

Table D2.9 Percent Distribution of All Women to Access to Water Source, 1989

Residence/ province	Source of water									Total	No. of women
	←----- Protected water sources ----->					←----- Unprotected water sources ----->					
	Piped into house	Public Tap	Well with pump	Well without pump	Lake	River	Pond	Rain- Water	Other		
Residence											
Urban	56.1	34.7	2.1	2.3	0.2	3.0	1.0	0.2	0.4	100.0	1236
Rural	11.6	6.6	5.9	12.5	1.9	43.9	7.4	1.6	8.6	100.0	5914
Province											
Nairobi	57.7	38.1	0.8	1.3	0.0	1.7	0.0	0.2	0.1	100.0	554
Central	34.0	3.9	6.3	7.6	0.0	38.8	2.7	4.9	1.8	100.0	1120
Coast	24.4	32.7	4.0	6.1	0.1	15.7	15.7	0.0	1.2	100.0	498
Eastern	15.6	8.8	3.9	22.5	0.1	38.0	3.6	1.0	6.5	100.0	1269
Nyanza	7.6	9.2	6.5	12.1	8.8	27.1	3.4	0.4	25.0	100.0	1218
Rift Valley	9.0	5.9	7.0	10.2	0.2	51.9	9.2	1.1	5.6	100.0	1519
Western	13.7	8.8	4.9	5.8	0.2	52.5	11.5	1.0	1.5	100.0	971
Total	19.3	11.4	5.3	10.7	1.6	36.8	6.3	1.4	7.2	100.0	7150

Source : Demographic and Health Survey, 1989

Table D2.10 Water Production and Distribution in Gazetted Urban and Rural Schemes, 1985/86 (1/2)

Dis.	Nos of connection		Production '000m ³ /yr	Distribution ('000m ³ /yr)		Revenue ('000 Kshs)		Price Paid (Kshs/M ³) (Kshs/M ³)			
	Metered	Flat rate		Metered	Flat rate Unaccounted	Due Collected	%				
210 Kiambu	1,894	6,018	6,898.0	1,009.0	5,612.0	257.0	3,212.9	1,511.7	47.1	0.49	0.23
220 Kirinyaga	2,650	4,480	3,002.0	693.0	2,075.0	229.0	2,562.4	1,542.5	60.2	0.93	0.56
230 Murang'a	5,085	19,857	10,699.0	1,616.0	8,608.0	292.0	6,326.0	3,163.7	50.0	0.62	0.31
240 Nyandaura	773	204	2,098.0	332.0	296.0	1,487.0	137.3	93.7	68.3	0.22	0.15
250 Nyeri	9,678	12,130	10,813.0	1,836.0	8,647.0	329.0	5,251.4	2,968.3	56.5	0.50	0.28
CENTRAL PROVINCE	20,080	42,689	33,510.0	5,486.0	25,238.0	2,594.0	17,490.0	9,279.9	53.1	0.57	0.30
310 Kilifi	5,003		2,934.4	2,863.7	9.0	70.7	18,015.7	3,837.3	21.3	6.27	1.34
320 Kwale	457	3	175.0	168.6	0.4	6.0	423.2	165.0	39.0	2.50	0.98
330 Lamu	1,041	11	214.2	204.9	8.9	0.9	509.6	0.0	0.0	2.38	0.00
340 Mombasa	31,984		13,773.4	13,455.1		318.2	8,877.0	3,865.2	43.5	0.66	0.29
350 Taita	1,923		734.3	702.1	0.0	32.2	1,543.3	815.9	52.9	2.20	1.16
360 Tana River	553	2	207.2	174.1	6.8	26.3	250.6	108.0	43.1	1.39	0.60
COAST PROVINCE	40,961	16	18,038.5	17,568.5	25.1	454.3	29,619.4	8,791.4	29.7	1.68	0.50
410 Embu	4,494	2,970	8,728.7	122.0	7,450.9	64.9	2,444.8	1,306.9	53.5	0.32	0.17
420 Isiolo	942		512.5	408.6		103.8	907.1	823.5	90.8	2.22	2.02
430 Kitui	1,512	282	490.8	368.4	97.7	17.4	824.4	375.7	45.6	1.77	0.81
440 Machakos	2,666	26	1,174.6	769.5	9.9	389.7	1,707.8	783.0	45.8	2.19	1.00
450 Marsabit	611	48	168.1	120.4	19.0	35.9	296.3	221.7	74.8	2.13	1.59
460 Meru	2,752	4,423	5,686.1	1,884.1	3,448.0	354.1	2,427.9	826.9	34.1	0.46	0.16
EASTERN PROVINCE	12,977	7,749	16,760.8	3,673.0	11,025.5	965.8	8,608.3	4,337.7	50.4	0.59	0.30
510 Garissa	171	43	92.1	na	na	na	1,337.1	501.7	37.5	14.52	5.45
520 Mandera	99	451	92.8	2.6	60.8	29.5	232.6	21.0	9.0	3.67	0.33
530 Wajir	59		50.4			50.4			0.0	0.00	0.00
NORTH-EASTERN PROVINCE	329	494	235.3	2.6	60.8	79.9	1,569.7	522.7	33.3	24.80	8.3
610 Kisii	1,888	2,493	1,448.8	1,335.0	53.9	59.9	2,835.2	508.1	17.9	2.04	0.37
620 Kisumu	5,021	2,239	550.7	215.8	272.9	61.9	460.6	153.5	33.3	0.94	0.31
630 Siaya	12,627	5,975	959.5	488.9	396.9	32.7	1,446.6	457.4	31.6	1.63	0.52
640 South Nyanza	14,284	1,700	798.6	336.8	419.6	42.3	1,555.0	391.4	25.2	2.06	0.52
NYANZA PROVINCE	33,820	12,407	3,757.6	2,376.5	1,143.3	196.8	6,297.4	1,510.4	24.0	1.79	0.43

Table D2.10 Water Production and Distribution in Gazetted Urban and Rural Schemes, 1985/86 (2/2)

Dis.	Nos of connection		Production '000m ³ /yr	Distribution ('000m ³ /yr)		Revenue ('000 Kshs)		Price (Kshs/M ³)	Paid (Kshs/M ³)		
	Metered	Flat rate		Metered	Flat rate	Unaccounted	%			Due Collected	
710	1,236	254	384.6	322.8	33.7	28.1	854.4	372.6	43.6	2.40	1.05
720	729	135	254.4	193.7	38.5	22.3	437.7	399.2	91.2	1.89	1.72
730	53		15.0	14.3		0.7	30.6	12.7	41.5	2.15	0.89
740	447	914	1,373.2	345.8	1,008.8	18.6	858.4	207.9	24.2	0.63	0.15
750	153	63	316.4	256.5	16.3	4.6	557.9	356.4	63.9	2.05	1.31
760	22	15	12.7	5.8	5.9	1.1	14.3	5.4	37.7	1.23	0.46
770	273	32	127.5	70.5	23.5	33.5	202.2	111.9	55.3	2.15	1.19
810	912	424	786.4	541.6	214.4	30.4	477.4	302.1	63.3	0.63	0.40
820	566		164.0	136.9	0.0	27.1	307.0	254.9	83.0	2.24	1.86
830	1,169	114	479.0	344.8	24.2	110.2	808.5	493.2	61.0	2.19	1.34
840											
850	310	23	225.9	214.6	3.0	8.3	472.4	181.3	38.4	2.17	0.83
860	627	139	276.8	181.7	50.4	44.7	405.5	192.0	47.4	1.75	0.83
	6,497	2,113	4,415.9	2,629.0	1,418.7	329.6	5,426.3	2,889.6	53.3	1.34	0.71
RIFT VALLEY PROVINCE											
910	2,606	1,346	3,118.1	1,806.5	1,156.5	155.2	3,751.5	1,013.5	27.0	1.27	0.34
920	970	3	389.1	381.5	0.0	7.5	422.7	363.7	86.0	1.11	0.95
930	5,704	442	3,039.2	2,237.8	426.6	374.9	6,834.0	3,548.9	51.9	2.56	1.33
	9,280	1,791	6,546.4	4,425.8	1,583.1	537.6	11,008.2	4,926.1	44.7	1.83	0.82
WESTERN PROVINCE											
TOTAL excluding Nairobi											
	123,944	67,259	83,264.5	36,161.4	40,494.5	5,158.0	80,019.3	32,257.8	40.3	1.04	0.42

Table D2.11 Water Tariff Schedule in 1991 for MOWD (1/6)

(1) LEGAL NOTICE 496/1991

FEEES FOR SERVICES

Service	Rates Sh.
1. For special reading of a meter	40
2. For cutting off the supply at the request of a consumer	40
3. For turning on the study (otherwise than in respect of a first connection)	50
4. For testing a meter at the request of a consumer where it is not found to register incorrectly to any degree exceeding 5 per cent. The actual cost subject to a minimum charge of	50

(2) LEGAL NOTICE 497/1991

WATER DEPOSITS

Categories of Consumers	Amount of Deposit Sh.
(a) Domestic Consumer	200
(b) Water Kiosk	500
(c) Commercial Premises	2,000
(d) Light Industries	2,000
(e) Hotel Class A and B	2,000
(f) Hotel Class C and D	6,000
(g) Medium and Heavy Industries	6,000
(h) Construction	6,000

(3) LEGAL NOTICE 498/1991

(3-1) METER RENTS

Meter Size	Monthly Rent Sh.
1. All meters of a nominal size up to 20 mm.	5
2. All meters of a nominal size of 25 mm.	7
3. All meters of a nominal size of 38 mm.	15
4. All meters of a nominal size of 50 mm.	20
5. All meters of a nominal size of 63 mm.	30
6. All meters of a nominal size of 75 mm.	45

Table D2.11 Water Tariff Schedule in 1991 for MOWD (2/6)

(3-2) Tariff (Urban)

STANDARD TARIFFS

	Sh.	cts
1. Where no meter is installed, a monthly charge	30	00
2. Where a meter is installed, and the amount of water sold through the meter in any one month does not exceed 10 cubic meters	30	00
(i) The amount of water sold through the meter in any month is more than 10 cubic meters, but does not exceed 30 cubic meters, the charge per cubic meter	3	50
(ii) The amount of water sold through the meter in any month is more than 30 cubic meters, the charge per cubic meter	7	50
(iii) The amount of water sold through the meter in any month exceeds 50 cubic meters, the charge per cubic meter	10	00
(iv) The amount of water sold through the meter in any month exceeds 100 cubic meters the charge per cubic meter	12	50
3. Where water is sold to a licensed retailer, the charge per cubic meter is	2	00
4. Where water is sold by retail at a kiosk per unit of 20 litres or part thereof, the charge per unit	0	10
5. Bulk sale to an undertaker for resale the charge per cubic meter	3	00

The above tariff shall apply to -

CENTRAL PROVINCE

Kiambu District:

Githunguri, Gatundu, Kikuyu, Limuru and Ruiru.

Kirinyaga District:

Kianyaga, Kerugoya and Wanguru.

Murang'a District:

Kigumo, Kangema, Kahuro, Murang'a and Sabasaba.

Nyandarua District:

Ol'Kalau.

Nyeri District:

Karatina and Mukurweini.

Table D2.11 Water Tariff Schedule in 1991 for MOWD (3/6)

The tariff(urban) shall apply to - (continue)

COAST PROVINCE

Lamu District:
Mokowa.
Taita/Taveta District:
Wundanyi.
Tana River District:
Hola.
Isiolo District:
Isiolo.
Kitui District:
Kitui and Mwingi.
Marsabit District:
Marsabit.
Meru District:
Chuka, Nkubu, Maua and Moru.

NORTH-EASTERN PROVINCE

Garissa District:
Garissa.
Mandera District:
Mandera.

NYANZA PROVINCE

Kisumu District:
Muhoroni, New Prison and Tamu.
Siaya District:
Bondo and Ukwala.
Nyamira District:
Nyamira.

RIFT VALLEY PROVINCE

Kajiado District:
Ngong and Namanga.
Kericho District:
Bomet, Londiani and Sotik.
Nakuru District:
Kijabe and Lanet.
Narok District:
Narok and Kilgoris.
Elgeyo/Marakwet District:
Iten and Tambach.
Nandi District:
Nandi Hills.
Samburu District:
Maralal.
Turkana District:
Lodwar.
West Pokot District:
Kapenguria and Makutano.

WESTERN PROVINCE

Bungoma District:
Kimilili and Webuye.
Busia District:
Nambale.
Kakamega District:
Butere, Kaimosi, Soniani/Kiboswa, Maseno and Vihiga.

Table D2.11 Water Tariff Schedule in 1991 for MOWD (4/6)

(3-2) LEGAL NOTICE No. 501, 1991

TARIFF (RURAL)

STANDARD TARIFFS

	Sh.	cts
1. Where no meter is installed, a monthly charge	30	00
2. Where a meter is installed, the charges will be as follows:		
(i) The amount of water sold through the meter in any month does not exceed 10 cubic meters,	30	
(ii) The amount of water sold through the meter in any month is more than 10 cubic meters, but does not exceed 30 cubic meters, the charge per cubic meter	3	
(iii) The amount of water sold through the meter in any month is more than 30 cubic meters, but does not exceed 100 cubic meters, the charge per cubic meter	5	00
(iv) The amount of water sold through the meter in any month exceeds 100 cubic meters the charge per cubic meter	7	00
3. Where water is sold through a meter at a kiosk, the charge per cubic meter	2	00
4. Where water is sold by retail at a kiosk per unit of 20 litres or part thereof, the charge per unit	0	10
5. Bulk sale to an undertaker for resale the charge per cubic meter	3	00

The above tariff shall apply to -

NYANZA PROVINCE

Kisumu District:

Awasi, Kibigori, Mkanda/Kanyakwar and Nyahera.

Siaya District:

Alur, Mauna Dam, Sidindi-Malanga, Segal, Uranga and Uyoma.

South Nyanza District:

Isebania, Kehancha, Mawego, Macalder, Ndhiwa, Obware, Oyugis, Kochia, Rongo and West Karachwonyo.

Nyamira District:

Manga, Tombe, Nyabaria and Nyasiongo.

Kisii District:

Keroka.

Table D2.11 Water Tariff Schedule in 1991 for MOWD (5/6)

The tariff (rural) shall apply to - (continue)

RIFT VALLEY PROVINCE

- Kajiado District:
Athi River, Bissel and Ongata Rongai.
- Kericho District:
Chepalungu, Chepkemel, Kapkatet, Longisa and Sigor/Longisa.
- Laikipia District:
Doldol.
- Nakuru District:
Creater Stream and Miti Mingi.
- Narok District:
Angata Baragoi, Mulot, Moriyo Loita and Nkararu.
- Trans Nzoia District:
Kwanza/Kalongolo and Sabot.
- Uasin Gishu District:
Burnt Forest, Kaptagat, Kipkabus, Moi's Bridge, Moi Barracks, Moi University, Sosiani and Turbo.
- Baringo District:
Enarosura, Bartolimo, Kabartonjo, Mogotio, Marigat, Seretunin, Tangulbei and Torongo.
- Elgeyo/Marakwet District:
Chebilbai, Chepkorio, Chebiemit, Kapkoi and Nerkwo.
- Nandi district:
Chopterwai, Kaptumo/Mosombor and Lelmokwo.
- Samburu District:
Archers Post, Bauwa, Lijok, Lerata, Marti, Marmar, Poro, Sirata Oirobi, Suguta and Wamba.
- Turkana District:
Lokitaung, Lokichar, Kataboi, Kalokoi and Katilu.
- West Pokot District:
Karas, Kacheliba, Sigor-West Pokot and Tartar Keringet.

WESTERN PROVINCE

- Bungoma District:
Amogoro, Chesikaki, Chwele, Dirisi, Kibichori Bokoli and Old Kibicheri.
- Busia District:
Butula, Busia Hills, Busia Mundika, Funyara, Funyula/Bumala, Muhana, Port Victoria, Sio Port and Wakhungu.
- Kakamega District:
Bukura, Hamisi, Little Nzoia, Mbale, Malaba and Mumias.

NORTH-EASTERN PROVINCE

- Garissa District:
Bura, Damajale, Liboi, Masalani and Mbalambala.
- Mandera District:
Mandera Army and Rhamu Dimtu.
- Wajir District:
Bute, Biyamathow, Eldas, Gurar, Samburi and Sanj.

CENTRAL PROVINCE

- Kiambu District:
Bathi, Karimenu, Ndarugi, Ngecha and Uplands Ring Main.
- Kirinyaga District:
Kabare, Ngariama and Sagana.
- Murang'a District:
Galango, Ithanga, Kahuro, Kigumo Rural and Mathioya.
- Nyahururu District:
Kirima, Kinagop Ring Main, Kitiri, Mbuyu Complex, Matindiri, Nyairoko, Passenga and Silanga.
- Nyeri District:
Mukurweini, Tetu-Thegenge, Weraza and Zaina.

Table D2.11 Water Tariff Schedule in 1991 for MOWD (6/6)

The tariff (rural) shall apply to - (continue)

COAST PROVINCE

Kwale District:

Kikoneni, Kinango, Lunga, Lunga, Msambweni, Mkongani, Shimba Hills and Vanga.

Taita/Taveta District:

Dembwa, Mbololo, Manyani, Mwajika and Maungu.

Tana River District:

Garzen, Ngao and Hola Urban.

EASTERN PROVINCE

Embu District:

Ena-Siakago, Ishiara, Kyeni, Karaba and Ngandori "B",

Isiolo District:

Garba Tula, Kulamawa and Merti.

Kitui District:

Ikanga, Kyuso, Nguni-Enziu, Mutitu-Mui and Mutomo.

Machakos District:

Kibauni, Kathiani, Kiima-Kimwe, Kikumbulyu, Kilala, Matuu, Mbumbuni, Mbiuni, Siathani, Wote and Wamunyu,

Marsabit District:

Laisamis, Log-Loggo and Moyale.

Meru District:

Karingani, Kanyakine, Nkubu, Mwimbi, Mitunguu, Tigania and Timau.

Table D2.12 Water Tariff Schedule in 1991 for NWCPC (1/3)

(1) FIRST SCHEDULE

METER RENTS

	Meter Size	Monthly Rent Sh.
1.	All meters of a nominal size up to 20 mm.	5
2.	All meters of a nominal size of 25 mm.	7
3.	All meters of a nominal size of 38 mm.	15
4.	All meters of a nominal size of 50 mm.	20
5.	All meters of a nominal size of 63 mm.	30
6.	All meters of a nominal size of 75 mm.	45

(2) SECOND SCHEDULE

FEEES FOR SERVICES

	Service	Rates Sh.
1.	For special reading of a meter	40
2.	For cutting off the supply at the request of a consumer	40
3.	For turning on the study (otherwise than in respect of a first connection)	50
4.	For testing a meter at the request of a consumer where it is not found to register incorrectly to any degree exceeding 5 per cent. The actual cost subject to a minimum charge of	50

(3) THIRD SCHEDULE

WATER DEPOSITS

	Categories of Consumers	Amount of Deposit Sh.
(a)	Domestic Consumer	200
(b)	Water Kiosk	500
(c)	Commercial Premises	2,000
(d)	Light Industries	2,000
(e)	Hotel Class A and B	2,000
(f)	Hotel Class C and D	6,000
(g)	Medium and Heavy Industries	6,000
(h)	Construction	6,000

Table D2.12 Water Tariff Schedule in 1991 (2/3)

(4) FOURTH SCHEDULE

For the water supplies specified in Part A, the tariffs specified in Part B shall apply.

PART A—WATER SUPPLIES

Kapsabet	Naivasha
Bungoma	Gilgil
Kakamega	Machakos
Kisii	Kajiado/Kiserian
	Mzima
Kiambu	Marere
Oloitokitok	Sabaki
Tiwi	Greater Nakuru (West)
Kabarnet	Embu Urban
Siaya	Taveta Lumi
Nol Turesh Pipeline Water Project.	

PART B—TARIFFS

	Sh.	cts
1. Where no meter is installed, a monthly charge	30	00
2. Where a meter is installed, and the amount of water sold through the meter in any one month does not exceed 10 cubic meters	30	00
(i) The amount of water sold through the meter in any month is more than 10 cubic meters, but does not exceed 30 cubic meters, the charge per cubic meter	3	50
(ii) The amount of water sold through the meter in any month is more than 30 cubic meters, the charge per cubic meter	7	50
(iii) The amount of water sold through the meter in any month exceeds 50 cubic meters, the charge per cubic meter	10	00
(iv) The amount of water sold through the meter in any month exceeds 100 cubic meters the charge per cubic meter	12	50
3. Where water is sold to a licensed retailer, the charge per cubic meter is	2	00
4. Where water is sold by retail at a kiosk per unit of 20 litres or part thereof, the charge per unit	0	10
5. Bulk sale to an undertaker for resale the charge per cubic meter	3	00

Table D2.12 Water Tariff Schedule for NWCPC in 1991 (3/3)

(4) FOURTH SCHEDULE (Cont.)

For the water supplies specified in Part C, the tariffs specified in Part D shall apply.

PART C—WATER SUPPLIES

Ndia	Othaya
Kandara	Shitoli
Litein	Katuti
Nyakach	Chebang'ang
Mathira	Maseno-Kombewa
Marmanet	Aguthi

PART B—TARIFFS

	Sh.	cts
1. Where no meter is installed, a monthly charge	30	00
2. Where a meter is installed, the charges will be as follows;		
(i) The amount of water sold through the meter in any month does not exceed 10 cubic meters,	30	00
(ii) The amount of water sold through the meter in any month is more than 10 cubic meters, but does not exceed 30 cubic meters, the charge per cubic meter	3	00
(iii) The amount of water sold through the meter in any month is more than 30 cubic meters, but does not exceed 100 cubic meters, the charge per cubic meter	7	00
(iv) The amount of water sold through the meter in any month exceeds 100 cubic meters the charge per cubic meter	7	00
3. Where water is sold to a licensed retailer, the charge per cubic meter is	2	00
4. Where water is sold by retail at a kiosk per unit of 20 litres or part thereof, the charge per unit	0	10
5. Bulk sale to an undertaker for resale the charge per cubic meter	3	00

Table D2.13 Distribution of Employees in Electricity and Water Industry by Occupation and Citizenship

No	Occupation	Number			% of Total
		Citizen	Non-C.	Total	
1	Engineering Science Professionals	672	26	698	3.70%
2	Medical Science Professionals	6		6	0.03%
3	Physical and Life Science Professionals	270	5	275	1.46%
4	Social Science Professionals	9		9	0.05%
5	Mathmaticians, Economist & Related Profs.	14	1	15	0.08%
6	Post-primary and Special Education Teachers	161	1	162	0.86%
7	Lawyers/Jurists	5		5	0.03%
8	Business and Social Services Profs.	174		174	0.92%
9	Writers, Artists and Religion Profs.	34		34	0.18%
10	Engineering Technicans	1,538	5	1,543	8.17%
11	Medical Science Para-profs.	11		11	0.06%
12	Physical and Life Science Para-profs.	82		82	0.43%
13	Ship and Aircraft Controllers		4	4	0.02%
14	Business and Social Services Para-profs.	4		4	0.02%
15	Middle Level Personnel	194		194	1.03%
16	Other Middle Level Personnel	387	1	388	2.06%
17	Primary and Pre-primary Teachers	10		10	0.05%
18	Administrator and Manager	38		38	0.20%
19	Secretaries and Office Clerks	2,362	5	2,367	12.54%
20	Client Oriented Clerks	180		180	0.95%
21	Personnel Care Workers	580		580	3.07%
22	House Stewards & House Keepers	59		59	0.31%
23	Ground Attendants and Guides	3,130	2	3,132	16.59%
24	Farm Workers	4		4	0.02%
25	Forestry and Related Workers	12		12	0.06%
26	Extraction and Building Trade Workers	682		682	3.61%
27	Metal and Machinery Workers	2,039		2,039	10.80%
28	Fitters and Installers	1,213		1,213	6.42%
29	Printings and Related Trade Workers	4		4	0.02%
30	Leather and Related Trade Workers	1		1	0.01%
31	Upholsterers, Pelt-leather and Shoemaking Trade Wo	360	3	363	1.92%
32	Industrial Plant Operators	80		80	0.42%
33	Metal Processing Plant Operators	9		9	0.05%
34	Chemical Processing Plant Operators	1,777	1	1,778	9.42%
35	Stationery Machine Operators & Assemblers	38	1	39	0.21%
36	Printing Machine Operators	4		4	0.02%
37	Grain and Spice Milling Machine Operators	1		1	0.01%
38	Drivers and Mobile Machine Operators	1,353		1,353	7.17%
39	Sales and Service Labourers	1,323	5	1,328	7.03%
Total (all occupations)		18,820	60	18,880	100.00%

Source : NANTIONAL MANPOWER SURVEY 1986 - 1988 Table 4.5, MoMD&E

Table D3.1 Connection Rate by Service Type

(Unit: %)

	Individual connection Rate			Non-Individual connection Rate		
	Initial	Future	Ultimate	Initial	Future	Ultimate
URBAN AREA						
High and Medium Class Housing	100	100	100	0	0	0
Low Class Housing	10	30	50	90	70	50
RURAL AREA						
High Potential	20	40	80	80	60	20
Medium Potential	10	20	40	90	80	60
Low Potential	5	10	20	95	90	80

Source: Design Manual Table 4.1

Table D3.2 Unit Consumption Rate

Consumer	Unit	Rural Areas			Urban Areas			
		High Potential	Medium Potential	Low Potential	High Class Housing	Medium Class Housing	Low Class Housing	
People w/ IC	l/c/d	60	50	40	250	150	75	
People w/o IC	l/c/d	20	15	10	–	–	20	
Livestock Unit	l/LU/d	50	50	50				
Boarding Schools	l/c/d	50	50	50	50	50	50	
Day Schools w/ WC	l/c/d	25	25	25	25	25	25	
Day Schools w/o WC	l/c/d	5	5	5	5	5	5	
Hospitals								
Regional	l/bed/d	400						
District	l/bed/d	200	plus 20 litre per outpatient per day (minimum 5,000 l/day)					
Others	l/bed/d	100						
Dispensary and Health Centre	l/d	5,000	5,000	5,000	5,000	5,000	5,000	
Hotels								
High Class	l/bed/d	600	600	600	600	600	600	
Medium Class	l/bed/d	300	300	300	300	300	300	
Low Class	l/bed/d	50	50	50	50	50	50	
Administrative Offices	l/c/d	25	25	25	25	25	25	
Bars	l/d	500	500	500	500	500	500	
Shops	l/d	100	100	100	100	100	100	
Unspecified Industry	l/ha/d	20,000	20,000	20,000	20,000	20,000	20,000	
Coffee Pulping Factories	l/kg coffee	25	25	25	25	25	25	

Source : Design Manual, Table 4.2

Table D3.3 Unit Water Consumption Rate by Industrial Type : 1989 - 2010

Item	Food Beverages & Tobacco	Textile Apparel & Leather	Wood & Wood Products	Paper Products & Printing	Chemicals & Petroleum Products	Non-metallic Mineral Products	Basic Metal Industries	Machinery & Equipment	Others	Manufacturing Industry
1. Value Added in 1988 (K.Pound 1000)	321,164	81,511	22,892	61,902	132,129	37,175	47,438	76,372	16,978	797,561
2. Total Units of Manufacturing Establishments (Nos)	678	398	442	283	211	98	19	304	94	2,527
3. Value Added per Establishment (KShs 1000)	9,474	4,096	1,084	4,374	12,524	7,586	49,934	5,024	3,612	6,312
4. Unit Water Consumption Rate per Value Added (cu.m./day/KShs.billion(at 1989 prices*1))	5,617	8,443	732	19,471	26,521	8,561	51,738	3,654	1,360	13,015
5. Unit Water Replenishment (Raw Water) Rate per Value Added (cu.m./day/KShs.billion(at 1989 prices*1))	3,300	6,794	655	11,394	5,295	2,327	6,211	698	568	3,287
6. Unit Water Replenishment Rate in the Projection (cu.m./day/KShs.billion(at 1989 prices*1))										
a. 1989 *2	5,617	8,443	732	19,471	26,521	8,561	51,738	3,654	1,360	13,015
b. 1990	5,562	8,404	730	19,279	26,015	8,413	50,654	3,584	1,341	12,784
c. 1995	5,286	8,207	721	18,317	23,489	7,671	45,234	3,232	1,247	11,626
d. 2000	5,010	8,011	712	17,356	20,962	6,928	39,814	2,880	1,153	10,468
e. 2005	4,734	7,815	703	16,394	18,435	6,186	34,394	2,528	1,058	9,309
f. 2010 *2	4,459	7,618	694	15,433	15,908	5,444	28,974	2,176	964	8,151
REFERENCE : Unit Rates for Industrial Development in Japan (1986)	7,479	7,460	2,303	4,582	5,847	2,898	2,206	24,312	1,262	58,349
1. Number of Samples										
Number of Firms (Nos)										
2. Unit per Firm										
Employees	97	80	72	98	129	88	197	151	86	122
Production (Million Yen)	3,116	931	1,397	2,757	5,956	1,916	8,192	4,248	1,994	3,605
Value Added (Million Yen)	903	350	511	1,146	2,178	893	2,294	1,368	774	1,195
Yard Area(sq.m.)	14,048	9,391	16,721	13,526	46,430	35,927	103,232	18,025	9,360	22,776
Water Consumption (cu.m./day)	762	444	56	3,351	8,674	1,148	17,823	751	158	2,336
Water Replenishment (cu.m./day)	448	357	50	1,961	1,732	312	2,140	143	66	590
3. Water Recovery Rate (%)	41	20	11	42	80	73	88	81	58	75
4. Drained-to-Replenished Rate (%)	36	38	51	84	7	22	9	29	16	21
5. Unit Rates (cu.m./day/KShs.billion(at 1989 prices))*3										
Water Consumption per Production	1,628	3,177	268	8,094	9,700	3,991	14,491	1,177	528	4,316
Water Consumption per Value Added	5,617	8,443	732	19,471	26,521	8,561	51,738	3,654	1,360	13,015
Water Consumption per Yard Area (cu.m./day/ha)	542	473	34	2,477	1,868	320	1,727	416	169	1,026
Water Replenishment per Production	957	2,536	240	4,737	1,937	1,085	1,740	225	220	1,090
Water Replenishment per Value Added	3,300	6,794	655	11,394	5,295	2,327	6,211	698	568	3,287

Remark : *1 Refer to the below REFERENCE.

*2 Whole water consumed in processing is assumed to be supplied by a water supply system. However, a water recirculation system will be introduced into the manufacturing process, though its recirculation rate is assumed to be a half of volume mentioned in Row 5 by the year 2010.

*3 To convert the 1986 value to the 1989 value in Japan, the overall wholesale price index of manufacturing industry products was applied, which was 0.994 between the years. The foreign exchange rate in 1989 was KShs. 21.6/US\$ and JY143/US\$.

Table D3.4 Industrial Water Demand by District : 1989-2010

(Unit : cu.m./day)

Code District	1989	1990	1995	2000	2005	2010
110 Nairobi	120,813	128,300	167,417	218,953	249,690	281,668
210 Kiambu	8,843	9,405	12,382	16,362	18,893	21,649
220 Kirinyaga	426	457	624	857	1,039	1,258
230 Murang'a	629	673	915	1,257	1,519	1,833
240 Nyandarua	361	386	524	720	866	1,045
250 Nyeri	2,361	2,521	3,380	4,570	5,417	6,407
310 Kilifi	3,493	3,705	4,794	6,206	6,989	7,762
320 Kwale	160	172	232	317	380	459
330 Lamu	319	341	463	632	759	910
340 Mombasa	28,982	30,768	40,072	52,286	59,458	66,834
350 Taita Taveta	1,052	1,122	1,505	2,033	2,408	2,845
360 Tana River	88	94	129	178	217	264
410 Embu	455	488	659	900	1,078	1,290
420 Isiolo	160	172	233	318	382	458
430 Kitui	176	188	258	356	433	527
440 Machakos	2,880	3,072	4,107	5,525	6,515	7,659
450 Marsabit	480	513	695	950	1,141	1,368
460 Meru	1,530	1,637	2,216	3,024	3,627	4,346
510 Garissa	122	131	181	251	307	376
520 Mandera	160	171	231	316	379	455
530 Wajir	0	0	0	0	0	0
610 Kisii	1,446	1,547	2,093	2,855	3,422	4,100
620 Kisumu	5,516	5,880	7,824	10,472	12,278	14,329
630 Siaya	1,059	1,134	1,533	2,091	2,504	2,998
640 South Nyanza	1,977	2,114	2,862	3,910	4,690	5,625
710 Kajiado	65	69	90	117	132	148
720 Kericho	2,378	2,541	3,437	4,685	5,606	6,702
730 Laikipia	1,143	1,223	1,662	2,278	2,744	3,303
740 Nakuru	9,341	9,922	12,969	16,996	19,429	21,989
750 Narok	212	228	308	422	506	606
760 Trans Nzoia	1,046	1,119	1,519	2,080	2,502	3,009
770 Uasin Gishu	3,313	3,530	4,689	6,267	7,333	8,541
810 Baringo	116	125	169	232	278	336
820 Elgeyo Marakwet	58	62	82	114	136	166
830 Nandi	799	855	1,157	1,581	1,899	2,278
840 Samburu	225	241	322	434	513	606
850 Turkana	319	342	463	632	758	910
860 West Pokot	53	57	77	105	126	152
910 Bungoma	1,282	1,370	1,832	2,468	2,916	3,440
920 Busia	231	247	337	465	564	685
930 Kakamega	1,651	1,767	2,388	3,258	3,899	4,663
000 Unidentified	160	171	231	316	379	455
Total	205,880	218,860	287,061	377,789	434,111	494,454

Table D3.5 Potential Domestic and Industrial Water Demand in 1990

District Code	District Name	Population		Rural Demand			Urban Demand			Livestock		Industrial		Total Demand (m3/d)	Per Capita (l/d/c)
		Rural (nos)	Urban (nos)	Residence (m3/d)	Non-residence (m3/d)	Total (m3/d)	Residence (m3/d)	Non-residence (m3/d)	Total (m3/d)	Water (m3/d)	Industrial Water (m3/d)				
110	Nairobi	0	1,413,100	0	0	0	175,048	29,286	204,334	192	128,300	332,826	236		
210	Kiambu	866,410	105,500	20,546	7,191	27,737	13,069	2,186	15,255	4,827	9,405	57,224	59		
220	Kirinyaga	393,482	19,400	8,571	3,264	11,835	2,403	402	2,805	2,764	457	17,861	43		
230	Murang'a	833,776	65,000	19,866	6,922	26,788	8,052	1,348	9,400	4,709	673	41,570	46		
240	Nyandarua	366,106	11,900	7,605	3,041	10,646	1,474	246	1,720	7,716	386	20,468	54		
250	Nyeri	540,096	107,200	13,540	4,484	18,024	13,279	2,221	15,500	3,916	2,521	39,961	62		
310	Kilifi	592,003	62,100	7,486	4,913	12,399	7,693	1,288	8,981	2,821	3,705	27,906	43		
320	Kwale	394,205	14,700	5,934	3,273	9,207	1,821	305	2,126	5,019	172	16,524	40		
330	Lamu	48,236	12,300	629	399	1,028	1,524	255	1,779	1,088	341	4,236	70		
340	Mombasa	0	479,600	0	0	0	59,410	9,940	69,350	138	30,768	100,256	209		
350	Taita_Taveta	188,200	27,000	2,240	1,562	3,802	3,345	560	3,905	3,768	1,122	12,597	59		
360	Tana_River	126,203	11,700	1,480	1,049	2,529	1,449	243	1,692	6,966	94	11,281	82		
410	Embu	361,491	20,400	7,020	3,000	10,020	2,527	422	2,949	2,655	488	16,112	42		
420	Isiolo	46,886	27,896	539	389	928	3,456	578	4,034	7,465	172	12,599	168		
430	Kitui	667,267	16,600	7,675	5,539	13,214	2,056	344	2,400	7,895	188	23,697	35		
440	Machakos/Makueni	1,320,332	165,900	17,773	10,957	28,730	20,551	3,439	23,990	9,330	3,072	65,122	44		
450	Marsabit	104,305	33,800	1,202	867	2,069	4,187	701	4,888	14,932	513	22,402	162		
460	Meru	1,121,545	91,900	19,651	9,311	28,962	11,384	1,905	13,289	12,751	1,637	56,639	47		
510	Garissa	94,691	32,500	1,088	787	1,875	4,026	674	4,700	7,399	131	14,105	111		
520	Mandera	105,694	21,649	1,216	877	2,093	2,682	450	3,132	7,603	171	12,999	102		
530	Wajir	95,602	30,378	1,099	793	1,892	3,763	630	4,393	6,424	0	12,709	101		
610	Kisii/Nyamira	1,142,173	59,700	31,092	9,481	40,573	7,395	1,237	8,632	11,536	1,547	62,288	52		
620	Kisumu	498,124	210,100	10,538	4,135	14,673	26,026	4,354	30,380	6,351	5,880	57,284	81		
630	Siaya	649,980	26,800	15,731	5,393	21,124	3,320	556	3,876	7,925	1,134	34,059	50		
640	South_Nyanza	1,104,838	50,100	22,868	9,166	32,034	6,206	1,039	7,245	5,542	2,114	46,935	41		
710	Kajiado	252,370	34,000	3,046	2,094	5,140	4,212	704	4,916	18,521	69	28,646	100		
720	Kericho	862,960	52,600	21,730	7,162	28,892	6,516	1,090	7,606	17,426	2,541	56,465	62		
730	Laikipia	186,499	41,700	2,576	1,546	4,122	5,166	864	6,030	8,000	1,223	19,375	85		
740	Nakuru	675,156	257,700	13,394	5,605	18,999	31,923	5,342	37,265	13,795	9,922	79,981	86		
750	Narok	407,099	17,500	7,339	3,376	10,715	2,168	362	2,530	32,127	228	45,600	107		
760	Trans_Nzoia	367,719	56,400	6,524	3,052	9,576	6,987	1,168	8,155	4,728	1,119	23,578	56		
770	Uasin_Gishu	346,725	123,600	6,794	2,878	9,672	15,311	2,562	17,873	7,770	3,530	38,845	83		
810	Baringo	279,859	26,100	4,092	2,324	6,416	3,233	541	3,774	6,664	125	16,979	55		
820	Elg_Marakwet	221,191	6,100	4,246	1,835	6,081	756	126	882	6,382	62	13,407	59		
830	Nandi	458,824	14,500	10,474	3,808	14,282	1,796	301	2,097	9,044	855	26,278	56		
840	Samburu	97,567	24,700	1,190	811	2,001	3,060	512	3,572	6,485	241	12,299	101		
850	Turkana	180,132	9,295	2,072	1,495	3,567	1,151	193	1,344	20,452	342	25,705	136		
860	West_Pokot	234,901	13,200	3,176	1,948	5,124	1,635	274	1,909	4,219	57	11,309	46		
910	Bungoma	719,267	69,800	17,206	5,970	23,176	8,646	1,447	10,093	6,645	1,370	41,284	52		
920	Busia	438,219	15,400	10,745	3,636	14,381	1,908	320	2,228	3,725	247	20,581	45		
930	Kakamega/Viing'a	1,393,871	85,300	36,189	11,574	47,763	10,567	1,768	12,335	8,992	1,767	70,857	48		
TOTAL		18,784,004	3,965,118	376,182	155,907	532,089	491,179	82,183	573,362	326,707	218,689	1,650,847	73		

