添付資料

1. **水質試験結果**

2. **コミュニティー給水調査**

3. **エル・ニーニョ災害復旧事業による既存上水道修復計画**

4. **フィージビリティー調査において提案された水需要および施設に対する見直し結果**

5. **独立採算事業体運営に係る検討結果**

6. **基本設計図面集**

添付資料-1

水質試験結果

水質試験結果

表－1　水質サンプリング実施位置および分析項目

(1) 水質サンプリング実施位置			精密試験実施項目	携帯試験器具による試験実施日
1.	Intake (Alternative 1)	Kathita River	○	3 May, 2000
2.	Intake (Alternative 2)	Kathita River	○	3 May, 2000
3.	Intake (Alternative 3)	Kathita River	○	4 May, 2000
4.	Existing Kathita Intake	Kathita River	○	2 May, 2000
5.	ASK Spring		○	2 May, 2000
6.	Gatabora Spring		○	2 May, 2000
7.	Gatabora Stream Intake			2 May, 2000
8.	Treatment Plant (Inlet)		○	2 May, 2000
9.	Treatment Plant (Reservoir)		○	2 May, 2000
10.	Existing Reservoir for High Level Zone			2 May, 2000
11.	Community Water 1 (Tap Water)	Muwiteria	○	4 May, 2000
12.	Community Water 2 (Tap Water)	Thura-Giaki	○	4 May, 2000
13.	Community Water 3 (Tap Water)	Nudruma Gakundo		4 May, 2000
14.	Community Water 4 (Tap Water)	Katheri High School		4 May, 2000
15.	Community Water 5 (Tap Water)	Nkugwa		5 May, 2000
16.	Community Water 6 (Tap Water)	Milimani		5 May, 2000
17.	Community Water 7 (Tap Water)	Majengo		5 May, 2000
18.	Water Kiosk (Tap Water)	Shauri Yako		5 May, 2000

(2) 水質分析項目	精密試験項目	携帯試験器具による試験項目
1. Water temperature	○	○
2. Colour	○	-
3. pH	○	○
4. Electric conductivity	○	○
5. Fluoride	○	○
6. Nitrate (NO_3)	○	○
7. Nitrite (NO_2)	○	○
8. Turbidity	○	○
9. Total Solid	○	-
10. Total Dissolved Solid	○	-
11. Chloride	○	-
12. Sulphates	○	-
13. Total Hardness ($CaCO_3$)	○	-
14. Total Alkalinity ($CaCO_3$)	○	○
15. Cadmium	○	-
16. Zinc	○	-
17. Lead	○	-
18. Copper	○	-
19. Iron	○	○
20. Manganese	○	○
21. Arsenic	○	-
22. Selenium	○	-
23. Mercury	○	-
24. TTHM ($CHCl_3$)	○	-
25. Standard Plate Count	○	○
26. Total Coliform	○	○
27. Ammonium Nitrogen	-	○
28. COD	-	○
29. Residual Chlorine	-	○

表 2　　水質分析結果（簡易水質分析）

1. Sample No.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
2. Sampling Site	Alternative 1 Intake site	Alternative 2 Intake site	Alternative 3 Intake site	Kathita Intake	ASK Spring	Gatabora Spring Intake	Gatabora Stream Intake	Treatment Plant Inlet	Treatment Plant Reservoir	High Level Zone Tank	Tap Water(Mwiteria)	Tap Water (Thuura-Giaki)	Tap Water (Nudruma Gakundo)	Tap Water (Katheri High School)	Tap Water (Nkugua)	Tap Water (Milimani)	Tap Water (Majengo)	Water KIOSK (Shauri Yako)	Ranges for measurements
3. Date	03/05	03/05	04/05	02/05	02/05	02/05	02/05	02/05	02/05	02/05	04/05	04/05	04/05	04/05	05/05	05/05	05/05	05/05	
4. Weather	Cl.	Cl.	Cl.	Fine	Cl.	Fine	Fine	Fine	Fine	Fine	Cl.	Fine	Fine	Fine	Fine	Fine	Fine	Fine	
5. Temperature	19.0	18.5	16.5	28.0	26.0	24.0	25.0	28.0	30.0	31.0	24.0	32.0	26.0	16.0	27.0	28.0	27.0	29.0	
6. Water temperature	12.5	12.4	12.0	20.0	20.3	18.8	19.1	18.1	18.5	19.4	23.2	23.8	19.2	21.6	22.4	20.0	22.2	20.5	0～60 ℃
7. Electric conductivity	145	71	95	5	29	31	19	17	19	101	35	42	46	31	24	122	14	114	0～1999 μs
8. Standard plate count bacteria	M	S	S	S	L	L	L	M	0	M	S	M	S	M	S	L	S	S	numbers/100ml
9. Coliforms	M	S	L	M	S	M	S	L	0	L	M	S	S	S	S	L	S	M	numbers/100ml
10. Fluoride	0.5	1.0	1.0	1.0	0.5	0.5	0.5	2.0	0.5	0.5	0.5	0.5	1.0	0.5	1.0	1.0	1.0	1.0	0.5～5 mg F/ l
11. Nitrate nitrogen	0	0	0	0	2	2	1	1	1	2	0	1	0	5	1	1	1	0	1～45mgNO_3^-/ l 0.2～10mgNO_3^--N/ l
12. Nitrite nitrogen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.02～1mgNO_2^-/ l 0.006～3mgNO_2^--N/ l
13. Turbidity	1.0	1.0	2.0	3.0	1.0	0.5	2.0	3.0	0.5	0.5	5.0	5.0	2.0	5.0	3.0	5.0	5.0	5.0	0.5～20 unit JIS
14. Iron	0.0	0.2	0.2	0.0	0.0	0.0	0.0	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2～10 mg Fe/ l
15. Manganese	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5～20 mg Mn/ l
16. pH	8.3	8.3	8.5	8.3	7.0	6.9	8.0	8.2	8.2	6.9	8.1	8.1	8.0	7.3	8.0	8.2	8.1	8.2	0.0～14.0 pH
17. Alkalinity	55	60	60	55	80	110	130	55	55	125	60	60	60	30	55	70	70	70	ppm
18. Ammonium nitrogen	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.1～5mg NH_4^+/ l 0.08～4mg NH_4^+-N/ l
19. COD	5	5	5	5	30	5	2	20	2	2	5	5	5	10	5	5	5	5	0～100 mg O/ l
20. Residual chlorine	-	-	-	-	-	-	-	-	0.5	-	-	-	-	-	-	0.1	0.1	0.1	0.1～5mg Cl/ l
	-	-	-	-	-	-	-	-	0.1	-	-	-	-	-	-	0.1	0.1	0.1	

表 3　　水質分析結果（現地再委託）

1. Sample No.	Unit	(1)			(2)		(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	
2. Sampling Site	-	Alternative 1 Intake site			Alternative 2 Intake site		Alternative 3 Intake site	Kathita Intake	Gatabora Spring Intake	ASK Spring	Treatment Plant Inlet	Treatment Plant Reservoir	Tap Water (Mwiteria)	Tap Water (Tsuura Giaki)	Maximum Allowable WHO 1984
		B/D	F/S		B/D	F/S									
			Dry Season	Wet Season											
3. Date	-	5/3	-	-	5/3	-	5/4	5/5	5/5	5/5	5/4	5/4	5/4	5/4	-
4. Water temperature	℃	13	-	-	11	-	10.5	16	17	17	17	16	21	22	-
5. Colour		6	15	< 5	< 5	< 5	< 5	< 5	< 5	7	< 5	< 5	< 5	5	-
6. pH		8	7.9	8.3	7.4	7.89	6.95	7.93	7.45	6.53	7.01	7.25	6.78	7.05	6.5-8.5
7. Electric conductivity	μS/cm	90	145	98	79	104	86	83	163	127	83	81	82	90	-
8. Fluoride	mg/l	1.0	0.38	0.32	1.10	0.45	1.15	1.2	0.7	0.5	0.95	1.0	0.9	0.8	1.5
9. Nitrate (NO_3)	mg/l	0.242	0.01	0.00	0.299	0.06	0.57	0.528	1.19	0.748	0.19	0.44	0.092	0.063	40
10. Nitrite (NO_2)	mg/l	0.023	-	-	0.01	-	0.01	0.00	0.013	0.00	0.00	0.031	0.01	0.00	-
11. Turbidity	NTU	1	1.6	0.8	3	0.3	2	-	3	2	8	3	3	12	5
12. Total Solid	mg/l	110	70	158	110	182	80	150	180	110	133	110	140	130	1,000
13. Total Dissolved Solid	mg/l	90	65	140	100	182	75	110	130	100	100	80	90	100	-
14. Chloride	mg/l	8	16	14	4	25	8	8	2	4	6	4	15	2	250
15. Sulphates	mg/l	76	33	38	33	44	64	95	79	36	74	74	41	69	400
16. Total Hardness ($CaCO_3$)	mg/l	20	76	18	26	6	12	16	19.2	60	32	22	16	24	500
17. Total Alkalinity ($CaCO_3$)	mg/l	189.5	53	92	184	50	189	167.5	65	271	167.5	184	178	187	-
18. Cadmium	mg/l	N/T	-	-	N/T	-	N/T	N/T	N/T	N/T	N/T	N/T	N/T	N/T	0.005
19. Zinc	mg/l	N/T	-	-	N/T	-	N/T	0.02	0.27	0.02	N/T	N/T	N/T	N/T	5.0
20. Lead	mg/l	N/T	-	-	N/T	-	N/T	N/T	N/T	N/T	0.23	N/T	N/T	N/T	0.05
21. Copper	mg/l	N/T	0.00	0.01	N/T	0.02	N/T	N/T	N/T	N/T	0.02	N/T	N/T	N/T	1.0
22. Iron	mg/l	0.05	0.02	0.02	0.14	0.04	0.14	N/T	0.09	0.19	0.23	0.19	0.23	0.33	0.3
23. Manganese	mg/l	0.01	0.00	0.00	0.01	0.00	0.02	N/T	0.02	0.02	0.02	0.02	0.01	N/T	0.1
24. Arsenic	mg/l	N/T	-	-	N/T	-	N/T	N/T	N/T	N/T	N/T	N/T	N/T	N/T	0.05
25. Selenium	mg/l	N/T	-	-	N/T	-	N/T	N/T	N/T	N/T	N/T	N/T	N/T	N/T	0.01
26. Mercury	μg/l	0.150	-	-	0.180	-	0.160	0.27	0.03	0.05	NT	N/T	0.06	N/T	1.0
27. TTHM ($CHCl_3$)	μg/l	2.95			3.78		2.50	3.06	3.16	1.18	4.27	3.74	3.40	3.51	30 ($CHCl_3$ only)
28. Standard Plate Count	/ml	< 100	-	-	< 100	-	150	700	< 100	300	< 100	< 100	200	150	-
33. Total Coliform	CFU/100ml	4	350	210	4	60	Nil	35	10	20	Nil	Nil	35	30	-

