
	Nyahururu	U-98	Nyahurum dam + Borchole	13.4	16.9										9		
	Gilgil	U-99	Turasha P/L & Malewa Dam	6.3	8.0	11.			0	•			11			1 (
	Naivasha	U-100	Turasha P/L & Malewa Dam	21.5	27.1				1	•					1) e
*	Njoro	U-101	Itare Dam	16.9	21.3			اړ	9	- 1						11	9 9
	Elburgon	U-102	Itarc Dam	16.3	20.6		1			- 1			11		Ì		
	Molo	U-103	ltare Dam	13.3	16.8		6	1 1	0	-						1	9 8
	Nakuru	U-104	Turasha P/I. + Malewa Dam + Itare Dam	212.0	267.1		,	1	٦	٦						'	"
	Narok	U-105	Upper Narok Dam	22.8	28.7			ľ		١.							
	Nairagie Ngare	U-106	Nasampolai river	1.1	1.3					1	9				"	1	9 8
	Kilgoris	U-151	Poroko river	2.6	3.3						"					1	11
	Kilgoris Lolkorian	U-152	Migori river	2.6	2.9		1		9							1 1	3 8 9 8
	Kitale	U-107	l	19,6	24.7				*	- [17
i		1	Koitobos river		24.7	1.				ľ	•		} }	11	•	9	
	Kiminini/Saboti+Spr.Kita	U-108	Kabewyan river	2.1 1 <i>.7</i>	2.1	8	i		ŀ	١					ı		
	Endebess/Kwanza	U-109	Koitobos river		i e	9 4	1			1						11	9 0
	Moi's Bridge	U-153	Nzola river	1.9	2.4			•						11			•
770	Turbo	U-154	Sosiani river	3.5	4.4				•	•			11			'	9
770	Eldoret	U-110	Moiben Dam + Nzoia river	80.7	101.6		•							•	•		
- 1	Burnt Forest	U-III	Kipkaren river	1.3	1.6				*	6							
	Kabarnet	U-112	Kirandich Dam	24.2	30.5	8 6	1		1						6	*	
	Maji Mazuri	U-113	Maji Mazuri river	3.2	4.0		9	9								1	9
	Eldama Ravine	U-114	Chemususu Dam	21.8	27.5					١	1				j	'	9
	Mogotio	U-115	Molo river /Chemususu Dain	4.7	5.9					4	9					11	
1	Marigat	U-155	Perkerra river	1.6	2.1				9	9			11			'	9
- 1	Iten+Tambach	U-116	Moiben Dam	8,5	10.7		•	•	ı	- 1	9				9	6	
830	Nandi Hills	U-117	Mokong River	2.7	3.3				9	•			$ \ $		1	'	9 8
830	Kapsabet+Baraton	U-118	Mokong river	7.1	8.9					•					*	•	
	Meralal	U-119	Loikas/Yumo river	9.5	12.0		1		9	0			11		9	9	
840	Wamba	Ú-120	Borcholes	43.1	54.3		4	•	9	6				9	9 6	6	8 8
840	Baragoi	U-121	Boreholes + Sub-surface dam	66.5	83.8		e	6	8	0				•	9 6	6	9 💗
850	Lodwar	U-122	Borcholes & sub-surface dam	65.5	82.5				8	9 (0	9 0	8	9		9	
860	Kapenguria/Makutano	U-123	Kapenguria River	5.3	6.7		9	9					11	11	0	Ð	
910	Mawalio + Malakisi	U-156	Malikisi river	2.2	2.8	8	4								1	•	9 6
910	Bungoma	U-124	Kuywa River	15.9	20.0					9	9					9	
910	Kimilili	U-125	Kimilili River	4.4	5.6		9	e	J	-]]]]	9 0
910	Webuye	U-126	Nzoia River	11.8	14.9				*	0						•	9 6
910	Chaptais	U-157	Sasuri river	1.8	2.2	0 8	•	ļ		1						•	9 0
920	Busia	U-127	Sio river	8.1	10.2					•	•				•	Ð	
920	Nambale	U-158	Sio river	1.4	1.8	1				•	9				ļ	•	9 8
	Vihiga+Majengo	U-129	Edzawa River (Kimondi River)	3.4	4.3		4	•							1	•	3 9
	Khayega	U-131	Yala river	1.2	1.5					1						11	ê ş
	Kakamega	U-132	Isiukhu River, Mukulusi Dam	18.5	23.3				8	6					9	9	
	Butere	U-133	Viratsi River	1.4	1.8		1			1					1		•
	Mumias	U-134	Nzoia River	9.0	11.4				e	•					1	,	9 9
									П	1					1		[]
				3,818.1	4,810.8]				1							
. [·						ĺĺ								
	:]	_		L				\bigsqcup							\prod	
	Note:		Construction			-									-	_	

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Appendix 5.6 Sewerage Development - Proposed Implementation Programme for Reduced Development (Alternative-B) (1/3)