Table D3.6 Potential Domestic and Industrial Water Demand in 2000

District Code Name	Population		Rural Demand		Urban Demand		Total (m ³ /d)	Total (m ³ /d)	Livestock		Industrial		Total Demand (m ³ /d)	Per Capita (l/d/c)
	Rural (nos)	Urban (nos)	Residence Non-residence (m ³ /d)	Total (m ³ /d)	Residence Non-residence (m ³ /d)	Total (m ³ /d)			Water (m ³ /d)	Water (m ³ /d)	Water (m ³ /d)	Water (m ³ /d)		
110 Nairobi	0	2,260,469	0	0	286,232	46,848	333,080	257	218,953	552,290	244			
210 Kiambu	1,006,986	241,538	30,009	8,358	30,585	5,005	35,590	5,669	16,362	95,988	77			
220 Kirinyaga	474,035	45,346	12,882	3,934	5,742	940	6,682	3,355	857	27,710	53			
230 Murang'a	958,614	128,588	28,781	7,958	16,282	2,664	18,946	5,334	1,257	62,276	57			
240 Nyandarua	485,561	32,048	12,473	4,030	4,058	666	4,724	10,476	720	32,423	63			
250 Nyeri	560,679	242,904	17,832	4,656	30,758	5,034	35,792	4,427	4,570	67,277	84			
310 Kilifi	737,699	159,473	10,666	6,118	20,193	3,304	23,497	3,443	6,206	49,930	56			
320 Kwale	480,292	42,861	8,438	3,987	5,427	887	6,314	5,725	317	24,781	47			
330 Lamu	58,510	27,775	879	486	3,517	575	4,092	1,478	632	7,567	88			
340 Mombasa	0	672,934	0	0	85,210	13,947	99,157	182	52,286	151,625	225			
350 Taita_Taveta	216,380	49,317	2,927	1,797	6,245	1,022	7,267	4,238	2,033	18,262	69			
360 Tana_River	153,009	33,071	2,033	1,270	4,188	685	4,873	7,632	178	15,986	86			
410 Embu	450,242	50,537	10,755	3,736	6,399	1,047	7,446	3,159	900	25,996	52			
420 Isiolo	50,343	79,153	655	418	10,023	1,641	11,664	11,386	318	24,441	189			
430 Kitui	838,429	46,271	10,899	6,960	5,859	958	6,817	9,301	356	34,333	39			
440 Machakos/Makueni	1,590,616	394,597	24,801	13,199	49,966	8,178	58,144	10,981	5,525	112,650	57			
450 Marsabit	117,172	79,213	1,530	974	10,030	1,642	11,672	19,020	950	34,146	174			
460 Meru	1,403,040	229,484	29,686	11,646	29,058	4,757	33,815	15,796	3,024	93,967	58			
510 Garissa	98,793	95,644	1,284	820	12,111	1,982	14,093	8,540	251	24,988	129			
520 Mandera	117,390	37,193	1,527	974	4,710	770	5,480	10,074	316	18,371	119			
530 Wajir	101,797	62,996	1,324	845	7,977	1,305	9,282	6,920	0	18,371	111			
610 Kisii/Nyamira	1,274,837	126,125	44,434	10,582	15,971	2,614	18,585	12,712	2,855	89,168	64			
620 Kisumu	536,505	434,392	14,033	4,454	55,005	9,005	64,010	8,454	10,472	101,423	104			
630 Siaya	738,498	50,485	22,551	6,130	6,393	1,046	7,439	8,660	2,091	46,871	59			
640 South_Nyanza	1,250,972	106,051	31,873	10,381	13,429	2,199	15,628	6,115	3,910	67,907	50			
710 Kejiado	362,989	98,051	4,989	3,013	8,002	2,032	14,448	24,061	117	46,628	101			
720 Kenicho	1,069,063	118,460	34,151	8,873	12,416	2,455	17,455	22,142	4,685	87,306	74			
730 Laikipia	253,030	104,603	4,071	2,102	13,245	2,167	15,412	11,662	2,278	35,525	99			
740 Nakuru	839,543	704,789	20,506	6,969	89,244	14,607	103,851	21,379	16,996	169,701	110			
750 Narok	644,338	58,084	14,124	5,348	7,355	1,204	8,559	44,700	422	73,153	104			
760 Trans_Nzoia	465,648	150,010	10,031	3,863	18,995	3,110	22,105	5,728	2,080	43,807	71			
770 Uasin_Gishu	369,012	297,004	8,814	3,064	37,608	6,155	43,763	9,435	6,267	71,343	107			
800 Baringo	348,224	56,908	6,008	2,893	7,206	1,181	8,387	7,858	232	25,378	63			
820 Elg_Marakwet	287,019	13,612	6,794	2,383	1,724	281	2,005	10,558	114	21,854	73			
830 Nandi	599,437	38,483	17,119	4,972	4,873	798	5,671	11,058	1,581	40,401	63			
840 Samburu	121,513	58,670	1,693	1,008	7,429	1,216	8,645	9,472	434	21,252	118			
850 Turkana	213,521	25,313	2,776	1,774	3,205	525	3,730	36,286	632	45,198	189			
860 West_Pokot	298,923	31,163	4,715	2,479	3,946	646	4,592	4,466	105	16,357	50			
910 Bungoma	933,305	196,960	28,128	7,746	24,940	4,082	29,022	8,482	2,468	75,846	67			
920 Busia	586,867	52,499	18,149	4,870	6,648	1,087	7,735	5,107	465	36,326	57			
930 Kakamega/Viniga	1,686,652	199,749	55,909	13,999	25,293	4,140	29,433	10,770	3,258	113,369	60			
TOTAL	22,779,483	7,932,823	560,249	189,069	1,004,494	164,407	1,168,901	426,498	377,473	2,722,190	89			

Table D3.7 Potential Domestic and Industrial Water Demand in 2010

District Code Name	Population		Rural Demand		Urban Demand		Livestock		Industrial		Total Demand (m ³ /d)	Per Capita (l/d/c)
	Rural (nos)	Urban (nos)	Residence Non-residence (m ³ /d)	Total (m ³ /d)	Residence Non-residence (m ³ /d)	Total (m ³ /d)	Water (m ³ /d)	Total (m ³ /d)	Water (m ³ /d)	Total (m ³ /d)		
110 Nairobi	0	3,465,334	0	0	448,328	71,819	520,147	345	281,668	802,160	231	
210 Kiambu	1,206,609	376,086	50,652	10,015	48,656	7,794	56,450	7,144	21,649	145,910	92	
220 Kinnyaga	559,419	73,805	21,232	4,643	9,549	1,529	11,078	4,152	1,258	42,363	67	
230 Murang'a	1,126,289	189,296	47,786	9,348	24,490	3,923	28,413	6,424	1,833	93,804	71	
240 Nyandarua	584,678	50,212	20,763	4,851	6,496	1,041	7,537	13,338	1,045	47,534	75	
250 Nyeri	672,814	411,536	30,458	5,583	53,242	8,529	61,771	5,989	6,407	110,208	102	
310 Kihifi	896,608	269,640	16,239	7,442	34,885	5,587	40,472	6,258	7,762	76,190	65	
320 Kwale	566,803	65,482	12,810	4,706	8,472	1,357	9,829	6,528	459	34,332	54	
330 Lamu	73,771	46,331	1,394	613	5,994	961	6,955	3,069	910	12,941	108	
340 Mombasa	0	904,362	0	0	117,002	18,743	135,745	239	66,834	202,818	224	
350 Taita Taveta	258,638	72,726	4,333	2,147	9,409	1,508	10,917	5,105	2,845	25,347	76	
360 Tana_River	184,242	51,170	3,022	1,529	6,620	1,061	7,681	8,506	264	21,002	89	
410 Embu	537,380	81,776	17,632	4,462	10,580	1,695	12,275	3,779	1,290	39,438	64	
420 Isiolo	74,480	136,067	1,191	618	17,604	2,819	20,423	25,802	458	48,492	230	
430 Kitui	992,858	76,589	15,888	8,241	9,909	1,588	11,497	10,738	527	46,891	44	
440 Machakos/Makueni	1,924,742	652,477	38,231	15,974	84,414	13,522	97,936	13,632	7,659	173,432	67	
450 Marsabit	147,232	123,037	2,364	1,223	3,587	2,550	18,468	34,373	1,368	57,796	214	
460 Meru	1,691,115	375,576	48,087	14,037	62,124	7,784	56,374	19,739	4,346	142,583	69	
510 Garissa	126,773	144,916	2,028	1,052	18,749	3,003	21,752	13,287	376	38,495	142	
520 Mandera	141,839	53,955	2,270	1,177	6,980	1,118	8,098	14,852	455	26,852	137	
530 Wajir	128,101	100,618	2,048	1,061	13,017	2,085	15,102	9,441	0	27,652	121	
610 Kisii/Nyanira	1,472,952	189,405	73,826	12,224	24,504	3,925	28,429	15,071	4,100	133,650	80	
620 Kisumu	692,149	689,399	25,024	5,744	89,191	14,289	103,480	13,886	14,329	162,463	118	
630 Siaya	853,688	76,041	36,874	7,086	9,838	1,576	11,414	10,034	2,998	68,406	74	
640 South_Nyanza	1,447,519	156,300	50,714	12,014	20,221	3,240	23,461	7,134	5,625	98,948	62	
710 Kajjado	468,513	183,374	7,999	3,889	23,724	3,801	27,525	30,142	148	69,703	107	
720 Kericho	1,276,594	189,948	58,057	10,595	24,575	3,935	28,510	28,253	6,702	132,117	90	
730 Laikipia	329,791	185,586	6,800	2,736	24,010	3,847	27,857	21,555	3,303	62,251	121	
740 Nakuru	1,159,323	1,304,983	38,952	9,622	168,832	27,047	195,879	52,317	21,989	318,759	129	
750 Narok	840,605	112,613	24,950	6,979	14,569	2,334	16,903	54,809	606	104,247	109	
760 Trans_Nzoia	582,258	260,000	16,974	4,833	33,638	5,389	39,027	7,574	3,009	71,417	85	
770 Uasin_Gishu	484,246	525,439	15,724	4,019	67,979	10,890	78,869	15,030	8,541	122,183	121	
810 Baringo	421,170	94,851	9,486	3,496	12,271	1,965	14,236	9,476	336	37,030	72	
820 Elg_Marakwet	342,735	20,480	11,190	2,846	2,650	424	3,074	16,625	166	33,901	93	
830 Nandi	719,677	64,159	28,819	5,975	8,301	1,330	9,631	12,929	2,278	59,632	76	
840 Samburu	156,610	103,710	2,724	1,301	13,417	2,149	15,566	14,626	606	34,823	134	
850 Turkana	251,488	38,657	4,025	2,087	5,001	801	5,802	66,113	910	78,937	272	
860 West_Pokot	359,414	53,031	7,292	2,983	10,275	7,961	7,961	4,694	152	23,082	56	
910 Bungoma	1,142,153	334,193	48,619	9,480	43,236	6,927	50,163	10,674	3,440	122,376	83	
920 Busia	710,487	86,124	31,071	5,896	11,142	1,785	12,927	6,548	685	57,127	72	
930 Kakamega/Vihiga	2,001,252	309,108	95,083	16,613	39,991	6,405	46,396	13,115	4,663	175,870	76	
TOTAL	27,607,015	12,698,392	932,631	229,140	1,642,854	263,175	1,906,029	621,362	493,999	4,183,161	104	

Table D4.1 Selected Service Centres for Urban Water Supply Development (1/4)

Code	Location	Urban Name	City Code	Map No:	X-COORD	Y-COORD	CITY Sub-basin belonging to	Present Raw Water Source
110.0	Nairobi	Nairobi	U- 1	148/4	36°49'	S 01°17'	3BA G	Chaaia R.-Sasumua Dam+Ruiru Dam+Kikuyu Spring
211.1	Kiambaa	Karuri	U- 2	148/2	36°45'	S 01°10'	3BA U	Boreholes
211.4	Kiambu Municipality	Kiambu	U- 3	148/2	36°50'	S 01°10'	3BA U	Bore holes + NCC P/L
212.1	Ngenda	Gaandu & Ngenda	U- 4	148/2	36°54'	S 01°00'	3BD U	Boreholes
213.1	Limuru	Limuru	U- 5	148/1	36°38'	S 01°06'	3BA U	Boreholes
214.1	Ruru	Ruru	U- 6	148/2	36°58'	S 01°09'	3BC U	Ruru River
214.4	Thika Municipality	Thika	U- 7	149/1	37°05'	S 01°04'	3CB G	Chania River
215.1	Githunguri	Githunguri	U- 8	148/2	36°46'	S 01°03'	3BC U	Boreholes
216.6	Kikuyu	Kikuyu	U- 9	148/1	36°39'	S 01°14'	3BA U	Boreholes
221.1	Tebere	Wanguru	U- 10	135/2	37°23'	S 00°40'	4DA U	N.I.B canal
222.2	Kiine	Sagana	U- 11	135/1	37°13'	S 00°39'	4BC U	Ragati River
222.3	Inoi	Kerugoya	U- 12	121/4	37°17'	S 00°29'	4DA U	Rutu River
223.2	Kabare	Kurus	U- 13	135/2	37°20'	S 00°33'	4DA R	Thiba River
231.4	Muruka	Kandara	U- 14	135/3	37°00'	S 00°53'	4CC U	Thika River
232.3	Nginda	Maragua	U- 15	135/3	37°08'	S 00°46'	4BF U	Boreholes
233.4	Iyego	Kangema	U- 16	134/2	36°58'	S 00°40'	4BD U	River (Local)
234.3	Mbiriri	Murang'a	U- 17	135/1	37°07'	S 00°43'	4BD U	River (Local)
235.1	Maluyu	Maluyu	U- 18	135/3	37°11'	S 00°53'	4BF U	River (Local)
241.3	Oi Kalou	Oi Kalou	U- 19	119/4	36°22'	S 00°16'	2GB U	Boreholes
254.2	Konyu	Karatina	U- 20	121/3	37°08'	S 00°28'	4BA U	Ragati River
256.1	Karina	Othaya	U- 21	134/2	36°57'	S 00°32'	4AD U	Gikira River
257.0	Nyeri Municipality	Nyeri	U- 22	120/4	36°56'	S 00°24'	4AC G	Chania River
311.2	Mariakani	Mariakani	U- 23	197/4	39°22'	S 03°49'	3MB U	Mzima pipeline
313.2	Tezo	Kilifi	U- 24	198/2	39°50'	S 03°37'	3LA U	Sabaki pipeline
314.3	Gede	Wajumu	U- 25	193/3	40°01'	S 03°21'	3HD3 R	Sabaki Pipeline
314.4	Malindi Town	Malindi	U- 26	193/1	40°06'	S 03°15'	3LB G	Borehole /small dam
314.6	Magarini	Mamburi	U- 135	193/1	40°08'	S 03°05'	3HD2 R	Marere spring
321.1	Shimba North	Kwale	U- 27	200/2	39°26'	S 04°11'	3MC U	Marere pipeline
323.1	Kinango South	Kinango	U- 28	200/2	39°17'	S 04°09'	3MC U	Boreholes
324.1	Msamwani	Msamwani	U- 29	200/4	39°27'	S 04°30'	3K R	Boreholes
324.5	Lungahunga	Lungahunga	U- 136	202/1	39°05'	S 04°35'	3K R	Boreholes
331.0	Witu	Witu	U- 30	179/4	40°25'	S 02°24'	4GG R	1 no shallow well
333.2	Lamu Town	Lamu	U- 31	180/4	40°53'	S 02°17'	4KB U	20 shallow wells
340.0	Mombasa	Mombasa	U- 32	201/1	39°40'	S 04°00'	3MD1 G	Mzima P/L /Sabaki P/L /Marere P/L
351.1	Taveta	Taveta	U- 137	188/3	37°39'	S 03°25'	3J R	Njoro spring
352.4	Voi	Voi	U- 33	190/3	38°33'	S 03°24'	3LA U	Mzima P/L
353.2	Werugha	Wundanyi	U- 34	189/4	38°21'	S 03°25'	3LA U	Taita Hills streams
362.3	Bura	Bura & Madogo	U- 35	154/2	39°53'	S 01°13'	4GE U	Tana River
363.3	Zabaki	Hola	U- 36	155/3	40°04'	S 01°30'	4GF U	Tana River
364.1	Bilisa	Garsen	U- 37	179/3	40°09'	S 02°16'	4GG U	Tana River

Table D4.1 Selected Service Centres for Urban Water Supply Development (2/4)

Code	Location	Urban Name	City Code	Map No:	X-COORD	Y-COORD	BASIN-1	CITY	Sub-basin	belonging to	Present Raw Water Source
411.8	Kangari South	Runyenjes	U- 38	122/3	37°34'	S 00°24'	4EC	U	4EC		Ena River
412.1	Nthawa	Stakago	U- 39	136/1	37°38'	S 00°34'	4EC	U	4DD		Ena River
413.7	Embu Municipality	Embu	U- 40	135/2	37°27'	S 00°31'	4DC	G	4DB, 4DC		Kapingazi River + Rupingazi River
421.1	Central	Isiolo	U- 41	108/1	37°35'	N 00°21'	5DA	R	5DA, 5FA		Isiolo River
421.2	Oldonyoyiro	Oldonyoyiro	U- 42	92/4	36°59'	N 00°38'	5DD	R			Sub-surface dam
422.1	Garbatula	Garbatula	U- 138	96/3	38°34'	N 00°30'	5FA	R			Boreholes
423.1	Merti	Merti	U- 139	82/3	38°41'	N 01°05'	5ED	R			Boreholes C3853
431.4	Changwithya	Kijui	U- 43	151/3	38°01'	S 01°22'	4HA	U	4HA		Boreholes
433.2	Mutomo	Mutomo	U- 44	164/3	38°11'	S 01°51'	4HA	U	4HA		Boreholes
434.4	Mwingi	Mwingi	U- 45	137/3	38°03'	S 00°55'	4ED	U	4ED, 4GE, 4GF		Shallow wells
441.1	Muvuti	Machakos	U- 46	161/4	37°14'	S 01°32'	3EA	G	3AC, 3EA, 3EB		Mamba Dam
441.2	Mitaboni	Mitaboni	U- 47	149/3.4	37°15'	S 01°22'	3AC	R			Spring, Self-help
442.3	Settlement Area	Athi River	U- 48	148/4	37°02'	S 01°31'	3AB	U	3AA, 3AB		Not-Tresh P/L
444.3	Kieta	Uaani/Tawa	U- 49	162/2	37°28'	S 01°33'	3EB	R			Boreholes and Dam
445.1	Kangundo	Kangundo	U- 50	149/4	37°22'	S 01°22'	3EA	U	3EA		Boreholes
445.2	Manungulu	Tala	U- 140	149/4	37°19'	S 01°16'	3EA	R			Boreholes
447.4	Kihungu	Nunguni	U- 51	162/4	37°22'	S 01°50'	3FA	U	3FA		Spring
448.1	Makueni	Wete	U- 141	163/3	37°36'	S 01°48'	3EC	U			Boreholes
448.3	Nzau	Emali	U- 52	173/2	37°29'	S 02°05'	3FA	R			Not Tresh P/L
449.4	Mtito Andei	Mtito Andei&Kibwezi	U- 53	183/1	38°11'	S 02°42'	3FB	R			Not-Tresh P/L + Umami springs
451.1	North Horr	North Horr	U- 142	NA-37.1	37°06'	N 03°20'	5J	R			Boreholes
452.2	Kargi	Kargi	U- 54	NA-37.6	37°20'	N 02°31'	5J	R			Boreholes
453.1	Korr	Korr	U- 143	66/2	37°30'	N 01°58'	2GD	R			Boreholes
454.1	Mountain	Marsabit	U- 55	NA-37.6	37°58'	N 02°18'	5EC	U	5CD		Small river(Bakuli spring)
455.2	Sololo	Sololo	U- 56	NA-37.2	38°39'	N 03°34'	5EB	R			Boreholes
456.1	Moyale	Moyale	U- 57	NA-37.3	39°02'	N 03°30'	5EA	R			Moyale Dam
461.4	Nitma	Meru	U- 58	108/3	37°39'	N 00°03'	4FA	G	4FA, 5FA, 5DA		Kazita R. Gatobora Si
463.1	Nkuene	Nkubu	U- 59	122/1	37°40'	S 00°03'	4FA	U	4FA		Thingithu River
464.1	Chogoria	Chogoria	U- 60	122/1	37°38'	S 00°13'	4EB	U	4EB		Mutonga River
464.3	Karingani	Chuka	U- 61	122/3	37°39'	S 00°19'	4EB	U	4EB		Tungu River
467.2	Maua	Maua	U- 62	108/4	37°57'	N 00°14'	4FB	U	4FB		Mboone Stream
513.1	Madogashe	Mudo Gashe	U- 63	NA-37.15	39°10'	N 00°44'	5FA	R			Spring
515.2	Ijara	Ijara	U- 64	SA-37.8	40°30'	S 01°37'	4KB	R			Boreholes
515.3	Kotile	Kotile	U- 65	168/3	40°18'	S 01°56'	4GG	R			Boreholes
515.4	Masalani	Masalani	U- 66	168/1	40°10'	S 01°43'	4GF	R			Tana river
519.1	Sankuri	Garissa	U- 67	126/3	39°39'	S 00°26'	4GC	U	4GD		Tana river
521.1	Mandera	Mandera	U- 68	NA-37.4	41°51'	N 03°56'	5GB	U	5H		Boreholes/Daua river
523.1	Elwak	Elwak	U- 69	NA-37.8	40°59'	N 02°48'	5GA	R			Borehole
524.2	Rhamu	Rhamu	U- 70	NA-37.4	41°13'	N 03°54'	5H	R			River (Local)
532.4	Wajir Township	Wajir	U- 71	NA-37.11	40°03'	N 01°44'	5EA	U	5EA		Borehole (CS267)

Table D4.1 Selected Service Centres for Urban Water Supply Development (3/4)

Code	Location	Urban Name	City Code	Map No:	X-COORD	Y-COORD	BASIN-1	CITY	Sub-basin belonging to	Present Raw Water Source
536.2	Buna	Buna	U- 72	NA-37-7	39°31'	N 02°47'	5EA	R		Boreholes
537.2	Bute	Bute	U- 73	NA-37-7	39°33'	N 03°02'	5EA	R		Boreholes
611.2	Eranga	Manga	U- 74	130/2	34°51'	S 00°36'	IHE	U	IHE	Gucha river
611.5	East Kinuu	Keroka	U- 75	130/4	34°57'	S 00°45'	IKB	U	IKB	Chirichiri river
612.2	East Mugirango	Nyamira + Kebirigo	U- 144	130/2	34°53'	S 00°32'	IHD	R		River (Local)
615.0	Kisii Municipality	Kisii	U- 76	130/2	34°48'	S 00°39'	IKA	G	IHE, IKA, IKB	Nyakobisaro
617.1	Majege Chache	Ogembo	U- 77	130/3	34°44'	S 00°46'	IKB	U	IKB	Spring
622.1	West Kisumu	Maseno	U- 78	116/1	34°38'	N 00°00'	IHB	U	IHA, IHB	Kima river
622.3	East Kisumu	Kisumu & + Kiboswa	U- 79	116/2	34°46'	S 00°04'	IHB	G	IGD	Lake Victoria
623.2	South East Kano	Ahero	U- 80	116/2	34°56'	S 00°09'	IGD	U	IHB	Boreholes
625.2	Muhoroni	Muhoroni	U- 81	117/1	35°12'	S 00°08'	IGD	R		Nyando river
632.4	West Sakwa	Bondo	U- 145	115/2	34°16'	S 00°05'	IIE	U		Yala River
633.2	East Gem	Yala	U- 82	102/3	34°34'	N 00°07'	IFE	U	IFF	Yala River
634.1	East Alego	Siaya	U- 83	101/4	34°18'	N 00°04'	IFG	U	IEG	Nyamawin River
635.4	North Agenya	Ukwala	U- 84	101/3	34°13'	N 00°13'	IEF	U	IEE, IEF	Boreholes
641.1	Kanyada West	Homa Bay	U- 85	129/2	34°28'	S 00°31'	IHF	U	IHF	L. Victoria
644.3	Suna East	Migori	U- 86	143/2	34°29'	S 01°04'	IKC	U	IKC	Boreholes
646.3	Bukira East	Kehancha + Taranganya	U- 146	144/1	34°37'	S 01°10'	IKC	U		Orawe Dam
646.8	Bugembe West	Nyabik-aye	U- 147	143/2	34°29'	S 01°14'	IKC	R		Stream
647.4	Central Kasipul	Oyugis	U- 148	130/1	34°46'	S 00°28'	IHD	U		Awachi River
648.1	Central Karachuonyo	Kendu Bay	U- 87	116/3	34°39'	S 00°20'	IHD	R	IHD	Awachi River
649.4	South Sakwa	Awendo/Sare	U- 149	130/3	34°32'	S 00°54'	IKB	R		Sare River
711.1	Odomongi	Oloitokitok	U- 88	182/5	37°30'	S 02°55'	3G	R	3G	Not-Turesh Spring
712.1	Ngong	Ngong	U- 89	148/5	36°38'	S 01°21'	2H	U	3AA	Boreholes
713.1	Ildamat	Kajiado	U- 90	161/4	36°46'	S 01°52'	3FA	U	3FA	Boreholes & Nol-Turesh
713.5	Namanga	Namanga	U- 91	181W/2	36°49'	S 02°33'	3N	R		Namanga Spring
714.1	Magadi	Magadi	U- 92	160/4	36°18'	S 01°55'	2H	R		Oloibortoto river
723.1	Kepletudo	Sotik	U- 93	131/1	35°07'	S 00°40'	IJF	U	IJF	River
725.5	Kericho Township	Kericho	U- 94	117/4	35°16'	S 00°20'	IJC	G	IGC, IJC, IID	River
726.1	Kipkelion	Kipkelion	U- 95	117/2	35°28'	S 00°12'	IGC	R		Kipkelion River
727.1	Londiani	Londiani	U- 96	118/1	35°36'	S 00°10'	IGC	U	IGC	Londiani River
731.5	Nanyuki	Nanyuki	U- 97	121/1	37°05'	N 00°01'	SBE	U	SBE	Nanyuki River
733.4	Rumuru	Rumuru	U- 150	106/1	36°31'	N 00°18'	5AA	R		Ewaso Narok River
733.9	Nyahururu Township	Nyahururu	U- 98	105/4	36°22'	N 00°04'	5AA	U	5AA	Nyahururu Stream /Equator Streams
743.2	Gilgil	Gilgil	U- 99	119/4	36°20'	S 00°29'	2GA	R		Molendat River
744.1	Naivasha	Naivasha	U- 100	133/2	36°27'	S 00°42'	2GD	U	2GD	Boreholes
746.1	Njoro	Njoro	U- 101	118/4	35°57'	S 00°19'	2FC	U	2FC	Boreholes
747.3	El Burgon	El Burgon	U- 102	118/4	35°50'	S 00°15'	2EC	R	2EC	Boreholes
747.5	Molo South	Molo	U- 103	118/1	35°42'	S 00°14'	1EG1	U	2EG-1	Boreholes
749.0	Nakuru Municipality	Nakuru	U- 104	119/3	36°04'	S 00°17'	2FC	G	2FB, 2FC, 2FA	Borehole /Shallow Well(3nos.)

Table D4.1 Selected Service Centres for Urban Water Supply Development (4/4)

Code	Location	Urban Name	City Code	Map No:	X-COORD	Y-COORD	BASIN-1	CITY Sub-basin belonging to	Present Raw Water Source
752.1	Lower Melili	Narok	U- 105	146/2	35°53'	S 01°05'	2KA	U 2KA	Engare Narok River
752.5	Keekonyoike	Nairagio Ngare	U- 106	147/1	36°10'	S 01°03'	2H	R	Lolongo Stream/Dam
754.4	Uasin Gishu East	Kilgoris	U- 151	144/2	34°53'	S 01°00'	1KC	R	Poroko River
755.1	Siria East	Lolkorian	U- 152	144/2	34°48'	S 01°13'	1KC	R	Spring
762.3	Kitale	Kitale	U- 107	75/3	35°01'	N 01°01'	1BG	G	Koitobos river
762.4	Kiminiini	Kiminiini/Saboti+Spr.Kita	U- 108	88/2	34°57'	N 00°54'	1BG	R	River (Local)
763.5	Endebess	Endebess/K wanza	U- 109	74/4	34°52'	N 01°05'	1BE	R	River (Local)
771.2	Moi's Bridge	Moi's Bridge	U- 153	89/1	35°08'	N 00°53'	1BE	R	River
772.4	Turbo West	Turbo	U- 154	89/3	35°04'	N 00°38'	1CB	R	River
772.5	Eldoret Municipality	Eldoret	U- 110	89/4	35°14'	N 00°33'	1CB	G	Twin Rivers Dam, Ellgirini Dam, Boreholes
774.6	Olare	Burnt Forest	U- 111	103/4	35°29'	N 00°14'	1CC	R	Boreholes
812.5	Kabarnet Mosop	Kabarnet	U- 112	104/1,2	35°46'	N 00°29'	2EH	U	Boreholes (C4722,3506)
814.3	Maji Mazuri	Maji Mazuri	U- 113	118/1	35°42'	S 00°00'	2ED	R	Maji Mazuri River
814.5	Eldama Ravine	Eldama Ravine	U- 114	104/3	35°45'	N 00°03'	2EF	U	Chemususu River
815.1	Lembus Soi	Mogotto	U- 115	118/2	35°55'	N 00°00'	2EG2	R	Molo River
816.2	Marigat	Marigat	U- 155	104/2	36°00'	N 00°29'	2EE	R	Parkara River/ Chemeron dam
822.4	Kipuitong	Itan+Tambach	U- 116	90/3	35°32'	N 00°41'	2CB	U	Kamariny Spring
831.3	Chemelil	Nandi Hills	U- 117	103/3	35°12'	N 00°07'	1FD	U	Taito River
832.2	Chemundu	Kapsabet+Baraton	U- 118	103/3	35°08'	N 00°13'	1FC	U	Kabusie River
841.4	Maralal	Maralal	U- 119	78/3	36°41'	N 01°05'	5CA	U	Nundoto Dam
842.4	Wamba	Wamba	U- 120	93/2	37°19'	N 00°59'	5DD	R	Borehole (C4513)
843.6	Elbarta	Baragoi	U- 121	65/2	36°47'	N 01°47'	2D	R	Boreholes (C4530)
853.5	Lodwar	Lodwar	U- 122	NA-36-4	35°32'	N 03°08'	2BD	U	Boreholes
861.1	Kapenguria	Kapenguria/Makutano	U- 123	75/3	35°07'	N 01°16'	2BC	U	Kapenguria Stream
911.4	Malakisi	Mawalie + Malakisi	U- 156	87/4	34°27'	N 00°42'	1AB	R	
912.4	Musikoma	Bungoma	U- 124	88/3	34°34'	N 00°35'	1AG	U	Kuywa River
913.1	Kimilili	Kimilili	U- 125	88/1	34°44'	N 00°48'	1DB	U	Kimilili River
914.2	Webuye	Webuye	U- 126	88/4	34°47'	N 00°37'	1DA	U	Nzoia River
916.1	Cheptais	Cheptais	U- 157	87/2	34°29'	N 00°50'	1AA	R	
921.5	South Teso	Busia	U- 127	101/1	34°07'	N 00°29'	1AH	U	Sio River
922.2	Central Bukhayo	Nambale	U- 158	101/2	34°16'	N 00°28'	1AH	R	Boreholes
931.3	West Bunyore	Luanda	U- 128	102/3	34°36'	N 00°02'	1FF	U	Edzawa river
932.5	Central Maragoli	Vihiga+Majengo	U- 129	102/3	34°44'	N 00°03'	1FF	U	Spring
933.1	Shamakhokho	Kaimosi	U- 130	102/4	34°51'	N 00°08'	1FE	U	Dam
934.3	West Isukha	Khayoga	U- 131	102/4	34°47'	N 00°13'	1EB	U	
935.4	Kakamega Municipality	Kakamega	U- 132	102/2	34°46'	N 00°18'	1EB	G	Isiukhu River
939.2	Central Marama	Butere	U- 133	101/4	34°30'	N 00°13'	1EG	U	Boreholes
93A.4	Central Wanga	Mumias	U- 134	101/2	34°30'	N 00°21'	1DD	U	Lusamu River

Remarks : City

G

R

U

Basin No. : Refer to

Table D4.2 Coverage of Existing Urban Water Supply Systems by Selected Service Centre (1/4)

Code	Location	Urban Name	City Code	Present Water Supply Capacity (m ³ /day)			Population (nos.)			Demand (m ³ /day)			Coverage to Demand (%)		
				1990	2000	2010	1990	2000	2010	1990	2000	2010	1990	2000	2010
211.0	Nairobi	Nairobi	U- 1	178,110	1,413,100	2,260,500	3,465,400	332,826	552,294	802,168	53.51	32.25	22.20		
211.1	Kiambaa	Karuri	U- 2	0	16,200	31,700	46,400	2,554	5,070	7,557	0.00	0.00	0.00		
211.4	Kiambu Municipality	Kiambu	U- 3	550	4,500	10,400	16,600	1,589	3,212	4,803	34.60	17.12	11.45		
212.1	Ngennda	Ganudu & Ngennda	U- 4	433	900	1,500	2,000	170	332	460	100.00	100.00	94.18		
213.1	Limuru	Limuru	U- 5	206	1,600	3,200	4,600	931	1,699	2,337	22.12	12.12	8.81		
214.1	Ruiru	Ruiru	U- 6	393	14,300	28,000	40,900	2,602	5,076	7,456	15.10	7.74	5.27		
214.4	Thika Municipality	Thika	U- 7	11,400	59,000	135,500	217,500	11,134	24,737	39,416	100.00	46.09	28.92		
215.1	Githunguri	Githunguri	U- 8	157	3,800	8,800	14,100	671	1,523	2,444	23.41	10.31	6.42		
216.6	Kikuyu	Kikuyu	U- 9	1,270	6,100	14,100	22,500	4,561	8,081	10,567	27.85	15.72	12.02		
221.1	Tebere	Wanguru	U- 10	208	700	1,100	1,500	181	341	490	100.00	60.95	42.44		
222.2	Kiine	Sagana	U- 11	297	2,900	6,800	11,100	518	1,191	1,950	57.31	24.94	15.23		
223.2	Inoi	Kerugoya	U- 12	1,085	8,900	20,700	34,100	1,395	3,263	5,443	77.75	33.25	19.94		
223.3	Kabare	Kurus	U- 13	905	6,300	14,400	23,500	925	2,150	3,575	97.79	42.09	25.31		
231.4	Muruka	Kandara	U- 14	200	700	1,300	1,800	103	193	272	100.00	100.00	73.56		
232.3	Nginda	Maragua	U- 15	66	35,500	64,200	91,200	5,183	9,545	13,813	1.27	0.69	0.48		
233.4	Iyego	Kangema	U- 16	350	1,500	2,800	3,900	219	415	590	100.00	84.43	59.37		
234.3	Mbiri	Murang'a	U- 17	3,000	21,700	45,300	70,100	3,841	7,992	12,449	78.10	37.54	24.10		
235.1	Makuyu	Makuyu	U- 18	0	5,100	10,700	16,500	745	1,589	2,499	0.00	0.00	0.00		
241.3	Oi Kalou	Oi Kalou	U- 19	1,215	9,700	24,800	37,900	1,740	4,316	6,662	69.84	28.15	18.24		
254.2	Konyu	Karaina	U- 20	1,800	5,400	12,200	20,700	975	2,152	3,606	100.00	83.65	49.92		
256.1	Karim'a	Othaya	U- 21	250	4,800	10,900	18,400	702	1,623	2,796	35.63	15.40	8.94		
257.0	Nyeri Municipality	Nyeri	U- 22	5,890	97,000	218,600	370,700	15,559	35,042	59,718	37.86	16.81	9.86		
311.2	Mariakani	Mariakani	U- 23	650	7,600	19,500	33,100	3,954	7,518	10,502	16.44	8.65	6.19		
313.2	Tezo	Kilifi	U- 24	2,450	12,500	32,000	54,500	2,119	5,288	8,994	100.00	46.33	27.24		
314.3	Gede	Watamu	U- 25	0	2,100	5,400	9,200	306	801	1,389	0.00	0.00	0.00		
314.4	Malindi Town	Malindi	U- 26	7,000	36,700	93,900	159,800	5,818	14,805	25,408	100.00	47.28	27.55		
314.6	Magarini	Mamburi	U- 135	0	3,200	6,900	14,400	466	1,024	2,092	0.00	0.00	0.00		
321.1	Shimba North	Kwale	U- 27	470	3,700	9,700	15,200	547	1,455	2,325	85.87	32.30	20.22		
323.1	Kinango South	Kinango	U- 28	300	2,500	4,400	5,800	310	660	885	96.87	45.44	33.88		
324.1	Msambeeni	Msambeeni	U- 29	600	8,400	21,900	34,500	1,298	3,394	5,427	46.24	17.68	11.05		
324.5	Lungalunga	Lungalunga	U- 136	300	2,600	5,700	8,200	441	959	1,404	68.02	31.29	21.57		
331.0	Witu	Witu	U- 30	150	3,300	7,500	12,500	494	1,146	1,987	30.38	13.09	7.55		
333.2	Lamu Town	Lamu	U- 31	500	9,000	20,400	34,000	1,691	3,751	6,317	29.57	13.33	7.92		
340.0	Mombasa	Mombasa	U- 32	68,600	479,600	673,000	904,400	100,256	151,634	202,823	68.42	45.24	33.82		
351.1	Taveta	Taveta	U- 137	350	12,100	20,600	28,900	2,254	3,890	5,449	15.53	9.00	6.42		
352.4	Voi	Voi	U- 33	1,230	12,200	23,600	36,000	2,177	4,257	6,565	56.49	28.89	18.74		
353.2	Weruaha	Wundanyi	U- 34	1,100	2,700	5,300	8,000	403	803	1,237	100.00	100.00	88.92		
362.3	Bura	Bura & Madogo	U- 35	120	1,200	2,100	2,800	149	334	450	80.73	35.94	26.65		
363.3	Zabaki	Hola	U- 36	500	8,100	21,600	34,800	1,374	3,615	5,862	36.38	13.83	8.53		
364.1	Billisa	Garsen	U- 37	170	3,600	8,000	11,700	570	1,272	1,882	29.83	13.36	9.03		