Numbers in Figure	Location
1.	Alternative 1 Intake site
2.	Alternative 2 Intake site
3.	Alternative 3 Intake site
4.	Kathita Intake
5.	ASK Spring
6.	Gatabora Spring Intake
7.	Gatabora Stream Intake
8.	Treatment Plant Inlet
9.	Treatment Plant Reservoir
10.	High Level Zone Tank
11.	Tap Water(Mwiteria)
12.	Tap Water (Thuura-Giaki)
13.	Tap Water (Nudruma Gakundo)
14.	Tap Water (Katheri High School)
15.	Tap Water (Nkugua)
16.	Tap Water (Milimani)
17.	Tap Water (Majengo)
18.	Water Kiosk (Shauri Yako)

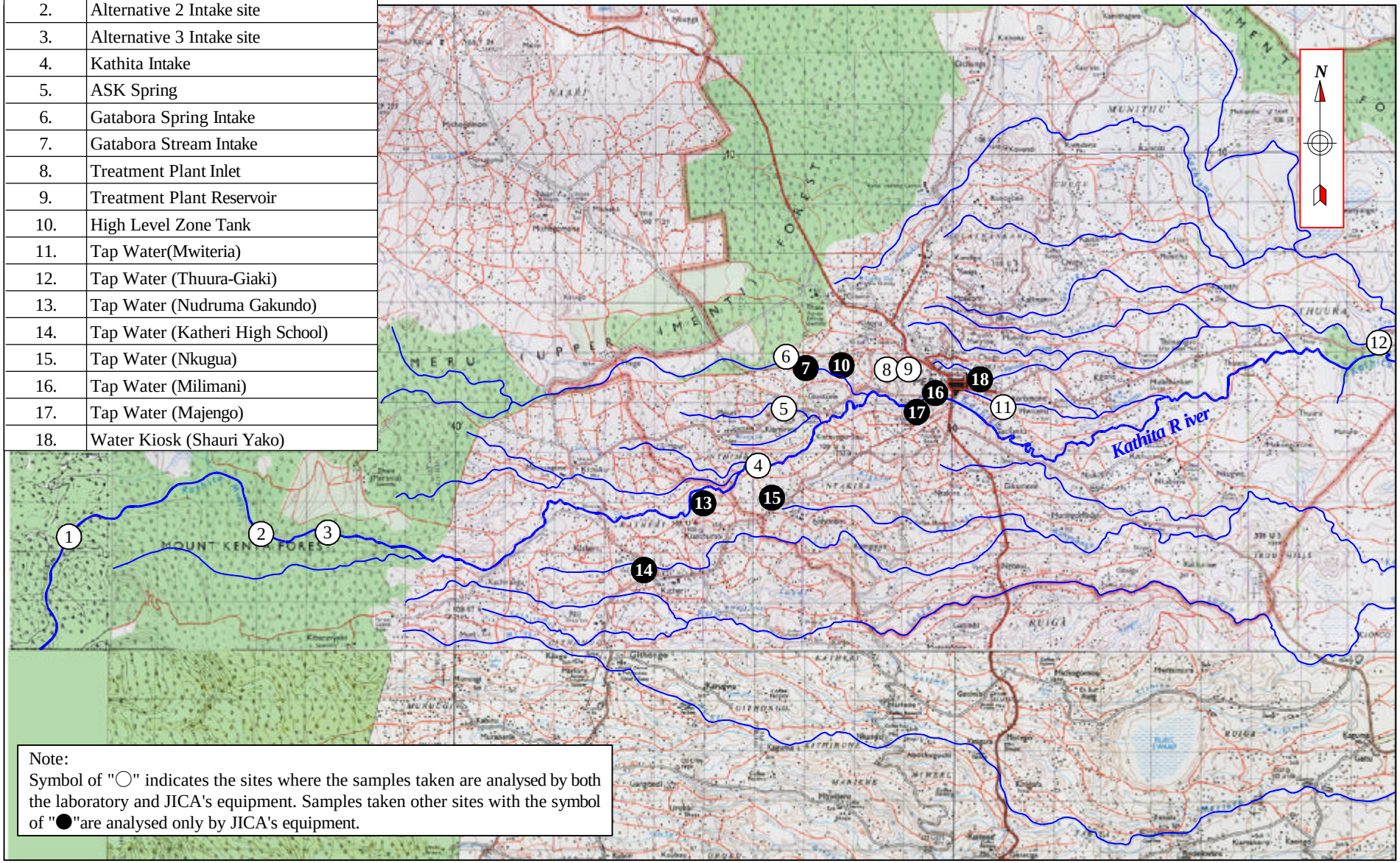

図-1　水質分析に用いたサンプルの採取位置

添付資料-2

コミュニティー給水調査

コミュニティー給水調査

1. 調査の目的

既存コミュニティー給水システムの現状およびコミュニティー給水を利用している住民が、本計画により供給されることになる水道水に対して、どの程度の接続意志（＝需要）を持っているかを確認する事を目的として、アンケート調査を実施した。調査票（資料 1.1）の質問事項については、メルー農村地区の特性等を考慮して、環境天然資源省と協力し、作成した。

2. 調査方法

調査においては、各行政単位の首長を訪れ、本調査への協力を依頼するとともに、地域内に存在するコミュニティ給水システムの名称、行政単位としての Location 名、Sub-location 名を確認する作業を実施した。この結果、調査対象地域内または周辺地域のコミュニティー給水システム総数は 200 にも達しうることが予想された。

行政区分の概要

行政規模	大	中	小
行政単位名称	Division *	Location	Sub-location
首長名称	District Officer	Chief	Assistant Chief
調査地域内に含まれる数	3	10	34

*Division の上には District および Province と上位の行政単位が続く。

調査実施にあたり、調査対象地域内または周辺地域に存在すると思われるコミュニティー給水システム利用者から、本計画とアンケート調査内容について理解を得るため、Location の Chief の機能を利用して、Chief の事務所前広場等に、各々の Sub-location 内のコミュニティー給水システム責任者を召集し、本計画とアンケート調査内容に関する説明会を開催した。

アンケート用紙については、説明会の後、各コミュニティーに配布し、コミュニティー内で相談した上での回答を依頼した。回収は、同じ Chief の事務所もしくは調査員が直接コミュニティーに出向いて実施した。尚、回収時には調査員がコミュニティー代表の面前で回答内容について確認し、回答漏れや誤解が生じないように配慮した。

現地でアンケート調査に費やした日数は、2000 年 4 月 28 日から 5 月 10 日までの 13 日間で、投入された要員は調査団から 1 名、メルー中央県水道局から 8 名、メルー中央県社会開発局から 1 名、環境・自然資源省の水開発局から 1 名であった。

3. 調査結果

アンケート調査期間中に、調査区域内および周辺では 233 のコミュニティー給水システムの存在が確認された。これらシステムの内、188 のコミュニティーから回答が寄せられた。地図に示された供給地域を照合した結果、これら 188 のうち 158（表－1 から表－3 参照）が調査地域内に位置し、他の 30 コミュニティは調査地域外であることが確認された。アンケートの有効回収率は 9 割に達した。但し、回答を得られなかったコミュニティー給水システムが 45 あり、その理由は①期限内の回収不能、②同一システムの異名、③単なる構想段階、または所在不明、④回答拒否、等であった。

また一部の地域では、住民の誤解によりアンケートへの回答が拒否されるケースも見られた。本事業が実現した場合、住民が現在使用しているコミュニティー給水システムの取水量が制限されるという誤解であった。こうした誤解は、その後調査員が何度もその地域を訪れ、本事業とアンケート調査の

趣旨を正しく説明することにより氷解した。

調査区域内 158 のコミュニティー給水システムからの回答において最も際立った調査結果は、以下の 3 点である。

1) コミュニティー給水システムの使用者は、その 93%が、自分たちの水質に満足しておらず、また 96%が水量に満足していない。

2) コミュニティー給水システムの使用者は、全てが本計画による供用水を利用したいと考えている。利用形態としては 94%が戸別接続を、残り 6%はキオスクを希望している。