District		City	Elutura Dani Wata- Causa	Co (mill				lm	φl	em	en	tat	ion	Scl	hed	ule	_	
Code	Urban Name	Code	Future Raw Water Source	US\$	K£	93	95				20	00		2	4	6	-	
110	Nairobi	U-1	Thika Dam, Ndarugu, Ruiru-A, Chania-B	214.81	270.66	1		オ╌	T		٦		-1	9 6	7	ť	П	8 1
210	Karuri	U-2	Kiambaa Dam (Rui Ruaka R.)	1.08	- 1.36		8											
210	Kiambu	U-3	Kiambaa Dam (Rui Ruaka r.)	0.36	0.45						45	9				1		الم
210	Gatundu & Ngends	U-4	Thiririka River	0,03	0.03				ĺ	П				1	П	İ		
210	Limuru	U-5	Chania P/L	0.11	0.14				0	6								
210	Ruim	U-6	Ruiru River	0.94	1.19							-		1	11	1		
210	Thika	U-7	Chania River (Lower)	8.96	11.29			l			₩	0						
210	Githunguri	U-8	Ruiru river	0.30	0.38		1	1		9	1	1		1	11	-	11	
210	Kikuyu	U-9	Kikuyu Dam	0.48	0.61		e		1 -	П								
220	Wanguru	U-10	Thiba River	0.04	0.05		1		l	П						ĺ		
220	Sagana	U-11	Ragati River	0.23	0.29			1		П		•						
	Kerugoya	U-12	Kiringa River	0.71	0.89					П					$ \ $	-	e	اما
220	Kutus	U-13	Thiba River	0.49	0.62	1		1		1					1	١		
230	Kandara	U-14	Thika River	0.02	0.03				Į		Ĭ		1			1		
230	Maragua	U-15	Githanji river	2.17	2.73						-						ļļ	
	Kangema	U-16	Mathioya River	0.10	0.12			٦										
230	Murang'a	U-17	Maragua river	1.54	1.94													
230	Makuyu	U-18	Motoho river	0.37	0.46	11	~				١		1		H	1		
240	Ol Kalou	U-19	Malewa River	0.86	1.08		"				•							6
	Karatina	U-20	Ragati River	0.42	0.53		-				- 1	•	-					
250	Othaya	U-21	Tuthi river	0.37	0.33													
	Nyeri	U-22	Chania River	14.12	17.79				•		•	٦	1					"
1	Mariakani	U-23	2nd Mzima P/L	0.52	0.65			ĺ.		1 1	١	١	١		'	7		11.
	Kilifi	U-24	Rare reservoir	1.31	1.65				•	۱۳					П		П	
310	Watamu	U-25	Sabaki pipeline	0.19	0.23						•	٦		1				
310	Malindi	U-26	Sabaki Pipeline & Rare Dam	10.56	13.30	"	•						1					
310	Mambrui	U-135	Sabaki river	0.24	0.30						٥	٦	1		П			
320	Kwale	U-27	Marcre pipeline	0.33	0.42		"				_		Ì	1				انا
320	Kinango	U-28	l ''	0.33	0.42						- 1	•					•	
320	Msambweni	U-29	Marere pipeline	0.13	0.19		1	١	_		- 1	9	1			.\.		1
320		U-136	Borcholes + Mkurumuji river Umba river	0.73	0.95				•		- 1	•	1	•	9	•		Ш
330	Lungalunga Witu	U-30	I	0.26	0.23	11					•	3	1					
	i		Mkondo wa Cambi river	i i					!	3						1] [
330	Lamu	U-31	P/L from Tana River + B/H	1.19	1.50				•	•	Ì	1	-				•	•
	Mombasa	U-32	2nd Mzima/Mwachi Dam, Pemba Dam	57.41	72.33	• •	•	9	1		١	1	• 4					11
350	Taveta	1	Njoro Spring	0.71	0.89				•	9	1					E		*
350	Voi	U-33	2nd Mzim pipeline	0.81	1.02	11					•	•	۱.		H			•
350	Wundanyi	U-34	Sigaso/Manguri River	0.18	0.23	П	-	l		1	1	9	1		H	1	П	ľ
360	Bura & Madogo	U-35	Tana River	0.07	0.09						•	•	Ţ					•
360	Hols	U-36	Tana River	0.76	0.96	11		1		1	•	•		1	ıΙ	İ	•	•
360	Garsen	U-37	Tana River	0.28	0.36				•	•	i	1	- 1				H	l l'
410	Runyenjes	U-38	Ena river	0.14	0.18	11				•	١	- [9 4		9	9		•
410	Siakago	U-39	Ena River	0.01	0.01							.					П	
410	Embu	U-40	Lower Kapingazi River + Upper Rupingazi River	1.51	1.90		-			ii	•	•					•	•
	Isiolo	U-41	Borcholes + Spring	1.84	2.32		1		8	٠	•	•		•	•	9	•	•
420	Ol Doinyo Ng iro	U-42	Ewaso Ngiro River	0.42	0.53			1					-					ľ
420	Garbatula	U-138	Borcholes	0.18	0.23	:	•	•	ì	•	6	•				1		i l
420	Merti	U-139	Ewaso Ngiro	0.54	0.68				•	•	1	-				İ		
	Kitui	U-43	Masinga Dam	0.84	1.05	• •	P				1						•	9
430	Mutomo	U-44	Sub-Surface dam on Tiva river	0.02	0.03							1				1		1
	Mwingi	U-45	Kiambere Dam	0.66	0.83	• •						1		$\ .\ $		1		•
440	Machakos	U-46	Athi River P/L	13.87	17.47		1		•	3	1	-	1		1	9 0		
440	Mitaboni	U-47	Kaathana River	2.32	2.92		•	•										1
440	Athi River	IJ-48	Upper Athi Dam	2.00	2.52		1	į	ı		. !	_1	- 1		ı I	1 :	ı ł	

Appendix 5.6 Sewerage Development - Proposed Implementation Programme for Reduced Development (Alternative-B) (2/3)