Table D4.2 Coverage of Existing Urban Water Supply Systems by Selected Service Centre (2/4)

Code	Location	Urban Name	City Code	Present Water Supply Capacity (m ³ /day)	Population (nos.)			Demand (m ³ /day)			Coverage to Demand (%)		
					1990	2000	2010	1990	2000	2010	1990	2000	2010
411.8	Kangari South	Runyenges	U- 38	135	2,000	4,100	6,100	407	821	1,228	33.19	16.44	10.99
412.1	Nihawa	Siakago	U- 39	228	600	600	800	50	88	120	100.00	100.00	100.00
413.7	Embu Municipality	Embu	U- 40	3,200	18,400	44,400	72,900	3,010	7,201	11,899	100.00	44.44	26.89
421.1	Central	Isiolo	U- 41	1,250	15,900	49,200	88,100	3,023	9,559	18,914	41.35	13.08	6.61
421.2	Oldonyoyiro	Oi Doinyo Ng'iro	U- 42	0	4,400	11,000	17,600	788	2,064	3,681	0.00	0.00	0.00
422.1	Garbatula	Garbatula	U- 138	150	1,900	4,800	7,600	340	898	1,590	44.07	16.71	9.43
423.1	Merti	Merti	U- 139	70	5,700	14,200	22,700	1,021	2,668	4,757	6.86	2.62	1.47
431.4	Changwihya	Kinai	U- 43	1,180	9,300	24,400	40,800	1,560	4,017	6,759	75.64	29.38	17.46
433.2	Murumo	Murumo	U- 44	310	700	1,200	1,600	87	178	242	100.00	100.00	100.00
434.4	Mwingi	Mwingi	U- 45	50	7,300	19,200	32,000	1,076	2,879	4,888	4.65	1.74	1.02
441.1	Muvuti	Machakos	U- 46	2,660	91,100	214,500	356,400	14,309	33,750	56,631	18.59	7.88	4.70
441.2	Mitaboni	Mitaboni	U- 47	0	29,400	68,800	114,000	4,288	10,248	17,296	0.00	0.00	0.00
442.3	Settlement Area	Alhi River	U- 48	6,400	25,100	59,100	98,200	4,891	10,907	17,649	100.00	58.68	36.26
444.3	K'iteta	Uaani/Tawa	U- 49	4	300	500	700	37	74	105	10.76	5.38	3.83
445.1	Kangundo	Kangundo	U- 50	72	11,200	26,400	43,900	1,695	4,037	6,812	4.25	1.78	1.06
445.2	Maungulu	Tala	U- 140	50	2,100	4,200	6,400	667	1,299	1,951	7.49	3.85	2.56
447.4	K'ibungu	Nunguni	U- 51	45	500	800	1,000	62	117	151	72.65	38.36	29.73
448.1	Makueni	Wote	U- 141	153	2,300	5,500	9,000	431	995	1,629	35.51	15.37	9.39
448.3	Nzau	Emali	U- 52	0	400	600	800	50	89	121	0.00	0.00	0.00
449.4	Mitito Andei	Mitito Andei&Kibwezi	U- 53	0	3,800	8,500	13,500	557	1,264	2,049	0.00	0.00	0.00
451.1	North Horr	North Horr	U- 142	28	2,100	4,400	6,300	374	795	1,244	7.48	3.52	2.25
452.2	Kargi	Kargi	U- 54	50	4,300	10,300	16,600	764	1,910	3,290	6.55	2.62	1.52
453.1	Korr	Korr	U- 143	400	5,800	11,900	17,200	1,030	2,166	3,411	38.82	18.47	11.73
454.1	Mountain	Marsabit	U- 55	300	11,100	27,100	42,700	2,201	5,350	9,078	13.63	5.61	3.30
455.2	Sololo	Sololo	U- 56	20	3,700	9,100	14,300	658	1,652	2,832	3.04	1.21	0.71
456.1	Moyale	Moyale	U- 57	450	6,800	16,600	26,200	1,493	3,548	5,956	30.13	12.68	7.56
461.4	Nitima	Meru	U- 58	2,980	78,900	192,900	319,900	13,209	31,863	53,093	22.56	9.35	5.61
463.1	Nkuene	Nkubu	U- 59	300	5,000	12,300	20,300	757	1,843	3,102	40.68	16.27	9.67
464.1	Chogoria	Chogoria	U- 60	0	1,300	2,200	2,900	161	329	443	0.00	0.00	0.00
464.3	Karngani	Chuka	U- 61	400	4,000	8,300	12,400	590	1,244	1,894	67.85	32.15	21.12
467.2	Maua	Maua	U- 62	170	4,000	8,300	12,400	590	1,244	1,894	28.84	13.67	8.97
513.1	Madogashe	Mudo Gashe	U- 63	69	2,200	4,700	6,700	359	773	1,141	19.25	8.92	6.05
515.2	Ijara	Ijara	U- 64	0	1,400	2,500	3,200	173	409	545	0.00	0.00	0.00
515.3	Kotile	Kotile	U- 65	0	1,400	2,500	3,200	173	409	545	0.00	0.00	0.00
515.4	Masalani	Masalani	U- 66	60	1,400	2,500	3,200	173	409	545	34.60	14.69	11.01
519.1	Sankuni	Garrisa	U- 67	5,641	29,100	73,700	115,300	4,862	12,392	20,030	100.00	45.52	28.16
521.1	Mandera	Mandera	U- 68	1,400	6,500	11,800	18,100	1,222	2,286	3,602	100.00	61.24	38.87
523.1	Elwak	Elwak	U- 69	100	10,700	17,200	24,400	1,730	2,876	4,242	5.78	3.48	2.36
524.2	Rhamu	Rhamu	U- 70	500	4,500	7,200	10,200	727	1,202	1,772	68.73	41.61	28.22
532.4	Wajir Township	Wajir	U- 71	23	21,400	46,100	75,500	3,428	7,469	12,493	0.67	0.31	0.18

Table D4.2 Coverage of Existing Urban Water Supply Systems by Selected Service Centre (3/4)

Code	Location	Urban Name	City Code	Present Water Supply Capacity (m ³ /day)	Population (nos.)		Demand (m ³ /day)		Coverage to Demand (%)			
					1990	2000	1990	2000	1990	2000	2010	
536.2	Buna	Buna	U- 72	0	6,800	12,600	1,087	2,040	3,094	0.00	0.00	0.00
537.2	Bute	Bute	U- 73	12	2,200	4,100	353	664	1,008	3.40	1.81	1.19
611.2	Eranga	Manga	U- 74	30	1,100	1,700	136	252	320	22.02	11.89	9.38
611.5	East Kintu	Keroka	U- 75	145	2,500	4,400	596	1,079	1,537	24.34	13.44	9.43
612.2	East Mugirango	Nyamira + Kebirigo	U- 144	400	11,000	21,400	1,671	3,322	5,090	23.94	12.04	7.86
615.0	Kisii Municipality	Kisii	U- 76	3,520	45,800	91,000	7,815	15,630	24,020	45.04	22.52	14.65
617.1	Majoge Chache	Ogembo	U- 77	0	1,100	2,000	162	298	412	0.00	0.00	0.00
622.1	West Kisumu	Maseno	U- 78	2,400	16,000	32,200	7,413	13,794	19,934	32.38	17.40	12.04
622.3	East Kisumu	Kisumu & + Kiboswa	U- 79	15,490	176,200	362,400	26,032	54,693	89,344	59.50	28.32	17.34
623.2	South East Kano	Ahero	U- 80	0	10,300	18,500	1,784	3,279	4,864	0.00	0.00	0.00
625.2	Muhoroni	Muhoroni	U- 81	96	8,100	16,700	1,422	2,937	4,720	6.75	3.27	2.03
632.4	West Sakwa	Bondo	U- 145	160	3,600	6,100	703	1,231	1,771	22.76	12.99	9.04
633.2	East Gem	Yala	U- 82	210	2,700	4,600	683	1,216	1,751	30.73	17.26	11.99
634.1	East Alego	Siaya	U- 83	1,200	19,400	37,100	3,245	6,283	9,778	36.98	19.10	12.27
635.4	North Agenya	Ukwala	U- 84	50	1,100	1,900	162	284	411	30.81	17.63	12.16
641.1	Kanyada West	Homa Bay	U- 85	1,200	23,000	48,600	3,945	8,308	12,741	30.42	14.44	9.42
644.3	Suna East	Migori	U- 86	130	7,500	15,900	1,321	2,781	4,253	9.84	4.67	3.06
646.3	Bukira East	Kehancha + Tarang'anya	U- 146	10	3,800	7,000	555	1,038	1,481	1.80	0.96	0.68
646.8	Bugembe West	Nyabikaye	U- 147	0	3,600	6,600	525	980	1,405	0.00	0.00	0.00
647.4	Central Kasipul	Oyugis	U- 148	200	3,800	7,000	624	1,155	1,629	32.07	17.31	12.28
648.1	Central Karachuonyo	Kendu Bay	U- 87	150	2,700	5,800	635	1,311	1,974	23.60	11.44	7.60
649.4	South Sakwa	Awendo/Sare	U- 149	0	4,300	7,900	1,082	2,015	2,877	0.00	0.00	0.00
711.1	Odongoi	Oloitokitok	U- 88	150	4,300	12,900	698	2,098	4,034	21.50	7.15	3.72
712.1	Ngong	Ngong	U- 89	350	16,100	44,700	2,614	7,278	13,474	13.39	4.81	2.60
713.1	Ildamat	Kajiado	U- 90	150	6,000	17,900	973	2,916	5,617	15.41	5.14	2.67
713.5	Namanga	Namanga	U- 91	100	4,800	14,400	779	2,342	4,496	12.84	4.27	2.22
714.1	Magadi	Magadi	U- 92	400	2,800	8,400	524	1,484	2,781	76.36	26.96	14.38
723.1	Kepleudo	Sotik	U- 93	150	6,000	11,200	1,295	2,443	3,640	11.58	6.14	4.12
725.5	Kericho Township	Kericho	U- 94	2,850	41,200	88,700	8,034	16,974	27,497	35.48	16.79	10.36
726.1	Kipkelion	Kipkelion	U- 95	115	2,200	4,800	330	730	1,210	34.90	15.76	9.50
727.1	Londiani	Londiani	U- 96	120	3,200	6,900	504	1,098	1,816	23.79	10.93	6.61
731.5	Nanyuki	Nanyuki	U- 97	2,720	25,100	63,600	4,489	11,167	20,546	60.59	24.36	13.24
733.4	Rumuruti	Rumuruti	U- 150	90	2,400	5,100	485	1,015	1,651	18.55	8.87	5.45
733.9	Nyahururu Township	Nyahururu	U- 98	2,490	14,200	36,000	6,000	6,505	11,055	94.25	38.28	22.52
743.2	Gilgil	Gilgil	U- 99	778	14,600	39,900	2,325	6,340	12,065	33.47	12.27	6.45
744.1	Naivasha	Naivasha	U- 100	2,100	38,500	105,000	6,151	16,752	31,924	34.14	12.54	6.58
746.1	Njoro	Njoro	U- 101	440	9,100	24,900	1,463	3,999	7,608	30.07	11.00	5.78
747.3	El Burgon	El Burgon	U- 102	410	12,400	33,900	1,953	5,363	10,239	20.99	7.65	4.00
747.5	Molo South	Molo	U- 103	400	10,900	29,800	1,813	4,892	9,259	22.06	8.18	4.32
749.0	Nakuru Municipality	Nakuru	U- 104	19,830	172,200	469,500	34,623	86,813	151,718	57.27	22.84	13.07

Table D4.2 Coverage of Existing Urban Water Supply Systems by Selected Service Centre (4/4)

Code	Location	Urban Name	City Code	Present Water Supply Capacity (m3/day)	Population (nos.)			Demand (m3/day)			Coverage to Demand (%)			
					1990	2000	2010	1990	2000	2010	1990	2000	2010	
752.1	Lower Meili	Narok	U- 105	1,050	12,000	42,800	85,700	2,084	7,240	14,516	50.40	14.50	2010	7.23
752.5	Keekonyokie	Nairagie Ngare	U- 106	50	500	1,400	2,500	82	230	413	61.02	21.71	12.09	12.09
754.4	Uasin Gishu East	Kilgoris	U- 151	130	3,300	9,300	16,200	541	1,526	2,686	24.04	8.52	4.84	4.84
755.1	Siria East	Lolkorian	U- 152	70	1,700	4,800	8,400	279	788	1,391	25.13	8.89	5.03	5.03
762.3	Kitale	Kitale	U- 107	5,610	56,400	142,300	249,200	9,391	23,346	40,986	59.74	24.03	13.69	13.69
762.4	Kimini	Kimini/Saboti+Spr.Kila	U- 108	0	1,700	3,000	4,200	211	450	642	0.00	0.00	0.00	0.00
763.5	Endebess	Endebess/Kwanza	U- 109	0	2,800	4,800	6,700	348	723	1,029	0.00	0.00	0.00	0.00
771.2	Moi's Bridge	Moi's Bridge	U- 153	26	3,100	6,400	10,100	464	975	1,577	5.60	2.67	1.65	1.65
772.4	Turbo West	Turbo	U- 154	150	4,300	8,800	14,000	644	1,342	2,185	23.30	11.17	6.86	6.86
772.5	Eldoret Municipality	Eldoret	U- 110	16,250	112,900	272,500	486,800	20,374	47,755	84,415	79.76	34.03	19.25	19.25
774.6	Oiare	Burnt Forest	U- 111	65	2,200	4,500	7,200	330	687	1,124	19.73	9.46	5.79	5.79
812.5	Kabarnet Mosop	Kabarnet	U- 112	1,312	9,400	20,500	34,700	1,475	3,249	5,558	88.92	40.38	23.60	23.60
814.3	Maji Mazuri	Maji Mazuri	U- 113	96	5,200	11,400	19,200	785	1,745	2,991	12.23	5.50	3.21	3.21
814.5	Eldama Ravine	Eldama Ravine	U- 114	522	5,600	12,300	20,700	902	1,985	3,372	57.89	26.29	15.48	15.48
815.1	Lembus Soi	Mogotio	U- 115	442	2,900	6,400	10,700	436	975	1,662	100.00	45.31	26.59	26.59
816.2	Marigat	Marigat	U- 155	173	3,000	5,700	8,600	452	871	1,340	38.31	19.87	12.91	12.91
822.4	Kipuriifong	Item+Tambach	U- 116	550	6,300	13,000	19,700	952	2,035	3,194	57.75	27.03	17.22	17.22
831.3	Chemelil	Nandi Hills	U- 117	200	1,300	2,800	4,200	877	1,687	2,467	22.80	11.86	8.11	8.11
832.2	Chemundu	Kapsabet+Baraton	U- 118	830	13,400	33,100	56,300	2,114	5,238	9,002	39.26	15.84	9.22	9.22
841.4	Maralal	Maralal	U- 119	600	17,800	42,300	74,800	3,036	7,296	13,177	19.76	8.22	4.55	4.55
842.4	Wamba	Wamba	U- 120	100	3,700	8,800	15,600	593	1,449	2,651	16.85	6.90	3.77	3.77
843.6	Elbana	Baragoi	U- 121	50	3,200	7,700	13,500	512	1,265	2,294	9.76	3.95	2.18	2.18
853.5	Lodwar	Lodwar	U- 122	1,250	9,300	21,300	33,400	1,890	4,543	7,881	66.14	27.51	15.86	15.86
861.1	Kapenguria	Kapenguria/Makutano	U- 123	180	12,000	28,000	48,200	1,846	4,332	7,538	9.75	4.16	2.39	2.39
911.4	Malakisi	Mawalie + Malakisi	U- 156	0	3,200	7,100	10,700	627	1,376	2,084	0.00	0.00	0.00	0.00
912.4	Musikoma	Bungoma	U- 124	2,500	29,500	83,100	142,700	5,098	13,776	23,561	49.04	18.15	10.61	10.61
913.1	Kimilili	Kimilili	U- 125	152	6,500	18,300	31,500	955	2,735	4,795	15.91	5.56	3.17	3.17
914.2	Webuye	Webuye	U- 126	1,250	26,600	74,900	128,700	4,054	11,472	19,991	30.83	10.90	6.25	6.25
916.1	Cheptais	Cheptais	U- 157	0	2,800	6,500	10,000	468	1,076	1,675	0.00	0.00	0.00	0.00
921.5	South Teso	Busia	U- 127	2,000	13,300	41,500	70,200	2,105	6,489	11,113	95.03	30.82	18.00	18.00
922.2	Central Bukhayo	Nambale	U- 158	154	2,100	5,300	8,100	308	791	1,233	49.98	19.47	12.49	12.49
931.3	West Bunyore	Luanda	U- 128	1,770	3,300	7,900	12,600	690	1,563	2,478	100.00	100.00	71.42	71.42
932.5	Central Maragoli	Vihiga+Majengo	U- 129	120	5,100	9,900	14,400	801	1,591	2,332	14.99	7.54	5.15	5.15
933.1	Shamakhocho	Kaimosi	U- 130	660	600	1,000	1,300	188	358	498	100.00	100.00	100.00	100.00
934.3	West Isukha	Khayega	U- 131	0	600	1,000	1,400	188	360	513	0.00	0.00	0.00	0.00
935.4	Kakamega Municipality	Kakamega	U- 132	2,760	49,200	116,700	187,500	7,884	18,648	30,259	35.01	14.80	9.12	9.12
939.2	Central Marama	Butere	U- 133	170	2,500	5,100	7,400	366	758	1,121	46.49	22.43	15.16	15.16
93A.4	Central Wang'a	Mumias	U- 134	881	25,800	51,800	75,900	3,886	7,923	11,814	22.67	11.12	7.46	7.46
				422,292	3,976,300	7,819,900	12,537,900	798,638	1,547,212	2,414,293	52.88	27.29	17.49	17.49

Table D4.3 Development Cost of Urban Water Supply Systems of Selected Service Centres (1/4)

Code	Location	Urban Name	City Code	Present Raw Water Source	Future Raw Water Source	g/p	line km	Pipe lift m	Pipe Pump Large Dams	Construction Cost (1000 US\$)			25.2 Total
										1990	2000	2010	
110.0	Nairobi	Nairobi	U- 1	Chania R. + Saumua Dam + Ruiru Dam + Kikuyu Spring	Thika Dam, Ndarugu, Ruiru-A, Chania-B	P	165.0	150	196,507	276,508	267,069	321,556	1,061,640
211.1	Kiamba	Kenari	U- 2	Boreholes	Kiamba Dam (Ruiri Ruaka R.)	P	2.2	170	3,006	3,067	2,990	2,907	11,970
211.4	Kiambu Municipality	Kimbu	U- 3	Bore holes + NCC P/L	Kiamba Dam (Ruiri Ruaka r.)	P	12.1	0	1,702	2,166	2,603	2,616	9,087
212.1	Ngenda	Gatundu & Ngenda	U- 4	Boreholes	Thairika River	P	3.2	70	0	0	0	314	314
213.1	Limuru	Limuru	U- 5	Boreholes	Chania P/L	P	59.7	360	4,054	5,159	4,953	14,167	14,167
214.1	Ruiru	Ruiru	U- 6	Ruiru River	Ruiru River	P	7.5	0	3,241	3,272	3,166	9,678	9,678
214.4	Thika Municipality	Thika	U- 7	Chania River	Chania River (Lowes)	P	5.5	0	0	10,386	10,953	21,339	21,339
215.1	Githunguri	Githunguri	U- 8	Boreholes	Ruiru river	P	7.2	120	1,408	1,746	1,814	4,968	4,968
216.6	Kikuyu	Kikuyu	U- 9	Boreholes	Kikuyu Dam	P	0.4	0	8,250	2,123	2,359	2,134	14,866
221.1	Teberre	Wanguru	U- 10	N.L.B canal	Thiba River	P	5.0	0	0	580	599	1,179	1,179
222.2	Kiine	Sagana	U- 11	Ragati River	Ragati River	P	4.1	0	863	1,305	1,394	3,562	3,562
222.3	Inoi	Kerugoya	U- 12	Ruru River	Kiriga River	P	10.0	0	1,893	3,092	3,365	8,350	8,350
223.2	Kabare	Kutus	U- 13	Thiba River	Thiba River	P	3.3	0	850	1,936	2,105	4,891	4,891
231.4	Munika	Kandara	U- 14	Thika River	Thika River	P	4.7	0	0	0	482	482	482
232.3	Nginda	Maraga	U- 15	Boreholes	Githaji river	P	3.3	0	5,625	4,812	4,629	15,066	15,066
233.4	Iyego	Kangema	U- 16	River (Local)	Mathioya River	P	4.5	80	0	538	671	1,208	1,208
234.3	Mbirri	Murang'a	U- 17	River (Local)	Maragua river	P	1.8	70	2,924	4,136	4,319	11,378	11,378
235.1	Makuyu	Makuyu	U- 18	River (Local)	Motobo river	P	4.7	80	1,509	1,614	1,669	4,792	4,792
241.3	Oi Kalou	Oi Kalou	U- 19	Boreholes	Malewa River	P	16.0	0	2,567	4,214	3,933	10,714	10,714
254.2	Koonyu	Karatina	U- 20	Ragati River	Ragati River	P	6.9	0	0	1,534	2,350	3,883	3,883
256.1	Karina	Ohaya	U- 21	Githira River	Tuthi river	P	5.0	0	1,301	1,720	1,978	5,000	5,000
257.0	Nyeri Municipality	Nyeri	U- 22	Chania River	Chania River	P	4.1	0	12,340	16,901	21,102	50,344	50,344
311.2	Mariakani	Mariakani	U- 23	Mzima pipeline	2nd Mzima P/L	P	2.4	0	1,220	1,652	1,749	4,621	4,621
313.2	Tezo	Kilifi	U- 24	Sabaki pipeline	Rare reservoir	P	13.9	70	0	4,543	5,102	9,645	9,645
314.3	Cede	Wazuru	U- 25	Sabaki pipeline	Sabaki pipeline	P	20.1	0	1,548	1,757	1,846	5,151	5,151
314.4	Malindi Town	Malindi	U- 26	Sabaki Pipeline	Sabaki Pipeline & Rare Dam	P	49.0	0	35,117	0	13,748	15,504	64,369
314.6	Migarni	Mambeni	U- 135	Borehole /small dam	Sabaki river	P	5.5	60	1,198	1,312	1,970	4,479	4,479
321.1	Shamba North	Kwale	U- 27	Marere spring	Marere pipeline	P	7.8	200	981	1,922	1,852	4,755	4,755
322.1	Kisumu South	Kisumu	U- 28	Marere pipeline	Marere pipeline	P	18.7	130	1,286	1,851	1,636	4,773	4,773
324.1	M-sambweni	M-sambweni	U- 29	Boreholes	Boreholes + Mkurumaji river	P	375.0	40	7,358	19,364	18,756	45,479	45,479
324.5	Lungshanga	Lungshanga	U- 136	Boreholes	Umba river	P	1.3	40	579	941	835	2,355	2,355
331.0	Witu	Witu	U- 30	1 no shallow well	Mtondo wa Cambi river	P	11.6	10	1,500	1,848	2,055	5,403	5,403
332.2	Lamu Town	Lamu	U- 31	20 shallow wells	P/L from Tana River + B/H	P	121.0	40	11,110	12,757	13,666	37,534	37,534
340.0	Mombasa	Mombasa	U- 32	Mzima P/L /Sabaki P/L /Marere P/L	2nd Mzima/Mwachhi Dam, Penbe Dam	P	261.9	0	98,113	115,457	112,314	115,691	441,575
351.1	Teveta	Teveta	U- 137	Njoro spring	Njoro Spring	P	5.0	60	2,716	2,276	2,226	7,219	7,219
352.4	Voi	Voi	U- 33	Mzima P/L	2nd Mzima pipeline	P	4.1	10	2,246	2,628	2,794	7,669	7,669
353.2	Wengha	Wundanyi	U- 34	Tana Hills streams	Sigaso/Manguni River	P	7.2	80	0	0	935	935	935
362.3	Bura	Bura & Madogo	U- 35	Tana River	Tana River	P	0.2	20	217	427	304	947	947
363.3	Zabaki	Hola	U- 36	Tana River	Tana River	P	1.3	20	1,615	2,631	2,604	6,850	6,850
364.1	Ellis	Ganzu	U- 37	Tana River	Tana River	P	0.6	20	860	1,124	1,005	2,989	2,989

Table D4.3 Development Cost of Urban Water Supply Systems of Selected Service Centres (2/4)

Code	Location	Urban Name	City Code	Present Raw Water Source	Pipe line g/p	Future Raw Water Source	Pipe line g/p	Pipe Pump line km	Pipe lift m	Large Dams	Construction Cost (1000 US\$)			Total
											Water Supply System			
											1990	2000	2010	
411.8	Kangari South	Ruyeyjes	U- 38	Ena River	g	2.0 Ena river	g	2.1	0		701	825	810	2,337
412.1	Nihawa	Siakago	U- 39	Ena River	g	5.0 Ena River	g	7.0	70		0	0	0	0
413.7	Embu Municipality	Enabu	U- 40	Kapingazi River + Rupingazi River	p	Lower Kapingazi River + Upper Rupingazi River	p	1.5	130		0	4,246	4,603	8,849
421.1	Central	Isiolo	U- 41	Isiolo River	g	10.0 Boreholes + Spring	g	1,245.0	0		16,311	56,113	80,149	152,573
421.2	Oldonyoyiro	Ol Doinyo Ng'iro	U- 42	Sub-surface dam	p	1.0 Ewaso Ng'iro River	p	17.0	100		2,357	2,889	3,078	8,323
422.1	Garbanula	Garbanula	U- 138	Boreholes	p	4.0 Boreholes	g	161.0	0		5,480	15,612	19,297	40,389
423.1	Merti	Merti	U- 139	Boreholes C3853	p	Ewaso Ng'iro	p	1.0	10		1,427	1,946	2,087	5,460
431.4	Changwithiya	Kini	U- 43	Boreholes	p	6.0 Mwatiga Dam	g	9.8	0		1,985	3,607	3,824	9,415
433.2	Mutemo	Mutemo	U- 44	Boreholes	p	25.0 Sub-surface dam on Tiva river	p	16.0	110		0	0	0	0
434.4	Mwingi	Mwingi	U- 45	Shallow wells	g	2.0 Kiambere Dam	p	40.5	290		4,580	5,664	5,897	16,141
441.1	Muvuti	Machakos	U- 46	Mamba Dam	g&p	8.0 Athi River P/L	p	56.7	600		20,099	27,264	30,749	78,112
441.2	Mitaboni	Mitaboni	U- 47	Spring, Self-help	p	Kasubusa River	p	9.9	130		5,573	6,960	7,759	20,293
442.3	Settlement Area	Athi River	U- 48	Nol-Turesh P/L	p	Upper Athi Dam	g	9.9	0	6,519	0	6,052	7,087	19,658
444.3	Kiiza	Usani/Tawa	U- 49	Boreholes sand Dam	g	Tawa river	g	4.1	0		356	417	340	1,113
445.1	Kangundo	Kangundo	U- 50	Boreholes	p	Pipeline from Athi River	p	44.0	170		5,743	6,649	7,145	19,537
445.2	Matungulu	Tala	U- 140	Boreholes	p	Pipeline from Athi river	p	28.3	160		2,792	2,807	2,837	8,437
447.4	Kilungu	Nunguni	U- 51	Spring	p	Kyungonyo river	p	6.2	440		448	567	483	1,498
448.1	Makumi	Wote	U- 141	Boreholes	p	Kaini river + Naumai river	p	3.9	180		857	1,166	1,240	3,263
448.3	Nzani	Enali	U- 52	Nol Turesh P/L	p	Nol Turesh P/L	p	7.0	150		562	620	509	1,691
449.4	Mito Andak	Mito Andak&Kibwezi	U- 53	Nol-Turesh P/L + Umami springs	p	Pipeline from Athi river	p	77.0	70		6,224	6,579	6,734	19,537
451.1	North Horr	North Horr	U- 142	Boreholes	g	Boreholes	g	232.0	0		6,278	7,638	8,102	22,017
452.2	Kargi	Kargi	U- 54	Boreholes	p	Boreholes + Subsurface Dam	g	756.0	0		14,547	23,658	28,574	66,779
453.1	Korr	Korr	U- 143	Boreholes	g	Boreholes	g	593.0	0		12,029	21,397	23,383	56,810
454.1	Mountain	Marabiti	U- 55	Small river(Bakuli spring)	p	7.0 Boreholes +Small dams/Sub-surface dam/Spring	g	1,739.0	0		37,921	63,847	75,967	171,796
455.2	Sololo	Sololo	U- 56	Boreholes	p	1.0 Boreholes	g	726.0	0		14,215	22,409	26,653	63,277
456.1	Moyale	Moyale	U- 57	Moyale Dam	p	6.0 Boreholes + Small Dam	g	608.0	0		13,017	25,476	29,782	68,275
461.4	Nidra	Meru	U- 58	Kazia R. Gashora St	g	3.0 Kachira river	g	2.2	0		10,437	15,622	17,484	43,544
463.1	Nloene	Ntabu	U- 59	Thungithu River	g	1.0 Thungithu River	g	2.0	0		1,110	1,698	1,831	4,639
464.1	Chogoria	Chogoria	U- 60	Mutonga River	g	2.0 North Maa River	p	2.8	50		567	693	456	1,716
464.3	Karingani	Qulez	U- 61	Tungu River	g	Tungu river	g	7.0	0		1,110	1,535	1,513	4,158
467.2	Maau	Maau	U- 62	Mbooco Stream	g	0.3 Ua river	p	4.1	250		1,154	1,347	1,326	3,827
513.1	Mado gache	Mado Gache	U- 63	Spring	g	Boreholes + Subsurface Dam	g	207.0	0		5,317	7,597	6,702	19,616
515.2	Ijara	Ijara	U- 64	Boreholes	g	Boreholes + Small dam	g	104.0	0		3,396	4,638	2,647	10,682
515.3	Kotilo	Kotilo	U- 65	Boreholes	g	Boreholes/Subsurface Dam/Tawa	g	199.0	0		4,843	6,889	3,896	15,628
515.4	Masalani	Masalani	U- 66	Tana river	p	Tana River	p	6.3	40		724	954	691	2,370
519.1	Sankuri	Gecusa	U- 67	Tana river	p	Tana River	p	3.0	10		0	6,554	6,363	12,918
521.1	Mandera	Mandera	U- 68	Boreholes/Dana river	p	Dana River	p	2.2	40		0	1,423	1,713	3,136
523.1	Elwak	Elwak	U- 69	Borehole	g	Boreholes	g	750.0	0		29,988	20,707	24,786	75,481
524.2	Rhenu	Rhenu	U- 70	River (Local)	p	Dana River	p	2.2	40		905	934	1,026	2,866
532.4	Wajir Township	Wajir	U- 71	Borehole (CS267)	p	1.0 Boreholes + Ewaso Ng'iro River	p	1,456.0	20		48,620	56,061	67,586	172,266

Table D4.3 Development Cost of Urban Water Supply Systems of Selected Service Centres (3/4)

Code	Location	Urban Name	City Code	Present Raw Water Source	Pipe line g/p	Future Raw Water Source km	g/p	Pipe line km	Pump lift m	Construction Cost (1000 US\$)				Total
										Large Dams		Water Supply System		
										1990	2000	2010	2010	
536.2	Busa	Busa	U- 72	Boreholes	P	Boreholes(Lago Bor river)	8	1,197.0	0	33,395	29,102	32,277	94,774	
537.2	Bute	Bute	U- 73	Boreholes	P	Boreholes + Small Dams	8	176.0	0	6,292	5,752	6,335	18,378	
611.2	Eranga	Manga	U- 74	Gucha river	P	Bunyunya Dam	P	23.9	90	0	1,981	1,564	3,601	
611.5	East Kibatu	Keroba	U- 75	Chiribiri river	P	Bunyunya Dam	P	13.8	320	270	1,684	1,638	1,616	5,228
612.2	East Mugirango	Nyanira + Kebirigo	U- 144	River (Local)	P	Kuja river	P	22.0	220	3,705	3,882	4,003	11,590	
615.0	Kisii Municipality	Kisii	U- 76	Nyakobisaro	P	Bunyunya Dam	8	10.9	0	3,958	7,214	8,020	27,548	
617.1	Majoge Cheche	Ogembo	U- 77	Spring	8	Kuja river	8	4.1	0	628	577	529	1,754	
622.1	West Kisumu	Maseno	U- 78	Kima river	P	Edzawa Dam	P	13.2	160	4,878	5,264	5,410	15,551	
622.3	East Kisumu	Kisumu & + Kiboswa	U- 79	Lake Victoria	8	Kibos dam	8	13.8	0	23,836	21,352	27,534	104,840	
623.2	South East Kano	Ahero	U- 80	Boreholes	P	Nyando river	P	0.7	20	2,138	1,840	1,891	5,869	
625.2	Muhoroni	Muhoroni	U- 81	Nyando river	P	Nyando River	8	8.4	0	2,373	2,507	2,753	7,633	
632.4	West Sakwa	Bondo	U- 145	Yala River	P	Yala river	P	8.0	100	1,465	1,350	1,358	4,172	
633.2	East Gen	Yala	U- 82	Yala River	P	Yala river	P	1.2	20	866	829	830	2,526	
634.1	East Alego	Siaya	U- 83	Nyanasin River	P	Yala River	P	22.0	200	5,065	5,228	5,662	15,975	
635.4	North Agenya	Ukwala	U- 84	Boreholes	P	Nzoia River	P	5.4	100	646	630	639	1,914	
641.1	Kauyada West	Homa Bay	U- 85	L.Victoria	P	Lake Victoria	P	2.0	110	3,737	4,398	4,386	12,521	
644.3	Suna East	Migori	U- 86	Boreholes	P	Migori river	P	1.1	110	1,692	1,884	1,870	5,446	
646.3	Bakira East	Kehancha + Teranganya	U- 146	Orewo Dam	P	Migori river	P	10.8	120	1,681	1,574	1,501	4,757	
646.8	Bugembe West	Nyahikaye	U- 147	Stream	8	Boreholes	8	267.0	0	10,114	8,752	8,180	27,046	
647.4	Central Kasipul	Oyugis	U- 148	Awachi River	8	Isenia river(Awachi Tendu)	8	11.3	0	1,748	1,638	1,552	4,938	
648.1	Central Karachuonyo	Kenia Bay	U- 87	Awachi River	P	Lake Victoria	P	1.5	40	895	1,051	1,024	2,970	
649.4	South Sakwa	Awendo/Sarc	U- 149	Sarc River	8	Sarc river	8	8.3	0	1,883	1,735	1,645	5,263	
711.1	Otomongi	Oloikiok	U- 88	Nol-Turrah Spring	P	Nol-Turrah Spring	P	8.3	340	1,570	2,475	2,987	7,032	
712.1	Ngong	Ngong	U- 89	Boreholes	P	Kerapoo Spring	P	5.3	120	3,247	5,107	6,254	14,608	
713.1	Ildama	Kajado	U- 90	Boreholes & Nol-Turrah	P&8	Kisumu P/L	8	53.0	0	5,143	6,809	7,790	19,742	
713.5	Namanga	Namanga	U- 91	Namanga Spring	8	Namanga Spring	8	0.8	0	1,161	2,003	2,502	5,666	
714.1	Magadi	Magadi	U- 92	Oloiboto river	8	Oloiboto river	8	34.0	0	2,509	3,853	4,325	10,688	
723.1	Kepletudo	Soik	U- 93	River	P	Kipacoi river	P	1.1	70	1,530	1,456	1,495	4,481	
725.5	Kericho Township	Kericho	U- 94	River	P	Dimlich Dam, Kamugung Dam	P	8.3	60	6,895	8,281	9,057	24,233	
726.1	Kiptellon	Kiptellon	U- 95	Kiptellon River	P	Nyando river	P	0.0	20	538	726	818	2,083	
727.1	Londiani	Londiani	U- 96	Londiani River	8	Londiani dam	8	6.2	0	54,550	1,176	1,381	1,529	
731.5	Nanyuki	Nanyuki	U- 97	Nanyuki River	8	Lili river	8	5.6	0	3,941	6,495	8,179	18,615	
733.4	Rumunui	Rumunui	U- 150	Ewaso Narak River	8	Rumunui Dam + Borehole	8	120.0	0	4,310	1,647	1,668	9,203	
733.9	Nyahururu Township	Nyahururu	U- 98	Nyahururu Stream /Equator Streams	8	Nyahururu dam + Borehole	8	645.0	0	2,943	2,012	8,442	9,659	
743.2	Gilgil	Gilgil	U- 99	Molinduz River	8	Turasha P/L & Malewa Dam	8	0.0	0	31,910	2,381	3,962	5,004	
744.1	Naivasha	Naivasha	U- 100	Boreholes	8	Turasha P/L & Malewa Dam	8	30.3	0	10,478	8,408	13,069	17,022	
746.1	Njoro	Njoro	U- 101	Boreholes	P	Iare Dam	P	67.1	350	1,195	6,773	8,974	10,358	
747.3	El Burgon	El Burgon	U- 102	Boreholes	P	Iare Dam	P	49.2	350	1,633	6,239	8,464	10,029	
747.5	Molo South	Molo	U- 103	Boreholes	P	Iare Dam	P	36.9	350	1,472	4,997	6,825	8,114	
749.0	Nakuru Municipality	Nakuru	U- 104	Borehole /Shallow Well(Boss)	P	Turasha P/L + Malewa Dam + Iare Dam	P	90.5	350	22,365	34,837	69,050	85,769	