3) 戸別接続を希望する使用者は、新規接続費用として、一家庭あたり平均 1,634 シリングを支払うことができる。また月間使用料として平均 229 シリングまでなら支払い可能である。

その他に注目すべき結果は、以下の通りであった。

1) 一つのコミュニティー給水システムの平均メンバー数は 88 で、平均世帯数は 325 である。また平均人口は 1301 人[1]となる。メンバー数と世帯数の比率では 3.7 対 1 となる。

2) 導水管の平均口径は 4.1 インチである。

3) 158 コミュニティー給水システムの推定利用者を単純合計すると 200,288 人となり、調査対象地域人口の 2 倍を遥かに超える数値となってしまう。これは、コミュニティー給水システムの使用者のほとんどが、現在の水質・水量に満足していないため、必要な給水を少しでも多く確保しようと、多くの世帯が複数のコミュニティー給水システムに加入している事に起因している。

4) コミュニティー給水システムのおよそ 6 割が水源を河川に求めている。残りのおよそ 4 割は湧水を利用している。

5) 多くのコミュニティー給水システムは立上げの際も、その後の維持管理においても、住民自らの手によって運営されており、外部の支援を受けているシステムはごく一部である。立上げ時に外部支援を受けたシステムは全体の 8%で、その後の運営の支援を受けているのは 3%に過ぎない。

6) 多くのコミュニティー給水システムが作られ始めたのは 1970 年代に入ってからであり、その後、年平均でおよそ４つのコミュニティー給水システムが生まれてきた。

7) 現在、個別メーターを設置しているコミュニティー給水システムは皆無である。

8) コミュニティー給水システムを利用するために支払われる初期費用は平均で 1 メンバーあたり 7,037 シリングである。高いところでは 40,000 シリングを徴収したコミュニティーもある。

9) 毎月支払われる維持管理料の平均は 1 メンバーあたり 52 シリングである。ただし、毎月の維持管理料を徴収しているコミュニティーは全体の 4 割程度である。

10) 現在、メンバー全体の 84 パーセントが戸別接続により給水を受けていることから、戸別接

続はかなり浸透しているといえる。

11) このように戸別接続が一般化した結果ともいえようが、本計画による水道システムへの接続に関して、全体の 85 パーセントのコミュニティー給水システムが、戸別接続を希望した。また 14%のコミュニティーがキオスクでの利用を希望し、残りの 1 パーセントのみが接続を希望しなかった。

12) 上記の結果を、コミュニティー給水システムの規模を考慮した加重平均で計算すると、94 パーセントのコミュニティー給水システム使用者が、本計画の水道へ戸別接続することを希望していることになる。残りの 6 パーセントはキオスクでの利用を希望している。

13) 全体の 8 割程度のコミュニティー給水システムでは、彼らの水を飲用する際に煮沸している。月間の平均燃料費は 441 シリングで、このうち 2 割程度が水の煮沸に使われると推測される。

14) 本計画の供給水を戸別接続により利用したいと考える使用者の支払い可能な初期費用は、1 世帯平均で 1,634 シリングである。これを平均メンバー数と世帯数の比率である 3.7 で乗ずると、1 メンバーあたりで 6,045 シリングと考えられる。これは現在のコミュニティー給水システムに加入した際の平均初期費用である、7,037 シリングの近似値であり、現実的な支払い可能額と考えられる。

15) 本計画の供給水を戸別接続により利用したいと考える使用者の、支払い可能な水道料金月額は 1 世帯平均で 229 シリングである。またキオスクでの利用を希望する使用者が支払い可能な月額水道料金の平均は 126 シリングである。

資料 1-1：コミュニティー給水調査票

Questionnaire Sheet on Community Water Scheme

This survey is carried out by the Japan International Cooperation Agency, in cooperation with the Ministry of Environment and Natural Resources in order to materialize a project of new Meru Water Supply.

The new Meru Water Supply Project aims to realize constant supply of potable water to people in Meru by rehabilitation and augmentation of the facilities and organizational restructuring Such potable water has tremendous advantages:

?? **First you do not need to boil the water for drinking so that you can save time and money for fuel.**

?? **Second it is hygienically clean so that your chance of contracting water borne diseases becomes much lower.** Thus, you can save your time and medical cost for recuperation from the diseases.

Those time and costs you can save will lead you to better life. However it should be noted that such potable water has a price. You cannot get the water for free, which is applied everywhere in the world.

The area where your community water supply scheme covers is included in the project study area. We would like to know a general opinion of your community as to whether your member families want to be connected to the new Meru water supply system and get potable water. When the new Meru Water Supply Project starts, it is assured that you can get stable and clean water.

1) Name of community water scheme

2) Name & title of the person interviewed
   a. Name_____
   b. Title_____

3) Area served (specify in the map)

4) Name(s) of village, sub-location, and location in which the served area is included.
   a. Village name(s)_____
   b. Sub-location name(s)_____
   c. Location name(s)_____

5) Number of members and households served by your water scheme
   a. Member_____
   b. Household_____

6) Water source
   a. River _____(name)
   b. Spring _____(name)
   c. Well
   d. Others (specify)

7) Original intake capacity, current abstraction, and pipe diameter of intake
   a. Original intake capacity_____(m3/day, litter/sec, gallon/day, etc)
   b. Current abstraction _____(m3/day, litter/sec, gallon/day, etc)
   c. Pipe diameter of intake_____(mm, inch)

8) Did any Kenyan administration, NGO, or international organization assist your water scheme at the beginning? If so, please specify the name.

a. Yes _____
b. No

9) Is any Kenyan administration, NGO, or international organization currently assisting your water scheme? If so, please specify the name.
a. Yes _____
b. No

10) When did (will) the scheme start operation? (Year)

11) Contribution per member (Ksh)

12) Monthly maintenance fee per member (Ksh/month)

13) Monthly revenue of water scheme (Ksh/month)

14) Monthly operation & maintenance cost of water scheme (Ksh/month)

15) Current balance of deposit from water scheme (Ksh)

16) How many of the members have individual connection?

17) Is the water scheme metered? (Yes / No)

18) If water is usually boiled for drinking, how much does the fuel cost on average? (Ksh/month/household)

19) Are you satisfied with your community water scheme in terms of quality and quantity?
a. Quality (Yes / No)
b. Quantity (Yes / No)

In the new Meru Water Supply Project, water pipes will be laid along main and secondary roads. You will be able to get clean water either by individual connection or by roadside water kiosk.

20) Which supply system does your community prefer, individual connection or water kiosk?
a. Individual connection (Go to Q22 & Q23. Skip Q21, Q24 & Q25)
b. Water kiosk (Go to Q24 & Q25. Skip Q21, Q22 & Q23)
c. Neither individual connection nor kiosk. Present scheme is preferable (End interview)
d. Combination of individual connection and water kiosk (Go through all questions)

21) How many of the members prefer individual connection and water kiosk respectively?
a. Individual connection _____
b. Water kiosk _____

22) **At the maximum**, how much can you pay for initial cash contribution per household? Please note such initial contribution is to fully cover connection cost from main pipe to individual household. Those connection cost is uncertain at this moment. When the connection cost is estimated and your cash contribution cannot reach the cost, you may not be able to have individual connection.

a. Ksh 4000
b. Ksh 3500
c. Ksh 3000
d. Ksh 2500
e. Ksh 2000
f. Ksh 1500
g. Ksh 1000

23) **At the maximum**, how much can you pay as monthly water fee per household for individual connection?
a. Ksh 600
b. Ksh 550
c. Ksh 500
d. Ksh 450
e. Ksh 400
f. Ksh 350
g. Ksh 300
h. Ksh 250
i. Ksh 200

24) **At the maximum**, how much can you pay as monthly water fee per household for water kiosk?
a. Ksh 500
b. Ksh 450
c. Ksh 400
d. Ksh 350
e. Ksh 300
f. Ksh 250
g. Ksh 200
h. Ksh 150
i. Ksh 100

25) Please specify in the map your desirable point(s) of water kiosk or communal water tap.

Asante sana.