District	Urban Name	City	F D		ost llion)				lm	ple	me	ntat	ior	S	he	dul	 c	
Code	. Oroan Prame	Code	Future Raw Water Source	USS	, <u> </u>	ļ		Τ-				-1				_		
440	Uaani/Yawa	U-49	Tawa river	0.02	0.02	93	9: -	5	η	1-1	200	9	2 T	7	1 T	6	-1	7
440	Kangundo	U-50	Pipeline from Athi River	0.02	1.14		Ł	9 6	1									0 0
440	Tala	U-140	Pipeline from Athi river	0.14	0.18		1	9	1]]				1				9 6
440	Nunguni	U-51	Kyangonyo river	0.03	0.03		1	"	1		ا						1	1 1
440	Wole	U-141	Kaiti river + Nzuuni river	0.03	0.03		1	1	1		- 1	9				$\ \cdot \ $	1	9 8
	Emali	U-52	Nol Tresh P/I.	0.02	0.03						"	"		ı			1	
	Mtito Andei&Kibwczi	U-53	Pipeline from Athi river	0.29	0.37	0 6	1	1						ł		11		6 6
	North Horr	U-142	Borcholes	0.16	0.21		ı	6			1					9	• e	
,,,	Kargi	U-54	Boreholes + Subsurface Dam	0.39	0.50		6	1	1			. [1	1	1 1	- 1	
450	Korr	U-143	Borcholes	0.45	0.56		ľ		9	1	- 1		-],	0 6		1 1	۳) ٔ	
	Marsabit	U-55	Borcholes +Small dams/Sub-surface dam/Spring	1.65	2.07		9			1	- 1	9	- 1	9 6		il	9 8	
	Sololo	U-56	Boreholes	0.34	0.43		6				3 6	1 1	7	٦.	8	1 [6 3	I 1
450	Moyale	U-57	Borcholes + Small Dam	0.62	0.78		-	ľ			9 6	1 1	1		9	1 1	0 6	1 1
460	Meru	U-58	Kathita river	12.58	15.85				•	9			1]]	6 6	1 1
460	Nkubu	U-59	Thingithu River	0.42	0.53				آ	1	واه						1	6 6
460	Chogoria	U-60	North Mara River	0.08	0.10	9 0		1			-1	11	-	1				• 9
	Chuka	U-61	Tungu river	0.29	0.36								-			П		9 6
	Maua	U-62	Ura river	0.29	0.36						1							9 6
1	Mudo Gashe	U-63	Boreholes + Subsurface Dam	0.17	0.21		8		l i									11
	ljara	U-64	Boreholes + Small dam	0.09	0.11		6		1		ĺ		-			1	9 0	11
	Kotile	U-65	Boreholes/Subsurface Dam/Tana	0.09	0.11			1					1	ł		i 1		1 1
	Masalani	U-66	Tang River	0.09	0.11								1	1			1	9 9
. i	Garissa	U-67	Tana River	2.59	3.26			l		1	0 0	,	1	Į		,		
	Mandera	U-68	Daua River	0.43	0.54							,	1	1				
520	Elwak	U-69	Borehores	0.62	0.78				9		1	II		1		•	9 0	
520	Rhamu	U-70	Daua River	0.26	0.33						0 4	,	١					8 0
530	Wajir	U-71	Boreholes + Ewaso Ngiro River	1.62	2.04		e				6 4		9	8			9 g	
530	Buna	U-72	Borcholes(Lago Bor river)	0.45	0.56	.	9		6		0 6		9	9 6			• •	0 0
530	Bute	U-73	Borcholes + Small Dams	0.15	0.18								-		П		8 8	9 0
610	Manga	U-74	Bunyunyu Dam	0.06	0.07					6			1	1				5 6
_ 1	Keroka	U-75	Bunyunyu Dam	0.15	0.19				9	•			1	1				6 6
610	Nyamira + Kebirigo	U-144	Kuja river	0.73	0.92					1	9 4	1	-		1	11	1	6 6
610	Kisii	U-76	Вилуилуи Дам	3.06	3.85		l				ø		ı	1			• •	
610	Ogembo	U-77	Kuja river	0.07	0.09	8 8					1	\prod	1					0 0
620	Maseno	U-78	Edzawa Dam	1.10	1.39					j.	ø	•]]	J	1				0 0
620	Kisumu & + Kiboswa	U-79	Kibos dam	37.19	46.85		*	•					1		8	9		
620	Ahero	U-80	Nyando river	0.64	0.80		9	ø					-	-				
620	Muhoroni	U-81	Nyando River	0.57	0.72				9				1					9 0
630	Bondo	U-145	Yala river	0.21	0.26		ļ	H	8	•			1	1				9 9
630	Yala	U-82	Yala river	0.16	0.20				0	9		$ \ $		-	П			6 9
630	Siaya	U-83	Yala River	1.27	1.60			(i		1	• •		1	İ			•	
630	Ukwala	U-84	Nzola River	0.07	0.08				0	0			-					6 6
640	Hema Bay	U-85	Lake Victoria	1.65	2.08					1	e e	1	1				9 6	
640	Migori	U-86	Migori river	0.54	0.68				•	9				ļ				6 6
640	Kehancha + Tarang'anya	U-146	Migori river	0.24	0.30									j				9 3
640	Nyabikaye	U-147	Borcholes	0.23	0.29		•	9					-	1		11	6 0	9 9
640	Oyugis	U-148	Isanta river(Awach Tende)	0.24	0.30				9		-							9 8
640	Kendu Bay	U-87	Lake Victoria	0.20	0.25					•								0 6
640	Awendo/Sarc	U-149	Sarc river	0.27	0.34	•												9 9
	Oloitokitok	U-88	Nol-Turesh Spring	0.46	0.58						9 1	'	1					0 6
710	Ngong	U-89	Kerarapon Spring	1.58	1.98]	9	9			J)				0
710	Kajiado	U-90	Kiserian P/I.	0.64	0.80				6	9				1			6	1 1
710	Namanga	U-91	Namanga Spring	0.51	0.65		L		0	0				L	L		1	0 0
	Note:		 Construction 															

Appendix 5.6 Sewerage Development - Proposed Implementation Programme for Reduced Development (Alternative-B) (3/3)