Table D4.3 Development Cost of Urban Water Supply Systems of Selected Service Centres (4/4)

Code	Location	Urban Name	City Code	Present Raw Water Source	Pipe line g/p	Future Raw Water Source	Pipe line km	g/p	Pipe lift m	Construction Cost (1000 USD)			Total
										Water Supply System		Large Dams	
										1990	2000		
752.1	Lower Melili	Narok	U- 105	Engare Narok River	P	1.4 Upper Narok Dam	14.9	0	13,192	3,083	6,479	8,188	30,943
752.5	Kedonyoike	Naragie Ngare	U- 106	Lolongo Stream/Dam	P	0.5 Nesaapokoi river	5.0	0	422	422	646	706	1,774
754.4	Uasin Gishu East	Kilgoris	U- 151	Poroko River	P	Poroko river	1.9	130	1,076	1,521	1,521	1,686	4,282
755.1	Siris East	Loikorian	U- 152	Spring	P	Migori river	7.2	160	936	1,342	1,342	1,457	3,734
762.3	Kitale	Kitale	U- 107	Koitobos river	P	Koitobos river	4.4	80	7,415	12,200	15,143	34,757	
762.4	Kiminini	Kiminini/Saboti+Spr+Kita	U- 108	River (Local)	P	Kahenyar river	23.4	140	5	2,101	1,857	3,963	
763.5	Endebess	Endebess/Kwanza	U- 109	River (Local)	P	Koitobos river	2.4	20	862	808	742	2,412	
771.2	Moi's Bridge	Moi's Bridge	U- 153	River	P	Nzoia river	1.5	40	900	969	1,064	2,934	
772.4	Turbo West	Turbo	U- 154	River	P	Sotiani river	10.5	0	1,657	1,831	1,993	5,480	
772.5	Eldoret Municipality	Eldoret	U- 110	Twin Rivers Dam, Elleirini Dam, Boreholes	P	Moiben Dam + Nzoia river	100.0	410	13,779	22,806	44,076	55,230	135,891
774.6	Olare	Burni Forest	U- 111	Boreholes	P	Kiptaran river	0.4	50	609	693	789	2,091	
812.5	Kabarnet/Mosop	Kabarnet	U- 112	Boreholes (C4722,506)	P	4.0 Kirandich Dam	5.8	250	20,000	1,529	2,657	3,138	27,324
814.3	Maji Mazuri	Maji Mazuri	U- 113	Maji Mazuri River	P	3.0 Maji Mazuri river	4.5	0	1,466	1,712	2,002	5,180	
814.5	Eldama Ravine	Eldama Ravine	U- 114	Chemususu River	P	1.0 Chemususu Dam	12.7	0	16,607	1,824	3,419	4,703	26,552
815.1	Lembus Soi	Mogotio	U- 115	Molo River	P	2.0 Molo river /Chemususu Dam	3.3	0	3,590	0	1,126	1,295	6,011
816.2	Marigat	Marigat	U- 155	Parkera River/ Chemeron dam	P	Parkera river	1.7	0	776	859	913	2,549	
822.4	Kipulung	Iter+Tambach	U- 116	Kumany Spring	P	3.5 Moiben Dam	35.2	40	945	3,396	4,161	4,225	12,727
831.3	Chemcill	Nandi Hills	U- 117	Taito River	P	0.5 Makena River	7.0	170	1,276	1,379	1,352	4,008	
832.2	Chemandu	Kapsabet+Baraton	U- 118	Kabutie River	P	1.4 Makena river	8.8	170	2,898	4,192	4,726	11,817	
841.4	Marsial	Marsial	U- 119	Nundoto Dam	P	Loikar/Yamo river	9.8	0	4,132	5,364	6,544	16,040	
842.4	Wamba	Wamba	U- 120	Borehole (C4513)	P	Boreholes	1,093.0	0	15,691	27,410	38,839	81,960	
843.6	Elberta	Baragoi	U- 121	Boreholes (C4530)	P	Boreholes + Sub-surface dam	1,640.0	0	25,154	41,391	57,139	123,684	
853.5	Lodwar	Lodwar	U- 122	Boreholes	P	Boreholes & sub-surface dam	1,343.0	0	12,677	52,820	67,083	132,580	
861.1	Kapenguria	Kapenguria/Makutero	U- 123	Kapenguria Stream	P	1.5 Kapenguria River	1.7	170	2,354	2,986	3,580	8,920	
911.4	Malakisi	Mawalic + Malakisi	U- 156	Kuywa River	P	Malakisi river	1.5	60	1,033	1,169	1,118	3,319	
912.4	Musikoma	Bungoma	U- 124	Kuywa River	P	20.0 Kuywa River	18.7	60	5,841	10,051	10,879	26,771	
913.1	Kimilili	Kimilili	U- 125	Kimilili River	P	Kimilili River	5.5	0	1,729	2,678	2,911	7,318	
914.2	Webuye	Webuye	U- 126	Nzoia River	P	2.0 Nzoia River	4.8	100	4,353	7,486	8,198	20,098	
916.1	Cheptais	Cheptais	U- 157	Sapari river	P	Sapari river	0.0	20	791	963	939	2,693	
921.5	South Teso	Busia	U- 127	Sio River	P	Sio river	13.4	100	2,256	5,855	5,976	14,087	
922.2	Central Bukhayo	Nambale	U- 158	Boreholes	P	Sio river	0.7	40	511	887	821	2,219	
931.3	West Buryere	Lusoda	U- 128	Edzawa river	P	5.0 Edzawa river	9.0	170	0	0	1,759	1,759	
932.5	Central Maragoli	Vhige+Majengo	U- 129	Spring	P	1.0 Edzawa River (Kimondi River)	7.7	170	1,686	1,729	1,670	5,086	
933.1	Shamakiokho	Kaimosi	U- 130	Dam	P	2.0 Galagali river	3.5	0	0	0	0	0	
934.3	West Isakha	Khuyoga	U- 131	Dam	P	Yala river	4.2	170	624	586	565	1,774	
935.4	Kakawaga Municipality	Kakawaga	U- 132	Inakhu River	P	2.0 Inakhu River, Mukubusi Dam	7.7	100	964	7,438	10,107	10,657	29,166
939.2	Central Marama	Butere	U- 133	Boreholes	P	0.5 Virani River	1.3	80	630	808	758	2,196	
93A.4	Central Wangg	Mumias	U- 134	Lusuma River	P	4.0 Nzoia River	5.1	80	4,358	4,678	4,460	13,496	
TOTAL										577,267	1,106,403	1,758,034	4,949,189

Table D4.4 Development Cost for Rural Water Supply System by District

Code	District Name	District Area (km ²)	Effect. Area (km ²)	Demand in 2010 (m ³ /day)	Water Source (m ³ /day)		Supply Cost	Construction Cost (1000 US\$)	Total
					Surface water & Water harvesting	Groundwater			
110	Nairobi	719	-	0	0	0	0	0	
210	Kiambu	2,549	2,012	60,667	57,821	2,809	65,686	80,460	
220	Kirinyaga	1,510	1,042	25,875	25,026	834	28,081	31,904	
230	Muranga	2,555	2,091	57,134	55,601	1,505	62,064	69,110	
240	Nyandarua	3,295	2,352	25,614	18,404	7,172	26,685	62,946	
250	Nyeri	3,324	1,497	36,041	35,788	221	39,262	40,762	
310	Kilifi	12,546	9,697	23,681	13,545	10,080	24,058	94,268	
320	Kwale	8,193	7,300	17,516	7,640	9,813	17,368	75,776	
330	Lamu	6,267	3,469	2,007	558	1,429	1,928	10,007	
340	Mombasa	198	-	0	0	0	0	0	
350	Taita Tabetia	17,324	5,381	6,480	3,658	2,791	6,563	23,935	
360	Tana River	39,311	28,545	4,551	1,677	2,824	4,452	20,645	
410	Embu	2,789	2,345	22,094	16,263	5,788	23,076	48,487	
420	Isiolo	25,375	21,934	1,809	564	1,218	1,740	9,255	
430	Kitui	30,580	19,446	24,129	7,757	16,288	23,453	102,677	
440	Machakos	14,209	12,066	54,205	23,791	30,278	53,820	209,409	
450	Marsabit	70,598	61,609	3,587	781	2,772	3,406	21,988	
460	Meru	9,533	6,680	62,124	40,781	21,257	64,062	186,880	
510	Garissa	43,721	38,828	3,080	419	2,617	2,869	17,233	
520	Mandera	26,181	25,700	3,447	645	2,765	3,251	18,575	
530	Wajir	56,744	55,382	3,109	421	2,643	2,895	18,087	
610	Kisii	2,170	2,198	86,050	73,079	12,919	91,637	120,534	
620	Kisumu	2,068	1,890	30,768	18,146	12,588	31,386	74,298	
630	Siaya	2,418	2,383	43,960	22,141	21,749	44,173	101,133	
640	South Nyanza	5,750	5,203	62,728	34,071	28,517	63,418	178,106	
710	Kajiado	21,960	17,919	11,888	6,015	5,813	11,915	51,017	
720	Kericho	4,995	3,785	68,652	64,366	4,246	74,151	86,933	
730	Laikipia	9,734	8,225	9,536	4,131	5,348	9,432	42,319	
740	Nakuru	7,480	4,429	48,574	34,127	14,384	50,478	143,811	
750	Narok	18,025	13,837	31,929	18,526	13,322	32,476	102,136	
760	Trans Nzoia	2,509	1,883	21,807	20,308	1,471	23,519	26,871	
770	Uasin Gishu	3,723	2,958	19,743	19,489	230	21,483	22,432	
810	Baringo	10,784	8,629	12,982	7,389	5,495	13,122	45,216	
820	Elgeyo Marakwet	2,843	1,263	14,036	8,761	5,226	14,372	32,278	
830	Nandi	2,773	2,199	34,794	32,590	2,160	37,556	41,655	
840	Samburu	21,140	15,677	4,025	1,200	2,781	3,872	17,928	
850	Turkana	67,549	62,193	6,112	1,233	4,827	5,790	28,739	
860	West Pokot	9,157	8,367	10,275	4,241	5,978	10,131	27,947	
910	Bungoma	2,981	2,496	58,099	49,467	8,595	61,893	78,720	
920	Busia	1,725	1,433	36,967	21,650	15,275	37,682	77,545	
930	Kakamega	3,604	3,122	111,696	100,978	10,644	119,990	142,106	
Total		580,909	477,465	1,161,771	853,048	306,672	1,213,176	2,627,375	

Note : Effective area is area excluding parks, forest, etc.
Cost estimate was made on Location basis.

Table D4.5 Construction Cost for Livestock Water Supply Systems by District

Code	District Name	District Area (km ²)	Effect. Area (km ²)	Demand in 2010 (m ³ /day)	Water Source (m ³ /day)		Construction Cost (1,000 US\$)
					S. water & W.harvest.	Groundwater	
110	Nairobi	719	-	0	0	0	0
210	Kiambu	2,549	2,012	6,597	6,303	294	1,570
220	Kirinyaga	1,510	1,042	4,005	3,933	72	320
230	Muranga	2,555	2,091	6,137	6,039	98	260
240	Nyandarua	3,295	2,352	13,022	11,118	1,904	8,310
250	Nyeri	3,324	1,497	5,169	5,169	0	110
310	Kilifi	12,546	9,697	3,925	299	3,626	6,700
320	Kwale	8,193	7,300	6,295	1,127	5,168	12,070
330	Lamu	6,267	3,469	2,645	0	2,645	5,440
340	Mombasa	198	-	0	0	0	0
350	Taita Tabetia	17,324	5,381	4,738	2,103	2,635	5,720
360	Tana River	39,311	28,545	7,920	2,289	5,631	9,980
410	Embu	2,789	2,345	3,602	2,296	1,306	2,920
420	Istolo	25,375	21,934	17,693	4,237	13,456	28,570
430	Kitui	30,580	19,446	10,468	1,121	9,347	18,500
440	Machakos	14,209	12,066	12,443	4,685	7,758	15,610
450	Marsabit	70,598	61,609	28,409	2,397	26,012	71,170
460	Meru	9,533	6,680	18,630	11,591	7,039	22,210
510	Garissa	43,721	38,828	10,305	278	10,027	18,060
520	Mandera	26,181	25,700	13,529	1,567	11,962	20,280
530	Wajir	56,744	55,382	7,857	292	7,565	14,670
610	Kisii	2,170	2,198	14,567	13,993	574	1,580
620	Kisumu	2,068	1,890	11,093	6,776	4,317	7,070
630	Siaya	2,418	2,383	9,757	5,052	4,705	8,590
640	South Nyanza	5,750	5,203	6,826	3,250	3,576	7,280
710	Kajiado	21,960	17,919	27,408	10,310	17,098	45,370
720	Kericho	4,995	3,785	27,208	26,689	519	1,940
730	Laikipia	9,734	8,225	18,840	7,797	11,043	38,990
740	Nakuru	7,480	4,429	40,768	23,590	17,178	60,660
750	Narok	18,025	13,837	52,969	28,038	24,931	58,140
760	Trans Nzoia	2,509	1,883	6,797	6,797	0	170
770	Uasin Gishu	3,723	2,958	11,801	11,801	0	280
810	Baringo	10,784	8,629	8,890	4,249	4,641	12,250
820	Elgeyo Marakwet	2,843	1,263	16,339	10,581	5,758	10,520
830	Nandi	2,773	2,199	12,625	12,625	0	220
840	Samburu	21,140	15,677	12,510	1,264	11,246	27,420
850	Turkana	67,549	62,193	63,632	6,419	57,213	116,780
860	West Pokot	9,157	8,367	4,480	1,693	2,787	4,870
910	Bungoma	2,981	2,496	9,922	9,346	576	1,190
920	Busia	1,725	1,433	6,319	4,031	2,288	4,140
930	Kakamega	3,604	3,122	12,591	12,591	0	140
Total		580,909	477,465	558,731	273,736	284,995	669,870

Note : Effective area is area excluding parks, forest, etc.
Cost estimate was made on Location basis.

Table D4.6 Total Cost of Urban Sewerage Development (1/2)

Code	Urban Name	City Code	Population in 2010 (nos)	Urban Area in 2010 (ha)	Coverage (%)	Sewer Cost (US\$'000)	Demand in 2010 (m ³ /day)	Required Area (ha)	Treatment Cost (US\$'000)	Development Cost (US\$'000)
110.0	Nairobi	U- 1	3,465,400	25,881	50	136,766	520,500	4,445	78,046	214,811
211.1	Karuri	U- 2	46,400	347	25	916	7,027	60	670	1,586
211.4	Kiambu	U- 3	16,600	124	25	328	2,515	21	245	572
212.1	Gatundut+Ngenda	U- 4	2,000	15	25	39	303	3	30	69
213.1	Limuru	U- 5	4,600	34	25	91	696	6	68	159
214.1	Ruiru	U- 6	40,900	305	25	807	6,091	52	583	1,390
214.4	Thika	U- 7	217,500	1,624	50	8,584	32,944	281	5,542	14,126
215.1	Githunguri	U- 8	14,100	105	25	278	2,133	18	208	486
216.6	Kikuyu	U- 9	22,500	168	25	444	3,408	29	330	774
221.1	Wanguru	U- 10	1,500	11	25	30	226	2	22	52
222.2	Sagana	U- 11	11,100	83	25	219	1,686	14	165	384
222.3	Kerugoya	U- 12	34,100	255	25	673	5,179	44	498	1,171
223.2	Kutua	U- 13	23,500	176	25	464	3,567	30	346	809
231.4	Kandara	U- 14	1,800	13	25	36	272	2	27	62
232.3	Maragua	U- 15	91,200	681	25	1,800	13,813	118	1,277	3,076
233.4	Kangema	U- 16	3,900	29	25	77	590	5	58	135
234.3	Murang'a	U- 17	70,100	524	25	1,383	10,616	91	996	2,379
235.1	Makuyu	U- 18	16,500	123	25	326	2,499	21	243	569
241.3	Oi Kalou	U- 19	37,900	283	25	748	5,898	50	565	1,313
254.2	Karatina	U- 20	20,700	155	25	408	3,146	27	305	714
256.1	Othaya	U- 21	18,400	137	25	363	2,796	24	272	635
257.0	Nyeri	U- 22	370,700	2,768	50	14,630	56,356	481	9,111	23,742
311.2	Marikani	U- 23	33,100	247	25	653	5,005	43	482	1,135
313.2	Kilifi	U- 24	54,500	407	25	1,075	8,239	70	781	1,857
314.3	Watamu	U- 25	9,200	69	25	182	1,389	12	136	317
314.4	Malindi	U- 26	159,800	1,193	50	6,307	24,162	206	4,249	10,556
314.6	Mamburi	U- 135	14,400	108	25	284	2,092	18	204	488
321.1	Kwale	U- 27	15,200	114	25	300	2,325	20	226	526
323.1	Kinango	U- 28	5,800	43	25	114	885	8	87	201
324.1	Msamweni	U- 29	34,500	258	25	681	5,275	45	507	1,188
324.5	Lungalunga	U- 136	8,200	61	25	162	1,252	11	123	284
331.0	Witu	U- 30	12,500	93	25	247	1,987	17	194	441
333.2	Lamu	U- 31	34,000	254	25	671	5,407	46	519	1,190
340.0	Mombasa	U- 32	904,400	6,754	50	35,693	135,989	1,161	21,712	57,406
351.1	Taveta	U- 137	28,900	216	25	570	4,470	38	431	1,002
352.4	Voi	U- 33	36,000	269	25	710	5,569	48	535	1,245
353.2	Wundanyi	U- 34	8,000	60	25	158	1,237	11	121	279
362.3	Bura&Madogo	U- 35	2,800	21	25	55	450	4	44	99
363.3	Hola	U- 36	34,800	260	25	687	5,598	48	537	1,224
364.1	Garsen	U- 37	11,700	87	25	231	1,882	16	184	415
411.8	Runyenyos	U- 38	6,100	46	25	120	925	8	91	211
412.1	Siakago	U- 39	800	6	25	16	120	1	12	28
413.7	Embu	U- 40	72,900	544	25	1,439	11,064	94	1,036	2,474
421.1	Isiolo	U- 41	88,100	658	25	1,738	18,456	158	1,669	3,407
421.2	Oj Doinyo Ng'iro	U- 42	17,600	131	25	347	3,681	31	356	704
422.1	Garbatula	U- 138	7,600	57	25	150	1,590	14	155	305
423.1	Merti	U- 139	22,700	170	25	448	4,757	41	458	906
431.4	Kiul	U- 43	40,800	305	25	805	6,232	53	596	1,402
433.2	Mutomo	U- 44	1,600	12	25	32	242	2	24	55
434.4	Mwingi	U- 45	32,000	239	25	631	4,888	42	471	1,102
441.1	Machakos	U- 46	356,400	2,662	50	14,066	54,076	462	8,746	22,812
441.2	Mitaboni & Machakos	U- 47	114,000	851	50	4,499	17,296	148	3,145	7,644
442.3	Athi River	U- 48	98,200	733	25	1,938	14,901	127	1,370	3,308
444.3	Uasin/Tawa	U- 49	700	5	25	14	105	1	10	24
445.1	Kangundo	U- 50	43,900	328	25	866	6,660	57	636	1,502
445.2	Tala	U- 140	6,400	48	25	126	969	8	95	221
447.4	Nunguni	U- 51	1,000	7	25	20	151	1	15	35
448.1	Wote	U- 141	9,000	67	25	178	1,365	12	134	311
448.3	Emali	U- 52	800	6	25	16	121	1	12	28
449.4	Mtito Andele&Kibwezi	U- 53	13,500	101	25	266	2,049	17	200	466
451.1	North Horr	U- 142	6,300	47	25	124	1,244	11	122	246
452.2	Kargi	U- 54	16,600	124	25	328	3,290	28	319	647
453.1	Keer	U- 143	17,200	128	25	339	3,411	29	331	670
454.1	Maraabit	U- 55	42,700	319	25	843	8,471	72	803	1,645
455.2	Sololo	U- 56	14,300	107	25	282	2,832	24	275	557
456.1	Moyale	U- 57	26,200	196	25	517	5,195	44	500	1,017
461.4	Meru	U- 58	319,900	2,389	50	12,625	48,899	418	7,915	20,540
463.1	Nkubu	U- 59	20,300	152	25	401	3,102	26	301	702
464.1	Chogoria	U- 60	2,900	22	25	57	443	4	44	101
464.3	Chuka	U- 61	12,400	93	25	245	1,894	16	185	430
467.2	Maun	U- 62	12,400	93	25	245	1,894	16	185	430
513.1	Mudô Gusho	U- 63	6,700	50	25	132	1,141	10	112	244
515.2	Ijara	U- 64	3,200	24	25	63	545	5	54	117
515.3	Kotilo	U- 65	3,200	24	25	63	545	5	54	117
515.4	Masalani	U- 66	3,200	24	25	63	545	5	54	117
519.1	Garissa	U- 67	115,300	861	50	4,550	19,654	168	3,533	8,084
521.1	Mandera	U- 68	18,100	135	25	357	3,147	27	305	663
523.1	El Wak	U- 69	24,400	182	25	481	4,242	36	410	891
524.2	Rhamu	U- 70	10,200	76	25	201	1,772	15	173	374

Table D4.6 Total Cost of Urban Sewerage Development (2/2)

Code	Urban Name	City Code	Population in 2010 (nos)	Urban Area in 2010 (ha)	Coverage (%)	Sewer Cost (US\$'000)	Demand in 2010 (m3/day)	Required Area (ha)	Treatment Cost (US\$'000)	Development Cost (US\$'000)
532.4	Wajir	U- 71	75,500	564	25	1,490	12,493	107	1,162	2,652
536.2	Buna	U- 72	18,700	140	25	369	3,094	26	300	669
537.2	Buto	U- 73	6,100	46	25	120	1,008	9	99	219
611.2	Manga	U- 74	2,100	16	25	41	320	3	31	73
611.5	Keroka	U- 75	6,100	46	25	120	930	8	91	212
612.2	Nyamira+Kebirigo	U- 144	32,400	242	25	639	4,942	42	476	1,115
615.0	Kisii	U- 76	138,500	1,034	50	5,466	21,131	180	3,772	9,238
617.1	Ogembo	U- 77	2,700	20	25	53	412	4	41	94
622.1	Maseno	U- 78	50,600	378	25	998	7,798	67	741	1,740
622.3	Kisumu & + Kiboswa	U- 79	578,700	4,322	50	22,839	89,192	762	14,346	37,185
623.2	Ahero	U- 80	26,900	201	25	531	4,145	35	401	931
625.2	Muhoroni	U- 81	26,700	199	25	527	4,113	35	397	924
632.4	Bondo	U- 145	8,600	64	25	170	1,316	11	129	298
633.2	Yala	U- 82	6,500	49	25	128	993	8	97	226
634.1	Siaya	U- 83	57,200	427	25	1,129	8,748	75	828	1,956
635.4	Ukwala	U- 84	2,700	20	25	53	411	4	40	94
641.1	Homa Bay	U- 85	73,900	552	25	1,458	11,180	95	1,046	2,504
644.3	Migori	U- 86	24,100	180	25	476	3,646	31	353	829
646.3	Kehancha+Taranganya	U- 146	9,800	73	25	193	1,481	13	145	338
646.8	Nyabikaye	U- 147	9,300	69	25	184	1,405	12	137	321
647.4	Oyugis	U- 148	9,800	73	25	193	1,481	13	145	338
648.1	Kendu Bay	U- 87	8,700	65	25	172	1,316	11	129	300
649.4	Awendo	U- 149	11,000	82	25	217	1,664	14	163	380
711.1	Oloitokitok	U- 88	24,500	183	25	483	4,034	34	390	873
712.1	Ngong	U- 89	81,800	611	25	1,614	13,474	115	1,247	2,861
713.1	Kajiado	U- 90	34,100	255	25	673	5,617	48	539	1,212
713.5	Namanga	U- 91	27,300	204	25	539	4,496	38	434	972
714.1	Magadi	U- 92	16,000	119	25	316	2,633	22	256	572
723.1	Sotik	U- 93	16,600	124	25	328	2,578	22	251	578
725.5	Kericho	U- 94	145,000	1,083	50	5,723	22,536	192	3,995	9,718
726.1	Kipkelion	U- 95	7,800	58	25	154	1,210	10	118	272
727.1	Londiani	U- 96	11,300	84	25	223	1,755	15	171	394
731.5	Nanyuki	U- 97	114,900	858	50	4,535	18,892	161	3,409	7,943
733.4	Rumuruti	U- 150	8,200	61	25	162	1,348	12	132	294
733.9	Nyahururu	U- 98	60,000	448	25	1,184	9,866	84	929	2,113
743.2	Gügil	U- 99	73,800	551	25	1,456	11,726	100	1,094	2,551
744.1	Naivasha	U- 100	194,500	1,453	50	7,676	30,906	264	5,254	12,930
746.1	Njoro	U- 101	46,000	344	25	908	7,309	62	696	1,604
747.3	El Burgon	U- 102	62,700	468	25	1,237	9,961	85	937	2,175
747.5	Molo	U- 103	55,100	412	25	1,087	8,755	75	828	1,916
749.0	Nakuru	U- 104	869,900	6,497	50	34,331	132,328	1,130	21,140	55,472
752.1	Narok	U- 105	85,700	640	25	1,691	14,213	121	1,311	3,002
752.5	Nairangi Ng'aro	U- 106	2,500	19	25	49	413	4	41	90
754.4	Kilgoris	U- 151	16,200	121	25	320	2,686	23	261	581
755.1	Lolkorian	U- 152	8,400	63	25	166	1,391	12	136	302
762.3	Kitale	U- 107	249,200	1,861	50	9,835	38,132	326	6,243	16,078
762.4	Kimilini/Saboti+Spr.Kitale	U- 108	4,200	31	25	83	642	5	63	146
763.5	Endebess/Kwariza	U- 109	6,700	50	25	132	1,026	9	101	233
771.2	Moi's Bridge	U- 153	10,100	75	25	199	1,577	13	154	353
772.4	Turbo	U- 154	14,000	105	25	276	2,185	19	213	489
772.5	Eldoret	U- 110	486,800	3,636	50	19,212	76,040	649	12,256	31,468
774.6	Burnt Forest	U- 111	7,200	54	25	142	1,124	10	110	252
812.5	Kabarnet	U- 112	34,700	259	25	685	5,390	46	518	1,203
814.3	Maji Mazari	U- 113	19,200	143	25	379	2,983	25	290	669
814.5	Eldama Ravine	U- 114	20,700	155	25	408	3,215	27	312	720
815.1	Mogotio	U- 115	10,700	80	25	211	1,662	14	162	374
816.2	Marigat	U- 155	8,600	64	25	170	1,337	11	131	300
822.4	Iten+Tambach	U- 116	19,700	147	25	389	3,189	27	309	698
831.3	Nandi Hills	U- 117	4,200	31	25	83	647	6	64	146
832.2	Kapsabet+Baraton	U- 118	56,300	420	25	1,111	8,696	74	823	1,934
841.4	Maralal	U- 119	74,800	559	25	1,476	12,723	109	1,182	2,658
842.4	Wamba	U- 120	15,600	117	25	308	2,651	23	258	566
843.6	Brigoi	U- 121	13,500	101	25	266	2,294	20	223	490
853.5	Lodwar	U- 122	33,400	249	25	659	7,123	61	679	1,338
861.1	Kapenguria/Makutano	U- 123	48,200	360	25	951	7,386	63	703	1,654
911.4	Mwalie + Malakisi	U- 156	10,700	80	25	211	1,629	14	159	370
912.4	Bungoma	U- 124	142,700	1,066	50	5,632	21,730	186	3,867	9,499
913.1	Kimilili	U- 125	31,500	235	25	622	4,795	41	462	1,084
914.2	Webuye	U- 126	128,700	961	50	5,079	19,597	167	3,524	8,603
916.1	Chaptais	U- 157	10,000	75	25	197	1,523	13	149	346
921.5	Busia	U- 127	70,200	524	25	1,385	10,692	91	1,003	2,388
922.2	Nambale	U- 158	8,100	60	25	160	1,233	11	121	281
931.3	Luanda	U- 128	12,600	94	25	249	1,911	16	187	435
932.5	Vihiga+Majengo	U- 129	14,400	108	25	284	2,184	19	213	497
933.1	Kalmosi	U- 130	1,300	10	25	26	195	2	19	45
934.3	Khayoga	U- 131	1,400	10	25	28	210	2	21	48
935.4	Kakamega	U- 132	187,500	1,400	50	7,400	28,439	243	4,896	12,295
939.2	Butere	U- 133	7,400	55	25	146	1,121	10	110	256
93A.4	Mumias	U- 134	75,900	567	25	1,498	11,511	98	1,075	2,573
Total			12,537,900	93,636		430,134	1,935,524	16,527	274,820	704,955

Table D4.7 Total Economic Benefit Accruing from Water Supply in Kenya : 2000

1. Domestic Water					
Annual benefit(*1) in 2000					
	GRDP per Capita (US\$/annum)	Disposable Income *2 (US\$/annum)	Income Ratio (%)	Population Projected (1000)	Economic Benefit (US\$1000)
Urban Schemes	1,012	810	5	7,933	289,012 *3
Rural Schemes	210	168	5	22,779	172,353 *3
Total	417	333	5	30,712	461,365 *3
2. Industrial Water					
a) Annual benefit in 1986 (Reference: Input-Output Table 1986)					
	Gross Output (K\$mill.)	Gross Value Added (K\$mill.)	Gross Input (K\$mill.)	Expense for Water (K\$mill.)	Ratio of Water Exp. to Gross VA (%)
Manufacturing	4,270.9	952.6	3,318.4	13.4	1.40%
Benefit = Maximum affordable value of water					1.50%
Economic benefit from industrial production in 1986 (US\$1000)					16,033 *3
b) Economic benefit from industrial production in 2000 (US\$1000)					27,511 *3
Value added of manufacturing sector in 2000 (K.Pound million)					1,895
3. Municipal (Trade, Catering and Government Services) Water					
a) Annual benefit in 1986 (Reference : Input-Output Table 1986)					
	Gross Output (K\$mill.)	Gross Value Added (K\$mill.)	Gross Input (K\$mill.)	Expense for Water (K\$mill.)	Ratio of Water Exp. to Gross VA (%)
Services	3,279.8	2,127.6	1,152.2	8.4	0.39%
Benefit = Maximum affordable value of water					0.50%
Benefit from municipal activities in 1986 (US\$1000)					11,936 *3
b) Economic benefit from municipal activities in 2000 (US\$1000)					16,532 *3
Value added of service sectors in 2000 (K.Pound million)					3,416
4. Livestock Water					
a) Annual benefit in 1986 (Reference: Input-Output Table of Japan 1986)					
	Gross Output (JYen.mill.)	Gross Value Added (JYen.mill.)	Gross Input (JYen.mill.)	Expense for Water (JYen.mill.)	Ratio of Water Exp. to Gross VA (%)
Livestock Breeding	507,774	93,770	414,004	2,035	2.17%
Benefit = Maximum affordable value of water					2.00%
b) Economic benefit from livestock production(*4) in 2000 (US\$1000)					12,285 *3
Agricultural production in Kenya in 2000 (K.Pound million)					3,686

Source : A06, A24 and Input-Output Table of Japan in 1986

Remark : *1 Traditional Rule of income ratio (Maximum affordable water value)

*2 Personal disposable income is assumed to be 80% of GDP per capita.

*3 Converted to economic values, i.e., 90% of financial values.

*4 Value Added rate of Livestock is assumed to be 20% of the gross output.

Table D4.8 Economic Efficiency of Urban Water Supply Projects (1/3)

Urban Code	Urban Name	Loc. Code	Location Name	NPV*1 (US\$1000)	B/C*1	IRR*2 (%)
U-1	Nairobi	110.0	Nairobi	115304	1.15	11.5%
U-2	Karuri	211.1	Kiambaa	-3071	0.71	5.9%
U-3	Kiambu	211.4	Kiambu Municipality	-4940	0.37	-1.6%
U-4	Gatundu & Ngenda	212.1	Ngenda	-146	0.02	---
U-5	Limuru	213.1	Limuru	-10515	0.10	---
U-6	Ruiru	214.1	Ruiru	-1583	0.81	7.3%
U-7	Thika	214.4	Thika Municipality	5985	1.38	14.4%
U-8	Githunguri	215.1	Githunguri	-2026	0.50	1.8%
U-9	Kikuyu	216.6	Kikuyu	-8531	0.39	-0.2%
U-10	Wanguru	221.1	Tebere	-749	0.14	---
U-11	Sagana	222.2	Kiine	-1909	0.34	-4.2%
U-12	Kerugoya	222.3	Inoi	-4154	0.38	-1.5%
U-13	Kutus	223.2	Kabare	-2367	0.38	-1.5%
U-14	Kandara	231.4	Muruka	-225	0.01	---
U-15	Maragua	232.7	Nginda	-4802	0.63	4.5%
U-16	Kangema	233.4	Iyego	-774	0.11	---
U-17	Murang'a	234.3	Mbiri	-4722	0.49	2.4%
U-18	Makuyu	235.1	Makuyu	-2573	0.35	-2.9%
U-19	Oi Kalou	241.3	Oi Kalou	-5140	0.41	0.7%
U-20	Karatina	254.2	Konyu	-1945	0.27	-4.1%
U-21	Othaya	256.1	Karima	-2328	0.42	-0.7%
U-22	Nyeri	257.0	Nyeri Municipality	-5134	0.87	8.2%
U-23	Mariakani	311.3	Mariakani	698	1.19	12.3%
U-24	Kilifi	313.2	Tezo	-4281	0.39	-1.5%
U-25	Watamu	314.3	Gede	-3544	0.17	---
U-26	Malindi	314.4	Malindi Town	-49411	0.14	---
U-27	Kwale	321.1	Shimba North	-2705	0.30	-7.2%
U-28	Kinango	323.1	Kinango South	-3603	0.09	---
U-29	Msambweni	324.1	Msambweni	-33024	0.09	---
U-30	Witu	331.0	Witu	-3042	0.31	-9.2%
U-31	Lamu	333.2	Lamu Town	-26864	0.13	---
U-32	Mombasa	340.0	Mombasa	-169313	0.56	3.8%
U-33	Voi	352.4	Voi	-2228	0.65	5.0%
U-34	Wundanyi	353.2	Werugha	-417	0.06	---
U-35	Bura & Madogo	362.3	Bura	-672	0.16	---
U-36	Hola	363.3	Zabaki	-3542	0.36	-2.9%
U-37	Garsen	364.1	Bilisa	-1814	0.27	---
U-38	Runyenjes	411.8	Kangaari South	-672	0.65	4.8%
U-39	Siakago	412.1	Nthawa	0	***	***
U-40	Embu	413.7	Embu Municipality	3496	1.54	16.1%
U-41	Isiolo	421.1	Central	-106219	0.05	---
U-42	Oi Doinyo Ng'iro	421.2	Oldonyonyiro	-5533	0.19	---
U-43	Kitui	431.4	Changwithya	-4666	0.38	-1.6%
U-44	Mutomo	433.2	Mutomo	0	***	***
U-45	Mwingi	434.4	Mwingi	-10441	0.21	---
U-46	Machakos	441.1	Muvuti	-38252	0.39	-2.0%
U-47	Mitaboni	441.2	Mitaboni	-8331	0.49	1.2%
U-48	Athi River	442.3	Settlement Area	-12037	0.26	-8.4%
U-49	Uaani/Tawa	444.3	Kiteta	-898	0.05	---
U-50	Kangundo	445.1	Kangundo	-12893	0.20	---
U-51	Nunguni	447.4	Kilungu	-1212	0.04	---
U-52	Emali	448.3	Nzau	-1383	0.04	---
U-53	Mtito Andei&Kibwezi	449.4	Mtito Andei	-15271	0.06	---
U-54	Kargi	452.2	Kargi	-51352	0.02	---

(To be continued)

Table D4.8 Economic Efficiency of Urban Water Supply Projects (2/3)

(Continuation)