表－1　調査対象地域内のコミュニティー給水システム

No.	Name of Scheme	Location	Sub-location	Name of Village	Population	Start of Service	Water Source
1	Chugu Factory	Chugu	Chungari	Kamutune, Kabii, Rubwene, Kabutii	412	1976	Tonu River
2	Kanthungu Utuuro Group	Chugu	Chungari	Khanthungu	720	1980	M'ltharia Spring
3	Kirwiro	Chugu	Chungari	Matooro	236	1972	M'ltharia Spring
4	Lower Chugu	Chugu	Chungari	na	2,400	1972	Karumanthi Spring
5	Omone	Chugu	Chungari	Gantukene, Gikindune, Omone	456	2002	Kiogo River
6	Mukera	Chugu	Runogone	Kanthiga, Kiandiw	1,812	1986	Karumumo Spring
7	Kanyira	Chugu/ Mulathankari	Runogone/Kaaga	Kamyira	600	2001	Ngaciuma River
8	Kaaga	Chugu/Ntima/ Municipality	Chungari/Upper Igoki /Kaaga	Kaaga, Mpakone, Kathinga, Chugu	2,800	1991	Ngaciuma Spring
9	Kathima	Igoki	Gachanka	Kathima	680	1996	Kamuthara Spring
10	Muguna Igoki	Igoki	Gachanka	Kiringa	4,000	1970	Kathita River
11	Tabiru	Igoki	Gachanka	Tabiru, Mukuru	1,680	1978	Kanywabgo River
12	Upper Tabiru	Igoki	Gachanka	Taribu	528	1997	Kinyagia Spring
13	Wendo Kiringa Women	Igoki	Gachanka	Kiringa	6,000	1980	Kathita River
14	Gatambune	Igoki	Kanyuango/Kathita	Abombugi, Amira, Abweriri, Gakuthari	6,400	2000	Kathita River
15	Kirige High School	Igoki	Lower Igoki	Murinsombugi, Karimene		1997	Kanyuango Spring
16	Njukinjiru	Igoki	Lower Igoki	Njukinjiru	7,200	2000	Kathita River
17	Wendo	Igoki	Lower Igoki	Njukinjiru	1,600	1976	Groundwater Well
18	Kibari	Igoki	Muringa-Ombugi	Kiroari	360	1994	Kathita River
19	Kigwii	Igoki	Muringa-Ombugi	Murinsombugi	200	1984	Kanyuango River
20	Kiriungi	Igoki	Muringa-Ombugi	Kiriungi	2,000	1988	Riiji River
21	Mwitethia	Igoki	Muringa-Ombugi	Murinsombugi	920	2000	Gacieae Spring
22	Nchaore Kaongo	Igoki	Muringa-Ombugi	Kiringa, Kithiu, Kiithuene, and other 4 villages	600	1996	Gachiege Spring
23	Familys	Katheri Central	Kathita	Majene, Kathii and Sirimu	48	1974	Kathitamunyi River
24	Kamiura	Katheri Central	Kathita	Kaathi	400	1999	Kathitamunyi River
25	Kathita Munyi	Katheri Central	Kathita	Mwanika	760	1965	Kathitamunyi Spring
26	Kiigene Cirimu	Katheri Central	Kathita	Muchicha, Kaathi, Cirimu	2,640	1999	Kathita River
27	Muchicha Muthangene	Katheri Central	Kathita	Muchicha, Muthangene	800	1978	Spring
28	Mutuaro	Katheri Central	Kathita	Mwithu, Mwiru	120	1996	Kathitamunyi River
29	Mwinga Mpara	Katheri Central	Kathita	Muchicha, Mwithu, Mwiru	60	1996	Kirungamango Spring
30	Muthangene Rubiri	Katheri Central	Kathita/Nkiriri North	Muthangene, Rubiri	476	1978	Kathitamunyi River
31	Katheri Nthimbiri	Katheri Central	Mwirangombe	Villages in the related sub-locations	15,600	1964	Kathitamunyi River
32	Muguna Katheri	Katheri Central	Mwirangombe	Mwirangombe	5,140	1990	Kathita River
33	Bahati	Katheri Central	Nkiriri South	Kionyo, Nkumbo	100	1986	Katheri Spring
34	Gatuntune	Katheri Central	Nkiriri South	Nkiriri	6,000	1992	Kathita River
35	Karene	Katheri Central	Nkiriri South	Kaarene	1,600	1978	Nkadone Mbuthu Spring
36	Karene Kirima	Katheri Central	Nkiriri South	Kaarene	1,440	1981	Kanyuango Spring
37	Karimene	Katheri Central	Nkiriri South	Kaarene	28	1999	Nkure Spring

表－1　調査対象地域内のコミュニティー給水システム

No.	Name of Scheme	Location	Sub-location	Name of Village	Population	Start of Service	Water Source
38	Katheri Kionyo	Katheri Central	Nkiriri South	Kionyo	240	1980	Rwairi River
39	Kieni Kia Ruguru	Katheri Central	Nkiriri South	Kieni, Kiaruguru	640	1988	Njaria Spring
40	Kionyo	Katheri Central	Nkiriri South	Kionyo	640	1972	Rwairi River
41	Kithamburu	Katheri Central	Nkiriri South	Kithamburu	96	2000	Kanyuango Spring
42	Mwiriene	Katheri Central	Nkiriri South	Nkiriri	840	1992	Kathita River
43	Mwiriene I	Katheri Central	Nkiriri South	Nkiriri	4,000	1984	Kathitamunyi River
44	New Kirungurune	Katheri Central	Nkiriri South	Kionyo	136	1984	Mbira Mburi Spring
45	Nkiriri	Katheri Central	Nkiriri South	Mwiriene	80	2000	Kanyoo Spring
46	Wendo	Katheri Central	Nkiriri South	Kaarene	336	1995	Nkandone Mbuthu Spring
47	Mworoga Mpuri	Katheri Central/Katheri East	Nkiriri North/Kirimakiathi	Mworoga (Kithaku)	920	1964	Ruuji Rwamgombe River
48	Kionyo Kithigachio	Katheri Central/Katheri East	Nkiriri South/Kinjo North	Kionyo, Kithigachio	1,448	2002	Kathita River
49	Kimuri	Katheri Central/Katheri East/Nthimbiri	Kathita/Nkiriri North/ Kirimakiathi/Mpuri	Muchicha, Mworoga, Mwanika, Kithaku	1,800	2001	Kathita River
50	Kanja Gantuku	Katheri East	Kianthumbi South	Gantukene	480	1996	Kathita River
51	Kanyuango	Katheri East	Kianthumbi South	Kianthumbi	320	1971	Kanyuango River
52	Mukungu	Katheri East	Kianthumbi South	Kianthumbi	440	2000	Ntugu River
53	Ruchunga	Katheri East	Kianthumbi South	Kianthumbi	800	1971	Ruchunga Spring
54	Kabirithiru	Katheri East	Kinjo North	na	160	1980	Rwairi River
55	Karemba	Katheri East	Kinjo North	Gitimdi	72	1985	Rwairi River
56	Kithigachu	Katheri East	Kinjo North	Kithigachiu, Mpingene	600	1980	Riiji River
57	Mpingene	Katheri East	Kinjo North	Mpingene	160	2000	Riiji River
58	Mathigiune	Katheri East	Kinjo North/ Kinjo South	na	600	1976	Rwairi River
59	Kijijone	Katheri East	Kinjo South	Kijijone, Mukiki	1,080	1980	Rwairi River
60	Kinjo South	Katheri East	Kinjo South	Kinjo	1,080	1999	Mariara River
61	Mukiki	Katheri East	Kinjo South	Mukiki	500	2003	Ruati
62	Kibarine Women	Katheri East	Kirimakiathi	Mwanika	752	1999	Kathitamunyi River
63	Nduruma Gakumbo	Katheri East	Kirimakiathi	Kiriwalkathi, Kianginyo	680	1985	Rwaire River
64	Karene Riiji	Katheri East/Katheri Central	Kianthumbi South/Nkiriri South	Kianthumbi, Kareene	184	1985	Kanyuango R. & Spring
65	Kirima Kia Athi	Katheri East/Katheri Central	Kianthumbi South/Nkiriri South	Kianthumbi	1,200	1988	Kathita River
66	Kangombe	Katheri East/Nthimbiri	Kianthumbi South/Nthimbiri	Nthgimbiri, Kianthumbi	1,188	1965	Kanyuango River
67	Mishiiri	Katheri East/Nthimbiri	Kirimakiathi/Mpuri	Mwanika, Nkurune	128	1998	Kathitamunyi River
68	Mikurwene	Katheri West	Kathiranga Central	Mwereru	1,400	1998	Kathita River
69	Mwereru	Katheri West	Kathiranga Central	Mwereru	2,000	2003	Kathita River
70	Karia	Katheri West	Kathiranga East	Kitharene	188	1990	Rwaire River
71	Kariiji motego	Katheri West	Kathiranga East	Kitharene	380	1993	Riiji Spring
72	Kitharene Rwairi	Katheri West	Kathiranga East	Kitharene	1,200	1971	Rwaire Spring
73	Mutethia	Katheri West	Kathiranga East	Kitharene	64	1989	Rwaire River