District	Urban Name	City Code	Future Raw Water Source		ost lion)				lm	ple	m	enta	tion	Sch	iedi	ıle	
Code	Orban Name	Code	runge Raw Water Source	USS	K£	93	9:	5			200	20	2	4	T	 }	8
710	Magadi	U-92	Oloibortoto river	0.30	0.38			1	T	П	•	9	TI	T	1	1	Ť.
720	Souk	U-93	Kipsonoi river	0.39	0.49	П			6		l						
720	Kericho	U-94	Dimlitch Dam, Kimugung Dam	9.72	12,24			1	e					.			
720	Kipkelion	U-95	Nyando river	0.17	0.21	П		1	•	9					1		
720	Londiani	U-96	Londiani dam	0.24	0.30				ð	1 1	١	1			l		\
730	Nanyuki	U-97	Liki river	2.20	2.77			İ	1	П		•					6
730	Rumuruti	U-150	Rumuruti Dam + Borchole	0.18	0.23	П		e									
730	Nyahururu	U-98	Nyahururu dam + Borchole	1.26	1.58			ŀ		П		•					,
740	Gilgil	U-99	Turasha P/L & Malewa Dam	1.37	1.73			1		$ \ $	•						١,
740	Naivasha	U-100	Turasha P/L & Malewa Dam	7.07	8.91	11	1	1	١.			•			ı		١,
740	Njoro	U-101	Itare Dam	0.86	1.08] [1			•							,
740	Elburgon	U-102	Itare Dan	1.17	1.47			1				•					,
740	Molo	U-103.	Itare Dam	1.03	1.29					П	9	e				1	
740	Nakuru	U-104	Turasha P/L + Malewa Dam + Itare Dam	55.47	69.89	П	-	9 6	,						9 (
750	Narok	U-105	Upper Narok Dam	1.51	1.91		}	1	-		•	•		4.			0
750	Nairagic Ngare	U-106	Nasampolai river	0.05	0.06				l		•	•					
750	Kilgons	U-151	Poroko river	0.33	0.42					•	-						,
750	Lolkorian	U-152	Migori river	0.17	0.22		-		•								
760	Kitale	U-107	Koitobos river	9.43	11.88		. -				•	•					
760	Kiminini/Saboti+Spr.Kita	U-108	Kabewyan river	0.10	0.13		•	1	1			1				1:	١,
760	Endebess/Kwanza	U-109	Koitobos river	0.17	0.21		•	1	1								$\ \cdot \ $
770	Moi's Bridge	U-153	Nzoia river	0.22	0.28		•	9	·		1						
770	Turbo	U-154	Sosiani river	0.30	0.38		1		•	•							
770	Eldoret	U-110	Moiben Dam + Nzoia river	17.50	22.05			İ	•	9					•	•	
770	Burnt Forest	U-111	Kipkaren river	0.16	0.20	11	1	1	8	•				11		1	1
810	Kabarnet	U-112	Kirandich Dam	0.71	0.89	•	•						11			6	0
810	Maji Mazuri	U-113	Maji Mazuri river	0.39	0.50	11		l	•	•	l				ŀ	Į.	П
810	Eldama Ravine	U-114	Chemususu Dam	0.43	0.54	П	١		ı	П	•	•				. 0	
810	Mogotio	U-115	Molo river /Chemususu Dam	0.22	0.28			ı			•	•					
810	Mariga!	U-155	Perkerra river	0.20	0.25	11	١	1	•		ļ	1	11				11
820	Iten+Tambach	U-116	Моівел Dam	0.45	0.57			ı	١.			•				9	
830	Nandi Hitts	U-117	Mokong River	0.10	0.12			1	•	•							11
830	Kapsabet+Baraton	U-118	Mokang river	1.14	1.43				İ		•	•					
840	Maralal	U-119	Loikas/Yamo river	1.50	1.89		1				•	•					1-1
840	Wamba 	ł	Boreholes	0.32	0.40		•	1	1	!!	1	1	11	11			
	Baragoi	Į.	Borcholes + Sub-surface dam	0.28	0.35		•	9		•				- 1 - 1			•
	Lodwar	U-122	Boreholes & sub-surface dam	0.81	1.02			-		1 1	9	9 4	֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓	8 3	9		H
	Kapenguria/Makutano		Kapenguria River	0.96	1.21	11	1	İ	•	•	-					•	H
910	Bungoma	U-124	Kuywa River	2.80	3.52				_	ارا	9	9					П
910 910	Kimilili	U-125	Kimilili River Nzola River	0.63 2.53	0.79		١,		•]]	ا۔		11	1			
910	Webuye	U-126 U-157	Nzoia River Sasuri river	0.22	3.18 0.28				-		•	٩					
910	Chaptais Rusia	U-137	Sio river	1.41	1.78	9											
920	Busia Nambalc	U-158	Sio river	0.18	0.23						0			11		"	
930	Luanda	1	Edzawa river	0.18	0.23		-				٦	1			1		
930	Vihiga+Majengo	1	Edzawa River (Kimondi River)	0.14	0.43			١		<u> </u>		1			1	١.	
930	Kaimosi	1 .	Galagoli river	0.02	0.43												
930	Khayega	U-131	Yala river	0.02	0.02			1									
930	Kakamega	1	Isiukhu River, Mukulusi Dam	7.76	9.78	[]	1										
930	Butere	U-133	Viratsi River	0.17	0.22			ŀ		1 1	- 1	•					
930	Mumias	U-134	Nzoia River	1.76	2.21					1 1	•	•					
							1.					1					
				562.81	709.14			\ .			_		\prod] [1	
	Note:		Construction				-		_	-		-			_		

A.5-12

Appendix 5.7 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\$	Κŧ	US\$	Κ£	US\$	K£
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. Sowerage Development	MOLG *3	310	390	253	319	563	709
Total		<u>3,342</u>	4,211	<u>3,009</u>	<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 5.8 Annual Budgetary Schedule for Reduced Development (Alternative-B)

																	5	CELL : TREETON COS	(22)
Development Sector							3 -1	Year											[ota]
	1993	1994	1993 1994 1995	1996	1997	1997 1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	5009	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
(2) Rural water supply	123.2	123.2	123.2	123.2	123.2	123.2	123.2	123.2	98.5	98.5	98.5	98.5	5'86	8.86	98.5	5.86	98.5	98.5	1,970
2 Sewerage Development (for 158 urban centres)	74.9	74.9 74.9	47.6	47.6	14.5	14.5 17.8	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	612.7 612.7 472.3 472.3 30	472.3	307.6	07.6 307.6 278.3	278.3	278.3	287.2	287.2	287.2 329.3		317.3	329.3 317.3 317.3 285.5	285.5	285.5 285.4	285.4	285.4	6,351
																		ı	

APPENDIX 6

FURTHER STUDY PROGRAMMES

Appendix 6.1	Estimated Cost of Studies and Design of Individual	Page A.6-1
	Projects by Development Sector	1.0 -1
Appendix 6.2	River Basin Development Study - Proposed Study Programme	A.6-4
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Appendix 6.7	Further Study Programme - Annual Budgetary Schedule	A.6-11

Appendix 6.1 Estimated Cost of Studies and Design of Individual Projects by Development Sector (1/3)

Description	Executing Agency	Cost (milli						-	Im	ple	mer	ntat	ion	Scł	ıcdı	ıle	***************************************				•
		USS	K£	93		95	Γ			20	000	Γ	2		4		16				1
				Ì				T	Π	Γ	Γ	T	Γ	Γ	T	T	†	T	7	T	T
1. D&I Water Supply		. 1				•		1		l	l									j	
(1) Urban water supply *1	MOWD	259,41	326.85																		
(2) Rural water supply	MOWD	197.05	248.29																		
Sub-Total of Item 1.		456.46	575.14																		
		- 1												l			1	1		ĺ	1
2. Sewerage Development	MOLG	52.87	66.62						**	***									.		
				300	Moge.	1200	7000	*****	30000	800000	***			9,000	330	***		***	1	1	1
		:														}	1		1	١.	
3. Irrigation Development															ļ						
(1) Major irrigation projects	MORD																				
- Kano Plain	MORD	11.63	14.65	$ \star $	*	1															1
- Bunyala Ext.	MORD	0.93	1.17	☆	☆		¥							Ì			-			1	1
- Mwea Ext.	MORD	4.78	6.02															1	1		
- Kunati	MORD	0.26	0.33		쇼	₽	*	*									} .		ł	}	
- Lower Kuja	MORD	0.42	0.53				☆		★					1.				<u>ا</u> ا	•		1
- Lower Rupigazi	MORD	0.45	0.57	. }			₹7	쑈			*					l	l	l	1	-	
- Kanzalu	MORD	2.86	3.60					☆			*	*			1						ı
- Kimira	MORD	1.36	1.71						☆		\star	*		·			ľ	l	1	l	ļ
- Yala Swamp	MORD	4.88	6.14					☆	*	*	*	1									
- Arror - Sabaki Ext.	MORD	0.47	0.60			l			众人	ζ λ	ĺ		*	×				1		ĺ	ĺ
- Sabaki Ext. - Thanantu	MORD MORD	1.49	1.87					.	☆	Ϋ́	ار		**	女		1			1		
- Inananci - Kibwezi Ext.	MORD	17.04	1.64 21,47		ĺ	-					쇼		×	女	الدا		•	1.			1
- Kitwezi Ext. - Upper Nzoia	MORD	6.60	8,32		J	•]			j	살	겠			. 1	女女		j				
- Turkwel	MORD	0.13	0,32	ŀ	1					н	싦	Ą,		A	*	*				ĺ	١.
- Taveta	MORD	0.19	1,13		ļ			- }		ļ			☆		À	*]			
- Lower E. Ngiro	MORD	4.28	5.39				٠.							☆		*	×				
(2) Small irigation schemes	MOA	0.77	0.97																		
Sub-Total of Item 3.		60.53	76.27																		
		.			ļ		ļ		1	.	.			ļ							١
. Livestock Water																					
(1) Source development	MOLD	50.24	63.30											*				***			
(2) Water points in nomadic pasturage land	MOLD	5.48	6,90																		
Sub-Total of Item 4.		55.72	70.20																		
				1				ļ			1	ı	İ		ļ					ĺ	
				-	1			- 1		-	1	1		- 1						1	
				-					-	:		1		ļ							1
			: 1		1	- [. [. [- (- (ļ	· [
																					L
Note: ☆ Study	*	Design				Stu	ty/I	Desi	ign	Coi	าย่ก	บอร	int	em	ilte	กป่า	.=- у				