Urban Code	Urban Name	Loc. Code	Location Name	NPV*1 (US\$1000)	B/C*1	IRR*2 (%)
U-55	Marsabit	454.1	Mountain	-136676	0.02	---
U-56	Sololo	455.2	Sololo	-48977	0.02	---
U-57	Moyale	456.1	Moyale	-51440	0.04	---
U-58	Meru	461.4	Ntima	-10119	0.71	5.7%
U-59	Nkubu	463.1	Nkuene	-2348	0.37	-2.7%
U-60	Chogoria	464.1	Chogoria	-1243	0.17	---
U-61	Chuka	464.3	Karingani	-2675	0.22	---
U-62	Maua	467.2	Maua	-2270	0.29	---
U-63	Mudo Gashe	513.1	Madogashe	-15931	0.03	---
U-64	Ijara	515.2	Ijara	-9223	0.02	---
U-65	Kotile	515.3	Kotile	-13588	0.02	---
U-66	Masalani	515.4	Masalani	-1842	0.10	---
U-67	Garissa	519.1	Sankuri	-4984	0.49	1.5%
U-68	Mandera	521.1	Mandera	-1355	0.40	-0.6%
U-69	Elwak	523.1	Elwak	-61203	0.04	---
U-70	Rhamu	524.2	Rhamu	-1736	0.27	---
U-71	Wajir	532.4	Wajir Township	-136338	0.02	---
U-72	Buna	536.2	Buna	-78413	0.01	---
U-73	Bute	537.2	Bute	-15082	0.01	---
U-74	Manga	611.2	Erange	-2595	0.08	---
U-75	Keroka	611.5	East Kitutu	-3639	0.18	---
U-76	Kisii	615.0	Kisii Municipality	-10620	0.55	3.2%
U-77	Ogembo	617.5	Majoge Chache	-1171	0.21	---
U-78	Maseno	622.1	West Kisumu	-3895	0.70	5.8%
U-79	Kisumu & + Kiboswa	622.3	East Kisumu	-38724	0.57	3.7%
U-80	Ahero	623.2	South East Kano	-1436	0.71	5.7%
U-81	Muhoroni	625.2	Muhoroni	-3076	0.51	1.9%
U-82	Yala	633.2	East Gem	-1040	0.51	2.6%
U-83	Siaya	634.1	East Alego	-5872	0.56	3.7%
U-84	Ukwala	635.4	North Agenya	-1259	0.22	---
U-85	Homa Bay	641.1	Kanyada West	-2229	0.79	7.1%
U-86	Migori	644.3	Suna East	-1586	0.65	4.8%
U-87	Kendu Bay	648.1	Central Karachuonyo	-1317	0.47	1.1%
U-88	Oloitokitok	711.1	Odomongi	-4532	0.18	---
U-89	Ngong	712.1	Ngong	-7984	0.30	-8.8%
U-90	Kajiado	713.1	Ildamat	-14457	0.09	---
U-91	Namanga	713.5	Namanga	-3260	0.26	---
U-92	Magadi	714.1	Magadi	-7951	0.07	---
U-93	Sotik	723.1	Kepletudo	-1212	0.68	5.2%
U-94	Kericho	725.5	Kericho Township	-1889	0.90	8.7%
U-95	Kipkelion	726.1	Kipkelion	-792	0.53	2.3%
U-96	Londiani	727.1	Londiani	-57652	0.02	---
U-97	Nanyuki	731.5	Nanyuki	-5238	0.64	4.7%
U-98	Nyahururu	733.9	Nyahururu Township	-11033	0.28	---
U-99	Gilgil	743.2	Gilgil	-36507	0.12	---
U-100	Naivasha	744.1	Naivasha	-27760	0.32	-5.7%
U-101	Njoro	746.1	Njoro	-19071	0.14	---
U-102	El Burgon	747.3	El Burgon	-17083	0.20	---
U-103	Molo	747.5	Molo South	-13523	0.22	---
U-104	Nakuru	749.0	Nakuru Municipality	-113003	0.33	-4.7%
U-105	Narok	752.1	Lower Melili	-22828	0.16	---
U-106	Nairagie Ngare	752.5	Keekonyoike	-1305	0.08	---
U-107	Kitale	762.3	Kitale	-11281	0.59	3.6%

(To be continued)

Table D4.8 Economic Efficiency of Urban Water Supply Projects (3/3)

(Conclusion)

Urban Code	Urban Name	Loc. Code	Location Name	NPV*1 (US\$1000)	B/C*1	IRR*2 (%)
U-108	Kiminini/Saboti+Spr.Kita	762.4	Kiminini	-2670	0.12	---
U-109	Endebess/Kwanza	763.5	Endebess	-1482	0.28	---
U-110	Eldoret	772.5	Eldoret Municipality	-79400	0.27	-11.7%
U-111	Burnt Forest	774.6	Olare	-1168	0.31	-8.2%
U-112	Kabarnet	812.5	Kabarnet Mosop	-24366	0.07	---
U-113	Maji Mazuri	814.3	Maji Mazuri	-2763	0.34	-5.3%
U-114	Eldama Ravine	814.5	Eldama Ravine	-23223	0.05	---
U-115	Mogotio	815.1	Lembus Soi	-4900	0.10	---
U-116	Iten+Tambach	822.4	Kiptuilong	-9772	0.08	---
U-117	Nandi Hills	831.3	Chemelil	-2314	0.31	-6.9%
U-118	Kapsabet+Baraton	832.2	Chemundu	-4350	0.54	2.6%
U-119	Maralal	841.4	Maralal	-6897	0.46	1.0%
U-120	Wamba	842.4	Wamba	-61173	0.02	---
U-121	Baragoi	843.6	Elbarta	-93885	0.01	---
U-122	Lodwar	853.5	Lodwar	-95585	0.03	---
U-123	Kapenguria/Makutano	861.1	Kapenguria	-3950	0.45	-0.2%
U-124	Bungoma	912.4	Musikoma	-11836	0.45	0.3%
U-125	Kimilili	913.1	Kimilili	-3658	0.38	-2.7%
U-126	Webuye	914.2	Webuye	-7189	0.55	2.7%
U-127	Busia	921.5	South Teso	-5629	0.49	2.6%
U-128	Luanda	931.3	West Bunyore	-690	0.17	---
U-129	Vihiga+Majengo	932.5	Central Maragoli	-2811	0.34	-5.1%
U-130	Kaimosi	933.1	Shamakhokho	0	***	***
U-131	Khayega	934.3	West Isukha	-1236	0.18	---
U-132	Kakamega	935.4	Kakamega Municipality	-7030	0.71	5.9%
U-133	Butere	939.2	Central Marama	-1204	0.34	-4.5%
U-134	Mumias	93A.4	Central Wanga	-4077	0.64	4.6%
U-135	Mamburi	314.6	Magarini	-2491	0.29	---
U-136	Lungalunga	324.5	Lungalunga	-1253	0.36	-3.0%
U-137	Taveta	351.1	Taveta	-1913	0.69	5.5%
U-138	Garbatula	422.1	Garbatula	-30182	0.02	---
U-139	Merti	423.1	Merti	-2816	0.36	-3.2%
U-140	Tala	445.2	Matungulu	-6237	0.12	---
U-141	Wote	448.1	Makueni	-2004	0.24	---
U-142	North Horr	451.1	North Horr	-17578	0.03	---
U-143	Korr	453.1	Korr	-44094	0.02	---
U-144	Nyamira + Kebirigo	612.2	East Mugirango	-6446	0.33	-5.3%
U-145	Bondo	632.4	West Sakwa	-2204	0.37	-1.4%
U-146	Kehancha + Tarang'anya	646.3	Bukira East	-2839	0.30	---
U-147	Nyabikaye	646.8	Bugembe West	-21987	0.05	---
U-148	Oyugis	647.4	Central Kasipul	-3119	0.26	---
U-149	Awendo/Sare	649.4	South Sakwa	-2653	0.41	-1.1%
U-150	Rumuruti	733.4	Rumuruti	-3094	0.22	---
U-151	Kilgoris	754.4	Uasin Gishu East	-2554	0.26	---
U-152	Lolkorian	755.1	Siria East	-2553	0.15	---
U-153	Moi's Bridge	771.2	Moi's Bridge	-1610	0.33	-6.0%
U-154	Turbo	772.4	Turbo West	-3476	0.23	---
U-155	Marigat	816.2	Marigat	-1513	0.28	---
U-156	Mawalie + Malakisi	911.4	Malakisi	-1755	0.37	-3.6%
U-157	Chaptais	916.1	Cheptais	-1394	0.38	-3.3%
U-158	Nambale	922.2	Central Bukhayo	-1063	0.41	-0.2%
All Urban Schemes in Kenya (158 schemes)				-2622013	0.43	-0.1%

Remark: *1 Discounted at 10%.

*2 "---" means that IRR marks less than zero percent. "****" means not applicable.

Table D4.9 List of Urban Water Supply Schemes Resulted in Positive Economic Efficiency

Urban No	Urban Code	Urban Name	Loc. Code	Location Name	NPV*1 (US\$1000)	B/C*1	IRR (%)
1	U-040	Embu	413.7	Embu Municipality	3496	1.54	16.1%
2	U-007	Thika	214.4	Thika Municipality	5985	1.38	14.4%
3	U-023	Mariakani	311.3	Mariakani	698	1.19	12.3%
4	U-001	Nairobi	110.0	Nairobi	115304	1.13	11.5%
5	U-094	Kericho	725.5	Kericho Township	-1889	0.90	8.7%
6	U-022	Nyeri	257.0	Nyeri Municipality	-5134	0.87	8.2%
7	U-006	Ruiru	214.1	Ruiru	-1583	0.81	7.3%
8	U-085	Homa Bay	641.1	Kanyada West	-2229	0.79	7.1%
9	U-002	Karuri	211.1	Kiambaa	-3071	0.71	5.9%
10	U-132	Kakamega	935.4	Kakamega Municipality	-7030	0.71	5.9%
11	U-078	Maseno	622.1	West Kisumu	-3895	0.70	5.8%
12	U-058	Meru	461.4	Ntira	-10119	0.71	5.7%
13	U-080	Ahero	623.2	South East Kano	-1436	0.71	5.7%
14	U-137	Taveta	351.1	Taveta	-1913	0.69	5.5%
15	U-093	Sotik	723.1	Kepletudo	-1212	0.68	5.2%
16	U-033	Voi	352.4	Voi	-2228	0.65	5.0%
17	U-086	Migori	644.3	Suna East	-1586	0.65	4.8%
18	U-038	Runyenjes	411.8	Kangaari South	-672	0.65	4.8%
19	U-097	Nanyuki	731.5	Nanyuki	-5238	0.64	4.7%
20	U-134	Mumias	93A.4	Central Wanga	-4077	0.64	4.6%
21	U-015	Maragua	232.7	Nginda	-4802	0.63	4.5%
22	U-032	Mombasa	340.0	Mombasa	-169313	0.56	3.8%
23	U-079	Kisumu & + Kiboswa	622.3	East Kisumu	-38724	0.57	3.7%
24	U-083	Siaya	634.1	East Alego	-5872	0.56	3.7%
25	U-107	Kitale	762.3	Kitale	-11281	0.59	3.6%
26	U-076	Kisii	615.0	Kisii Municipality	-10620	0.55	3.2%
27	U-126	Webuye	914.2	Webuye	-7189	0.55	2.7%
28	U-127	Busia	921.5	South Teso	-5629	0.49	2.6%
29	U-082	Yala	633.2	East Gem	-1040	0.51	2.6%
30	U-118	Kapsabet+Baraton	832.2	Chemundu	-4350	0.54	2.6%
31	U-017	Murang'a	234.3	Mbiri	-4722	0.49	2.4%
32	U-095	Kipkelion	726.1	Kipkelion	-792	0.53	2.3%
33	U-081	Muhoroni	625.2	Muhoroni	-3076	0.51	1.9%
34	U-008	Githunguri	215.1	Githunguri	-2026	0.50	1.8%
35	U-067	Garissa	519.1	Sankuri	-4984	0.49	1.5%
36	U-047	Mitaboni	441.2	Mitaboni	-8331	0.49	1.2%
37	U-087	Kendu Bay	648.1	Central Karachuonyo	-1317	0.47	1.1%
38	U-119	Maralal	841.4	Maralal	-6897	0.46	1.0%
39	U-019	Oi Kalou	241.3	Oi Kalou	-5140	0.41	0.7%
40	U-124	Bungoma	912.4	Musikoma	-11836	0.45	0.3%

Remark : *1 Discounted at 10%.

Table D4-10 Economic Efficiency of Rural Water Supply Sector by District

Code	District	Number of Location	NPV*1 (US\$ million)	B/C*1	IRR*2 (%)
110	Nairobi	-	***	***	***
210	Kiambu	29	-73.2	0.034	---
220	Kirinyaga	12	-29.0	0.038	---
230	Murang'a	26	-62.8	0.038	---
240	Nyandarua	21	-57.3	0.021	---
250	Nyeri	28	-37.2	0.036	---
310	Kilifi	32	-85.4	0.021	---
320	Kwale	26	-68.9	0.016	---
330	Lamu	12	-9.1	0.016	---
340	Mombasa	-	***	***	***
350	Taita Taveta	12	-21.6	0.024	---
360	Tana River	17	-18.7	0.019	---
410	Embu	19	-44.1	0.024	---
420	Isiolo	10	-8.4	0.016	---
430	Kitui	32	-114.5	0.017	---
440	Machakos/Makueni	42	-189.9	0.020	---
450	Marsabit	15	-20.0	0.014	---
460	Meru	41	-170.0	0.019	---
510	Garissa	21	-15.7	0.016	---
520	Mandera	14	-16.9	0.016	---
530	Wajir	19	-16.4	0.015	---
610	Kisii/Nyamira	27	-110.3	0.027	---
620	Kisumu	19	-67.7	0.020	---
630	Siaya	28	-92.3	0.020	---
640	South Nyanza	51	-222.3	0.014	---
710	Kajiado	18	-46.3	0.019	---
720	Kericho	28	-79.3	0.031	---
730	Laikipia	21	-38.5	0.016	---
740	Nakuru	28	-131.2	0.017	---
750	Narok	28	-93.1	0.017	---
760	Trans Nzoia	17	-24.2	0.045	---
770	Uasin Gishu	23	-20.2	0.045	---
810	Baringo	37	-41.0	0.020	---
820	Elgeyo Murakwet	25	-29.3	0.023	---
830	Nandi	23	-37.9	0.037	---
840	Samburu	20	-19.8	0.015	---
850	Turkana	20	-31.4	0.016	---
860	West Pokot	20	-34.5	0.020	---
910	Bungoma	19	-71.8	0.030	---
920	Busia	16	-70.8	0.020	---
930	Kakamega/Vihiga	42	-129.8	0.030	---
	Kenya	938 *3	-2450.9	0.023	---

Remark : *1 Discounted at 10%

*2 "****" means that no schemes exist in the District.

"---" means that IRR marks less than zero percent.

*3 Locations in both Nairobi and Mombasa were not counted in this table.

Table D5.1 On-going Water Supply Projects (1/2)

On-Going Water Supply Projects					
Nairobi	Nairobi III				
Kiambu	Munyu RWS Gathanga RWS Gatundu UWS	Ruiru UWS Kiu South RWS Karimeru RWS	Bathi RWS Takinya RWS Ndanju RWS	Ndeiya-Karai RWS Juja UWS	Thiririka RWS Limuru Uplands UWS
Kirinyaga	Muraini SH	Nyaru SH	Mutungara SH	Kutus-Kimbimbi-Wanguru RWS	
Murang'a	Kigumo RWS Sabasaba UWS	Mathioya RWS Mitumbiri RWS	Gotango RWS Gaturi RWS	Murang'a UWS	Maragua UWS
Nyandarua	Leshau Karagoine SH Kipipiri SH Mugumo Borehole SH	Ndaragwa Phase 1 SH Njabini SH Manunga SH	Gatimu SH Nyahururu SEIT Kagaa Phase 1 SH	Kangu/Nyakaringa SH Ngorika SH Kambaa RWS	Kaimbaga SH Ruii/Ngwatariro SH
Nyeri	Waraza Lusoi-jet RWS Burgurent RWS Mbiuni/Gaikundo RWS Titie RWS Sagana Irr. Irr.	Mureru RWS Chaka Kiganjo RWS Enderasha RWS Kanjuri RWS	Garumba Kalicheni RWS Thungari RWS Kabendera Nyaringi RWS Kihuri RWS	Kandune RWS Kaharo RWS Wauka RWS Gatunganga DOMESTIC	Kabendera Irr. RWS Muthuthi/Karaba RWG Huku RWS Tumutumu DOMESTIC
Kilifi	Mariakani Katoleni MOWD Kilifi W/ & san. MOWD Gongone Mjanaheri RDF Rehab Dams Kalo, MOWD	Bamba Nyayo MOWD Kayafungo MOWD Maandani RDF	Chonyi South MOWD Vitengeni RDF Chalani RDF	Ruruma Mwawesa MOWD Dida Matano RDF Mtwapa sett. sch. MOLS	Mitsajeni/Kambe MOWD Uyombo Mkongani RDF Mwangea Ngunguni DONOR
Kwale	Kikoneri MOWD Majimboni MOWD	Wasini & Mwakiro MOWD Mkongani MOWD	Kiteje Bombo RDF Kinango RPTC PND	Samburu Silaloni RDF	Kwale w/ & sanita MOWD
Lamu	Lamu RWS Bargon Hindi RWS	Mkokoni/Kiunga RWS Mkunumbi Mapenya RWS	Lake Kenyatta RWS Kisauri (Kiunga) RWS	Witu b/hole.&Well RWS Chalaluma Water RWS	Faza Kizingitini RWS
Mombasa	Mitongwe Mwenza UWS Timbwani Line UWS	Maweni UWS Denyenye Line UWS	Jomvu Miritini UWS	Flats Mirima UWS	Mwetasarefu Soweto UWS
Taita Taveta	Mwarekeronyi SH Mwanata SH Mwarovo S. Kishushe SH Oza MOWD Mwakiki SH Mlegwa shallow well SH Josa/Moda-mbogho SH Mgondinyi SH Mwamracha SH Chala SH	Makwasinyi Buguta SH Daku SH Kishushe SH Paranga SH Taito Nyaki Sagalla SH Ndome TVT Bura SH Mwanda Dispen. SH Mbale SH	Nyache SH Wanganga SH Iridoshigaro SH TVT Shallow well SH Mgange Nyika TVT Ghazi SH Mwalui SH Mwasoko MOWD Mbambiti SH	Kajire Mwashigati SH Bungule/Jora SH Kasigau Maungu MOWD Gora Kambito SH Buguta Rock Catch. SH Gimba GOK Ronge Nyika SH Mlung'hi Sett. Sch. Mata SH	Chongonyi SH Kasigau Chala Chuvini SH Wundanyi MOWD Tausa SH Kichingima SH Mwamsha SH Rukanga Institutional Sagasa/Sangangenyi SH Makitau Sh
Tana River	Kipini (wells) CW Waldena (wells) MOWD Mbalambala RDF	Livestock Prog. MOWD Wazini RDF Wenje RDF	Oda MOWD Daku RDF	Bangale Earth pan MOWD Ndurani RDF	Zubaki W/Ext. MOWD Mulanjo RDF
Embu	Gachoka RWS Gathigagacheru RWS Riandu RWS	Kievaru RWS Makima RWS Karabari Rock Catchment RWS	Nguthi RWS Karariiri RWS	Kyeni(South) RWS Rue RWS	Embu Rural Const. RWS Mirundi RWS
Isiolo	Oldonyiro RWS Madagashe RWS	Ngarema RWS Sericho RWS	Kulamwe RWS	Boji RWS	Duse RWS
Kitui	Iluka phase 1 MOWD Thua Kinakoni MOWD Kiima MOWD	Kamulu Muthongwe MOWD Nzeeu Ungatu RDF Katutu Ngunguni RDF	Athi Yatta phsc 1 MOWD Nzeluni MOWD Mutha-Kalambani EEC	Kakeani RDF Ithiani Kavuta MOWD	Migwani MOWD Kisasi Mbitini MOWD
Machakos	Kiong'wani Kima B/H EEC Muthetheni EEC Kiteta RDF Machakos RWS	Kibauni RWS Lelanthi EEC Kikambuani MOWD/RDF Kikumbulyu RWS	Nunguni RWS Manooni EEC Yondoni MOWD/RDF	Kithioko EEC Muindi Mem Sec.Sche.RDF Masinga MOWD	Mulima EEC Ithanga RDF Kathiani RWS
Marsabit	Uran RWS Dabel RWS	Livestock Prg. RWS Sololo RWS	Kalacha RWS Moyale RWS	Godoma RWS	Kargi RWS
Meru	Kaaga Sch RWS Muguna Timau RWS Nairiri RWS Ntumburi RWS Karimba SH Kiguru RWS	Kairuni Kiraro RWS Tigania RWS Naari Kirua RWS Meru T/ship UWS Kieguchia Gatimbi SH Katheri Nthimbiri SH	Kanyekine RWS Ndunuma Spr RWS Gitari RWS Gakando RWS Kiamioogo SH Giachuku SH	Kiguru RWS Antubetwe Sch.tank RWS Amwari RWS Central Abuthuguchi RWS Kimuri SH K.K.Mwethe SH	Kanya RWS Mugechege RWS Magumonni RWS Gaua Ngonga Makandune SH
Garissa	Bulagolol W/plan RWS Balich RWS	Kamuthi RWS Garasueno RWS	Raya RWS Gamagala RWS	Jara Jara RWS Hara RWS	Garissa Urban UWS
Mandera	Mandera RWS Banissa RWS	Rhamu RWS S/Fatuma RWS	Elwak RWS L.W.P. RWS	Kutulo RWS	Takaba RWS

Table D5.1 On-going Water Supply Projects (2/2)

On-Going Water Supply Projects					
Wajir RWS	Diff RWS Wajir Urban UWS	Korondillo RWS	Tarbij RWS	Wajir RWS	Giriftu RWS
Kisii	Riokindo RWS Mogochi RWS Igare RWS	Birongo RWS Etago RWS Kioge RWS	Sengera RWS Nyamache RWS Getare RWS	Natongo Iganga RWS Kiareni RWS Nyamarambe RWS	Gioseri RWS Gesusu/Geteri RWS Rigena RWS
Kisumu	Korwenje RWS Koru/Mnara RWS Songor Muhoroni RWS	Kisumu Rural Phs 1 RWS Nyahera RWS	West Kano RWS Kenasia RWS	Paga Beach RWS Mahenya RWS	Kibigori RWS Vitendo RWS
Siaya	North Sakwa RWS Sakwa RWS	South Sakwa RWS	Mauna Dam RWS	Bondo RWS	Sidindi Malanga Phs II R
South Nyanza	Mbita RWS Obera RWS	Kanyaluo RWS Nyandiwa RWS	Wangchieng RWS Mulo/Pe-Hill Ulabd RWS	Ongoche RWS Oyanj RWS	Got Kojowi RWS
Kajiado	Namanga RWS KaJiado UWS Kiserian Nkoroi RWS Livestock prog. RWS	Bissel RWS Kisaju RWS Kipeto RWS Oldonyonyokie RWS	Looda-riak RWS Olkeri B/H UWS Nkoile RWS Lower-Matasia RWS	Olooseos RWS Ewaso Kedong RWS Ngataack RWS Olkiramatian RWS	O/Rongai RWS Olcho-Ronyori RWS Kibiko RWS
Kericho	Sigor-Longisa RWS Chebunyo RWS	Cheptalal RWS Kenegut RWS	Fort-Ternan RWS Ngecherok RWS	Chemogoch RWS Tegurot/Nyakinyua RWS	Chesinende RWS
Laikipia	Wiumiririe RWS Alkinyei B/H C5197 RWS Water Jars RWS Mutiriitha RWS	Rwathia RWS Sweet Waters Dam RWS Sub-Surface Dam RWS Nyakario RWS	OMC Lorian RWS Doldol dam RWS Ndunumo/Minjore RWS Laikipia West RWS	Sirimon RWS Kapkures Dam RWS Muhonia RWS Mammanet RWS	Aljiro B/H C5140 RWS Laikipia East RWS Sweet Waters RWS
Nakuru	Wanyoro SH Kerma Viosi SH	Kerisio SH Maragusu SH	Kinoru SH Mirera Suswa SH	Kianyoro SH Chemichemi Tytyich SH	Piave SH Amos B/H SH
Narok	Imasharian RWS N/Nkare dam RWS	Ololmasan RWS Enabalel RWS	Olkinyei RWS Enengeia RWS	Siyabei RWS N/Enkare RWS	Mostro RWS Enosacn RWS
Trans-Nzoia	Kiminiini NCP Kimitu SH	Kwanza/Kolongolo POCP Mogoiywet SH	Saboti WP Muna RWS	Kimondo WP Bikeke RWS	Sibanga WP Kaisagat REH.
Uasin Gishu	Moi's Bridge NEW Losoiro Kapngatuny NEW Makongi SH	Kipkabus NEW Yamumbi NEW Osorongai SH	Bumt Forest NEW Timboroa NEW Kemeliet SH	Tarakwa NEW Karnoi Ya Kabatu NEW	Ainabkoi NEW Kipdarren Dam NEW
Baringo	Maji Moto RWS Torongo RWS Kiamose Livest pro RWS	Radat RWS Timboroa RWS Koriema Kimalo RWS	Cheberen RWS Turkubus (Pemwai) RWS	Kapchepkor RWS Arrot/Saimo RWS	Talai RWS Kapcheluguny RWS
Elgeyo -Marakwet	Flax RDF Metkei MOWD Chesongoch ASAL	Sergoit MOWD Lekwa MOWD	Jemunanda Kondabil RDF Chepsigot Chepteb MOWD	Kapcherop MOWD Nyail/Matany ASAL	Kapcherop W/P RDF Resim ASAL
Nandi	Sarora RWS Kajigat RWS Olmentuny Cat/dip RWS	Keibarak RWS Kemoloi/Kobujoi RWS	Mosombor RWS KapchorwaRWS	Meteitei RWS Samooi Sec. RWS	Kapitel W/P RDF Lolminingai Disp. RWS
Samburu	Losuk RWS Opiroi RWS Wamba Boys Un. Tank RWS Loikas DWS	Kowop RWS Poro RWS Baragoi Sec.Sch DWS	Wamba RWS Mart RWS South Horr DWS	Baragoi pri. sch. RWS Baragoi RWS Suguta Marmar DWS	Lesirikan RWS Kisima RWS Archers post DOO
Turkana	Lorugum RWS Kerio Fishing Vi. SH	Lokori RWS Livestock Progra. CWC	Kapedo SH RWS	Namadak RWS	Lokitaung Urban
West Pokot	Ywarateke Morbus	Sigor	Chesegon SH	Arpollo Gravity	Sina
Bungoma	Malaba/Kocholia RWS Ndalu RWS	Little Nzoia West RWS Lukhuna RWS	Chemego/Kapskwony RWS Muchi/Milo Khahumli RWS	Kibabii RWS Sichei/Nalondo Lurembe RWS	Kimobo RWS
Busia	Angoromo East Phs 1 RWS	Angurai RWS	Nasewe Tr. Nurs. ph 1 RWS	Phase 2 RWS	
Kakamega	Soy RWS	Bumbo/Shamakhokho RWS	Esalwa INSTITUTION	Chavavoi/Mahanga RWS	Maseo RWS

Note : Schemes are listed based on information collected from various sources in 1991.

Table D5.2 Implementation Programme of Urban Water Supply Schemes (1/5)

District Code	Urban Name	City Code	Future Raw Water Source	Cost (million)		Implementation Schedule														
				US\$	K£	93	95	2000	2	4	6	8	10							
110	Nairobi	U-1	Thika Dam, Ndarugu, Ruiru-A, Chania-B	1,061.6	1,337.7	•	•	•												
210	Karuri	U-2	Kiambaa Dam (Rui Ruaka R.)	12.0	15.1	•	•													
210	Kiambu	U-3	Kiambaa Dam (Rui Ruaka r.)	9.1	11.4	•	•	•	•											
210	Gatundu & Ngenda	U-4	Thiririka River	0.3	0.4															
210	Limuru	U-5	Chania P/L	14.2	17.9			•	•											
210	Ruiru	U-6	Ruiru River	9.7	12.2		•	•												
210	Thika	U-7	Chania River (Lower)	21.3	26.9				•	•										
210	Githunguri	U-8	Ruiru river	5.0	6.3			•	•											
210	Kikuyu	U-9	Kikuyu Dam	14.9	18.7		•	•												
				86.4	108.8															
220	Wanguru	U-10	Thiba River	1.2	1.5				•	•										
220	Sagana	U-11	Ragati River	3.6	4.5				•	•										
220	Kerugoya	U-12	Kiringa River	8.3	10.5	•	•													
220	Kutus	U-13	Thiba River	4.9	6.2				•	•										
				18.0	22.7															
230	Kandara	U-14	Thika River	0.5	0.6															
230	Maragua	U-15	Githanji river	15.1	19.0	•	•													
230	Kangema	U-16	Mathioya River	1.2	1.5				•	•										
230	Murang'a	U-17	Maragua river	11.4	14.3	•	•													
230	Makuyu	U-18	Motoho river	4.8	6.0	•	•													
				32.9	41.5															
240	Oi Kalou	U-19	Malewa River	10.7	13.5				•	•										
250	Karatina	U-20	Ragati River	3.9	4.9				•	•										
250	Othaya	U-21	Tuthi river	5.0	6.3			•	•											
250	Nyeri	U-22	Chania River	50.3	63.4	•	•													
				59.2	74.6															
310	Mariakani	U-23	2nd Mzima P/L	4.6	5.8		•	•												
310	Kilifi	U-24	Rare reservoir	9.6	12.2				•	•										
310	Watamu	U-25	Sabaki pipeline	5.2	6.5	•	•													
310	Malindi	U-26	Sabaki Pipeline & Rare Dam	64.4	81.1				•	•										
310	Mamburui	U-135	Sabaki river	4.5	5.6	•	•													
				88.3	111.2															
320	Kwale	U-27	Marere pipeline	4.8	6.0				•	•										
320	Kinango	U-28	Marere pipeline	4.8	6.0				•	•										
320	Msambweni	U-29	Boreholes + Mkurumuji river	45.5	57.3			•	•	•	•		•	•	•					
320	Lungalunga	U-136	Umba river	2.4	3.0				•	•										
				57.4	72.3															
330	Witu	U-30	Mkondo wa Cambi river	5.4	6.8			•	•											
330	Lamu	U-31	P/L from Tuna River + B/I	37.5	47.3			•	•											
				42.9	54.1															
340	Mombasa	U-32	2nd Mzima/Mwachi Dam, Pemba Dam	441.6	556.4	•	•	•					•	•	•					

Note: • Construction

Table D5.2 Implementation Programme of Urban Water Supply Schemes (2/5)

District Code	Urban Name	City Code	Future Raw Water Source	Cost (million)		Implementation Schedule																		
				US\$	K£	93	95	2000			2	4	6	8	10									
350	Taveta	U-137	Njoro Spring	7.2	9.1		•	•										•	•					
350	Voi	U-33	2nd Mzim pipeline	7.7	9.7					•	•								•	•				
350	Wundanyi	U-34	Sigaso/Manguri River	0.9	1.2														•	•				
				15.8	19.9																			
360	Bura & Madogo	U-35	Tana River	0.9	1.2					•	•								•	•				
360	Hola	U-36	Tana River	6.8	8.6					•	•									•	•			
360	Garsen	U-37	Tana River	3.0	3.8					•	•									•	•			
				10.8	13.6																			
410	Runyenjes	U-38	Ena river	2.3	2.9					•	•			•	•	•	•	•	•	•	•			
410	Siakago	U-39	Ena River	0.0	0.0																			
410	Embu	U-40	Lower Kapingazi River + Upper Rupingazi River	8.8	11.2															•	•			
				11.2	14.1																			
420	Isiolo	U-41	Boreholes + Spring	152.6	192.2					•	•	•	•	•	•	•	•	•	•	•	•			
420	Oi Doinyo Ng'iro	U-42	Ewaso Ngiro River	8.3	10.5	•	•														•	•		
420	Garbatula	U-138	Boreholes	40.4	50.9					•	•	•	•	•	•	•	•	•	•	•	•	•		
420	Merti	U-139	Ewaso Ngiro	5.5	6.9					•	•										•	•		
				206.7	260.5																			
430	Kitui	U-43	Masinga Dam	9.4	11.9	•	•														•	•		
430	Mutomo	U-44	Sub-Surface dam on Tiva river	0.0	0.0																			
430	Mwingi	U-45	Kiambere Dam	16.1	20.3	•	•															•	•	
				25.6	32.2																			
440	Machakos	U-46	Athi River P/L	78.1	98.4					•	•										•	•		
440	Mitaboni	U-47	Kaathana River	20.3	25.6	•	•															•	•	
440	Athi River	U-48	Upper Athi Dam	19.7	24.8							•	•									•	•	
440	Uaani/Tawa	U-49	Tawa river	1.1	1.4					•	•											•	•	
440	Kangundo	U-50	Pipeline from Athi River	19.5	24.6	•	•															•	•	
440	Tala	U-140	Pipeline from Athi river	8.4	10.6					•	•											•	•	
440	Nunguni	U-51	Kyangonyo river	1.5	1.9							•	•									•	•	
440	Wote	U-141	Kaiti river + Nzuuni river	3.3	4.1					•	•											•	•	
440	Emali	U-52	Nol Tresh P/L	1.7	2.1	•	•															•	•	
440	Múto Andei&Kibwezi	U-53	Pipeline from Athi river	19.5	24.6	•	•															•	•	
				173.1	218.2																			
450	North Horr	U-142	Boreholes	22.0	27.7					•	•										•	•	•	•
450	Kargi	U-54	Boreholes + Subsurface Dam	66.8	84.1					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
450	Korr	U-143	Boreholes	56.8	71.6					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
450	Marsabit	U-55	Boreholes + Small dams/Sub-surface dam/Spring	177.7	223.9					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
450	Sololo	U-56	Boreholes	63.3	79.7					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
450	Moyale	U-57	Boreholes + Small Dam	68.3	86.0					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
				454.9	573.2																			
460	Meru	U-58	Kathita river	43.5	54.9					•	•											•	•	
460	Nkubu	U-59	Thingitho River	4.6	5.8							•	•										•	•
460	Chogoria	U-60	North Mara River	1.7	2.2	•	•																•	•
460	Chuka	U-61	Tungu river	4.2	5.2							•	•										•	•
460	Maua	U-62	Ura river	3.8	4.8					•	•												•	•
				57.9	72.9																			
Note:			• Construction																					

Table D5.2 Implementation Programme of Urban Water Supply Schemes (3/5)

District Code	Urban Name	City Code	Future Raw Water Source	Cost (million)		Implementation Schedule												
				US\$	K£	93	95	2000	2	4	6	8	10					
510	Mudo Gashe	U-63	Boreholes + Subsurface Dam	19.6	24.7	•	•								•	•	•	•
510	Ijara	U-64	Boreholes + Small dam	10.7	13.5	•	•								•	•	•	•
510	Kotile	U-65	Boreholes/Subsurface Dam/l'ana	15.6	19.7	•	•								•	•	•	•
510	Masalani	U-66	Tana River	2.4	3.0			•	•									•
510	Garissa	U-67	Tana River	12.9	16.3					•	•						•	•
				61.2	77.1													
520	Mandera	U-68	Daua River	3.1	4.0					•	•						•	•
520	Elwak	U-69	Boreholes	75.5	95.1	•	•								•	•	•	•
520	Rhamu	U-70	Daua River	2.9	3.6					•	•							•
				81.5	102.7													
530	Wajir	U-71	Boreholes + Ewaso Ngiro River	172.3	217.1	•	•	•	•	•	•	•	•	•	•	•	•	•
530	Buna	U-72	Boreholes(Lago Bor river)	94.8	119.4	•	•	•	•	•	•	•	•	•	•	•	•	•
530	Butc	U-73	Boreholes + Small Dams	18.4	23.2	•	•								•	•	•	•
				285.4	359.6													
610	Manga	U-74	Bunyonyu Dam	3.6	4.5			•	•									•
610	Keroka	U-75	Bunyonyu Dam	5.2	6.6			•	•									•
610	Nyamira + Kebirigo	U-144	Kuja river	11.6	14.6			•	•									•
610	Kisii	U-76	Bunyonyu Dam	27.5	34.7			•	•	•							•	•
610	Ogembo	U-77	Kuja river	1.7	2.2	•	•											•
				49.7	62.6													
620	Maseno	U-78	Edzawa Dam	15.6	19.6			•	•									•
620	Kisumu & + Kiboswa	U-79	Kibos dam	104.8	132.1	•	•								•	•		
620	Ahero	U-80	Nyando river	5.9	7.4	•	•											•
620	Muhoroni	U-81	Nyando River	7.6	9.6	•	•											•
				133.9	168.7													
630	Bondo	U-145	Yala river	4.2	5.3			•	•									•
630	Yala	U-82	Yala river	2.5	3.2			•	•									•
630	Siaya	U-83	Yala River	16.0	20.1			•	•								•	•
630	Ukwala	U-84	Nzoia River	1.9	2.4			•	•									•
				24.6	31.0													
640	Homa Bay	U-85	Lake Victoria	12.5	15.8			•	•								•	•
640	Migori	U-86	Migori river	5.4	6.9	•	•											•
640	Kehancha + Tarang'anya	U-146	Migori river	4.8	6.0	•	•											•
640	Nyabikaye	U-147	Boreholes	27.0	34.1	•	•								•	•	•	•
640	Oyugis	U-148	Isanta river(Awach Tende)	4.9	6.2			•	•									•
640	Kendu Bay	U-87	Lake Victoria	3.0	3.7			•	•									•
640	Awendo/Sare	U-149	Sare river	5.3	6.6	•	•											•
				62.9	79.3													
710	Oloitokitok	U-88	Nol-Turesh Spring	7.0	8.9			•	•									•
710	Ngong	U-89	Kerarapon Spring	14.6	18.4	•	•											•
710	Kajiado	U-90	Kiserian P/L	19.7	24.9	•	•										•	•
710	Namanga	U-91	Namanga Spring	5.7	7.1	•	•											•
710	Magadi	U-92	Oloibortoto river	10.7	13.5					•	•							•
				57.7	72.7													

Note: • Construction

Table D5.2 Implementation Programme of Urban Water Supply Schemes (4/5)

District Code	Urban Name	City Code	Future Raw Water Source	Cost (million)		Implementation Schedule														
				US\$	K£	93	95	2000			2	4	6	8	10					
720	Sotik	U-93	Kipsonoi river	4.5	5.6	●	●													
720	Kericho	U-94	Dimlitch Dam, Kimugung Dam	24.2	30.5			●	●											
720	Kipkelion	U-95	Nyundo river	2.1	2.6			●	●											
720	Londiani	U-96	Londiani dam	58.6	73.9			●	●											
				89.4	112.7															
730	Nanyuki	U-97	Liki river	18.6	23.5					●	●									
730	Rumuruti	U-150	Rumuruti Dam + Borehole	9.2	11.6	●	●													
730	Nyahururu	U-98	Nyahururu dam + Borehole	23.1	29.0					●	●									
				50.9	64.1															
740	Gilgil	U-99	Turasha P/L & Malewa Dam	43.3	54.5					●	●									
740	Naivasha	U-100	Turasha P/L & Malewa Dam	49.0	61.7					●	●									
740	Njoro	U-101	Itare Dam	27.3	34.4	●	●	●	●											
740	El Burgon	U-102	Itare Dam	26.4	33.2	●	●	●	●											
740	Molo	U-103	Itare Dam	21.4	27.0	●	●	●	●											
740	Nakuru	U-104	Turasha P/L + Malewa Dam + Itare Dam	212.0	267.1	●	●													
				379.3	478.0															
750	Narok	U-105	Upper Narok Dam	30.9	39.0					●	●									
750	Nairagie Ngare	U-106	Nasampolai river	1.8	2.2					●	●									
750	Kilgoris	U-151	Poroko river	4.3	5.4					●	●									
750	Lolkorian	U-152	Migori river	3.7	4.7					●	●									
				40.7	51.3															
760	Kitale	U-107	Koitobos river	34.8	43.8					●	●									
760	Kiminini/Saboti+Spr.Kita	U-108	Kabwyan river	4.0	5.0	●	●													
760	Endebess/Kwanza	U-109	Koitobos river	2.4	3.0	●	●													
				41.1	51.8															
770	Moi's Bridge	U-153	Nzoia river	2.9	3.7	●	●													
770	Turbo	U-154	Sosiani river	5.5	6.9					●	●									
770	Eldoret	U-110	Moiben Dam + Nzoia river	135.9	171.2	●	●													
770	Burnt Forest	U-111	Kipkaren river	2.1	2.6					●	●									
				146.4	184.5															
810	Kabarnet	U-112	Kirandich Dam	27.3	34.4	●	●													
810	Maji Mazuri	U-113	Maji Mazuri river	5.2	6.5	●	●													
810	Eldama Ravine	U-114	Chemususu Dam	26.6	33.5					●	●									
810	Mogotio	U-115	Molo river /Chemususu Dam	6.0	7.6					●	●									
810	Marigat	U-155	Perkerra river	2.5	3.2					●	●									
				67.6	85.2															
820	Iten+Tambach	U-116	Moiben Dam	12.7	16.0	●	●			●	●									
830	Nandi Hills	U-117	Mokong River	4.0	5.0					●	●									
830	Kapsabet+Baraton	U-118	Mokong river	11.8	14.9					●	●									
				15.8	19.9															
840	Maralal	U-119	Loikas/Yamo river	16.0	20.2					●	●									
840	Wamba	U-120	Boreholes	82.0	103.3	●	●	●	●											
840	Baragoi	U-121	Boreholes + Sub-surface dam	123.7	155.8	●	●	●	●											
				221.7	279.3															

Note: ● Construction

Table D5.2 Implementation Programme of Urban Water Supply Schemes (5/5)

District Code	Urban Name	City Code	Future Raw Water Source	Cost (million)		Implementation Schedule														
				US\$	K£	93	95	2000	2	4	6	8	10							
850	Lodwar	U-122	Boreholes & sub-surface dam	132.6	167.1			•	•	•	•	•	•	•	•	•	•	•	•	•
860	Kapenguria/Makutano	U-123	Kapenguria River	8.9	11.2		•	•											•	•
910	Mawalic + Malakisi	U-156	Malikisi river	3.3	4.2	•	•												•	•
910	Bungoma	U-124	Kuywa River	26.8	33.7				•	•									•	•
910	Kimilili	U-125	Kimilili River	7.3	9.2		•	•											•	•
910	Webuye	U-126	Nzoia River	20.0	25.2			•	•										•	•
910	Chaptais	U-157	Sasuri river	2.7	3.4	•	•												•	•
				60.1	75.8															
920	Busia	U-127	Sio river	14.1	17.7				•	•									•	•
920	Nambale	U-158	Sio river	2.2	2.8				•	•									•	•
				16.3	20.5															
930	Luanda	U-128	Edzawa river	1.8	2.2														•	•
930	Vihiga+Majengo	U-129	Edzawa River (Kimondi River)	5.1	6.4		•	•											•	•
930	Kaimosi	U-130	Galagoli river	0.0	0.0															
930	Khayega	U-131	Yala river	1.8	2.2	•	•												•	•
930	Kakamega	U-132	Isiukhu River, Mukulusi Dam	29.2	36.7			•	•										•	•
930	Butere	U-133	Viratsi River	2.2	2.8				•	•									•	•
930	Mumias	U-134	Nzoia River	13.5	17.0			•	•										•	•
				53.5	67.4															
					0.0															
				4,949.2	6,236.0															

Note: • Construction

Remarks : The above includes dam cost of US\$ 577 million in total.
See Appendix 1.1 for breakdown of dam cost.