表－1　調査対象地域内のコミュニティー給水システム

No.	Name of Scheme	Location	Sub-location	Name of Village	Population	Start of Service	Water Source
74	Njaria Rwairi	Katheri West	Kathiranga East	Kitharene	240	1972	Njaria Spring
75	Karumanthi	Katheri West	Kathiranga North	Kanthuni	100	1976	Karumanthi Spring
76	Karunkua	Katheri West	Kathiranga North	Nchebene	420	2000	Karunkua Spring
77	Kimenwa	Katheri West	Kathiranga North	Kiruanyi	160	1987	Karugi Ka Ngombe River
78	Majeene	Katheri West	Kathiranga North	Kagere	120	1984	Kanthanga Spring
79	Nondone	Katheri West	Kathiranga North	Kanthuni	192	1986	Kathitamunyi River
80	Kaimenyi	Katheri West	Kathiranga West	Kaiwenyi		not operational	Kathita River
81	Kagoji	Katheri West/Githongo	Kathiranga East/Githongo	Kitharene, Kijijone	320	1993	Kiriji Spring
82	Kirima Kiarago	Katheri West/ Katheri Central	Kathiranga West/ Mwirangombe	Kirima, Kiarago	1,600	1999	Kathita River
83	Kathita Mpuri	Katheri West/Katheri Central/Katheri East	Kathita/Nkiriri North/ Kianthumbi North	Mpri, Mworoga, Mwanika, Muthangene, Gakando, Rubiri	800	2000	Kathita River
84	Gikiriiri	Mulathankari	Kaaga	Gikiriiri	360	1989	Kathambia Nyoto Spring
85	Kanthiga	Mulathankari	Kaaga	Kanthiga		1991	Ngaguma River
86	Kariuri	Mulathankari	Kaaga	Kaaga	180	not operational	Nganciuma Spring
87	Kongoacheke Ngwataniro	Mulathankari	Kaaga	Kangoacheke	400	1987	Kagwankungura Spring
88	Muguna Mutethia	Mulathankari	Kaaga	Kaaga, Mpakone, Kauthuga, Kangoacheke, Karumonthi, Nthunguri	2,400	1983	Ngachiuma River
89	Kathita	Mulathankari	Mukua	Kathita	504	1999	Karinaa River
90	Kibachia	Mulathankari	Mukua	Kibachia	304	1980	Thongoma River
91	Kieni Kia Ngondu	Mulathankari	Mukua	Kibachia, Kanje	820	2003	Kurunyu River
92	Mukua	Mulathankari	Mukua	Kibachia	1,600	2000	Kaburi Spring
93	Mulathankari	Mulathankari	Mukua	Kanje, Kathita, Anlibanjoka, Kaninariga	3,200	1967	M'ltaga Spring
94	Mwonyone	Mulathankari	Mukua	Kanje	800	1978	Kathita River
95	Kaguoro	Mulathankari	Njoka	Kathita, Antu-ba-Njoka	1,200	1984	Kaguoro Spring
96	Karimaga Young Generation	Mulathankari	Njoka	Kanimaba	396	2000	Karurimu River and Spring
97	Karimaiga Kirimene	Mulathankari	Njoka	Karimaiga, Kirimene	1,400	1987	M'kiogo Spring
98	Kithoa	Mulathankari	Njoka	Karimaiga	800	1990	Karumathi Spring
99	Muriuki	Municipality	Gakoromone/ Kaaga	Nkoune, Mwirine	636	1993	Kunyungu Spring
100	Nkoune Mwirine	Municipality	Gakoromone/ Kaaga	Nkoune, Mwirine	432	1978	Kiogo Spring
101	Barabi	Municipality	Kaaga	Kaaga, Rurai, Gakurine	600	1999	Tributary of Ngaciuma River
102	Kagwankunguru	Municipality	Township	Kambaika	400	1980	Kauwanku River
103	Mjini	Municipality	Township	Mjiri	1,800	-	River/Spring/Well
104	Muguna Kithiu	Municipality/Mulathankari	Gakoromone/ Mukua	Kooje, Gantunkuwa, Mwirine, Mulathankari, Kirambune, Shauriyako, Kasimga	3,660	1989	Kiongo River
105	Gakurumbi	Municipality/Ntima	Township/Kaaga/ Upper Igoki	Kambakia	640	1985	Gatabora Spring
106	Muguna Mutethia	Municipality/Ntima/ Mulathankari	Kaaga/Upper Igoki/Mukua	Kaaga, Mpakone, Karumanthi, Nthunguri	4,800	1981	Ngaciuma River & Spring
107	Ngaciuma	Municipality/Ntima/ Mulathankari	Township/Upper Igoki/Kaaga	Mpakone, Kaaga	320	1973	Ngaciuma River
108	Kairichi	Ntakira	Gitugu	Gitugu	2,000	2001	Kanyuango

表－1　調査対象地域内のコミュニティー給水システム

No.	Name of Scheme	Location	Sub-location	Name of Village	Population	Start of Service	Water Source
109	Koorone	Ntakira	Gitugu	Gitugu	800	1988	Gaciege River
110	Weru	Ntakira	Gitugu/Ngonyi	Gitugu, Nkairire	2,400	plan	Kanyuango River
111	Karingene	Ntakira	Kirugua	Kiringene	1,440	1972	Ruini Spring
112	Mukikimwe	Ntakira	Kirugua	Ngati	520	1987	Karinda Ngurne River
113	Kirugua Kathumbi	Ntakira	Kirugua/Magundu	Kirugua, Kathumbi, Magundu, Mugaine	2,000	1996	Karimaiga River
114	Karoro	Ntakira	Nchaure	Ntara Kagwi, Ntura Nkia, Kiruiro	2,000	1971	Kinyagia
115	Kirwiro	Ntakira	Nchaure	Kirwiro, Menga	1,400	1998	Kinyagia Spring
116	Ntokangu	Ntakira	Nchaure	Menga	400	1974	Gachiege River
117	Gachiege Tiaru	Ntakira	Nchaure/Kirugua	Tiaru, Menga	1,000	1972	Gachiege Spring
118	Gatemana	Ntakira	Ngonyi	Ngonyierwara	6,168	1979	Rwaire River
119	Mugambone Kariene	Ntakira	Ngonyi	Mugambone, Kithangarine, Kariene	3,200	2000	Mariara River
120	Riiji 'B'	Ntakira	Ngonyi	Kiera, Muruine, Kongo-ka-Mbirwa, Kaongo	800	1976	Riiji River
121	Magundu	Ntakira/Igoki	Magundu/Kirugua/ Nchaure/Ngonyi/ Gachanka	Magundu, Kirogine, Irinda, Kirugua, Kaguru, Gikumene, Nchaure	16,800	1976	Kathita River
122	Maigene	Ntakira/Igoki	Nchaure/Muringa-Ombugi	Ntura, Gituma	320	1997	Gachiege River
123	Nthungu	Ntakira/Nthimbiri	Ngonyi/Kaiginyo	Kithima, Karungu	2,000	1981	Riiji River
124	Gachiege Kimanya	Nthimbiri	Kainginyo	Gachiege, Kimanya	168	1997	Kiine Spring
125	Kamunyoki	Nthimbiri	Kainginyo	Kienine	376	1974	Karumo Spring
126	Karikambwii	Nthimbiri	Kainginyo	Kithima, Gitebe, Mpigene	1,980	1983	Ruairi River
127	Kithioroka	Nthimbiri	Kainginyo	Riiji		2000	Riiji River
128	Mkandone	Nthimbiri	Kainginyo	Nthungu	216	1982	Ntutumi Spring
129	Abonyaine	Nthimbiri	Mpuri	Mwirigootibu, Kiamiriru	352	1991	Abonyaine Mutunguro Spring
130	Buurindaja	Nthimbiri	Mpuri	Mpuri	88	1999	Tributary of Kathita River and Gatakene Spring
131	Gatakene	Nthimbiri	Mpuri	Mpuri	68	1997	Gatakene River
132	Giantune	Nthimbiri	Mpuri	Giantune	972	1973	Kathita River and Karimaiga Spring
133	Giantune Kithima	Nthimbiri	Mpuri	Matuntukine	1,200	1994	Kithima Mukindia
134	Giantune Matangi	Nthimbiri	Mpuri	Giantune, Kuage	468	1987	Mpuri Spring
135	Kanondone	Nthimbiri	Mpuri	Murirene	360	1968	Kanondone River
136	Kiandiu	Nthimbiri	Mpuri	Kiandiu	160	1985	Kawampungu
137	Kithima Inono	Nthimbiri	Mpuri	Kithima, Inono	264	1995	Gatakene River and Spring
138	Kongo Agaceke Giantune	Nthimbiri	Mpuri	Giantune	264	1985	Mpuri River
139	Manduru	Nthimbiri	Mpuri	Nkubune	68	1990	Kathitamunyi River
140	Matuntukine	Nthimbiri	Mpuri	Giantune B	936	1995	Mpuri River
141	Miguru	Nthimbiri	Mpuri	Mpuri	668	1972	Gatakene River
142	Mwichuiri	Nthimbiri	Mpuri	Murirene	84	2001	Kathitamunyi River
143	Mworoga	Nthimbiri	Mpuri	Mworoga	600	1983	Ngare Naro Spring
144	Ngithiria	Nthimbiri	Mpuri	Kiamiriru, Mpuri	288	1970	Karimaiga River

表－1　調査対象地域内のコミュニティー給水システム

No.	Name of Scheme	Location	Sub-location	Name of Village	Population	Start of Service	Water Source
145	Nkurune	Nthimbiri	Mpuri	Nkurune	68	1972	Gatakene River
146	Gaciunju	Nthimbiri	Nthimbiri	Mukuruti, Muringene	800	1974	Kanyuango River
147	Gakumbo	Nthimbiri	Nthimbiri	Rutiti, Kirimene, Ngurumo, Magundu	2,840	1976	Kathita River
148	Karimba	Nthimbiri	Nthimbiri	Nkumbo	192	1999	Ntongoro Spring
149	Kiine	Nthimbiri	Nthimbiri	Kiine, Kainginyo	400	1993	Kiine Spring
150	Kirimene	Nthimbiri	Nthimbiri	Kirimene	280	1990	Kiine River and Nga'u Spring
151	Nkumbo	Nthimbiri	Nthimbiri	Nkumbo	1,680	1974	Ntongoro Spring
152	Ntongoro	Nthimbiri	Nthimbiri	Ntongoro, Nkumbo	360	1961	Kanyuango River
153	Kithangene	Nthimbiri	Nthimbiri/ Kainginyo	Gachiunju, Kinugu	272	1973	Gachiunyo Spring
154	kiutha	Nthimbiri/Ntakira	Kainginyo/ Ngonyi	Makirone, Muruine	628	1976	Karurumo Spring and Well
155	Kiguru Wendani	Nthimbiri/Ntakira	Nthimbiri/ Kirugua	Ngaurumo, Kirugua	496	2000	Kathita River
156	Tangiri	Ntima	Upper Igoki	Kinoru, Kaithe, Kigure, Gitooro	1,800	1989	Mpuri River
157	Muturai Karimaga Ntwiko	Ntima/Chugu/ Mulathankari	Upper Igoki/ Chungari/Kaaga	Karima-ga-Ntwiko	1,072	not completed	Muturai River and Spring
158	Kongo Acheke Kirogonyo	Ntima/ Municipality	Upper Igoki/Kaaga	Rianyambo, Kiwani	1,320	1979	Gakinyange Spring