Appendix 6.1 Estimated Cost of Studies and Design of Individual Projects by Development Sector (2/3)

Description	Executing Agency	Cos (mill		l					in	ipte	me	ntat	ion	SCE	icai	ne				
veribion	Agency	US\$	K£	93		95				20	000				4		[6		8	
. Hydropower Development	мое																			
- Low Grand Falls	KPC/	21.83	27.50	47	Į.,		4		}										١.	
- Don Orace Land	TARDA	21.00	27.50	^	^	^	l^		ļ										Ì	1
			:		١.			١.												
- Oldorko	KPC	5.33	6.71		公	☆		*	*											1
- Magwagwa	KPC/	17.00	21.42					*	*											-
	LBDA						Ì													
- Gitaru #3 Extension	KPC/		_				☆			*]	į
· Orang #5 Caudision	TRDC						["		 ^	^										1
- Mutonga	KPC/	11.18	14.08					ជ	☆		×	*								
	TARDA							•												1
Sub-Total of Item 5.	ļ .	55.33	69.71							}	}									I
																ļ				į
19														Ì						
River and Flood Works																	1			
(1) Major flood control projects	MOWD																			
TE DIVERSE A C. A.	MOND		1.00																	
- Kano Plain (Nyando river)	MOWD/	1.55	1.96	И	×	×														
- Nairobi City	MOLG	0.81	1.02			☆	*	*												
(Nairobi river, etc)						1														
- Yala Swamp	MOWD/	1.33	1.67						☆	*	*					ĺ				ļ
(Yala/Nzoia river)	LBDA	0.20	. 0.47							l						۰				
- Kuja Rivermouth (Kuja river)	MOWD/	0.38	0.47			İ	:			ļ				ਮ	×	*				
- Lunii Rivermouth	MOWD	0.62	0.78													1.7		★		ĺ
(Lumi river)	,																1			1
(2) Urban drainage works	MOLG																			
- Nairobi	MOLG	18.00	22.60	_											İ					į
- Kiambu	MOLG	0.97	22.68 1.22	×	×											Į,	×			l
- Thika	MOLG	1.11	1.40																	1
- Kerugoya	MOLG	0.58	0.73													₩	*	*		I
- Muranga	MOLG	2.36	2.98											☆	×	*				
- Olkalou	MOLG	0.45	0.57													☆	*	*		Į
- Nyen	MOLG	0.98	1.24							☆	×	末								I
- Kilifi	MOLG	0.37	0.47					. !							ជ	*	×			١
- Malindi	MOLG	0.57	0.72												卬	*	*			Į
- Kwale - Lamu	MOLG MOLG	0.54 0.53	0.68										ľ				*	×		Ì
- Lamu - Mombasa	MOLG	3.49	4.40		J.	*								и	×	*				l
- Voi	MOLG	0.69	0.87		н		^										*		:	İ
- Wundanyi	MOLG	0.17	0.21				,								:	.	*	4		l
- Hola	MOLG	0.56	0.70	: 1											☆					Ì
- Embu	MOLG	0.57	0.72								☆	*	*							Ì
- Isiolo	MOLG	0.27	0.34												¥	*				l
- Xitui	MOLG	0.27	0.34		:							١					×	À		I
- Mchakos	MOLG	1.66	2.09			众	*	×				ı	:							I
- Mitaboni	MOLG	0.12	0.15			13	×	×												1
- Marsabit	MOLG	0.06	0.08											垃	*	Ħ				ĺ
- Меги	MOLG	0.20	0.26				☆	★	×						:					I
	<u>. </u>		· · · · · · · · · · · · · · · · · · ·	لــا	ـــا	L		ــــا	لـــا	L ,J		!				لسا				 Ĺ

Appendix 6.1 Estimated Cost of Studies and Design of Individual Projects by Development Sector (3/3)