Table D5.4 Implementation Programme of Sewerage Development (1/5)

District Code	Urban Name	City Code	Future Raw Water Source	Cost (million)		Implementation Schedule											
				US\$	K£	93	95	2000	2	4	6	8	10				
110	Nairobi	U-1	Thika Dam, Ndarugu, Ruiru-A, Chania-B	214.81	270.66	•	•	•					•	•	•		
210	Karuri	U-2	Kiambaa Dam (Rui Ruaka R.)	1.59	2.00	•	•										•
210	Kiambu	U-3	Kiambaa Dam (Rui Ruaka r.)	0.57	0.72	•	•										•
210	Gatundu & Ngenda	U-4	Thiririka River	0.07	0.09					•	•						•
210	Limuru	U-5	Chania P/L	0.16	0.20					•	•						•
210	Ruiru	U-6	Ruiru River	1.39	1.75		•	•									•
210	Thika	U-7	Chania River (Lower)	14.13	17.80					•	•						•
210	Githunguri	U-8	Ruiru river	0.49	0.61					•	•						•
210	Kikuyu	U-9	Kikuyu Dam	0.77	0.98		•	•									•
				19.16	24.15												
220	Wanguru	U-10	Thiba River	0.05	0.07					•	•						•
220	Sagana	U-11	Ragati River	0.38	0.48					•	•						•
220	Kerugoya	U-12	Kiringa River	1.17	1.48		•	•									•
220	Kutus	U-13	Thiba River	0.81	1.02					•	•						•
				2.42	3.04												
230	Kandara	U-14	Thika River	0.06	0.08					•	•						•
230	Maragua	U-15	Githanji river	3.08	3.88		•	•									•
230	Kangema	U-16	Mathioya River	0.13	0.17					•	•						•
230	Murang'a	U-17	Maragua river	2.38	3.00		•	•									•
230	Makuyu	U-18	Motoho river	0.57	0.72		•	•									•
				6.22	7.84												
240	Oi Kalou	U-19	Malewa River	1.31	1.65					•	•						•
250	Karatina	U-20	Ragati River	0.71	0.90					•	•						•
250	Othaya	U-21	Tuthi river	0.63	0.80					•	•						•
250	Nyeri	U-22	Chania River	23.74	29.91		•	•						•	•		•
				25.09	31.61												
310	Mariakani	U-23	2nd Mzima P/L.	1.13	1.43		•	•									•
310	Kilifi	U-24	Rare reservoir	1.86	2.34					•	•						•
310	Watamu	U-25	Sabaki pipeline	0.32	0.40		•	•									•
310	Malindi	U-26	Sabaki Pipeline & Rare Dam	10.56	13.30					•	•						•
310	Mamburi	U-135	Sabaki river	0.49	0.62		•	•									•
				14.35	18.08												
320	Kwale	U-27	Marere pipeline	0.53	0.66					•	•						•
320	Kinango	U-28	Marere pipeline	0.20	0.25					•	•						•
320	Msambweni	U-29	Borcholes + Mkurumuji river	1.19	1.50					•	•	•	•	•	•		•
320	Lungalunga	U-136	Umba river	0.28	0.36					•	•						•
				2.20	2.77												
330	Witu	U-30	Mkondo wa Cambi river	0.44	0.56					•	•						•
330	Lamu	U-31	P/L from Tana River + B/H	1.19	1.50					•	•						•
				1.63	2.05												
340	Mombasa	U-32	2nd Mzima/Mwachi Dam, Pemba Dam	57.41	72.33		•	•	•			•	•	•			•

Note:

• Construction

Table D5.4 Implementation Programme of Sewerage Development (2/5)

District Code	Urban Name	Future Raw Water Source	Cost (million)		Implementation Schedule																							
			US\$	K£	93	95		2000	2	4	6	8	10															
350	Taveta	U-137	Njoro Spring	1.00	1.26		•	•									•	•										
350	Voi	U-33	2nd Mzim pipeline	1.24	1.57				•	•								•	•									
350	Wundanyi	U-34	Sigaso/Manguri River	0.28	0.35				•	•								•	•									
				2.53	3.18																							
360	Bura & Madogo	U-35	Tana River	0.10	0.13				•	•									•	•								
360	Hola	U-36	Tana River	1.22	1.54				•	•									•	•								
360	Garsen	U-37	Tana River	0.41	0.52				•	•										•	•							
				1.74	2.19																							
410	Runyenjes	U-38	Ena river	0.21	0.27				•	•		•	•	•	•	•	•	•	•	•	•							
410	Siakago	U-39	Ena River	0.03	0.03						•	•									•	•						
410	Embu	U-40	Lower Kapingazi River + Upper Rapingazi River	2.47	3.12						•	•									•	•						
				2.71	3.42																							
420	Isiolo	U-41	Boreholes + Spring	3.41	4.29				•	•	•	•	•	•	•	•	•	•	•	•	•	•						
420	Ol Doinyo Ng'iro	U-42	Ewaso Ngiro River	0.70	0.89		•	•														•	•					
420	Garbatula	U-138	Boreholes	0.31	0.38		•	•			•	•										•	•					
420	Merti	U-139	Ewaso Ngiro	0.91	1.14		•	•															•	•				
				5.32	6.71																							
430	Kitui	U-43	Masinga Dam	1.40	1.77		•	•															•	•				
430	Mutomo	U-44	Sub-Surface dam on Tiva river	0.06	0.07						•	•												•	•			
430	Mwingi	U-45	Kiambere Dam	1.10	1.39		•	•																•	•			
				2.56	3.22																							
440	Machakos	U-46	Athi River P/L	22.81	28.74			•	•															•	•			
440	Mitaboni	U-47	Kaathana River	7.64	9.63		•	•																	•	•		
440	Athi River	U-48	Upper Athi Dam	3.31	4.17						•	•													•	•		
440	Uaani/Tawa	U-49	Tawa river	0.02	0.03			•	•																•	•		
440	Kangundo	U-50	Pipeline from Athi River	1.50	1.89		•	•																	•	•		
440	Tala	U-140	Pipeline from Athi river	0.22	0.28			•	•																	•	•	
440	Nunguni	U-51	Kyangonyo river	0.03	0.04						•	•														•	•	
440	Wote	U-141	Kaiti river + Nzuuni river	0.31	0.39				•	•																•	•	
440	Emali	U-52	Nol Tresh P/L	0.03	0.03		•	•																		•	•	
440	Mtito Andei&Kibwezi	U-53	Pipeline from Athi river	0.47	0.59		•	•																		•	•	
				36.35	45.80																							
450	North Horr	U-142	Boreholes	0.25	0.31			•	•																	•	•	
450	Kargi	U-54	Boreholes + Subsurface Dam	0.65	0.81			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
450	Korr	U-143	Boreholes	0.67	0.84					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
450	Marsabit	U-55	Boreholes +Small dams/Sub-surface dam/Spring	1.65	2.07			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
450	Sololo	U-56	Boreholes	0.56	0.70			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
450	Moyale	U-57	Boreholes + Small Dam	1.02	1.28					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
				4.78	6.03																							
460	Meru	U-58	Kathita river	20.54	25.88			•	•																	•	•	
460	Nkubu	U-59	Thingithu River	0.70	0.88						•	•															•	•
460	Chogoria	U-60	North Mara River	0.10	0.13		•	•																			•	•
460	Chuka	U-61	Tungu river	0.43	0.54						•	•															•	•
460	Maua	U-62	Ura river	0.43	0.54					•	•																•	•
				22.20	27.97																							
Note:		• Construction																										

Table D5.4 Implementation Programme of Sewerage Development (3/5)

District Code	Urban Name		Future Raw Water Source	Cost (million)		Implementation Schedule													
				US\$	K£	93	95	2000		2	4	6	8	10					
510	Mudo Gashe	U-63	Boreholes + Subsurface Dam	0.24	0.31		•	•								•	•	•	•
510	Ijara	U-64	Boreholes + Small dam	0.12	0.15		•	•								•	•	•	•
510	Kotile	U-65	Boreholes/Subsurface Dam/l'ana	0.12	0.15		•	•								•	•	•	•
510	Masalani	U-66	Tana River	0.12	0.15				•	•									•
510	Garissa	U-67	Tana River	8.08	10.19					•	•								•
				8.68	10.93														
520	Mandera	U-68	Daua River	0.66	0.83					•	•								•
520	Elwak	U-69	Boreholes	0.89	1.12		•	•								•	•	•	•
520	Rhamu	U-70	Daua River	0.37	0.47					•	•								•
				1.93	2.43														
530	Wajir	U-71	Boreholes + Ewaso Ng'iro River	2.65	3.34		•	•	•	•	•	•	•	•	•	•	•	•	•
530	Buna	U-72	Boreholes(Lago Bor river)	0.67	0.84		•	•	•	•	•	•	•	•	•	•	•	•	•
530	Bute	U-73	Boreholes + Small Dams	0.22	0.28		•	•											•
				3.54	4.46														
610	Manga	U-74	Bunyonyu Dam	0.07	0.09				•	•									•
610	Keroka	U-75	Bunyonyu Dam	0.21	0.27				•	•									•
610	Nyamira + Kebirigo	U-144	Kuja river	1.12	1.41				•	•									•
610	Kisii	U-76	Bunyonyu Dam	9.24	11.64				•	•	•								•
610	Ogembo	U-77	Kuja river	0.09	0.12		•	•											•
				10.73	13.52														
620	Maseno	U-78	Edzawa Dam	1.74	2.19				•	•									•
620	Kisumu & + Kiboswa	U-79	Kibos dam	37.19	46.85			•	•							•	•		•
620	Ahero	U-80	Nyando river	0.93	1.17		•	•											•
620	Muhoroni	U-81	Nyando River	0.92	1.16			•	•										•
				40.78	51.38														
630	Bondo	U-145	Yala river	0.30	0.38				•	•									•
630	Yala	U-82	Yala river	0.23	0.28				•	•									•
630	Siaya	U-83	Yala River	1.96	2.47				•	•									•
630	Ukwala	U-84	Nzoia River	0.09	0.12				•	•									•
				2.57	3.24														
640	Homa Bay	U-85	Lake Victoria	2.50	3.16				•	•									•
640	Migori	U-86	Migori river	0.83	1.04		•	•											•
640	Kehancha + Tarang'anya	U-146	Migori river	0.34	0.43		•	•											•
640	Nyabikaye	U-147	Boreholes	0.32	0.40		•	•											•
640	Oyugis	U-148	Isanta river(Awach Tende)	0.34	0.43				•	•									•
640	Kendu Bay	U-87	Lake Victoria	0.30	0.38				•	•									•
640	Awendo/Sare	U-149	Sare river	0.38	0.48		•	•											•
				5.01	6.31														
710	Oloitokitok	U-88	Nol-Turesh Spring	0.87	1.10				•	•									•
710	Ngong	U-89	Kerarapon Spring	2.86	3.61		•	•											•
710	Kajiado	U-90	Kiserian P/L	1.21	1.53		•	•											•
710	Namanga	U-91	Namanga Spring	0.97	1.23		•	•											•
710	Magadi	U-92	Oloibortoto river	0.57	0.72				•	•									•
				6.49	8.18														

Note: • Construction

Table D5.4 Implementation Programme of Sewerage Development (4/5)

District Code	Urban Name		Future Raw Water Source	Cost (million)		Implementation Schedule														
				US\$	KE	93	95	2000	2	4	6	8	10							
720	Sotik	U-93	Kipsonoi river	0.58	0.73		•	•										•	•	
720	Kericho	U-94	Dimlitch Dam, Kimugung Dam	9.72	12.24				•	•									•	•
720	Kipkelion	U-95	Nyando river	0.27	0.34				•	•									•	•
720	Londiani	U-96	Londiani dam	0.39	0.50				•	•									•	•
				10.96	13.81															
730	Nanyuki	U-97	Liki river	7.94	10.01						•	•							•	•
730	Rumuruti	U-150	Rumuruti Dam + Borehole	0.29	0.37		•	•												•
730	Nyahururu	U-98	Nyahururu dam + Borehole	2.11	2.66						•	•								•
				10.35	13.04															
740	Gilgil	U-99	Turasha P/L & Malewa Dam	2.55	3.21						•	•							•	•
740	Naivasha	U-100	Turasha P/L & Malewa Dam	12.93	16.29						•	•							•	•
740	Njoro	U-101	Itare Dam	1.60	2.02		•	•			•	•								•
740	El Burgon	U-102	Itare Dam	2.17	2.74		•	•			•	•								•
740	Molo	U-103	Itare Dam	1.92	2.41		•	•			•	•								•
740	Nakuru	U-104	Turasha P/L + Malewa Dam + Itare Dam	55.47	69.89		•	•											•	•
				76.65	96.57															
750	Narok	U-105	Upper Narok Dam	3.00	3.78						•	•								•
750	Nairgie Ngare	U-106	Nasampolai river	0.09	0.11						•	•								•
750	Kilgoris	U-151	Poroko river	0.58	0.73						•	•								•
750	Lolkorian	U-152	Migori river	0.30	0.38						•	•								•
				3.97	5.01															
760	Kitale	U-107	Koitobos river	16.08	20.26						•	•								•
760	Kiminiini/Saboti+Spr.Kita	U-108	Kabewyan river	0.15	0.18	•	•													•
760	Endebess/Kwanza	U-109	Koitobos river	0.23	0.29	•	•													•
				16.46	20.74															
770	Moi's Bridge	U-153	Nzoia river	0.35	0.45		•	•												•
770	Turbo	U-154	Sosiani river	0.49	0.62						•	•								•
770	Eldoret	U-110	Moiben Dam + Nzoia river	31.47	39.65		•	•											•	•
770	Burnt Forest	U-111	Kipkaren river	0.25	0.32						•	•								•
				32.56	41.03															
810	Kabarnet	U-112	Kirandich Dam	1.20	1.52	•	•													•
810	Maji Mazuri	U-113	Maji Mazuri river	0.67	0.84		•	•												•
810	Eldama Ravine	U-114	Chemususu Dam	0.72	0.91						•	•								•
810	Mogotio	U-115	Molo river /Chemususu Dam	0.37	0.47						•	•								•
810	Marigat	U-155	Perkerra river	0.30	0.38						•	•								•
				3.27	4.11															
820	Iten+Tambach	U-116	Moiben Dam	0.70	0.88		•	•			•	•								•
830	Nandi Hills	U-117	Mokong River	0.15	0.18						•	•								•
830	Kapsabet+Baraton	U-118	Mokong river	1.93	2.44						•	•								•
				2.08	2.62															
840	Maralal	U-119	Loikas/Yamo river	2.66	3.35						•	•								•
840	Wamba	U-120	Boreholes	0.57	0.71	•	•	•	•											•
840	Baragoi	U-121	Boreholes + Sub-surface dam	0.49	0.62	•	•	•	•											•
				3.71	4.68															

Note: • Construction

Table D5.4 Implementation Programme of Sewerage Development (5/5)

District Code	Urban Name		Future Raw Water Source	Cost (million)		Implementation Schedule														
				US\$	K£	93	95	2000	2	4	6	8	10							
850	Lodwar	U-122	Borcholes & sub-surface dam	1.34	1.69				●	●	●	●	●	●	●	●	●	●	●	●
860	Kapenguria/Makutano	U-123	Kapenguria River	1.65	2.08		●	●											●	●
910	Mawalie + Malakisi	U-156	Malikisi river	0.37	0.47	●	●												●	●
910	Bungoma	U-124	Kuywa River	9.50	11.97				●	●									●	●
910	Kimilili	U-125	Kimilili River	1.08	1.37		●	●											●	●
910	Webuye	U-126	Nzoia River	8.60	10.84				●	●									●	●
910	Chaptais	U-157	Sasuri river	0.35	0.44	●	●												●	●
				19.90	25.08															
920	Busia	U-127	Sio river	2.39	3.01				●	●									●	●
920	Nambale	U-158	Sio river	0.28	0.35				●	●									●	●
				2.67	3.36															
930	Luanda	U-128	Edzawa river	0.44	0.55				●	●									●	●
930	Vihiga+Majengo	U-129	Edzawa River (Kimondi River)	0.50	0.63		●	●											●	●
930	Kaimosi	U-130	Galagoli river	0.04	0.06				●	●									●	●
930	Khayega	U-131	Yala river	0.05	0.06	●	●												●	●
930	Kakamega	U-132	Isiukhu River, Mukulusi Dam	12.30	15.49				●	●									●	●
930	Butere	U-133	Viratsi River	0.26	0.32				●	●									●	●
930	Mumias	U-134	Nzoia River	2.57	3.24				●	●									●	●
				16.15	20.35															
				704.95	888.24															
Note:		● Construction																		

Table D5.5 Disbursement Schedule of Sewerage Development (2/2)

City Code	Code	Urban Name	(1990)						(2000)						Total (US\$ 000)					
			93	94	95	96	97	98	99	00	01	02	03	04		05	06	07	08	09
U-	74	611.2	Manga					58											15	73
U-	75	611.5	Keroka					151											60	212
U-	144	612.2	Nyamira + Kebirigo					733											382	1,115
U-	76	615.0	Kisii							3,056								6,181		9,238
U-	77	617.1	Ogembo		69														25	94
U-	78	622.1	Maseno					1,102											637	1,740
U-	79	622.3	Kisumu & + Kiboswa				23,131								14,055					37,185
U-	80	623.2	Ahero		636														296	931
U-	81	625.2	Muhoroni				574												350	924
U-	145	632.4	Bondo					210											88	298
U-	82	633.2	Yala					158											67	226
U-	83	634.1	Siaya					1,267									689			1,956
U-	84	635.4	Ukwala					63											28	94
U-	85	641.1	Homa Bay					1,647										857		2,504
U-	86	644.3	Migori				544												285	829
U-	146	646.3	Kehancha + Tarang'anya		240														98	338
U-	147	646.8	Nyabikaye				226											47	47	321
U-	148	647.4	Oyugis					240											98	338
U-	87	648.1	Kendu Bay					199											102	300
U-	149	649.4	Awendo/Sare		271														109	380
U-	88	711.1	Olotokitok					459											414	873
U-	89	712.1	Ngong			1,575													1,286	2,861
U-	90	713.1	Kajiado			636											576			1,212
U-	91	713.5	Namanga			512													460	972
U-	92	714.1	Magadi						299										272	572
U-	93	723.1	Sotik			388													191	578
U-	94	725.5	Kericho					3,001									6,716			9,718
U-	95	726.1	Kipkelion					166											106	272
U-	96	727.1	Londiani					239											155	394
U-	97	731.5	Nanyuki						2,199								5,745			7,943
U-	150	733.4	Rumuruti			179													114	294
U-	98	733.9	Nyahururu							1,255							857			2,113
U-	99	743.2	Giligil					1,370											1,180	2,551
U-	100	744.1	Naivasha					7,075											5,855	12,930
U-	101	746.1	Njoro					859											745	1,604
U-	102	747.3	El Burgon					1,166											1,008	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
U-	106	752.5	Nalragio Ngaro							50									40	90
U-	151	754.4	Kilgoria					333											248	581
U-	152	755.1	Lolkorian					172											130	302
U-	107	762.3	Kitale							9,426							6,652			16,078
U-	108	762.4	Kimilili/Saboti+Spr.Klta		103														43	146
U-	109	763.5	Endebess/Kwanza		165														67	233
U-	153	771.2	Moi's Bridge			222													132	353
U-	154	772.4	Turbo					305											184	489
U-	110	772.5	Eldoret			17,496									13,972					31,468
U-	111	774.6	Bumt Forest					156											96	252
U-	112	812.5	Kabarnet		709												494			1,203
U-	113	814.3	Maji Mazuri			395													274	669
U-	114	814.5	Eldama Ravine							426									295	720
U-	115	815.1	Mogotio							222									152	374
U-	155	816.2	Marigat					198											103	300
U-	116	822.4	Itim+Tambach							455							243			698
U-	117	831.3	Nandi Hills					97											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-	120	842.4	Wamba			158		158								83	83		83	566
U-	121	843.6	Baragoi			138		138								71	71		71	490
U-	122	853.5	Lodwar					404		404		132	132	132	132	132	132			1,338
U-	123	861.1	Kapenguria/Makutano				961										694			1,654
U-	156	911.4	Mawalio + Malakisi		244														126	370
U-	124	912.4	Bungoma							2,795							6,704			9,499
U-	125	913.1	Kimilili			627													456	1,084
U-	126	914.2	Webuye					2,526											6,078	8,603
U-	157	916.1	Chaptais		223														123	346
U-	127	921.5	Busia							1,413							975			2,388
U-	158	922.2	Nambale							182									98	281
U-	128	931.3	Luanda					271											164	435
U-	129	932.5	Vihiga+Majengo			339													158	497
U-	130	933.1	Kaimosi							34									11	45
U-	131	934.3	Khayega		34														14	48
U-	132	935.4	Kakamega					7,764									4,532			12,295
U-	133	939.2	Butero							175									81	256
U-	134	93A.4	Mumias					1,755											818	2,573
TOTAL				161,126	160,799	45,117	52,554	45,385	45,716	73,949	65,902	54,408							704,955	

Table D5.6 Disbursement Schedule for Rural and Livestock Water Supply Development Plan by District

Code	District	Rural Water Supply				Livestock Water Supply			
		Total Cost (mill.USS)	Disbursement schedule			Total Cost (mill.USS)	Disbursement Schedule		
			Stage-1		Stage-2		Up to 2000	2000- 2010	
			Up to 2000	2000- 2010	2000- 2010				
110	Nairobi	0.00	0.00	0.00	0.00	0	0.00	0.00	
210	Kiambu	80.46	4.77	10.00	65.69	1.37	0.50	0.87	
220	Kirinyaga	31.90	1.36	2.47	28.08	0.32	0.14	0.18	
230	Muranga	69.11	2.31	4.74	62.06	0.26	0.09	0.17	
240	Nyandarua	62.95	14.19	22.07	26.69	8.31	4.08	4.23	
250	Nyeri	40.76	0.37	1.13	39.26	0.11	0.03	0.08	
310	Kilifi	94.27	27.29	42.92	24.06	6.7	2.87	3.83	
320	Kwale	75.78	22.62	35.79	17.37	12.07	5.65	6.42	
330	Lamu	10.01	2.78	5.30	1.93	5.44	1.07	4.37	
340	Mombasa	0.00	0.00	0.00	0.00	0	0.00	0.00	
350	Taita Tabeta	23.94	5.98	11.39	6.56	5.72	2.01	3.71	
360	Tana River	20.64	6.21	10.01	4.43	9.98	4.32	5.66	
410	Embu	48.49	9.41	16.00	23.08	2.92	1.31	1.61	
420	Isiolo	9.25	1.24	6.28	1.74	28.57	6.11	22.46	
430	Kitui	126.13	43.70	58.98	23.45	18.5	9.15	9.35	
440	Machakos	209.41	56.62	98.97	53.82	15.61	5.99	9.62	
450	Marsabit	21.99	5.32	13.26	3.41	71.17	14.97	56.20	
460	Meru	186.88	45.81	77.00	64.06	22.21	9.68	12.53	
510	Garissa	17.23	2.73	11.63	2.87	18.06	3.50	14.56	
520	Mandera	18.58	4.62	10.71	3.25	20.28	6.91	13.37	
530	Wajir	18.09	3.46	11.73	2.89	14.67	2.41	12.26	
610	Kisii	120.53	9.18	19.72	91.64	1.58	0.53	1.05	
620	Kisumu	74.30	10.17	32.74	31.39	7.07	1.97	5.10	
630	Siaya	101.13	18.85	38.11	44.17	8.59	2.99	5.60	
640	South Nyanza	178.11	38.19	76.50	63.42	7.28	2.62	4.66	
710	Kajiado	51.02	16.58	22.52	11.92	45.37	21.63	23.74	
720	Kericho	86.93	4.54	8.24	74.15	1.94	0.85	1.09	
730	Laikipia	42.32	12.46	20.43	9.43	38.99	10.53	28.46	
740	Nakuru	143.81	26.75	66.58	50.48	60.66	11.94	48.72	
750	Narok	102.14	28.76	40.90	32.48	58.14	32.23	25.91	
760	Trans Nzoia	26.87	1.18	2.17	23.52	0.17	0.06	0.11	
770	Uasin Gishu	22.43	0.21	0.74	21.48	0.28	0.06	0.22	
810	Baringo	45.22	12.15	19.95	13.12	12.25	5.20	7.05	
820	Elgeyo Marakwet	32.28	6.97	10.94	14.37	10.52	4.29	6.23	
830	Nandi	41.65	1.56	2.54	37.56	0.22	0.11	0.11	
840	Samburu	21.80	6.20	11.73	3.87	27.42	10.06	17.36	
850	Turkana	34.53	11.10	17.64	5.79	116.78	40.50	76.28	
860	West Pokot	38.08	11.23	16.72	10.13	4.87	2.53	2.34	
910	Bungoma	78.72	6.12	10.71	61.89	1.19	0.54	0.65	
920	Busia	77.54	15.25	24.62	37.68	4.14	2.03	2.11	
930	Kakamega	142.11	7.66	14.46	119.99	0.14	0.06	0.08	
Total		2,627.37	505.87	908.33	1,213.18	669.87	231.51	438.36	
Total (%)			(19.25%)	(34.57%)	(46.17%)		(34.56%)	(65.44%)	

Table D5.7 Summary of Alternative Implementation Plans for Urban Water Supply Development

(Reduced Budgetary Scenarios)

Case	Available budget	Selected centre	Target supply level towards year 2010	Development Cost (million US\$)		Proportion to total cost (%)	
				1993-2000	2001-2010	Total	
Case-1	50%	All Major cities	Full scale of demand	1,286	838	2,124	43%
		All Districts headquarters except Isiolo and Lodwar	Full scale of demand	550	342	892	18%
		Total		1,836	1,180	3,016	61%
Case-2	50%	All Major cities	reduced demand 2000 level	711	575	1,286	26%
		All Districts headquarters	reduced demand 2000 level	284	404	688	14%
		Large centres	reduced demand 2000 level	217	332	549	11%
Total		1,212	1,311	2,523	51%		
Case-3	75%	All Major cities	Full scale of demand	1,286	838	2,124	43%
		All Districts headquarters	Full scale of demand	688	489	1,177	24%
		Large centres coverage<10%	Full scale of demand	264	149	413	8%
Total		2,238	1,476	3,714	75%		
Case-4	75%	All Major cities	Full scale of demand	1,286	838	2,124	43%
		All Districts headquarters	reduced demand 2000 level	284	404	688	14%
		Large centres	reduced demand 2000 level	217	332	549	11%
		Other cities	reduced demand 2000 level	110	346	456	9%
Total		1,897	1,920	3,817	77%		

Table D5.8 Implementation Programme of Urban Water Supply Schemes
Alternative Scenario - Case1

District Code	Urban Name	City Code	Future Raw Water Source	Cost (million)		Implementation Schedule														
				US\$	K£	93	95	2000		2	4	6	8	10						
110	Nairobi	U-1	Thika Dam, Ndarugu, Ruiru-A, Chunia-B	1,061.6	1,337.7	•	•	•	•				•	•	•	•	•	•	•	•
210	Kiambu	U-3	Kianbau Dam (Rui Ruaka r.)	9.1	11.4					•	•								•	•
220	Kerugoya	U-12	Kiringu River	8.3	10.5	•	•												•	•
230	Maragua	U-15	Githanji river	15.1	19.0			•	•										•	•
240	Oi Kalou	U-19	Malewa River	10.7	13.5					•	•								•	•
250	Nyeri	U-22	Chania River	50.3	63.4					•	•					•	•			
310	Malindi	U-26	Sabaki Pipeline & Rure Dam	64.4	81.1					•	•								•	•
320	Kwale	U-27	Murere pipeline	4.8	6.0					•	•								•	•
330	Lamu	U-31	P/L from Tuna River + B/H	37.5	47.3					•	•								•	•
340	Mombasa	U-32	2nd Mzima/Mwachi Dam, Pembu Dam	441.6	556.4			•	•	•	•		•	•	•				•	•
350	Wundanyi	U-34	Sigaso/Manguri River	0.9	1.2														•	•
360	Hola	U-36	Tuna River	6.8	8.6					•	•								•	•
410	Embu	U-40	Lower Kapingazi River + Upper Rapingazi River	8.8	11.2					•	•								•	•
430	Kitui	U-43	Masinga Dam	9.4	11.9	•	•												•	•
440	Machakos	U-46	Athi River P/L	78.1	98.4					•	•					•	•			
440	Wote	U-141	Kaiti river + Nzuuni river	3.3	4.1					•	•								•	•
450	Marsabit	U-55	Boreholes + Small dams/Sub-surface dam/Spring	177.7	223.9			•	•	•	•		•	•	•				•	•
460	Meru	U-58	Kathita river	43.5	54.9					•	•								•	•
510	Garissa	U-67	Tuna River	12.9	16.3					•	•								•	•
520	Mandera	U-68	Daus River	3.1	4.0					•	•								•	•
530	Wajir	U-71	Boreholes + Ewaso Ngiro River	172.3	217.1			•	•	•	•		•	•	•				•	•
610	Nyamira + Kebirigo	U-144	Kuja river	11.6	14.6					•	•								•	•
610	Kisii	U-76	Bunyonyu Dam	27.5	34.7					•	•								•	•
620	Kisumu & + Kiboswa	U-79	Kibos dam	104.8	132.1					•	•					•	•			
630	Siaya	U-83	Yala River	16.0	20.1					•	•								•	•
640	Homa Bay	U-85	Lake Victoria	12.5	15.8					•	•								•	•
710	Ngong	U-89	Kerarapon Spring	14.6	18.4					•	•								•	•
720	Kericho	U-94	Dimlitch Dam, Kimugung Dam	24.2	30.5					•	•								•	•
730	Nanyuki	U-97	Liki river	18.6	23.5					•	•								•	•
740	Nakuru	U-104	Turasha P/L + Malewa Dam + Jure Dam	212.0	267.1					•	•					•	•			
750	Narok	U-105	Upper Narok Dam	30.9	39.0					•	•								•	•
760	Kitale	U-107	Koitobos river	34.8	43.8					•	•								•	•
770	Eldoret	U-110	Moiben Dam + Nzoiu river	135.9	171.2					•	•					•	•			
810	Kabarnet	U-112	Kirandich Dam	27.3	34.4	•	•												•	•
820	Iten+Tambach	U-116	Moiben Dam	12.7	16.0					•	•								•	•
830	Kapsabet+Baraton	U-118	Mokong river	11.8	14.9					•	•								•	•
840	Maralal	U-119	Loikas/Yamo river	16.0	20.2					•	•								•	•
860	Kapenguria/Makutano	U-123	Kapenguria River	8.9	11.2					•	•								•	•
910	Bungoma	U-124	Kuywa River	26.8	33.7					•	•								•	•
920	Busia	U-127	Sio river	14.1	17.7					•	•								•	•
930	Vihiga+Majengo	U-129	Idzawa River (Kimondi River)	5.1	6.4					•	•								•	•
930	Kakamega	U-132	Isiukhu River, Mukulusi Dam	29.2	36.7					•	•								•	•
	TOTAL			3,015.9	3,800.1															

Note: • Construction

Table D5.9 Implementation Programme of Urban Water Supply Schemes (1/2)
Alternative Scenario - Case2

District Code	Urban Name	City Code	Future Raw Water Source	Cost (million)		Implementation Schedule															
				US\$	K£	93	95	2000	2	4	6	8	10								
110	Nairobi	U-1	Thika Dam, Ndarugu, Ruiru-A, Chania-B	577.6	727.8	•	•	•				•	•	•							
210	Karuri	U-2	Kiambaa Dam (Rui Ruaka R.)	9.1	11.4	•	•													•	•
210	Kiambu	U-3	Kiambaa Dam (Rui Ruaka r.)	6.5	8.2	•	•	•	•											•	•
210	Ruiru	U-6	Ruiru River	6.5	8.2		•	•												•	•
210	Thika	U-7	Chania River (Lower)	10.4	13.1															•	•
210	Kikuyu	U-9	Kikuyu Dam	12.7	16.0		•	•												•	•
220	Kerugoya	U-12	Kiringa River	5.0	6.3	•	•													•	•
220	Kutus	U-13	Thiba River	2.8	3.5					•	•									•	•
230	Maragua	U-15	Githanji river	10.4	13.2	•	•													•	•
230	Murang'a	U-17	Maragua river	7.1	8.9	•	•													•	•
230	Makuyu	U-18	Motoho river	3.1	3.9	•	•													•	•
240	Ol Kalou	U-19	Malewa River	6.8	8.5					•	•									•	•
250	Karatina	U-20	Ragati River	1.5	1.9															•	•
250	Othaya	U-21	Tuthi river	3.0	3.8					•	•									•	•
250	Nyeri	U-22	Chania River	29.2	36.8		•	•												•	•
310	Mariakani	U-23	2nd Mzima P/L	2.9	3.6		•	•												•	•
310	Kilifi	U-24	Rare reservoir	4.5	5.7															•	•
310	Malindi	U-26	Sabaki Pipeline & Rare Dam	48.9	61.6					•	•									•	•
320	Kwale	U-27	Marere pipeline	2.9	3.7					•	•									•	•
320	Msambweni	U-29	Boreholes + Mkurumuji river	26.7	33.7					•	•	•	•							•	•
330	Lamu	U-31	P/L from Tana River + B/H	23.9	30.1					•	•									•	•
340	Mombasa	U-32	2nd Mzima/Mwachi Dam, Pemba Dam	324.8	409.2	•	•	•	•											•	•
350	Taveta	U-137	Njoro Spring	5.0	6.3		•	•												•	•
350	Voi	U-33	2nd Mzim pipeline	4.9	6.1					•	•									•	•
360	Hola	U-36	Tana River	4.2	5.3					•	•									•	•
410	Embu	U-40	Lower Kapingazi River + Upper Rupingazi River	4.2	5.4					•	•									•	•
420	Isiolo	U-41	Boreholes + Spring	72.4	91.3					•	•	•	•	•	•	•	•	•	•	•	•
420	Ol Doinyo Ng'iro	U-42	Ewaso Ngiro River	5.2	6.6	•	•													•	•
420	Merti	U-139	Ewaso Ngiro	3.4	4.3					•	•									•	•
430	Kitui	U-43	Masinga Dam	5.6	7.0	•	•													•	•
430	Mwingi	U-45	Kiambere Dam	10.2	12.9	•	•													•	•
440	Machakos	U-46	Athi River P/L	47.4	59.7					•	•									•	•
440	Mitaboni	U-47	Kaathana River	12.5	15.8	•	•													•	•
440	Athi River	U-48	Upper Athi Dam	12.6	15.8					•	•									•	•
440	Kangundo	U-50	Pipeline from Athi River	12.4	15.6	•	•													•	•
440	Wote	U-141	Kaiti river + Nzuuni river	2.0	2.5					•	•									•	•
450	Kargi	U-54	Boreholes + Subsurface Dam	38.2	48.1					•	•	•	•	•	•	•	•	•	•	•	•
450	Korr	U-143	Boreholes	33.4	42.1					•	•	•	•	•	•	•	•	•	•	•	•
450	Marsabit	U-55	Boreholes + Small dams/Sub-surface dam/Spring	101.8	128.2					•	•	•	•	•	•	•	•	•	•	•	•
450	Moyale	U-57	Boreholes + Small Dam	38.5	48.5					•	•	•	•	•	•	•	•	•	•	•	•
460	Meru	U-58	Kathita river	26.1	32.8					•	•									•	•
460	Nkubu	U-59	Thingithu River	2.8	3.5					•	•									•	•
510	Garissa	U-67	Tana River	6.6	8.3					•	•									•	•
520	Mandera	U-68	Daua River	1.4	1.8															•	•
520	Elwak	U-69	Boreholes	50.7	63.9					•	•									•	•
530	Wajir	U-71	Boreholes + Ewaso Ngiro River	104.7	131.9					•	•	•	•	•	•	•	•	•	•	•	•
530	Buna	U-72	Boreholes(Lago Bor river)	62.5	78.7					•	•	•	•	•	•	•	•	•	•	•	•
610	Nyamira + Kebirigo	U-144	Kuja river	7.6	9.6					•	•									•	•
610	Kisii	U-76	Bunyonyu Dam	19.2	24.2					•	•	•	•							•	•
620	Maseno	U-78	Edzawa Dam	10.1	12.8					•	•									•	•
620	Kisumu & + Kiboswa	U-79	Kibos dam	72.7	91.6					•	•									•	•