表-2　コミュニティー給水システムの概要（1/2)

No.	Question No.	5a	5b		6	7a	7b	7c	8		9		10	11	12	13	14	15	16	17	18	19a	19b	20	21			22	23	24
	Name of community water scheme	No. of members	No. of households	Household / member ratio	Water source	Original capacity (m3/day)	Current abstraction (m3/day)	Intake pipe size (inch)	Outside Initial assistance	Donor name	Outside current assistance	Donor name	Start year	Initial contribution (Ksh/member)	Monthly maintenance (Ksh/member)	Monthly revenue (Ksh)	Monthly O&M cost (Ksh)	Balance of deposit (Ksh)	Individual connection (%)	Current meter installation	Monthly fuel cost (Ksh/h.h.)	Satisfaction with quality	Satisfaction with quantity	Willingness for connection	Connection Preference			Initial contribution (Ksh/h.h.)	Monthly fee indiv.connect (Ksh/h.h.)	Monthly fee water kiosk (Ksh/h.h.)
																									Individual	Kiosk	No need			
1	Chugu Factory		103		river			4	no		no		1976	20,000	2,900	0	2,900	0	100%	no	200	no	no	individual	100%			1,500	200	
2	Kanthungu Utuuro Group	75	180	2.4	spring			2	no		no		1980	610	20	350	600	3,000	48%	no		no	no	indiv./kiosk	60%	40%		1,500	200	
3	Kirwiro	59	59	1.0	spring			4	no		no		1972	1,200	0	0	300	1,500	61%	no	50	no	no	individual	100%			2,000	200	
4	Lower Chugu	250	600	2.4	spring			6	no		no		1972	2,200	20	5,000	2,000	8,000	100%	no	250	no	no	individual	100%			2,000	250	
5	Omone	23	114	5.0	river	9.54	9.54	4	no		no		2002	15,000					100%	no	300	no	no	individual	100%			2,500	200	
6	Mukera	150	453	3.0	spring			6	no		no		1986	10,000	20	0	3,000	12,000	57%	no	150	no	no	indiv./kiosk	57%	43%		1,000	200	100
7	Kanyira	100	150	1.5	river			6	yes	National Council of Churches of Kenya (NCCK)	no		2001	3,300				85,000	0%		100	no	no	individual	100%			3,000	200	
8	Kaaga	200	700	3.5	spring			6	no		yes	Methodist Church of Kenya	1991	150	20	2,000	200	15,000	50%	no	50	no	no	individual	100%			3,000	250	
9	Kathima	33	170	5.2	spring			4	no		no		1996	1,200	0	0	800		100%	no	500	no	no	individual	100%			2,000	200	
10	Muguna Igoki	346	1,000	2.9	river			8	no		no		1970	1,200				15,000			300	no	no	individual	100%			2,000	200	
11	Tabiru	70	420	6.0	river			4	yes	GoK	no		1978	2,200	30		500	7,560	71%	no	500	no	no	individual	100%			1,500	400	
12	Upper Tabiru	22	132	6.0	spring			2	no		no		1997	1,000	100			1,500	64%	no	400	no	no	individual	100%			1,500	250	
13	Wendo Kiringa Women	100	1,500	15.0	river			4	no		no		1980		0	0	500	500	100%	no	200	no	no	individual	100%			2,000	200	
14	Gatambune	400	1,600	4.0	river			8	no		no		2000	5,000	50	20,000		300,000		no	200	no	no	individual	100%			4,000	400	
15	Kirige High School				spring			3	no		no		1997							no		no	yes	individual	100%			4,000	600	
16	Njukinjiru	450	1,800	4.0	river				no		no		2000	10,000	25		10,000	36,000		no		no	yes	individual	100%			2,500	200	
17	Wendo	100	400	4.0	well			4	no		no		1976	10,000	10			5,000	90%	no	200	yes	no	individual	100%			2,500	200	
18	Kibari	31	90	2.9	river			1	no		no		1994	7,000				1,000	100%	no	500	no	no	individual	100%			1,000	200	
19	Kigwii	35	50	1.4	river			3	no		no		1984	5,000	10		350	1,000	100%	no	30	no	no	individual	100%			1,500	200	
20	Kiriungi	50	500	10.0	river			6	no		no		1988	5,400	50		2,000	1,000	100%	no	300	yes	no	individual	100%			2,000	200	
21	Mwitethia	80	230	2.9	spring				no		no		2000	10,000	100									individual	100%			2,000	200	
22	Nchaore Kaongo	45	150	3.3	river	100	91	4	no		yes	Water Management Services	1996	11,600	6		247	1,500	45%	no		no	no	individual	100%			2,500	600	
23	Familys	12	12	1.0	river/spring			4	no		no		1974	20,000	0	0	300	0	100%	no	500	no	no	individual	100%			1,000	200	
24	Kamiura	25	100	4.0	river			4	no		no		1999	26,000	50	1,250	0	0	100%	no	500	no	no	individual	100%			3,000	200	
25	Kathita Munyi	38	190	5.0	spring			7	no		no		1965	20,000	10	380		3,000	100%	no	600	no	no	individual	100%			3,000	200	
26	Kiigene Cirimu	110	660	6.0	river			6	no		no		1999	34,000	50	0	2,000	20,000	86%	no	600	no	no	individual	100%			1,000	200	
27	Muchicha Muthangene	47	200	4.3	spring			4	no		no		1978		20	940	0	0	100%	no	600	no	no	individual	100%			1,000	200	
28	Mutuaro	14	30	2.1	river			2	yes	Kenya National Farmer's Union	no		1996	30,000	0	0	500	0	100%	no	1,000	no	no	individual	100%			1,000	200	
29	Mwinga Mpara	15	15	1.0	spring			3	no		no		1996	15,000	40	600			100%	no	600	no	no	individual	100%			1,000	200	
30	Muthangene Rubiri	104	119	1.1	river			4	no		no		1978	2,400	0	0		10,000	100%	no	500	no	no	individual	100%			1,000	200	
31	Katheri Nthimbiri	1,301	3,900	3.0	river			18	yes	GoK	no	CARE	1964	3,850	0	0	0	0	55%	no	1,000	no	no	individual	100%			2,000	200	
32	Muguna Katheri	133	1,285	9.7	river	173	173	4	yes	CARE	yes	SIDA	1990	2,000	100		1,200	0	65%	no	700	no	no	individual	100%			2,000	300	
33	Bahati	12	25	2.1	river			3	no		no		1986						100%	no	50	yes	no	individual	100%			1,000	200	
34	Gatuntune	300	1,500	5.0	river			3	no		no		1992	1,500				2,500	100%	no	500	no	no	individual	100%			1,000	200	
35	Karene	25	400	16.0	spring			2	no		no		1978	1,800	10			5,000	84%	no	30	no	no	individual	100%			1,000	200	
36	Karene Kirima	52	360	6.9	spring			3	no		no		1981	300	10	520	0	5,000	92%	no	500	no	no	individual	100%			1,000	200	
37	Karimene	7	7	1.0	spring			3	no		no		1999	1,100				0	100%	no	600	no	no	individual	100%			1,000	200	