escription	Executing Agency	Cost (milli							m	p!er	nen	tati	on S	sene	20 U.I	le					
escription		USS	K£	93		95				20	00		2		4		6		8		1
	MOLG	0.48	0.60								Α,	*				ļ					
- Garissa	MOLG	0.46	0.05								и	*	^		J.	الد	بالج				
- Mandera		1										•			X	食食	4				ĺ
- Wajir	MOLG	0.12	0.15					ŀ		J	食	بد			н	*	^				ĺ
- Kisii	MOLG	1.58	1.99							ਮ	×	×			- 1						ļ
- Kisumu	MOLG	2.51	3.16			X	⋆	×							ĺ	الدا	الدا				Į
- Siaya	MOLG	0.07	0.09					l							٠.	ţţ.	*	70			l
- Homa Bay	MOLG	0.69	0.87												☆	*	X				I
- Kajiado	MOLG	0.69	0.87								١. ا					17	*	×			l
- Kericho	MOLG	0.70								¥	Ŕ	*			Ì						l
- Nanyuki	MOLG	1.17	1.48	1 1							ជ	×	*		1						l
- Naivasha	MOLG	0.54	0.68		Ħ	*	★								1						ĺ
- Nakuru	MOLG	3.89)		ឋ	*	*								. 1	. 1					l
- Narok	MOLG	0.48	0.61							İ					11	女	×		1		l
- Kitale	MOLG	1.89	2.38			i .			វវ	*	*										١
- Eldoret	MOLG	2.57	3.24					l	☆	*	★										l
- Kabarnet	MOLG	0.10						İ		}						☆		*			ı
- Kapsabet/Baraton	MOLG	0.20	0.25			İ	1	l	l		İ					ជ	*	×	. 1		ı
- Iten	MOLG	0.98				ŀ]	•			-	ĺ				ú	×	A	1.		Į
- Maralal	MOLG	0.42	2					١		•					☆	¥	*				l
- Fogwar	MOLG	0.13			1										众	A					
	MOLG	0.13								1					☆	*	*				١
- Kapenguria/Makutano	MOLG	1.12				l					쇼	*	*								ļ
- Bungoma	MOLG	0.14	1		1						₩.	4	*								I
- Webuye	MOLG	0.14	1	•	İ						4	1	*			1		İ	ŀ		١
- Busia	MOLG	1.24		1		ĺ				₹'n,	G	×	\ \ \			ĺ	l	1	1	ĺ	Į
- Kakamega	MOLG	. [127	1.50							l^											
(3) Minor river improvement						200		.		20000				.0000	188889	22.23		30.32	2000	222	
- Various rivers	MOWD	6.75	8.51							ж.											1
(4) Improvement of Lower Tana																					
T T immerstament	MOWD/	3.00	3.78	. :		183					1	ļ				I		1		ĺ	١
- Lower Tana improvement	TARDA	5.00	1	1***	1	4 500	T	1	1	T	1	١			1			1			١
	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	70 GO	89.44																		
Sub-Total of Item 6.		70.99							-												
Total		751.89	947.3	8																	
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				- 38																	

Appendix 6.2 River Basin Development Study - Proposed Study Programme

District Code	Description	Executing Agency	Co (mill	ost lion)	Implementation Schedule
			US\$	K£	93 95 2000 2 4 6 8
910	Lake Victoria Drainage Area 1. Sio/Malaba River Basin Study	LBDA	2.0	2.5	
920	1. Sio/Maiada Rivei Dasin Study	LBDA	Σ.0	2.3	효효효
630, 910, 930 760, 770, 830	2. Nzoia/Yala River Basin Study	LBDA	3.0	3.8	* * *
620 720	3. Nyando River Basin Study	LBDA	2.5	3.2	☆ ★ ★
	Rift Valley Drainage Area				
810, 820 850, 860	4. Kerio River Basin Study (Update)	KUDA	2.0	2.5	\(\frac{1}{2}\dot\dot\dot\dot\dot\dot\dot\dot\dot\dot
740 240	5. Nakuru and Environs Integrated Water Use Study	NWCPC	3.0	3.8	☆ ☆
710 750	6. Ewaso Ngiro South River Basin Study	ENSRDA	2,5	3.2	* * * *
	Athi River Drainage Area				
110, 210, 440 710, 350, 310	7. Athi River Basin Study (Update)	TARDA	4.0	5.0	* * * * *
·	Tana River Drainage Area				
220, 230, 250 410, 460, 420 430, 360, 510	8. Tana River Basin Study (Update)	TARDA	4.0	5.0	
730, 240, 840 420, 450, 510	9. Ewaso Ngiro North River Basin Study	ENNRDA	2.5	3.2	
	Total		25.5	32.1	
Note:	☆ Study	<u> </u>			<u> </u>

Appendix 6.3 Groundwater Resources Study for Urban Water Supply - Proposed Study Programme

District Code	Description	Executing Agency	Co (mil	ost lion)		ateComb			Stu	ıdy	/ Sc	cho	edi	ule	e de la composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della composition della comp			a a m ous		
	King the state of		US\$	K£	93	 }	95		r	, ,	200	00		2	~	4	6		8	10
320	1. Msambweni	MOWD / NWCPC	1.6	2.0				ń												
420	2. Isiolo	MOWD / NWCPC	3.6	4.5			ú	ή												
420	3. Garbatula	MOWD / NWCPC	1.6	2.0		ù														
450	4. North Horr	MOWD / NWCPC	1.6	2.0		Å														
450	5. Korr	MOWD / NWCPC	1.6	2.0				¢												
450	6. Kargi	MOWD / NWCPC	1.6	2.0		粒									}					
450	7. Marsabit	MOWD / NWCPC	3.6	4.5	¥	ń														
450	8. Sololo	MOWD / NWCPC	1.6	2.0		Á														
450	9. Moyale	MOWD / NWCPC	1.6	2.0				ú												
510	10. Mudo Gashe	MOWD/NWCPC	1.6	2.0		A														
510	11. Ijara	MOWD / NWCPC	1.6	2.0		☆														
510	12. Kotile	MOWD / NWCPC	1.6	2.0		☆														
520	13. Elwak	MOWD / NWCPC	1.6	2.0		ú														
530	14. Wajir	MOWD / NWCPC	5.4	6.8	ŵ	☆	Ϋ́													
530	15. Buna	MOWD / NWCPC	3.6	4.5	☆	¥														
530	16. Bute	MOWD / NWCPC	1.6	2.0		¥														
640	17. Nyabikaye	MOWD / NWCPC	1.6	2.0		☆														
730	18. Rumuruti	MOWD/NWCPC	1.6	2.0		☆														
730	19. Nyahururu	MOWD / NWCPC	3.6	4.5					ជា	☆										
840	20. Wamba	MOWD / NWCPC	1.6	2.0		☆														
840	21. Barogoi	MOWD / NWCPC	3.6	4.5	¥	A														
850	22. Lodwar	MOWD / NWCPC	3.6	4.5			☆	☆												
	TOTAL		51.0	64.3								_[1				
Note:	☆ Study																			

Appendix 6.4 District Water Resources Study - Proposed Study Programme (2/2)