Note: • Construction

Table D5.9 Implementation Programme of Urban Water Supply Schemes (2/2)
Alternative Scenario - Case2

District Code	Urban Name	City Code	Future Raw Water Source	Cost (million)		Implementation Schedule															
				US\$	K£	93	95	2000				2	4	6	8	10					
620	Ahero	U-80	Nyando river	4.0	5.0	•	•														
620	Muhoroni	U-81	Nyando River	4.9	6.1		•	•													
630	Siaya	U-83	Yala River	10.3	13.0			•	•												
640	Homa Bay	U-85	Lake Victoria	8.1	10.2			•	•												
640	Migori	U-86	Migori river	3.6	4.5		•	•													
710	Oloitokitok	U-88	Nol-Turesh Spring	4.0	5.1			•	•												
710	Ngong	U-89	Kerarapon Spring	8.4	10.5		•	•													
710	Kajiado	U-90	Kiserian P/L	12.0	15.1		•	•													
710	Namanga	U-91	Namanga Spring	3.2	4.0		•	•													
720	Soiik	U-93	Kipsonoi river	3.0	3.8		•	•													
720	Kericho	U-94	Dimlitch Dam, Kimugung Dam	15.2	19.1			•	•												
720	Nanyuki	U-97	Liki river	10.4	13.1			•	•												
730	Nyahururu	U-98	Nyahururu dam + Borehole	13.4	16.9			•	•												
740	Gilgil	U-99	Turasha P/L & Malewa Dam	6.3	8.0			•	•												
740	Naiyasha	U-100	Turasha P/L & Malewa Dam	21.5	27.1			•	•												
740	El Burgon	U-102	Itare Dam	16.3	20.6		•	•	•												
740	Molo	U-103	Itare Dam	13.3	16.8		•	•	•												
740	Nakuru	U-104	Turasha P/L + Malewa Dam + Itare Dam	121.0	152.5		•	•													
750	Narok	U-105	Upper Narok Dam	22.8	28.7			•	•												
760	Kitale	U-107	Koitobos river	19.6	24.7			•	•												
770	Eldoret	U-110	Moiben Dam + Nzoia river	80.7	101.6		•	•													
810	Kabarnet	U-112	Kirandich Dam	24.2	30.5	•	•														
810	Maji Mazuri	U-113	Maji Mazuri river	3.2	4.0		•	•													
810	Eldama Ravine	U-114	Chemususu Dam	21.8	27.5			•	•												
820	Iten+Tambach	U-116	Moiben Dam	8.5	10.7		•	•													
830	Kapsabet+Baraton	U-118	Mokong river	7.1	8.9			•	•												
840	Maralal	U-119	Loikas/Yamo river	9.5	12.0			•	•												
850	Lodwar	U-122	Boreholes & sub-surface dam	65.5	82.5			•	•	•	•	•	•	•	•	•	•	•	•	•	•
860	Kapenguria/Makutano	U-123	Kapenguria River	5.3	6.7		•	•													
910	Bungoma	U-124	Kuywa River	15.9	20.0			•	•												
910	Kimilili	U-125	Kimilili River	4.4	5.6		•	•													
910	Webuye	U-126	Nzoia River	11.8	14.9			•	•												
920	Busia	U-127	Sio river	8.1	10.2			•	•												
930	Vihiga+Mnjengo	U-129	Edzawa River (Kimondi River)	3.4	4.3		•	•													
930	Kakamega	U-132	Isiukhu River, Mukulusi Dam	18.5	23.3			•	•												
930	Mumias	U-134	Nzoia River	9.0	11.4			•	•												
				2,522.9	3,178.9																

Note: • Construction

Table D5.10 Implementation Programme of Urban Water Supply Schemes (1/2)
Alternative Scenario Case-3

District Code	Urban Name	City Code	Future Raw Water Source	Cost (million)		Implementation Schedule														
				US\$	K£	93	95	2000		2	4	6	8	10						
110	Nairobi	U-1	Thika Dam, Ndarugu, Ruiru-A, Chania-B	1061.6	1,337.7	•	•	•	•				•	•	•					
210	Karuri	U-2	Kiambaa Dam (Rui Ruaka R.)	12.0	15.1	•	•											•	•	
210	Kiambu	U-3	Kiambaa Dam (Rui Ruaka r.)	9.1	11.4	•	•												•	•
210	Ruiru	U-6	Ruiru River	9.7	12.2		•	•											•	•
220	Kerugoya	U-12	Kiringa River	8.3	10.5	•	•												•	•
230	Maragua	U-15	Githanji river	15.1	19.0	•	•												•	•
230	Makuyu	U-18	Motoho river	4.8	6.0	•	•												•	•
240	Oi Kalou	U-19	Malewa River	10.7	13.5					•	•								•	•
250	Nyeri	U-22	Chania River	50.3	63.4		•	•											•	•
310	Mariakani	U-23	2nd Mzima P/L	4.6	5.8		•	•											•	•
310	Malindi	U-26	Sabaki Pipeline & Rare Dam	64.4	81.1					•	•								•	•
320	Kwale	U-27	Marere pipeline	4.8	6.0					•	•								•	•
330	Lamu	U-31	P/L from Tana River + B/H	37.5	47.3					•	•								•	•
340	Mombasa	U-32	2nd Mzima/Mwachi Dam, Pemba Dam	441.6	556.4	•	•	•	•				•	•	•				•	•
350	Taveta	U-137	Njoro Spring	7.2	9.1		•	•											•	•
350	Wundanyi	U-34	Sigaso/Manguri River	0.9	1.2														•	•
360	Hola	U-36	Tana River	6.8	8.6					•	•								•	•
410	Embu	U-40	Lower Kapingazi River + Upper Ruingazi River	8.8	11.2					•	•								•	•
420	Isiolo	U-41	Boreholes + Spring	152.6	192.2					•	•	•	•	•	•	•	•	•	•	•
420	Oi Doi Nyong Ng'iro	U-42	Ewaso Ng'iro River	8.3	10.5	•	•												•	•
420	Meru	U-139	Ewaso Ng'iro	5.5	6.9		•	•											•	•
430	Kitui	U-43	Masinga Dam	9.4	11.9	•	•												•	•
430	Mwingi	U-45	Kiambere Dam	16.1	20.3	•	•												•	•
440	Machakos	U-46	Athi River P/L	78.1	98.4		•	•											•	•
440	Mitaboni	U-47	Kaathana River	20.3	25.6	•	•												•	•
440	Kangundo	U-50	Pipeline from Athi River	19.5	24.6	•	•												•	•
440	Wote	U-141	Kaiti river + Nzuuni river	3.3	4.1					•	•								•	•
450	Kargi	U-54	Boreholes + Subsurface Dam	66.8	84.1		•	•	•	•	•								•	•
450	Marsabit	U-55	Boreholes + Small dams/Sub-surface dam/Spring	177.7	223.9		•	•	•	•	•	•	•	•	•	•	•	•	•	•
460	Meru	U-58	Kathita river	43.5	54.9		•	•											•	•
510	Garissa	U-67	Tana River	12.9	16.3					•	•								•	•
520	Mandera	U-68	Daua River	3.1	4.0					•	•								•	•
520	Elwak	U-69	Boreholes	75.5	95.1		•	•											•	•
530	Wajir	U-71	Boreholes + Ewaso Ng'iro River	172.3	217.1		•	•	•	•	•	•	•	•	•	•	•	•	•	•
530	Buna	U-72	Boreholes(Lago Bor river)	94.8	119.4		•	•	•	•	•	•	•	•	•	•	•	•	•	•
610	Nyamira + Kebirigo	U-144	Kuja river	11.6	14.6					•	•								•	•
610	Kisi	U-76	Bunyonyu Dam	27.5	34.7					•	•	•	•						•	•
620	Kisumu & + Kiboswa	U-79	Kibos dam	104.8	132.1		•	•											•	•
620	Ahero	U-80	Nyando river	5.9	7.4	•	•												•	•
620	Muhoroni	U-81	Nyando River	7.6	9.6		•	•											•	•
630	Siaya	U-83	Yala River	16.0	20.1					•	•								•	•
640	Homa Bay	U-85	Lake Victoria	12.5	15.8					•	•								•	•
640	Migori	U-86	Migori river	5.4	6.9		•	•											•	•
710	Oloitokitok	U-88	Nol-Turesh Spring	7.0	8.9					•	•								•	•
710	Ngong	U-89	Kerarapon Spring	14.6	18.4		•	•											•	•
710	Kajiado	U-90	Kiserian P/L	19.7	24.9		•	•											•	•
710	Namanga	U-91	Namanga Spring	5.7	7.1		•	•											•	•
720	Sotik	U-93	Kipsonoi river	4.5	5.6		•	•											•	•
720	Kericho	U-94	Dimlitch Dam, Kimugung Dam	24.2	30.5					•	•								•	•
730	Nanyuki	U-97	Liki river	18.6	23.5					•	•								•	•
740	Nakuru	U-104	Turasha P/L + Malewa Dam + Itare Dam	212.0	267.1		•	•											•	•
750	Narok	U-105	Upper Narok Dam	30.9	39.0					•	•								•	•
760	Kitale	U-107	Koitobos river	34.8	43.8					•	•								•	•
770	Eldoret	U-110	Moiben Dam + Nzoia river	135.9	171.2		•	•											•	•
810	Kabarnet	U-112	Kirandich Dam	27.3	34.4	•	•												•	•
810	Maji Mazuri	U-113	Maji Mazuri river	5.2	6.5		•	•											•	•
820	Iten+Tambach	U-116	Moiben Dam	12.7	16.0		•	•											•	•

Note: • Construction

Table D5.10 Implementation Programme of Urban Water Supply Schemes (2/2)
Alternative Scenario Case-3

District Code	Urban Name	City Code	Future Raw Water Source	Cost (million)		Implementation Schedule												
				US\$	K£	93	95	2000			2	4	6	8	10			
830	Kapsabet+Baraton	U-118	Mokong river	11.8	14.9			●	●								●	●
840	Maralal	U-119	Loikas/Yamo river	16.0	20.2			●	●								●	●
850	Lodwar	U-122	Boreholes & sub-surface dam	132.6	167.1			●	●	●	●	●	●	●	●	●	●	●
860	Kapenguria/Makutano	U-123	Kapenguria River	8.9	11.2		●	●									●	●
910	Bungoma	U-124	Kuywa River	26.8	33.7				●	●							●	●
910	Kimilili	U-125	Kimilili River	7.3	9.2		●	●										●
920	Busia	U-127	Sio river	14.1	17.7				●	●							●	●
930	Vihiga+Majengo	U-129	Edzawa River (Kimondi River)	5.1	6.4		●	●										●
930	Kakamega	U-132	Isiukhu River, Mukulusi Dam	29.2	36.7			●	●								●	●
				3,714.5	4,680.3													
Note:			● Construction															

Table D5.11 Implementation Programme of Urban Water Supply Schemes (1/3)
Alternative Scenario Casc4

District Code	Urban Name	City Code	Future Raw Water Source	Cost (million)		Implementation Schedule														
				US\$	K£	93	95	2000	2	4	6	8	10							
110	Nairobi	U-1	Thika Dam, Ndarugu, Ruiru-A, Chania-B	1,061.6	1,337.7	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
210	Karuri	U-2	Kiambaa Dam (Rui Ruaka R.)	9.1	11.4	•	•												•	•
210	Kiambu	U-3	Kiambaa Dam (Rui Ruaka r.)	6.5	8.2	•	•	•	•										•	•
210	Limuru	U-5	Chania P/L	9.2	11.6			•	•										•	•
210	Ruiru	U-6	Ruiru River	6.5	8.2		•	•											•	•
210	Thika	U-7	Chania River (Lower)	10.4	13.1														•	•
210	Githunguri	U-8	Ruiru river	3.2	4.0			•	•										•	•
210	Kikuyu	U-9	Kikuyu Dam	12.7	16.0		•	•											•	•
220	Wanguru	U-10	Thiba River	0.6	0.7														•	•
220	Sagana	U-11	Ragati River	2.2	2.7					•	•								•	•
220	Kerugoya	U-12	Kiringa River	5.0	6.3	•	•												•	•
220	Kutus	U-13	Thiba River	2.8	3.5					•	•								•	•
230	Maragua	U-15	Githanji river	10.4	13.2	•	•												•	•
230	Kangema	U-16	Mathioya River	0.5	0.7														•	•
230	Murang'a	U-17	Maragua river	7.1	8.9	•	•												•	•
230	Makuyu	U-18	Motoho river	3.1	3.9	•	•												•	•
240	Oi Kalou	U-19	Malewa River	6.8	8.5					•	•								•	•
250	Karatina	U-20	Ragati River	1.5	1.9														•	•
250	Othaya	U-21	Tuthi river	3.0	3.8			•	•										•	•
250	Nyeri	U-22	Chania River	29.2	36.8		•	•								•	•		•	•
310	Mariakani	U-23	2nd Mzima P/L	2.9	3.6		•	•											•	•
310	Kilifi	U-24	Rare reservoir	4.5	5.7														•	•
310	Watamu	U-25	Sabaki pipeline	3.3	4.2	•	•												•	•
310	Malindi	U-26	Sabaki Pipeline & Rare Dam	64.4	81.1					•	•								•	•
310	Mambrui	U-135	Sabaki river	2.5	3.2	•	•												•	•
320	Kwale	U-27	Marere pipeline	2.9	3.7					•	•								•	•
320	Kinango	U-28	Marere pipeline	3.1	4.0					•	•								•	•
320	Msambweni	U-29	Boreholes + Mkurumuji river	26.7	33.7			•	•	•	•			•	•	•	•		•	•
320	Lungalunga	U-136	Umba river	1.5	1.9					•	•								•	•
330	Witu	U-30	Mkondo wa Cambi river	3.3	4.2					•	•								•	•
330	Lamu	U-31	P/L from Tana River + B/H	37.5	47.3					•	•								•	•
340	Mombasa	U-32	2nd Mzima/Mwachi Dam, Pemba Dam	441.6	556.4	•	•	•	•			•	•	•	•				•	•
350	Taveta	U-137	Njoro Spring	5.0	6.3		•	•											•	•
350	Voi	U-33	2nd Mzim pipeline	4.9	6.1					•	•								•	•
360	Bura & Madogo	U-35	Tana River	0.6	0.8					•	•								•	•
360	Hola	U-36	Tana River	4.2	5.3					•	•								•	•
360	Garsen	U-37	Tana River	2.0	2.5					•	•								•	•
410	Runyenjes	U-38	Ena river	1.5	1.9			•	•			•	•	•	•	•	•	•	•	•
410	Embu	U-40	Lower Kapingazi River + Upper Rupingazi River	4.2	5.4					•	•								•	•
420	Isiolo	U-41	Boreholes + Spring	72.4	91.3			•	•	•	•	•	•	•	•	•	•	•	•	•
420	Oi Doinyo Ng'iro	U-42	Ewaso Ng'iro River	5.2	6.6	•	•												•	•
420	Garbatula	U-138	Boreholes	21.1	26.6		•	•	•	•	•								•	•
420	Merti	U-139	Ewaso Ng'iro	3.4	4.3		•	•											•	•
430	Kitui	U-43	Masinga Dam	5.6	7.0	•	•												•	•
430	Mwingi	U-45	Kiambere Dam	10.2	12.9	•	•												•	•
440	Machakos	U-46	Athi River P/L	47.4	59.7		•	•											•	•
440	Mitaboni	U-47	Kaathana River	12.5	15.8	•	•												•	•
440	Athi River	U-48	Upper Athi Dam	12.6	15.8					•	•								•	•
440	Uaani/Tawa	U-49	Tawa river	0.8	1.0		•	•											•	•
440	Kangundo	U-50	Pipeline from Athi River	12.4	15.6	•	•												•	•
440	Tala	U-140	Pipeline from Athi river	5.6	7.1		•	•											•	•

Note: • Construction

Table D5.11 Implementation Programme of Urban Water Supply Schemes (2/3)
Alternative Scenario Case4

District Code	Urban Name	City Code	Future Raw Water Source	Cost (million)		Implementation Schedule															
				US\$	K£	93	95	2000		2	4	6	8	10							
440	Nunguni	U-51	Kyangonyo river	1.0	1.3																
440	Wote	U-141	Kaitii river + Nzuuni river	2.0	2.5																
440	Emali	U-52	Nol Tresh P/L	1.2	1.5																
440	Mito Andei&Kibwezi	U-53	Pipeline from Athi river	12.8	16.1																
450	North Horr	U-142	Boreholes	13.9	17.5																
450	Kargi	U-54	Boreholes + Subsurface Dam	38.2	48.1																
450	Korr	U-143	Boreholes	33.4	42.1																
450	Marsabit	U-55	Boreholes + Small dams/Sub-surface dam/Spring	177.7	223.9																
450	Sololo	U-56	Boreholes	36.6	46.1																
450	Moyale	U-57	Boreholes + Small Dam	38.5	48.5																
460	Meru	U-58	Kathita river	26.1	32.8																
460	Nkubu	U-59	Thingithu River	2.8	3.5																
460	Chogoria	U-60	North Mara River	1.3	1.6																
460	Chuka	U-61	Tungu river	2.6	3.3																
460	Maua	U-62	Ura river	2.5	3.2																
510	Mudo Gashe	U-63	Boreholes + Subsurface Dam	12.9	16.3																
510	Ijara	U-64	Boreholes + Small dam	8.0	10.1																
510	Koile	U-65	Boreholes/Subsurface Dam/Fana	11.7	14.8																
510	Masalani	U-66	Tana River	1.7	2.1																
510	Garissa	U-67	Tana River	6.6	8.3																
520	Mandera	U-68	Daua River	1.4	1.8																
520	Eltwak	U-69	Boreholes	50.7	63.9																
520	Rhamu	U-70	Daua River	1.8	2.3																
530	Wajir	U-71	Boreholes + Iswaso Ngiro River	104.7	131.9																
530	Buna	U-72	Boreholes(Lago Bor river)	62.5	78.7																
530	Bute	U-73	Boreholes + Small Dams	12.0	15.2																
610	Manga	U-74	Bunyonyu Dam	2.0	2.6																
610	Keroka	U-75	Bunyonyu Dam	3.6	4.6																
610	Nyamira + Kebirigo	U-144	Kuja river	7.6	9.6																
610	Kisii	U-76	Bunyonyu Dam	19.2	24.2																
610	Ogembo	U-77	Kuja river	1.2	1.5																
620	Maseno	U-78	Edzawa Dam	10.1	12.8																
620	Kisumu & + Kiboswa	U-79	Kibos dam	104.8	132.1																
620	Ahero	U-80	Nyando river	4.0	5.0																
620	Muhoroni	U-81	Nyando River	4.9	6.1																
630	Bondo	U-145	Yala river	2.8	3.5																
630	Yala	U-82	Yala river	1.7	2.1																
630	Siaya	U-83	Yala River	10.3	13.0																
630	Ukwala	U-84	Nzoia River	1.3	1.6																
640	Homa Bay	U-85	Lake Victoria	8.1	10.2																
640	Migori	U-86	Migori river	3.6	4.5																
640	Kehancha + Tarang'anya	U-146	Migori river	3.3	4.1																
640	Nyabikaye	U-147	Boreholes	18.9	23.8																
640	Oyugis	U-148	Isanta river(Awach Tende)	3.4	4.3																
640	Kendu Bay	U-87	Lake Victoria	1.9	2.5																
640	Awendo/Sare	U-149	Sare river	3.6	4.6																
710	Oloitokitok	U-88	Nol-Turesh Spring	4.0	5.1																
710	Ngong	U-89	Kerarapon Spring	8.4	10.5																
710	Kajiado	U-90	Kiserian P/L	12.0	15.1																
710	Namanga	U-91	Namanga Spring	3.2	4.0																
710	Magadi	U-92	Oloibortoto river	6.4	8.0																
720	Sotik	U-93	Kipsonoi river	3.0	3.8																

Note: ● Construction

Table D5.11 Implementation Programme of Urban Water Supply Schemes (3/3)
Alternative Scenario Case4

District Code	Urban Name	City Code	Future Raw Water Source	Cost (million)		Implementation Schedule														
				US\$	K£	93	95	2000	2	4	6	8	10							
720	Kericho	U-94	Dimlitch Dam, Kimugung Dam	24.2	30.5			•	•											
720	Kipkelion	U-95	Nyando river	1.3	1.6			•	•										•	•
720	Londiani	U-96	Londiani dam	57.1	72.0			•	•										•	•
730	Nanyuki	U-97	Liki river	10.4	13.1					•	•								•	•
730	Rumuruti	U-150	Rumuruti Dam + Borehole	7.3	9.2		•	•											•	•
730	Nyahururu	U-98	Nyahururu dam + Borehole	13.4	16.9					•	•								•	•
740	Gilgil	U-99	Turasha P/L & Malewa Dam	6.3	8.0			•	•										•	•
740	Naivasha	U-100	Turasha P/L & Malewa Dam	21.5	27.1			•	•										•	•
740	Njoro	U-101	Itare Dam	16.9	21.3		•	•	•	•									•	•
740	El Burgon	U-102	Itare Dam	16.3	20.6		•	•	•	•									•	•
740	Molo	U-103	Itare Dam	13.3	16.8		•	•	•	•									•	•
740	Nakuru	U-104	Turasha P/L + Malewa Dam + Itare Dam	212.0	267.1		•	•									•	•		
750	Narok	U-105	Upper Narok Dam	22.8	28.7					•	•								•	•
750	Nairagie Ngare	U-106	Nasampolai river	1.1	1.3					•	•								•	•
750	Kilgoris	U-151	Poroko river	2.6	3.3					•	•								•	•
750	Lolkorian	U-152	Migori river	2.3	2.9					•	•								•	•
760	Kitale	U-107	Koitobos river	19.6	24.7					•	•								•	•
760	Kiminini/Saboti+Spr.Kita	U-108	Kubewyan river	2.1	2.7	•	•												•	•
760	Endebess/Kwanza	U-109	Koitobos river	1.7	2.1	•	•												•	•
770	Moi's Bridge	U-153	Nzoia river	1.9	2.4		•	•											•	•
770	Turbo	U-154	Sosiani river	3.5	4.4					•	•								•	•
770	Eldoret	U-110	Moiben Dam + Nzoia river	80.7	101.6		•	•									•	•		
770	Burnt Forest	U-111	Kipkaren river	1.3	1.6					•	•								•	•
810	Kabarnet	U-112	Kirandich Dam	24.2	30.5	•	•												•	•
810	Maji Mazuri	U-113	Maji Mazuri river	3.2	4.0		•	•											•	•
810	Eldama Ravine	U-114	Chemususu Dam	21.8	27.5					•	•								•	•
810	Mogotio	U-115	Molo river /Chemususu Dam	4.7	5.9					•	•								•	•
810	Marigat	U-155	Perkerra river	1.6	2.1					•	•								•	•
820	Iten+Tambach	U-116	Moiben Dam	8.5	10.7		•	•			•	•							•	•
830	Nandi Hills	U-117	Mokong River	2.7	3.3					•	•								•	•
830	Kapsabet+Baraton	U-118	Mokong river	7.1	8.9					•	•								•	•
840	Maralal	U-119	Loikas/Yamo river	9.5	12.0					•	•								•	•
840	Wamba	U-120	Boreholes	43.1	54.3		•	•	•	•							•	•	•	•
840	Baragoi	U-121	Boreholes + Sub-surface dam	66.5	83.8		•	•	•	•							•	•	•	•
850	Lodwar	U-122	Boreholes & sub-surface dam	65.5	82.5		•	•	•	•	•	•	•	•	•	•	•	•	•	•
860	Kapenguria/Makutano	U-123	Kapenguria River	5.3	6.7		•	•											•	•
910	Mawalie + Malukisi	U-156	Malikisi river	2.2	2.8	•	•												•	•
910	Bungoma	U-124	Kuywa River	15.9	20.0					•	•								•	•
910	Kimilili	U-125	Kimilili River	4.4	5.6		•	•											•	•
910	Webuye	U-126	Nzoia River	11.8	14.9					•	•								•	•
910	Chaptais	U-157	Sasuri river	1.8	2.2	•	•												•	•
920	Busia	U-127	Sio river	8.1	10.2					•	•								•	•
920	Nambale	U-158	Sio river	1.4	1.8					•	•								•	•
930	Vihiga+Majengo	U-129	Edzawa River (Kimondi River)	3.4	4.3		•	•											•	•
930	Khayega	U-131	Yala river	1.2	1.5	•	•												•	•
930	Kakamega	U-132	Isiukhu River, Mukulusi Dam	18.5	23.3					•	•								•	•
930	Butere	U-133	Viratsi River	1.4	1.8					•	•								•	•
930	Mumias	U-134	Nzoia River	9.0	11.4					•	•								•	•
				3,818.1	4,810.8															

Note: • Construction

Table D5.12 Disbursement Schedule of Urban Water Supply Schemes
Alternative Scenario Case-1

City Code	Code	Urban Name	(Unit : US\$'000)																	Total
			(1990)								(2000)									
			93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	
U- 1	110.0	Nairobi	468,922		108,715									209,698	113,527		32,156	128,623	1,061,640	
U- 3	211.4	Kiambu			1,702			4,768									2,616		9,087	
U- 12	222.3	Kerugoya	4,985														3,365		8,350	
U- 15	232.3	Maragua			10,437													4,629	15,066	
U- 19	241.3	Oi Kalou						6,781										3,933	10,714	
U- 22	257.0	Nyeri					29,242						21,102						50,344	
U- 26	314.4	Malindi							48,865									15,504	64,369	
U- 27	321.1	Kwale							2,903								1,852		4,755	
U- 31	333.2	Lamu							23,867								13,666		37,534	
U- 32	340.0	Mombasa			279,229		45,554			1,100	57,846						11,569	46,276	441,575	
U- 34	353.2	Wundanyi															935		935	
U- 36	363.3	Hela							4,245								2,604		6,850	
U- 40	413.7	Embu							4,246								4,603		8,849	
U- 43	431.4	Kitui	5,591														3,824		9,415	
U- 46	441.1	Machakos					47,363							30,749					78,112	
U- 141	448.1	Wote							2,024									1,240	3,263	
U- 55	454.1	Marsabit			15,265		40,707	45,796			18,992	18,992	18,992	18,992	18,992			177,736		
U- 58	461.4	Meru					26,059										17,484		43,544	
U- 67	519.1	Garissa						6,554									6,363		12,918	
U- 68	521.1	Mandera						1,423									1,713		3,136	
U- 71	532.4	Wajir			15,702		41,872	47,106		16,897	16,897	16,897	16,897					172,266		
U- 144	61.2.2	Nyamira + Kebirigo						7,587										4,003	11,590	
U- 76	61.5.0	Kisii					3,058	15,234									8,356		27,548	
U- 79	622.3	Kisumu & + Kiboswa					72,722						32,118						104,840	
U- 83	634.1	Siaya						10,313									5,662		15,975	
U- 85	641.1	Homa Bay						8,135									4,386		12,521	
U- 89	712.1	Ngong					8,354											6,254	14,608	
U- 94	725.5	Kericho						15,176									9,057		24,233	
U- 97	731.5	Nanyuki						10,436									8,179		18,615	
U- 104	749.0	Nakuru					121,012						91,009						212,021	
U- 105	752.1	Narok						22,755									8,188		30,943	
U- 107	762.3	Kitale						19,614									15,143		34,757	
U- 110	772.5	Eldoret					80,661						55,230						135,891	
U- 112	812.5	Kabarnet	24,186														3,138		27,324	
U- 116	822.4	Iten+Tambach					945	7,556									4,225		12,727	
U- 118	832.2	Kapsabet+Haraton						7,091									4,726		11,817	
U- 119	841.4	Maralal						9,496									6,544		16,040	
U- 123	861.1	Kapenguria/Makutano					5,340										3,580		8,920	
U- 124	912.4	Bungoma						15,892									10,879		26,771	
U- 127	921.5	Busia						8,111									5,976		14,087	
U- 129	932.5	Vihiga+Majengo					3,416											1,670	5,086	
U- 132	935.4	Kakamega						18,509									10,657		29,166	
TOTAL			503,683	431,051	527,205	374,485			227,695	207,261	266,097	247,335	231,123						3,015,936	
						1,836,425							1,179,511							

Table D5.15 Disbursement Schedule of Urban Water Supply Schemes (2/2)
Alternative Scenario Case-4

City Code	Code	Urban Name	(1990)							(2000)										Total (US\$'000)
			93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	
U- 74	611.2	Manga					56											1,981	2,037	
U- 75	611.5	Keroka					1,954											1,658	3,612	
U- 144	612.2	Nyamira + Kebirigo					3,705											3,882	7,587	
U- 76	615.0	Kisii					3,958	7,214							8,020				19,192	
U- 77	617.1	Ogembo	628														577	1,205		
U- 78	622.1	Masoro					4,878										5,264	10,141		
U- 79	622.3	Kisumu & + Kiboswa				72,722								32,118				104,840		
U- 80	623.2	Ahero	2,138														1,840	3,978		
U- 81	625.2	Muhoroni				2,373											2,507	4,880		
U- 145	632.4	Bondo					1,465										1,350	2,814		
U- 82	633.2	Yala					866										829	1,696		
U- 83	634.1	Siaya					5,085								5,228			10,313		
U- 84	635.4	Ukwala					646										630	1,276		
U- 85	641.1	Homa Bay					3,737								4,398			8,135		
U- 86	644.3	Migori				1,692											1,884	3,577		
U- 146	646.3	Kehancha + Tarang'anya	1,681														1,574	3,255		
U- 147	646.8	Nyabikaye				10,114									4,376		4,376	18,866		
U- 148	647.4	Oyugis					1,748										1,638	3,386		
U- 87	648.1	Kendu Bay					895										1,051	1,946		
U- 149	649.4	Awanda/Sare	1,883														1,735	3,617		
U- 88	711.1	Oloitokitok					1,570										2,475	4,045		
U- 89	712.1	Ngong				3,247											5,107	8,354		
U- 90	713.1	Kajiado				5,143									6,809			11,952		
U- 91	713.5	Namanga				1,161											2,003	3,164		
U- 92	714.1	Megadi							2,509								3,853	6,362		
U- 93	723.1	Sotik				1,530											1,456	2,986		
U- 94	725.5	Kericho					15,176								9,057			24,233		
U- 95	726.1	Kipkelion					538										726	1,264		
U- 96	727.1	Londiani					55,726										1,381	57,107		
U- 97	731.5	Nanyuki							3,941						6,495			10,436		
U- 150	733.4	Rumuruti				5,689											1,647	7,335		
U- 98	733.9	Nyahururu							4,955						8,442			13,396		
U- 99	743.2	Gilgil					2,381										3,962	6,344		
U- 100	744.1	Naivasha					8,408										13,089	21,497		
U- 101	746.1	Njoro				1,195	6,773										8,974	16,941		
U- 102	747.3	El Burgon				1,633	6,239										8,464	16,336		
U- 103	747.5	Molo				1,472	4,997										6,825	13,294		
U- 104	749.0	Nakuru				121,012								91,009				212,021		
U- 105	752.1	Narok							16,275						6,479			22,755		
U- 106	752.5	Nakragie Ngare							422								646	1,068		
U- 151	754.4	Kilgoris					1,076										1,521	2,597		
U- 152	755.1	Lokorian					936										1,342	2,277		
U- 107	762.3	Kitale							7,415						12,200			19,614		
U- 108	762.4	Kimoini/Saboti+Spr.Kita				5											2,101	2,106		
U- 109	763.5	Endebess/Kwanza				862											808	1,670		
U- 153	771.2	Moi'a Bridge				900											969	1,870		
U- 154	772.4	Turbo					1,657										1,831	3,487		
U- 110	772.5	Eldoret				36,585								44,076				80,661		
U- 111	774.6	Burnt Forest					609										693	1,302		
U- 112	812.5	Kabarnet				21,529									2,657			24,186		
U- 113	814.3	Maji Mazuri				1,466											1,712	3,179		
U- 114	814.5	Eldama Ravine							18,431								3,419	21,849		
U- 115	815.1	Mogotio							3,590								1,126	4,716		
U- 155	816.2	Marigat					776										859	1,635		
U- 116	822.4	Iten+Tambach				945			3,396						4,161			8,501		
U- 117	831.3	Nandi Hills					1,276										1,379	2,655		
U- 118	832.2	Kapsabet+Baraton					2,898								4,192			7,091		
U- 119	841.4	Maralal					4,132								5,364			9,496		
U- 120	842.4	Wamba				7,846	7,846							9,137	9,137			43,101		
U- 121	843.6	Baragoi				12,577	12,577							13,797	13,797			66,545		
U- 122	853.5	Lodwar					6,339	6,339	13,205	13,205			13,205	13,205				65,497		
U- 123	861.1	Kapenguria/Makutano				2,354								2,986				5,340		
U- 156	911.4	Mwallo + Malakisi				1,033											1,169	2,201		
U- 124	912.4	Bungoma							5,841						10,051			15,892		
U- 125	913.1	Kimilili					1,729										2,678	4,407		
U- 126	914.2	Webuye						4,353									7,486	11,840		
U- 157	916.1	Chaptais				791											963	1,754		
U- 127	921.5	Busia							2,256						5,855			8,111		
U- 158	922.2	Nambale							511								887	1,398		
U- 129	932.5	Yihiga+Majengo				1,686											1,729	3,416		
U- 131	934.3	Khayega															586	1,209		
U- 132	935.4	Kakamega				624		8,402						10,107				18,509		
U- 133	939.2	Butere							630								808	1,438		
U- 134	93A.4	Mumias						4,358									4,678	9,036		
TOTAL						829,385	603,160	339,810	274,740	332,064	415,952	364,105	325,715	333,167				3,818,097		
									2,047,095									1,771,002		

Table D5.16 Summary of Alternative Implementation Plans for Sewerage Development

(Reduced Budgetary Scenarios)

Case	Available budget	Selected centre	Target supply level towards year 2010	Development Cost (million US\$) 1993-2000	2001-2010	Total	Proportion to total cost (%)
Case-1	50%	All Major cities	Full scale of demand	245	143	388	55%
		All Districts headquarters except Isiolo and Lodwar	Full scale of demand	109	91	200	28%
		Total		354	234	588	83%
Case-2	50%	All Major cities	reduced demand 2000 level	144	100	244	35%
		All Districts headquarters	reduced demand 2000 level	39	73	112	16%
		Large centres	reduced demand 2000 level	20	31	51	7%
Total		203	204	407	58%		
Case-3	75%	All Major cities	Full scale of demand	245	143	388	55%
		All Districts headquarters	Full scale of demand	112	93	205	29%
		Large centres coverage<10%	Full scale of demand	15	13	28	4%
Total		372	249	621	88%		
Case4	75%	All Major cities	Full scale of demand	245	143	388	55%
		All Districts headquarters	reduced demand 2000 level	39	73	112	16%
		Large centres	reduced demand 2000 level	20	31	51	7%
		Other cities	reduced demand 2000 level	6	6	12	2%
Total		310	253	563	80%		

Table D5.17 Disbursement Schedule of Sewerage Development
Alternative Scenario Case-1

(Unit : US\$'000)