38	Katheri Kionyo	60	60	1.0	river			3	no		no		1980	500	0	0	0	0	100%	no	800	no	no	individual	100%			1,000	200	
39	Kieni Kia Ruguru	40	160	4.0	spring			2	no		no		1988	3,500	20	800	600	0	88%	no	800	no	no	individual	100%			1,000	350	
40	Kionyo	39	160	4.1	river			4	no		no		1972	5,000	200	1,000	2,000	8,000		no		no	no	individual	100%			4,000	400	
41	Kithamburu	17	24	1.4	spring			4	no		no		2000	8,000						no	1,200	no	no	individual	100%			1,500	200	
42	Mwiriene	70	210	3.0	river			4	yes	USAID	no		1992	5,000	30	2,100		0	86%	no	500	no	no	individual	100%			1,000	200	
43	Mwiriene I	96	1,000	10.4	river			2	no		no		1984	2,310	15	1,440		0	83%	no	1,000	no	no	individual	100%			1,000	200	
44	New Kirungurune	34	34	1.0	spring	30	25	3	no		no		1984	10,000	50	1,000	0	2,000	59%	no	500	no	no	individual	100%			1,000	200	
45	Nkiriri	8	20	2.5	spring			2	no		no		2000	5,000				20,000		no	1,000	no	no	individual	100%			2,000	200	
46	Wendo	21	84	4.0	spring			2	no		no		1995	2,500	20	420	240	1,500	100%	no	600	no	no	individual	100%			1,000	200	
47	Mworoga Mpuri	120	230	1.9	river			3	no		no		1964	1,900	0	0	0	19,000	100%	no	600	no	no	indiv./kiosk	60%	40%		3,000	200	100
48	Kionyo Kithigachio	130	362	2.8	river			4	no		no		2002	15,000				276,000		no	600	no	no	individual	100%			1,000	200	
49	Kimuri	200	450	2.3	river			8	no		no		2001	14,000				150,000	100%	no	600	no	no	individual	100%			2,000	200	
50	Kanja Gantuku	75	120	1.6	river			4	no		no		1996	10,000	50	4,500	3,000	0	53%	no	1,200	no	no	indiv./kiosk	53%	47%		1,000	200	100
51	Kanyuango	16	80	5.0	river	7		3	no		no		1971	1,000	0	0	0	2,700	100%	no	unboiled	no	no	individual	100%			1,000	200	
52	Mukungu	25	110	4.4	river			2	no		no		2000	1,000						no		no	no	individual	100%			1,000	200	
53	Ruchunga	61	200	3.3	spring	7		3	no		no		1971	1,000					100%	no		no	no	individual	100%			1,000	200	
54	Kabirithiru	20	40	2.0	river			5	no		no		1980	12,000	100			45,000	100%	no		no	no	individual	100%			2,000	300	
55	Karemba	16	18	1.1	river			3	no		no		1985	2,500				500	100%	no		no	no	individual	100%			2,000	250	
56	Kithigachu	50	150	3.0	river	30.9		3	no		no		1980	3,000				3,500	80%	no	150	no	no	indiv./kiosk	70%	30%		2,000	200	100
57	Mpingene	30	40	1.3	river				no		no		2000	2,500	100				100%	no		no	no	individual	100%			1,000	200	
58	Mathigiune	97	150	1.5	river			6	no		no		1976	6,878	25			30,000	85%			yes	no	indiv./kiosk				2,000	350	350
59	Kijijone	120	270	2.3	river			4	no		no		1980	6,500	50		500	2,500	50%	no	1,000	no	yes	indiv./kiosk	63%	37%		2,000	300	200
60	Kinjo South	200	270	1.4	river			12	no		no		1999	25,000				50,000	75%	no		yes	no	indiv./kiosk	50%	50%		2,500	300	250
61	Mukiki	50	125	2.5	river				no		no		2003								unboiled	no	no	individual	100%			2,500	250	
62	Kibarine Women	80	188	2.4	river			4	no		no		1999	4,500	0	0		5,000	100%	no	500	no	no	individual	100%			1,000	200	
63	Nduruma Gakumbo	87	170	2.0	river			6	no		no		1985	10,000					100%	no	unboiled	no	no	individual	100%			2,000	250	
64	Karene Riiji	46	46	1.0	river/spring			8	no		no		1985	10,000	20	920		4,000	100%	no		no	no	individual	100%			2,500	250	
65	Kirima Kia Athi	300	300	1.0	river			8	no		no		1988	5,000				12,000	67%	no	500	no	no	individual	100%			2,500	250	
66	Kangombe	99	297	3.0	river			3	no		no		1965	3,700			500		100%	no	700	no	no	indiv./kiosk	83%	17%		1,500	200	100
67	Mishiiri	23	32	1.4	river			3	no		no		1998	4,000	20	460	300		22%	no	150	no	no	individual	100%			1,000	300	
68	Mikurwene	70	350	5.0	river			4	no		no		1998	18,000				210,000	100%	no	300	no	yes	individual	100%			1,000	200	
69	Mwereru	33	500	15.2	river				no		no		2003	5,000				60,000						individual	100%			1,000	200	
70	Karia	16	47	2.9	river			2	no		no		1990	8,350			1,600		100%	no	700	no	no	individual	100%			1,000	200	
71	Kariiji motego	19	95	5.0	spring			5	no		no		1993	9,500	200		3,800	4,700	100%	no	100	no	no	individual	100%			4,000	300	
72	Kitharene Rwairi	110	300	2.7	spring			10	no		no		1971	2,000				10,000	100%	no	800	no	no	individual	100%			1,500	200	
73	Mutethia	4	16	4.0	river			2	no		no		1989	40,000	0	0	800	0	100%	no	500	no	no	individual	100%			2,000	200	
74	Njaria Rwairi	12	60	5.0	spring			3	no		no		1972	15,000	0	0	400	0	100%	no	500	no	no	individual	100%			1,500	200	
75	Karumanthi	6	25	4.2	spring			4	no		no		1976	2,000	50		350		100%	no	400	no	no	individual	100%			1,000	200	
76	Karunkua	25	105	4.2	spring			2	no		no		2000	3,500								no	no	individual	100%			1,000	200	
77	Kimenwa	8	40	5.0	river			4	no		no		1987	40,000	0	0	600	0	100%	no	500	no	no	individual	100%			1,000	200	
78	Majeene	5	30	6.0	spring			2	no		no		1984	12,000	0	0	600	0	100%	no	800	no	no	individual	100%			1,000	200	
79	Nondone	12	48	4.0	river			2	no		no		1986		0	0	600	0	100%	no		no	no	individual	100%			1,000	200	
80	Kaimenyi	87			river				no		no		future	11,000										none			100%			
81	Kagoji	16	80	5.0	spring			4	no		no		1993	12,000	0	0	700	0	100%	no	700	no	no	individual	100%			1,000	200	
82	Kirima Kiarago	129	400	3.1	river			6	no		no		1999	20,000	10	1,290	200	0	100%	no	20	no	yes	individual	100%			1,000	200	
83	Kathita Mpuri	200	200	1.0	river			6	no		yes	Brothers of Christian Congregation	2000	20,000	0	0	0	100,000	100%	no	550	no	yes	individual	100%			1,000	200	
84	Gikiriiri	30	90	3.0	spring			2	no		no		1989	6,000	20	600	500		100%	no	1,000	no	no	individual	100%			1,000	200	