District		(Basin	Executing		•	
Code	Description	Study	Agency		T	
		proposed)		US\$	K£	93 95 2000 2 4 6 8
	Nyanza Province					
610	Kisii/Nyamira		MOWD	2.0	2.52	
620	Kisumu	(Nyando)		2.5	3.2	000**
630	Siaya	(Yala)	"	2.0	2.5	
640	South Nyanza		ŧŧ	2.0	2.5	
6.	Rift Valley Province	:				
710	Kajiado	(Athi)	MOWD	~	-	☆ ☆ (WRAP underway)
720	Kericho		31	2.5	3.2	垃圾圾
730	Laikipia	(Ewaso Ngiro N.)	"	_		(WRAP completed)
740	Nakuru	(Nakuru)	H.	2.0	2.5	000**
750	Narok	(Ewaso Ngiro N.)	"	2.5	3.2	00024
760	Trans Nzoia	(Nzoia)	. "	2.0	2.5	000\$
770	Uasin Gishu	(Nzoia)	, ,	2.0	2.5	00044
	·		. 1			
810	Baringo		MOWD		-	(WRAP completed)
820	Elgeyo Marakwe	(Kerio)	"	-		(WRAP completed)
830	Nandi	(Yala)	"	2.0	2.5	00044
840	Samburu	(Ewaso Ngiro N.)	""		-	(WRAP completed)
850	Turkana		"	3.0	3.8	
860	West Pokot		.,	_		(WRAP completed)
•			·			
	Western Province					
910	Bungoma	(Nzoia)	MOWD	2.0	2.5	000##
920	Busia	(Sio)	i I	2.0	2.5	000**
930	Kakamega/Vihis	(Nzoia)	1 1	2.0	2.5	000**
250	tenrancen ante	(r tzolu)		2.0	2.5	
	·					
	Total			59.0	74,3	
	I VIAI	•		J 3. U	14,3	
	,					
					1	
	Note: & Distric		L		L	<u> </u>

Note:

[★] District Study

o River Basin Study (proposed under separate programme)

Appendix 6.4 District Water Resources Study - Proposed Study Programme (1/2)

District Code	Description	(Basin Study	Executing Agency	Co (mill	ost tion)	Implementation Schedule
Code	, , , , , , , , , , , , , , , , , , ,	proposed)	8****/	US\$	K£	93 95 2000 2 4 6 8 10
110	<u>Nairobi Province</u> Nairobi	(Athi)	NCC	. —		(Fo be coveredby separate studies)
	Central Province					
210	Kaimbu	(Athi)	MOWD	2.0	2.5	
220	Kirinyaga	(Tana)	и	2.0	2.5	00000
230	Muranga	(Tana)	н	2.0	2.5	
240	Nyandarua	(Nakuru)	u	2.0	2.5	00044
250	Nyeri	(Tana)	"	2.0	2.5	
	Coast Province					
310	Kilifi		MOWD	2.5	3.2	☆☆ (WRAP underway for two divisions)
320	Kwale		**	3.0	3.8	
330	Samu	i	u .	_		☆☆ (WRAP proposed)
340	Mombasa		51	2.5	3.2	
350	Taiota Taveta		n	2.5	3.2	
360	Tana River	(Tana)	10	· <u></u>		☆ ☆ (WRAP proposed)
	Eastern Province	•				
410	Embu	(Tana)	MOWD	2.5	3.2	
420	Isiolo	(Ewaso Ngiro N.)	,,	-		(WRAP proposed)
430	Kitui	(Tana)	"	2.5	3.2	
440	Machakos/Maku	(Athi)	ŧı	_	_	☆☆ (WRAP proposed)
450	Marsabit	(Ewaso Ngiro N.)			-	☆ ☆ (WRAP proposed)
460	Meru	(Tana)	,,	-	-	(WRAP completed)
	North Eastern Province					
510	Garissa		MOWD		-	☆ ☆ (WRAP proposed)
520	Mandera			3.0	3.8	
530	Wajir	•	11	-		☆ ☆ (WRAP proposed)
			-			
				<u></u>		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Appendix 6.5 Programmes for Data Collection and Water Management (1/2)

District Code		Description	Executing Agency	Co (mil	ost lion))	lmį	olen	ent	ation	1 S	che	dule	
				US\$	K£	93 9	5	· · ·	21	000	2		4	6	8
	1.	Surface Water Management													
	(1)	Hydrological data management													
		(a) Reinstatement of river water level gauging stations	MOWD	1.6	2.0	\$ \$ 3	* *	¥	쇼쇼	☆					
		(b) Reinforcement of MOWD database system	MOWD	0.2	0.3		☆	¤							
		(c) Reinforcement of regional offices' activities	MOWD	2.0	2.5	ά	¢₩	☆							
	(2)	Water abstraction permit data - review and upgrading, including water use survey for Upper Athi and Upper Tana basins	MOWD	2.5	3.2	* 1	\$ \$								
n de la company	(3)	Assessment of river maintenance discharge	MOWD	Incluin (2)	ded above	* 1	ż								
	(4)	Reinforcement of water use monitoring/control activities	MOWD	2.0	2.5	☆ 7	\$ \$	☆							
		Sub-total		8.3	10.5										
	2.	Groundwater Resources Management													
	(1)	Groundwater data management	MOWD	0.1	0.1		☆	¢							
	(2)	Assessment of groundwater potential	MOWD	_	_	* * 1	* *	¥	À A	À					
	٠	Sub-total		0.1	0.1										
	3.	Water Quality and Pollution Control					1								
	(1)	Water quality monitoring programme													
		(a) Surface water quality monitoring programme	MOWD	2.5	3.2	*	¥								
		(b) Groundwater quality monitoring programme	MOWD	3.0	3.8		\$	☆							
	(2)	Establishment of water quality standards	MOWD	1.5	1.9				r r	×					
	(3)	Enforcement of water pollution control	MOWD	6.5	8.2	☆ 3	¥	☆	* *	À					
		Sub-total		13.5	17.0										
Note:		★ Study				, rice describe				p 1-,,,}_					أريب

Appendix 6.5 Programmes for Data Collection and Water Management (2/2)

District Code		Description	Executing Agency	Co (mill			lmp	leme	ntati	ion S	Sched	lule		
Code				US\$	K£	93 95		200	00	2	4	6	8	10
		Domestic/Industrial Water Supply												
	(1)	Inventory list of water supply facilities	MOWD	-	-	* *								
	(2)	Measurement of water supply	MOWD	20	25.2	4 4	ተ ተ	ቱ ቱ	ú					
		Sub-total		20	25.2									
	5.	Irrigation Inventory/Water Use Record												
	(1)	Inventory list of irrigation schemes	МОА	-	-	* *								
:	(2)	Irrigation water use recrod	MOA	~		* * *	ΩÅ	\$ \$	х					
	6.	Livestock and Wildlife Water Facilities Inventory		-										
	(1)	Inventory survey	MOLD MOTW	-	-	A A A								
	(2)	Livestock/wildlife population survey	DRSRS	2.0	2.5	ļ ļ			☆					
	į	Sub-total		2.0	2.5									
	7.	Hydropower Resources Survey												
		Update of National Power Development Plan	мое	3.0	3.8		×		¥					
	8.	River/Flood Control Works												
	(1)	Inventory survey of rivers and river facilities	MOWD	-	-	* *								
	(2)	Formulation of river improvement works	MOWD			**								
	(3)	Urban drainage hydrological studies - Installation of hourly rainfall gauges Sub-total	KMD	0.1	0.1	*	x x •	ά ά						
:									-					
٠				47.0	59.2									
		Total		77.0	39.2									
	<u> </u>	On L		1	J				L			<u>. </u>	للل	
Note	:	☆ Study												