City Code	Code	Urban Name	(1990)								(2000)										Total		
			93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10			
U-	1	110.0	Nairobi	112,618		28,154									37,019				7,404	29,616	214,811		
U-	3	211.4	Kiambu							356									216		572		
U-	12	222.3	Kerugoya		708														463		1,171		
U-	15	232.3	Maragua			2,167														910	3,076		
U-	19	241.3	Ol Kalou							856										457	1,313		
U-	22	257.0	Nyeri						14,121					9,620							23,742		
U-	26	314.4	Malindi							3,140										7,415	10,556		
U-	27	321.1	Kwale							334								193			526		
U-	31	333.2	Lamu							705									485		1,190		
U-	32	340.0	Mombasa			34,012		8,503					7,445					1,489	5,956		57,406		
U-	34	353.2	Wundanyi							183									96		279		
U-	36	363.3	Hola							759									465		1,224		
U-	40	413.7	Embu							1,508									966		2,474		
U-	43	431.4	Kitui		836														566		1,402		
U-	46	441.1	Machakos					13,869						8,943							22,812		
U-	141	448.1	Wote							189										122	311		
U-	55	454.1	Marsabit			151		404		454			159	159	159	159	159	159		159	1,645		
U-	58	461.4	Meru					12,583											7,957		20,540		
U-	67	519.1	Garissa							2,585									5,498		8,084		
U-	68	521.1	Mandera							425									237		663		
U-	71	532.4	Wajir			243		648		729		258	258	258	258	258	258				2,652		
U-	144	612.2	Nyamira + Kebirigo							733										382	1,115		
U-	76	615.0	Kisii							3,056									6,181		9,238		
U-	79	622.3	Kisumu & + Kiboswa					23,131						14,055							37,185		
U-	83	634.1	Siaya							1,267									689		1,956		
U-	85	641.1	Homa Bay							1,647									857		2,504		
U-	89	712.1	Ngong					1,575												1,286	2,861		
U-	94	725.5	Kericho							3,001									6,716		9,718		
U-	97	731.5	Nanyuki							2,199									5,745		7,943		
U-	104	749.0	Nakuru					30,086						25,386							55,472		
U-	105	752.1	Narok							1,515									1,487		3,002		
U-	107	762.3	Kitale							9,426									6,652		16,078		
U-	110	772.5	Eldoret					17,496							13,972						31,468		
U-	112	812.5	Kabarnet		709														494		1,203		
U-	116	822.4	Iten+Tambach							455									243		698		
U-	118	832.2	Kapsabet+Baraton							1,137									797		1,934		
U-	119	841.4	Maralal							1,499									1,159		2,658		
U-	123	861.1	Kapenguria/Makutano						961										694		1,654		
U-	124	912.4	Bungoma							2,795									6,704		9,499		
U-	127	921.5	Busia							1,413									975		2,388		
U-	129	932.5	Vihiga+Majongo						339											158	497		
U-	132	935.4	Kakamega							7,764									4,532		12,295		
TOTAL				114,870		64,728		123,716		50,133					37,277		7,862		72,393		70,378	46,461	587,817
																				234,371			

Table D5.19 Disbursement Schedule of Sewerage Development
Alternative Scenario Case 3

City Code	Code	Urban Name	(1990)						(2000)						Total (US\$ 000)					
			93	94	95	96	97	98	99	00	01	02	03	04		05	06	07	08	09
U-	1	110.0	Nairobi	112,618		28,154					37,019	37,019							506	214,811
U-	2	211.1	Karuri	1,080																1,586
U-	3	211.4	Kilambu					356									216			572
U-	6	214.1	Ruiru			945													446	1,390
U-	12	222.3	Kerugoya		708												463			1,171
U-	15	232.3	Maringu		2,167														910	3,076
U-	18	235.1	Makuyu		366														202	569
U-	19	241.3	Ol Kalou						856										457	1,313
U-	22	257.0	Nyeri			14,121								9,620						23,742
U-	23	311.2	Muriakani			666													469	1,135
U-	26	314.4	Malindi						3,140										7,415	10,556
U-	27	321.1	Kwale						334								193			526
U-	31	333.2	Lamu					705									485			1,190
U-	32	340.0	Mombasa	34,012		8,503				7,445	7,445									57,406
U-	137	351.1	Taveta			710													291	1,002
U-	34	353.2	Wundanyi						183									96		279
U-	36	363.3	Hola					759										465		1,224
U-	40	413.7	Embu						1,508									966		2,474
U-	41	421.1	Isiolo					922	922	313	313		313	313				313	313	3,407
U-	42	421.2	Oj Doinyo Ng'iro		418															285
U-	139	423.1	Merti			540														367
U-	43	431.4	Kitui		836												566			1,402
U-	45	434.4	Mwingi		659															1,102
U-	46	441.1	Machakos			13,869								8,943						22,812
U-	47	441.2	Mitaboni		2,321															5,323
U-	50	445.1	Kangundo		901															601
U-	141	448.1	Wote					189												122
U-	54	452.2	Kargi			59		157	177						84	84			84	647
U-	55	454.1	Marsabit			151		404	454	159	159			159	159					1,645
U-	58	461.4	Meru			12,583												7,957		20,540
U-	67	519.1	Garissa						2,585									5,498		8,084
U-	68	521.1	Mandera						425										237	663
U-	69	523.1	Elwak			619									136	136				891
U-	71	532.4	Wajir			243		648	729	258	258		258	258	258					2,652
U-	72	536.2	Buna			67		179	201	44	44		44	44	44				44	669
U-	144	612.2	Nyamira + Kebirigo					733												382
U-	76	615.0	Kilifi						3,056								6,181			9,238
U-	79	622.3	Kisumu & + Kiboswa			23,131									14,055					37,185
U-	80	623.2	Ahero		636															296
U-	81	625.2	Muhoroni			574														350
U-	83	634.1	Siaya					1,267											689	1,956
U-	85	641.1	Homa Bay					1,647											857	2,504
U-	86	644.3	Migori			544														829
U-	88	711.1	Oloitokitok					459												414
U-	89	712.1	Ngong			1,575														1,286
U-	90	713.1	Kajiado			636											576			1,212
U-	91	713.5	Namanga			512														460
U-	93	723.1	Sotik			388														191
U-	94	725.5	Kericho					3,001												6,716
U-	97	731.5	Nanyuki						2,199											5,745
U-	104	749.0	Nakuru			30,086									23,386					55,472
U-	105	752.1	Narok						1,515											1,487
U-	107	762.3	Kitale						9,426											6,652
U-	110	772.5	Bldoret			17,496									13,972					31,468
U-	112	812.5	Kabarnet		709															494
U-	113	814.3	Maji Mazuri			395														274
U-	116	822.4	Iten+Tambach						455											243
U-	118	832.2	Kapsabet+Baraton					1,137												797
U-	119	841.4	Muralal					1,499												1,159
U-	122	853.5	Lodwar					404	404	132	132		132	132						1,338
U-	123	861.1	Kapenguria/Makutano			961														694
U-	124	912.4	Bungoma						2,795											6,704
U-	125	913.1	Kimilili			627														456
U-	127	921.5	Busia						1,413											975
U-	129	932.5	Vihiga+Majengo			339														158
U-	132	935.4	Kakamega					7,764												4,532
			TOTAL	157,430	158,495	22,231	32,779	45,371	45,371	73,103	45,371	73,103	62,770	22,832	620,382					249,447
								370,935												

Table D5.20 Disbursement Schedule of Sewerage Development (1/2)
Alternative Scenario Case-4

City Code	Code	Urban Name	Construction (1,000US\$)							(2000)										Total (US\$'000)
			93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	
U- 1	110.0	Nairobi	112,618		28,154						37,019		37,019							214,811
U- 2	211.1	Karuri			550													530		1,080
U- 3	211.4	Kiambu								153							203			356
U- 4	212.1	Gatundu & Ngenda								0									26	26
U- 5	213.1	Limuru						55											55	110
U- 6	214.1	Ruiru					479												465	945
U- 7	214.4	Thika								5,376									3,584	8,960
U- 8	215.1	Githunguri						151											151	302
U- 9	216.6	Kikuyu			208														275	482
U- 10	221.1	Wanguru								19									19	38
U- 11	222.2	Sagana								117									117	233
U- 12	222.3	Kerugoya	303													405				708
U- 13	223.2	Kutus								296									197	493
U- 14	231.4	Kandara								0									22	22
U- 15	232.3	Maragua				1,199													968	2,167
U- 16	233.4	Kangema								48									48	96
U- 17	234.3	Murang'a	922												615					1,537
U- 18	235.1	Makuyu				174													193	366
U- 19	241.3	Oi Kalou								334									522	856
U- 20	254.2	Karatina								251									167	418
U- 21	256.1	Othaya								164									210	374
U- 22	257.0	Nyeri						3,223							10,898					14,121
U- 23	311.2	Mariakani						259											259	517
U- 24	313.2	Kilifi								653									653	1,306
U- 25	314.3	Watamu	93																93	185
U- 26	314.4	Malindi								3,140									7,415	10,556
U- 135	314.6	Mamburui	118																118	236
U- 27	321.1	Kwale								127						207				334
U- 28	323.1	Kinango								76									76	152
U- 29	324.1	Msambweni					144		144			232		232						751
U- 136	324.5	Lungalunga							98										98	196
U- 30	331.0	Witu						130											130	260
U- 31	333.2	Lamu						705								485				1,190
U- 32	340.0	Mombasa	34,012		8,503						7,445		7,445							57,406
U- 137	351.1	Taveta						415											295	710
U- 33	352.4	Voi								488									325	813
U- 34	353.2	Wundanyi								93									90	183
U- 35	362.3	Bura & Madogo								37									37	74
U- 36	363.3	Hola								285						474				759
U- 37	364.1	Garsen						141											141	282
U- 38	411.8	Runyonyes					70					14		14		14			14	141
U- 39	412.1	Sisakago								0									10	10
U- 40	413.7	Embu								625							883			1,508
U- 41	421.1	Isiolo						295		295		250		250		250		250		1,843
U- 42	421.2	Oi Doinyo Ng'iro			164														254	418
U- 138	422.1	Garbatula				14		37		41									91	183
U- 139	423.1	Merti						213											327	540
U- 43	431.4	Kitui	318														518			836
U- 44	433.2	Mutomo								0									21	21
U- 45	434.4	Mwingi	249																409	659
U- 46	441.1	Machakos						3,032							10,836					13,869
U- 47	441.2	Mitaboni			994														1,326	2,321
U- 48	442.3	Athi River							1,199										800	1,999
U- 49	444.3	Uasin/Tawa			9														9	17
U- 50	445.1	Kangundo			381														520	901
U- 140	445.2	Tala			72														72	144
U- 51	447.4	Nunguni								14									14	27
U- 141	448.1	Wote								78									110	189
U- 52	448.3	Emali			10														10	21
U- 53	449.4	Mtito Andei&Kibwezi	146																146	291
U- 142	451.1	North Horr			82										41		41			165
U- 54	452.2	Kargi			24		64		72						78		78		78	394
U- 143	453.1	Korr					108		108				115		115					446
U- 55	454.1	Marsabit			151		404		454		159		159		159		159			1,645
U- 56	455.2	Sololo			26		68		77					85		85				341
U- 57	456.1	Moyale					126		126					184		184				621
U- 58	461.4	Meru					2,643									9,940				12,583
U- 59	463.1	Nkubu							171										252	423
U- 60	464.1	Chogoria	38																38	76
U- 61	464.3	Chuka							143										143	286
U- 62	467.2	Maua						143											143	286
U- 63	513.1	Mudo Gashe				84											42		42	169
U- 64	515.2	Ijara				45											22		22	89
U- 65	515.3	Kotile				45											22		22	89
U- 66	515.4	Masalani						45											45	89
U- 67	519.1	Garissa							1,030								1,555			2,585
U- 68	521.1	Mandera							231									194		425
U- 69	523.1	Eliwak						380							119		119			619
U- 70	524.2	Rhamu							130										130	260
U- 71	532.4	Wajir			113		302		340		217		217		217		217			1,621
U- 72	536.2	Buna			36		96		108		41		41		41		41		41	448
U- 73	537.2	Bute				73													37	146

Table D5.20 Disbursement Schedule of Sewerage Development (2/2)
Alternative Scenario Case-4

City Code	Code	Urban Name	Construction (1,000US\$)										Total (US\$'000)									
			(1990)		(2000)																	
			93	94	95	96	97	98	99	00	01	02	03	04	05	06	07	08	09	10		
U- 74	611.2	Manga						29												29	58	
U- 75	611.5	Keroka						76												76	151	
U- 144	612.2	Nyamira + Kobirigo								374										360	733	
U- 76	615.0	Kisii								1,547							1,509			34	3,056	
U- 77	617.1	Ogembo		34																34	69	
U- 78	622.1	Maseno								546										557	1,102	
U- 79	622.3	Kisumu & + Kiboswa				23,131									14,055					284	37,185	
U- 80	623.2	Ahero				352														298	636	
U- 81	625.2	Muhoroni						277												105	574	
U- 145	632.4	Bondo						105												79	210	
U- 82	633.2	Yala						79												79	158	
U- 83	634.1	Siaya								661							606			33	1,267	
U- 84	635.4	Ukwala						33												33	65	
U- 85	641.1	Homa Bay								779							868			289	1,647	
U- 86	644.3	Migori						255												120	544	
U- 146	646.3	Kehancha + Tarang'anya		120																57	240	
U- 147	646.8	Nyabikaya				113														120	226	
U- 148	647.4	Oyugis						120												99	240	
U- 87	648.1	Kendu Bay						99												99	199	
U- 149	649.4	Awendo/Sare		135																135	271	
U- 88	711.1	Oloitokitok								153										306	459	
U- 89	712.1	Ngong						572												1,003	1,575	
U- 90	713.1	Kajiado						214									423			341	636	
U- 91	713.5	Namanga						171												150	512	
U- 92	714.1	Magadi								150										181	299	
U- 93	723.1	Soike						206												83	388	
U- 94	725.5	Kericho						3,001									6,716			120	9,718	
U- 95	726.1	Kipkelion						83												83	166	
U- 96	727.1	Londiani						120												120	239	
U- 97	731.5	Nanyuki								871							1,328			90	2,199	
U- 150	733.4	Rumuruti			90															90	179	
U- 98	733.9	Nyahururu								805										450	1,255	
U- 99	743.2	Gilgil								501										870	1,370	
U- 100	744.1	Naivasha								1,311										5,764	7,075	
U- 101	746.1	Njoro						429												429	859	
U- 102	747.3	Ei Burgon								700										466	1,166	
U- 103	747.5	Molo								616										410	1,026	
U- 104	749.0	Nakuru				30,086									25,386						55,472	
U- 105	752.1	Narok								429							1,086			25	1,515	
U- 106	752.5	Nairagio Ngare								25										25	50	
U- 151	754.4	Kilgoris						166												166	333	
U- 152	755.1	Lolkorian						86												86	172	
U- 107	762.3	Kilale								1,903							7,524			52	9,426	
U- 108	762.4	Kimini/Saboti+Spr.Kita		52																52	103	
U- 109	763.5	Endebess/Kwanza		83																83	165	
U- 153	771.2	Ma'o's Bridge				111														111	222	
U- 154	772.4	Turbo						152												152	305	
U- 110	772.5	Eldoret						7,535							9,961					78	17,496	
U- 111	774.6	Burnt Forest						78												78	156	
U- 112	812.5	Kabarot		324													385			216	709	
U- 113	814.3	Maji Mazuri						179												111	395	
U- 114	814.5	Eldama Ravine								256							170			111	426	
U- 115	815.1	Mogotio								111										99	222	
U- 155	816.2	Marigat						99												99	198	
U- 116	822.4	Iten+Tambach								217							237			48	455	
U- 117	831.3	Nandi Hills						48												48	97	
U- 118	832.2	Kapsabet+Baraton								459							677			871	1,137	
U- 119	841.4	Maralal								628										53	1,499	
U- 120	842.4	Wamba				79		79							53					53	315	
U- 121	843.6	Baragoi				69		69							46		46			46	276	
U- 122	853.5	Lodwar						170		170		117		117	117		117			87	809	
U- 123	861.1	Kapenguria/Makutano						411									549			702	961	
U- 124	912.4	Bungoma								1,000							1,795			112	2,795	
U- 125	913.1	Kimilili						222												405	627	
U- 126	914.2	Webuye								903										1,623	2,526	
U- 157	916.1	Chaptala				112														112	223	
U- 127	921.5	Busia								453							960			17	1,413	
U- 158	922.2	Nambale						91												91	182	
U- 128	931.3	Luanda						0												135	135	
U- 129	932.5	Vihiga+Majengo						172												167	339	
U- 130	933.1	Karimosi								0										17	17	
U- 131	934.3	Khayoga				17														17	34	
U- 132	935.4	Kakamega								1,656							6,107			702	7,764	
U- 133	939.2	Butere								87										87	175	
U- 134	93A.4	Mumias								1,053										702	1,755	
		TOTAL		149,703		95,130		29,066		35,596		45,263		45,611		73,503		48,261		40,675	562,809	
										309,496											253,313	

Table D5.21 Summary of Alternative Development Scenarios

Case	Development Cost			Served Population	
	Available budget	up to	upto	up to	upto
		2000	2010	2000	2010
		(1000 US\$)		(1000pop)	
Case-1					
50%	Urban Water Supply	1,836	3,016	6,136	9,785
	Sewerage Development	354	588	6,136	9,785
	Rural Water Supply	657	1,314	8,890	17,780
	Total	2,847	4,918		
Case-2					
50% reduced demand	Urban Water Supply	1,212	2,523	6,974	11,180
	Sewerage Development	203	407	6,974	11,180
	Rural Water Supply	657	1,314	13,803	27,607
	Total	2,072	4,244		
Case-3					
75%	Urban Water Supply	1,238	2,714	7,933	12,698
	Sewerage Development	372	621	7,933	12,698
	Rural Water Supply	1,314	1,970	13,803	27,607
	Total	2,924	5,305		
Case-4					
75% reduced demand	Urban Water Supply	1,897	3,817	7,933	12,698
	Sewerage Development	310	563	7,933	12,698
	Rural Water Supply	1,314	1,970	13,803	27,607
	Total	3,521	6,350		

Projected population	2000	2010
Urban	7,933	12,698
Rural	22,779	27,607

FIGURES

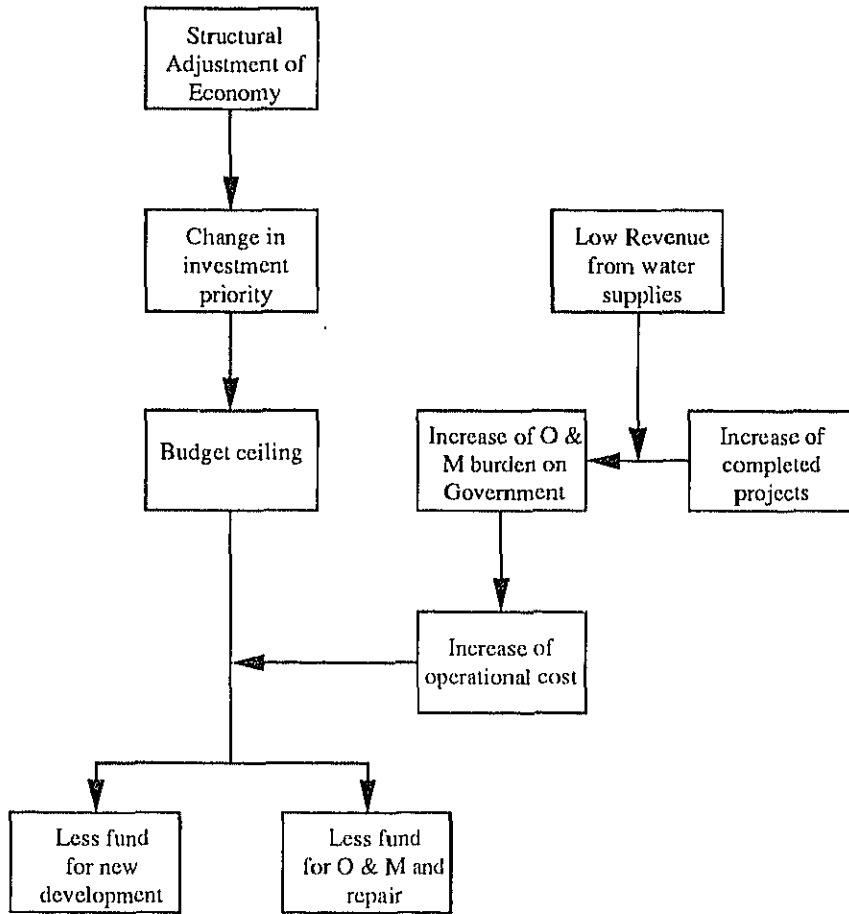


Figure D2.1 General Issues

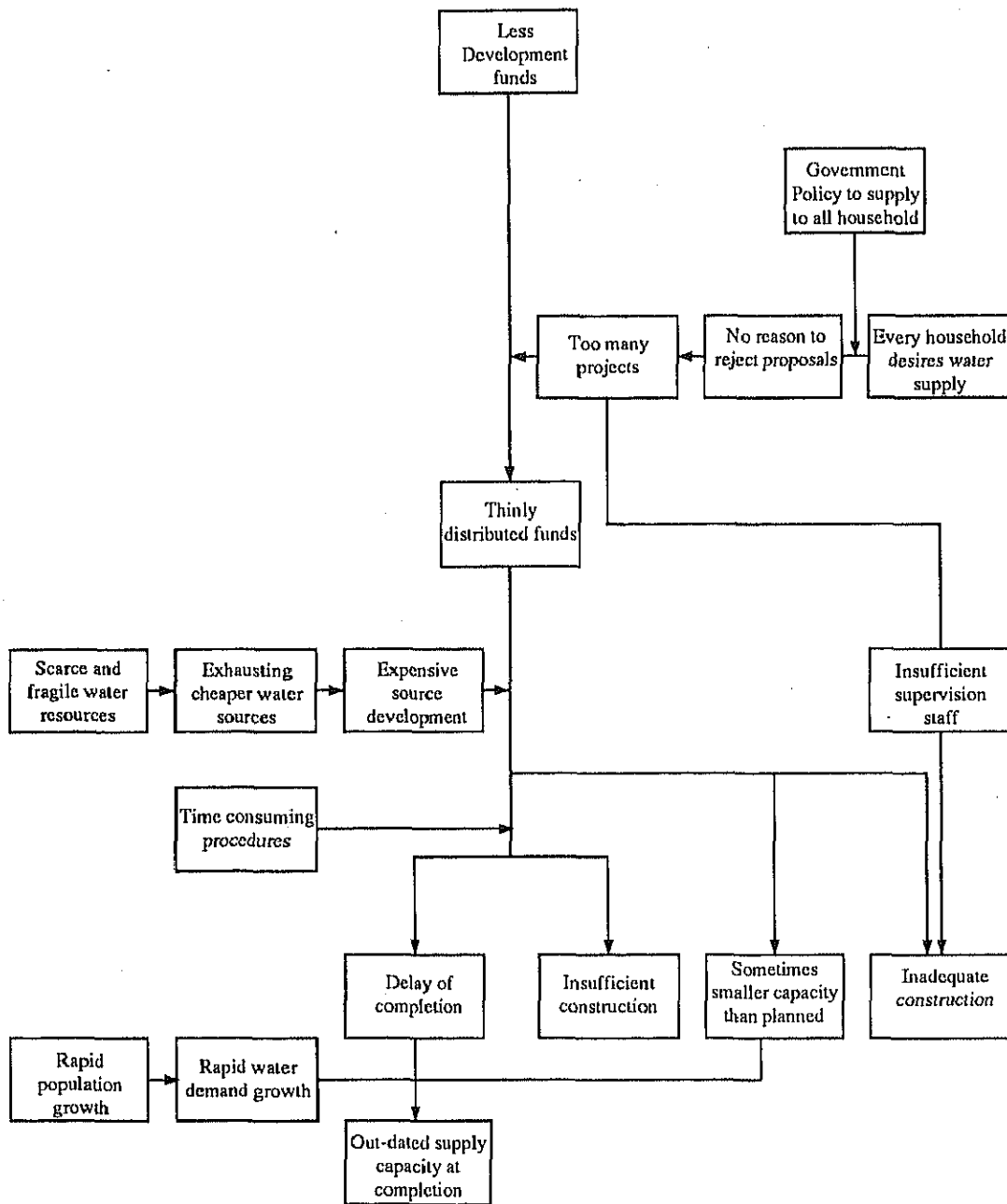


Figure D2.2 Development Issue

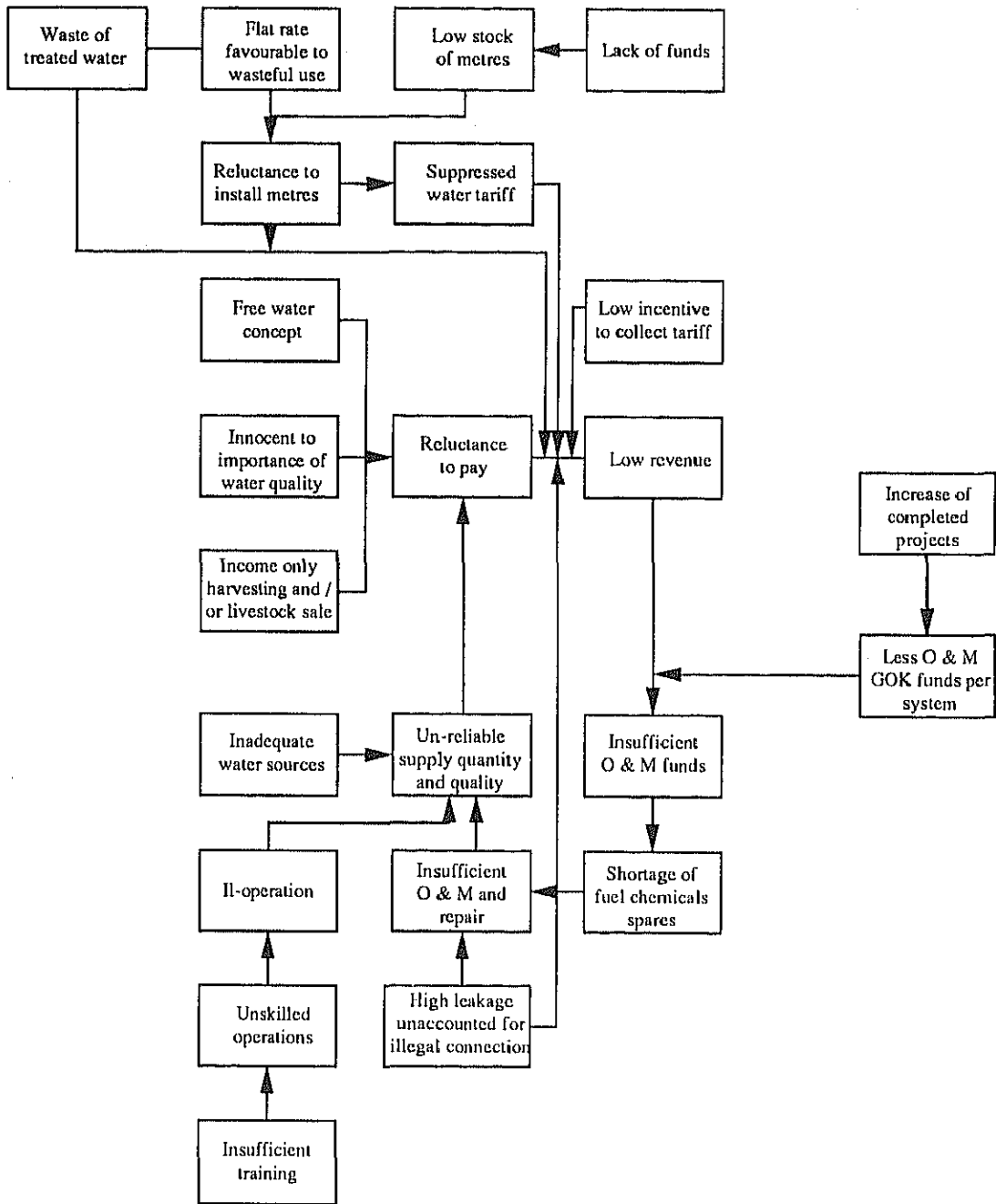


Figure D2.3 Operation and Maintenance Issues

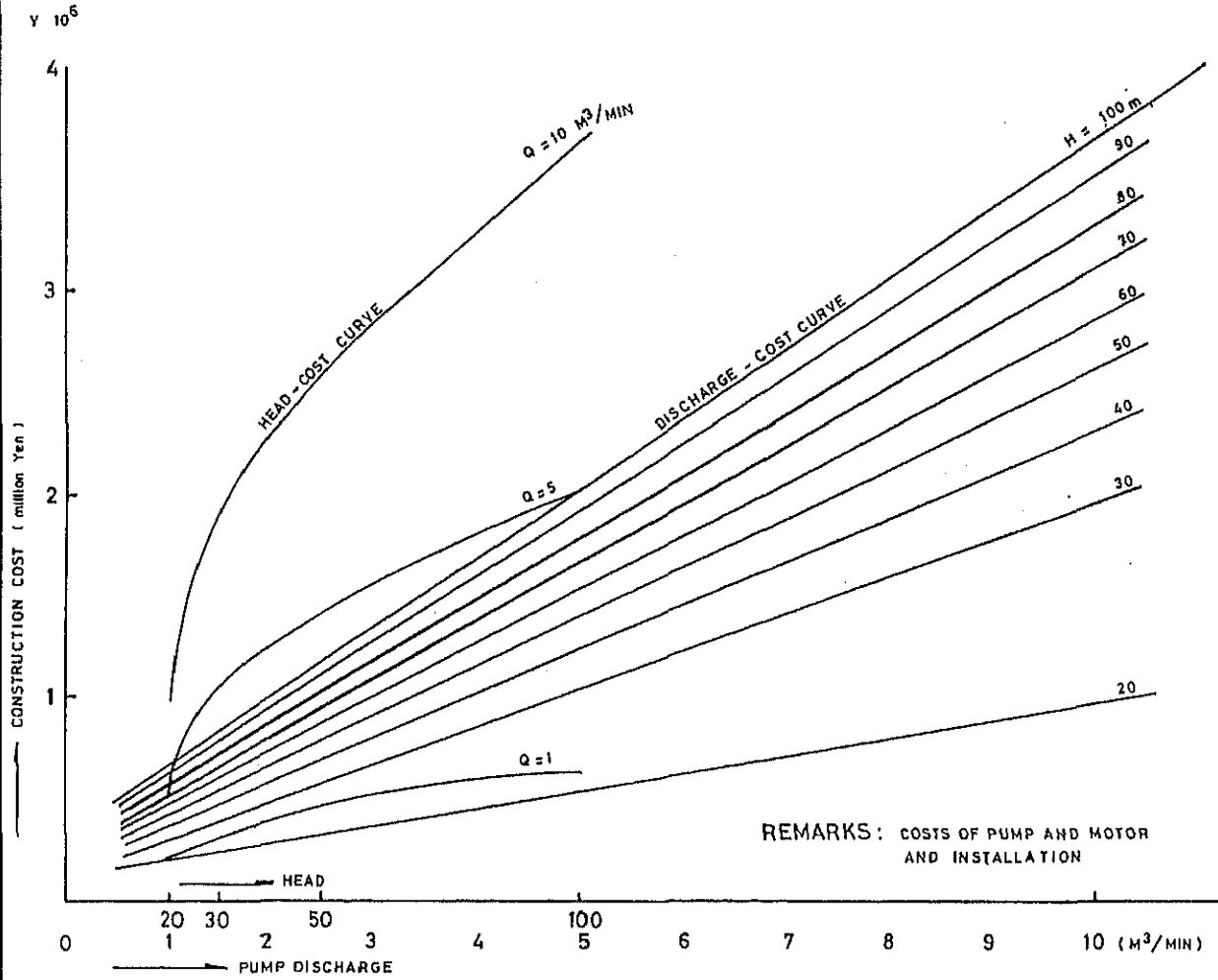


Figure D4.1 Construction Cost of Pump

THE STUDY
ON
THE NATIONAL WATER MASTER PLAN
JAPAN INTERNATIONAL COOPERATION AGENCY

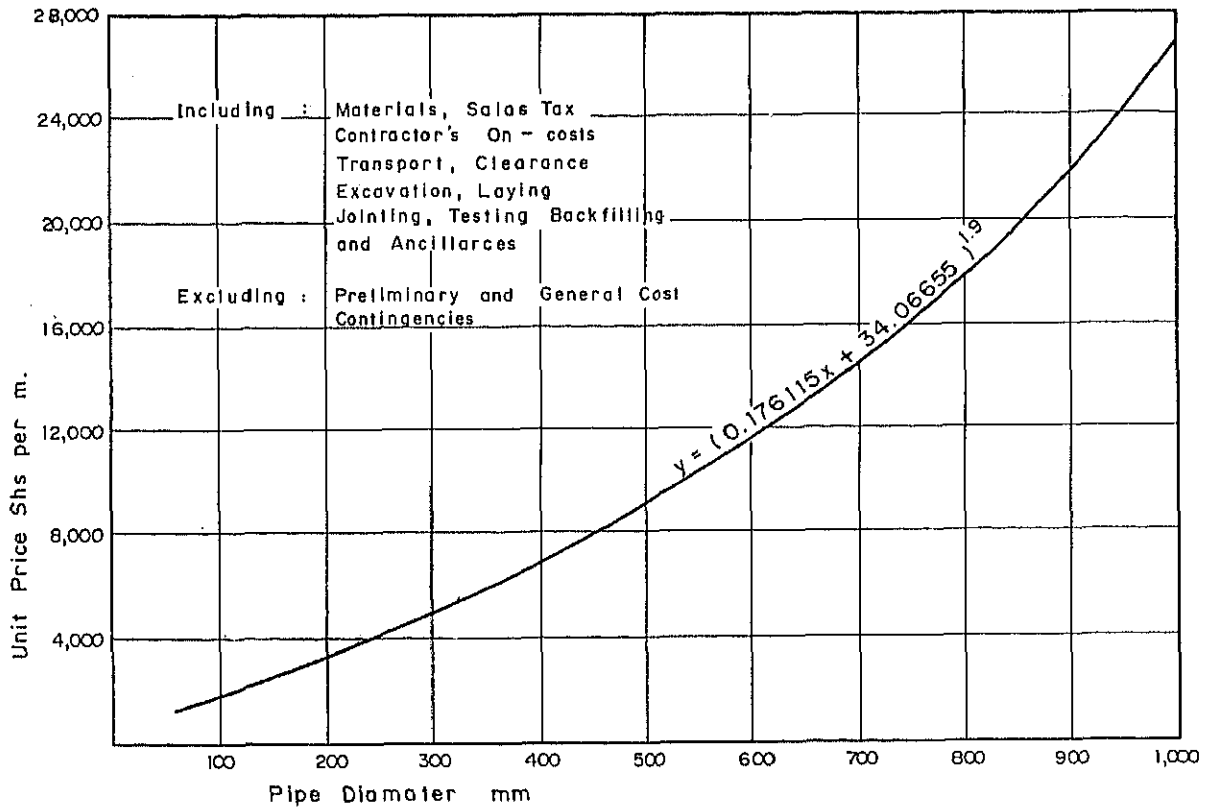


Figure D4.2 Unit Construction Cost of Pipeline

THE STUDY
ON
THE NATIONAL WATER MASTER PLAN
JAPAN INTERNATIONAL COOPERATION AGENCY

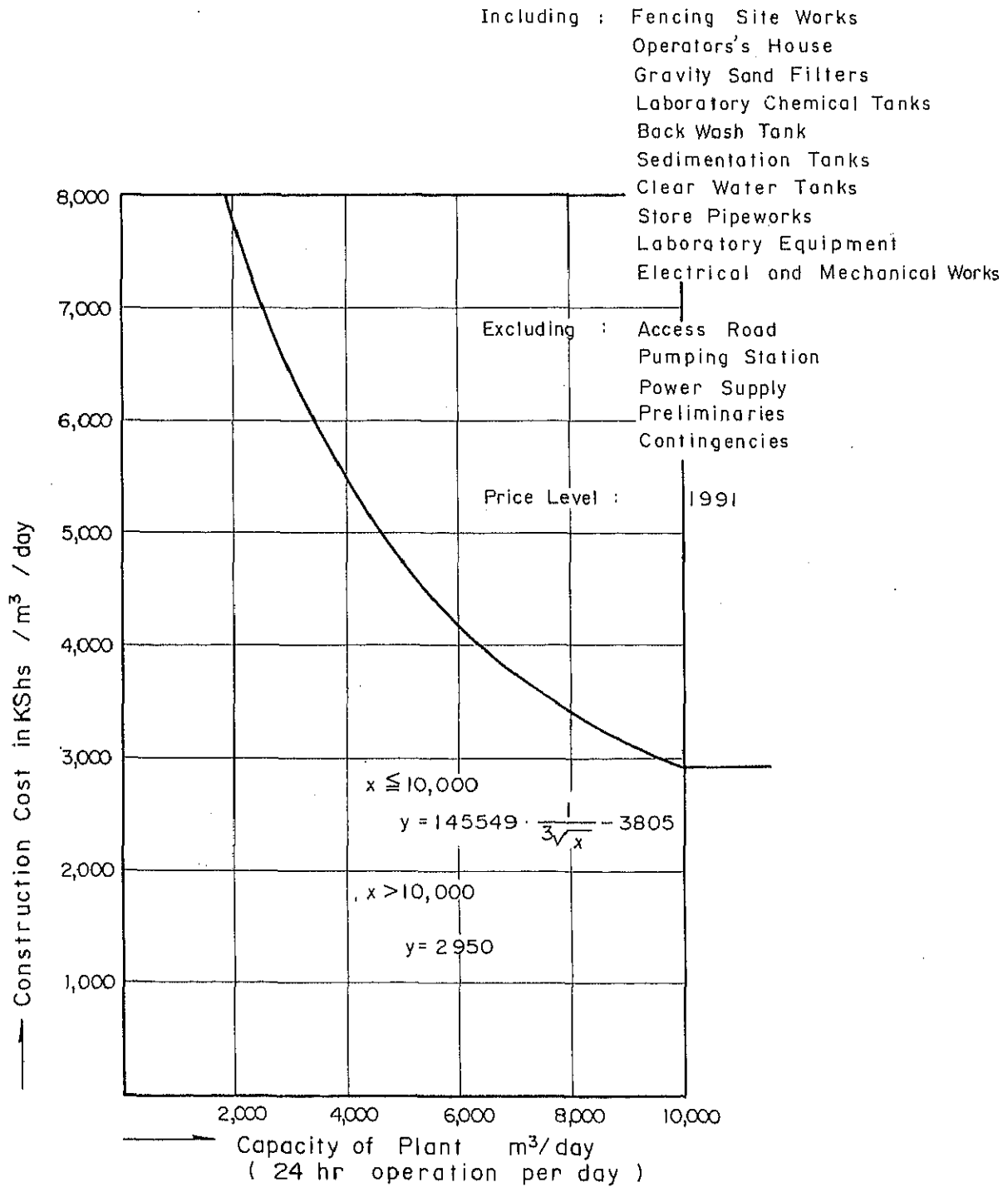


Figure D4.3 Construction Cost of Treatment Works