表-3　コミュニティー給水システムの概要（2/2)

No.	Question No. / Name of community water scheme	5a No. of members	5b No. of households	Household / member ratio	6 Water source	7a Original capacity (m3/day)	7b Current abstraction (m3/day)	7c Intake pipe size (inch)	8 Outside Initial assistance	8 Donor name	9 Outside current assistance	9 Donor name	10 Start year	11 Initial contribution (Ksh/member)	12 Monthly maintenance (Ksh/member)	13 Monthly revenue (Ksh)	14 Monthly O&M cost (Ksh)	15 Balance of deposit (Ksh)	16 Individual connection (%)	17 Current meter installation	18 Monthly fuel cost (Ksh/h.h.)	19a Satisfaction with quality	19b Satisfaction with quantity	20 Willingness for connection	21 Connection Preference: Individual	Kiosk	No need	22 Initial contribution (Ksh/h.h.)	23 Monthly fee indiv.connect (Ksh/h.h.)	24 Monthly fee water kiosk (Ksh/h.h.)
85	Kanthiga	80			river			4	no		no		1991	4,000	20	1,600	2,000	10,000	100%	no	100	no	no	individual	100%			1,000	200	
86	Kariuri	25	45	1.8	spring				no		no		future	500	0	0	0	12,500			100	no	no	individual	100%			2,000	600	
87	Kongoacheke Ngwataniro	55	100	1.8	spring			4	no		no		1987	30,000	20	1,100	2,200	0	100%	no	1,000	no	no	individual	100%			1,500	200	
88	Muguna Mutethia	288	600	2.1	river			4	yes	Kenya Charity Sweepstake	no		1983	12,000	0	0	2,000	21,000	52%	no	1,000	no	no	individual	100%			1,000	200	
89	Kathita	42	126	3.0	river			5	no		no		1999	6,000	0	0	0	0	100%	no	300	no	no	individual	100%			1,500	200	
90	Kibachia	38	76	2.0	spring			3	no		no		1980	10,000	0	0	0	2,000		no	300	no	no	individual	100%			1,000	200	
91	Kieni Kia Ngondu	35	205	5.9	river/spring			3	no		no		2003	6,000	0	0	0		40%	no	300	no	no	individual	100%			2,000	200	
92	Mukua	100	400	4.0	spring			3	no		no		2000	7,000	50	5,000	0	0		no	300	no	no	individual	100%			1,000	200	
93	Mulathankari	200	800	4.0	spring			5	yes	Meru County Council	no		1967	5,000	0	0	0	0	58%	no	300	no	no	individual	100%			1,000	200	
94	Mwonyone	64	200	3.1	river			4	no		no		1978	2,000	0	0	0	0	33%	no	200	no	no	individual	100%			1,000	200	
95	Kaguoro	82	300	3.7	spring			3	no		no		1984	5,000	20	1,640	600	15,000	100%	no	300	no	no	individual	100%			1,000	50	
96	Karimaga Young Generation	33	99	3.0	river/spring			6	no		no		2000	5,000						no	300	no	no	individual	100%			2,000	200	
97	Karimaiga Kirimene	200	350	1.8	spring			3	no		no		1987	5,000	30	6,000	4,000	20,000	100%	no	300	no	no	individual	100%			2,000	200	
98	Kithoa	54	200	3.7	spring			3	no		no		1990	5,000	20	1,080	1,000	10,000	37%	no	200	no	no	individual	100%			1,000	200	
99	Muriuki	53	159	3.0	spring	5	5	3	no		no		1993	3,000	0	0	0	2,000	100%	no	100	no	no	individual	100%			3,500	350	
100	Nkoune Mwirine	36	108	3.0	spring	5	1	5	no		no		1978	3,000	0	0	0	14,000	100%	no	100	no	no	individual	100%			4,000	400	
101	Barabi	30	150	5.0	river			4	no		no		1999	10,000	50	1,500	300	15,000	100%	no	50	no	no	individual	100%			1,000	200	
102	Kagwankunguru	30	100	3.3	river			3	no		no		1980	200	20		500		100%	no	500	no	no	individual	100%			1,500	250	
103	Mjini		450		spring								future						4%	no	unboiled	no	no	indiv./kiosk	40%	60%		2,500	300	100
104	Muguna Kithiu	183	915	5.0	spring			4	no		no		1989	965		0	500	10,000	96%	no	200	no	no	individual	100%			1,000	200	
105	Gakurumbi	71	160	2.3	spring			2	yes	Tenri Mission Society	no		1985	8,000	0	0	4,000	21,000	100%	no	300	yes	no	individual	100%			1,000	200	
106	Muguna Mutethia	200	1,200	6.0	river/spring/well			8	no		no		1981	100				21,000	100%	no		no	no	individual	100%			1,000	250	
107	Ngaciuma	20	80	4.0	river			4	no		no		1973	3,000			600	15,000	100%	no	300	no	no	individual	100%			1,000	100	
108	Kairichi	60	500	8.3	river			4	no		no		2001	3,000				2,000		no	100			individual	100%			1,000	200	
109	Koorone	38	200	5.3	river	43	43	3	no		no		1988	2,000	100			500	63%	no	100	no	no	individual	100%			1,000	200	
110	Weru	70	600	8.6	river			4	no		no		future											individual	100%			1,000	200	
111	Karingene	24	360	15.0	spring	23	23	2	no		no		1972	5,000	0			1,000	46%	no	200	no	no	indiv./kiosk	63%	38%		1,000	200	100
112	Mukikimwe	29	130	4.5	river			2	no		no		1987	5,000	50	0	200	2,000	100%	no	150	no	no	individual	100%			1,000	200	
113	Kirugua Kathumbi	100	500	5.0	river			6	no		no		1996	10,500	20	2,000	1,000	3,000	79%	no	150	no	no	individual	100%			2,000	200	
114	Karoro	100	500	5.0	spring			4	no		no		1971	1,000	0	0	1,200	5,000	20%	no	470	no	no	indiv./kiosk	50%	50%		1,000	200	100
115	Kirwiro	63	350	5.6	spring			6	no		no		1998	1,000				2,968	71%	no		yes	no	individual	100%			1,000	200	
116	Ntokangu	25	100	4.0	river			2	no		no		1974	300					44%	no	100	no	no	individual	100%			1,000	200	
117	Gachiege Tiaru	75	250	3.3	spring	23	14	3	no		no		1972	600	0	0	0	600	80%	no		yes	no	individual	100%			1,000	200	
118	Gatemana	206	1,542	7.5	river			4	no		no		1979	3,500	0	0	4,000	21,000	88%	no	231	no	no	individual	100%			1,000	200	
119	Mugambone Kariene	250	800	3.2	river			12	no		no		2000	3,000	60	200				no		no	no	individual	100%			1,500	200	
120	Riiji 'B'	60	200	3.3	river			4	no		no		1976	2,000	10	600	500	12,000	75%	no	300	no	no	indiv./kiosk	58%	42%		2,000	200	100
121	Magundu	400	4,200	10.5	river	182	45	6	yes	CARE, Area Council, NCCK, Canadian Save Children	no		1976	3,600	0	0	500	21,000	88%	no	400	no	no	indiv./kiosk	75%	25%		1,000	200	100
122	Maigene	18	80	4.4	river			3	no		no		1997	7,000	100		200		100%	no	50	no	no	indiv./kiosk	67%	33%		1,500	200	100
123	Nthungu	100	500	5.0	river			4	no		no		1981	2,000				2,500	30%	no	150	no	no	individual	100%			1,000	200	
124	Gachiege Kimanya	28	42	1.5	spring			3	no		no		1997	5,000	30	680	0	0	64%	no	unboiled	no	no	indiv./kiosk	55%	45%		3,000	300	150
125	Kamunyoki	40	94	2.4	spring			4	no		no		1974	6,200	0	0	0	39,000	100%	no	500	no	no	individual	100%			2,000	250	
126	Karikambwii	165	495	3.0	river			4	no		no		1983	10,000	0	0	0	10,000	100%	no	unboiled	no	no	individual	100%			1,000	200	
127	Kithioroka	30			river			4	no		no		2000	5,000	0	0	0	0		no	600			individual	100%			1,000	200	
128	Mkandone	24	54	2.3	spring			3	no		no		1982	4,000	20	480	200	6,800	63%	no	500	yes	no	individual	100%			1,000	200	
129	Abonyaine	44	88	2.0	spring			3	no		no		1991	3,000	20	880	0	500	100%	no	unboiled	no	no	individual	100%			1,000	200	
130	Buurindaja	15	22	1.5	river/spring			4	no		no		1999	20,000	100	1,500	200	5,000	100%	no	800	no	no	individual	100%			2,000	250	
131	Gatakene	8	17	2.1	river			4	no		no		1997	16,000	200	1,600	400	0	75%	no	700	no	no	individual	100%			2,500	300	
132	Giantune	72	243	3.4	river			4	no		no		1973	120				18,000	100%	no	600	no	no	indiv./kiosk	72%	28%		1,000	200	100
133	Giantune Kithima	90	300	3.3	spring	23	23	4	no		no		1994	7,500				15,000	100%	no	600	no	no	indiv./kiosk	30%	70%		2,000	200	100
134	Giantune Matangi	39	117	3.0	spring			3	no		no		1987	15,000	120	4,680	3,000		100%	no		no	no	individual	100%			2,000	300	
135	Kanondone	30	90	3.0	river			3	no		no		1968	2,000	0	0	0	0	100%	no	unboiled	no	no	individual	100%			1,500	200	
136	Kiandiu	40	40	1.0	spring			2	no		no		1985	6,780	0	0		12,000	83%	no	unboiled	no	no	individual	100%			1,000	200	
137	Kithima Inono	22	66	3.0	river/spring			3	no		no		1995	9,000	15	320	300	8,500	100%	no	unboiled	no	no	indiv./kiosk	88%	13%		2,500	200	100
138	Kongo Agaceke Giantune	22	66	3.0	river			3	no		no		1985	2,000	0	0		0	100%	no	unboiled	no	no	individual	100%			1,000	250	
139	Manduru	11	17	1.5	river			6	no		no		1990	1,500				0	45%	no	unboiled	no	no	individual	100%			1,000	200	
140	Matuntukine	78	234	3.0	river			4	no		no		1995	7,000					56%	no	unboiled	yes	no	individual	100%			1,000	200	
141	Miguru	82	167	2.0	river			3	no		no		1972	4,000	0	0	500	6,000	100%	no	700	no	no	individual	100%			2,000	200	
142	Mwichuiri	20	21	1.1	river			4	no		no		2001	5,000				1,000	35%	no	unboiled	no	no	individual	100%			1,500	200	
143	Mworoga	116	150	1.3	spring	114		6	yes	CARE, UNDP	no		1983	3,000				0	0%	no	600	no	no	individual	100%			2,500	250	
144	Ngithiria	72	72	1.0	river			4	no		no		1978	6,000	0	0		1,800	100%	no		no	no	individual	100%			1,000	250	
145	Nkurune	12	17	1.4	river			3	no		no		1972	1,600	0	0	400	0	100%	no	unboiled	no	no	indiv./kiosk	76%	24%		2,000	200	100
146	Gaciunju	45	200	4.4	river			3	no		no		1974	6,000	0	0	500	2,000	100%	no	500	no	no	individual	100%			3,000	250	
147	Gakumbo	300	710	2.4	river			8	yes	CARE	yes	East African Evangelist Enterprise	1976	3,000	20	6,000	5,000	80,000	90%	no	100	no	no	individual	100%			1,000	200	
148	Karimba	12	48	4.0	spring			2	no		no		1999	4,000	0	0	0	0	100%	no	500	no	no	individual	100%			1,000	200	
149	Kiine	22	100	4.5	well			3	no		no		1993	1,500	0	0	100	0	100%	no	400	no	no	individual	100%			2,000	300	
150	Kirimene	30	70	2.3	river/spring			3	no		no		1990	5,000	0	0	500	10,000	100%	no	1,000	no	no	individual	100%			1,000	200	
151	Nkumbo	140	420	3.0	river			3	no		no		1974	3,000	20	2,800	1,200	8,000	100%	no	500	no	no	individual	100%			3,000	400	
152	Ntongoro	30	90	3.0	river			3	no		no		1961	2,100					100%	no	600	no	no	individual	100%			3,000	300	
153	Kithangene	24	68	2.8	spring			3	no		no		1973	5,000	0	0		2,000	100%	no	unboiled	no	no	individual	100%			1,500	250	
154	kiutha	106	157	1.5	spring/well			3	no		no		1975	10,500	0	0	950	15,843	55%	no	unboiled	no	no	indiv./kiosk	67%	33%		1,000	200	100
155	Kiguru Wendani	90	124	1.4	river				no		no		2000	6,000						no				individual	100%			2,000	200	
156	Tangiri	200	450	2.3	river			6	no		no		1989	2,500	50	10,000	1,500	6,000	100%	no	300	no	no	indiv./kiosk	75%	25%		4,000	300	100
157	Muturai Karimaga Ntwiko	76	268	3.5	river/spring			6	no		no		future	440				2,400	0%	no	50	no	no	individual	100%			1,000	200	
158	Kongo Acheke Kirogonyo	66	330	5.0	spring			3	no		no		1979	920	0	0	0	11,000	100%	no		yes	no	individual	100%			3,500	200	