Appendix 6.6 Environmental Studies - Proposed Study Programme

District Code	Description	Executing Agency	Co (mill	ost lion)	Implementation Schedule
			US\$	K£	93 95 2000 2 4 6 8 1
	Regional Environmental Study	NO.	•		
750	Mara river environmental study	NES	1.5	1.9	************
350	2. Lake Jipe environmental study	NES	1.5	1.9	**00000000000000
850	3. Lake Turkana environmental study	NES	2.0	2.5	**00000000000
	Environmental ImpactAssessment and Management Guidelines				
-	4. Preparation of environmental guidelines	NES	2.5	3.2	Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ Δ
·	Total		7.5	9.5	
				.	
Note:	★ Study △ Data and information accumulation ○ Monitoring				

Appendix 6.7 Further Study Programme - Annual Budgetary Schedule

1.								Š	100									7	(Unit: thousand USS)	and USS)
	Development Sector	1	Š	300	2001	1 200	٤	,	1 8	8	600	8	1 30	2000	200	1 500	000	8		Total
İ	William Control of the Control of th	286	*	<u>2</u>	<u> </u>	3	286	255.7	2002	7001	7007	2003	2004	602	907	/2007	2008	2002	20102	
. ∢	Development Project														:**				*.	
	1 D&I Water Supply	24,119 24	24,119 2	24,119	24,119	24,119	24,119	24,119	24,119	26,351	26,351	26,351	26,351	26,351	26,351	26,350	26,350	26,350	26,351	456,459
100	(1) Urban water supply (2) Rural water supply	19,525 19 4,594 4	19,525 1	19,525	19,525 4,594	19,525 4,594	19,525 4,594	19,525 1	19,525	10,321	10,321	10,321	10,321	10,321	10,321	10,320 16,030	10,320 16,030	10,320	10,320 16,031	259,406 197,053
	2 Sewerage Development	3,937 3	3,937	3,937	3,937	3,937	3,937	3,937	3,937	2,137	2,137	2,137	2,137	2,138	2,138	2,138	2,138	2,138	2,138	52,872
- 1	3 Irrigation Development	7,604	7,648	1,990	959	2,673	2,296	5,610	6,861	1,770	1,992	9,722	1.96.1	385	1,766	1,466	42	42	42	60,531
1.1	(1) Major irrigation projects	7,561	7,605	1,947	612	2,630	2,253	5,567	818'9	1,727	1,949	6.679	7,924	342	1,723	1,424	0	0	٥	59,761
	(2) Small prigation schemes	43	53	43	43	43	43	43	43	43	43	43	43	43	43	42	42	42	45	770
	4 Livestock Water Development	2,334 2	2,334	2,334	2,334	2,334	2,334	2,334	2,334	3,705	3,705	3,705	3,705	3,705	3,705	3,704	3,703	3,703	3,703	55,715
	(1) Source development (2) Water points in normadic pasturage land	2,128 2	2,128	2,128	2,128	2,128	2,128	2,128	2,128	3,322	3,322	3,322	3,322	3,322	3,322	3,321	3,321	3,321	3,321	50,240 5,475
	5 Hydropower Development	3,638 4	4,525	8,163	7,275	12,138	12,138	0	3,724	3,724	0	0	٥	0	0	0	0	0	0	55,325
	6 River and Flood Works	5,510 5	5,510	5,780	5,262	5,262	5,435	5,435	5,435	2,636	2,636	2,761	2,761	2,969	2,844	2.844	2,637	2,637	2,637	70,987
	 (1) Major flood control projects (2) Urban drainage works (3) Minor river improvement (4) Improvement of Lower Tana 	518 4,242 4 375 375	518 4,242 375 375	788 4,242 375 375	270 4,242 375 375	4,242 375 375 375	4,242 375 375	443 4,242 375 375	443 4,242 375 375	0 2,261 375	2,261 375	125 2,261 375	124 2,261 375	332 2,261 375	207 2,261 375	207 2,261 375	2,262 375	0 2,262 375	2,262	4,688 56,549 6,750 3,000
	Sub-total of Item A	47,142 48	48,073	46,323	43,582	50,463	50,259	41,435	46,410	40,323	36,821	44,676	42,921	35,548	36,804	36,502	34,870	34,870	34,871	751,889
μģ	. River Basin Sady	1,833 4	4,467	5,300	4,267	3,767	2,933	2,133	800	0	0	0	0	0	٥	0	٥	0	٥	25,500
Ü	Groundwater Resources Study	6,400 27	27,200	2,000	8,800	1,600	2,000													51,000
Ä	District Water Sources Study	6,556	6,556	955'9	6,556	6,556	6,555	6,555	6,555	6,555										59,000
αi	. Data Collection/Water Management	213	6,693	7,693	8,193	6,693	5,018	4,998	7,499	0	0	0	0	0	0	0	0	Ó	0	47,000
(x	Enironmental Study	313	313	8	406	513	513	680	089	368	368	368	368	368	368	367	367	367	367	7,500
	Sub-total Items A to F	62,457 9.	93,302	812,11	71,804	69,592	81218	55,801	61.944	47,246	37,189	45,044	43,289	35,916	37,172	36,869	35,237	35,237	35,238	941,889
Ö	Additional Study	18,737 2.	27,990	21,383	21,541	20,878	20,183	16,740	18,583	14,174	11,157	13,513	12,987	10,775	11,151	11,061	10,571	10,571	10,571	282,567
ı	GRAND TOTAL	81,193 12	121,292	92,661	93,345	90,470	87,461	72,541	80,527	61,420	48,346	58,557	56,276	46,690	48,323	47,929	45,808	45,808	45,809	1 224,455
I			1	Į.	1	1	ı		1	ļ	ŀ	ļ	1	1	1	1	,		1	

ATTACHED DRAWINGS





