Classification of the water System

Please provide a general classification of water point by these categories.

- ◯ Piped Water Scheme (equipped or piped source)
- ◯ Handpump (equipped Well)
- ◯ Borehole (non-equipped)
- ◯ Shallow Well (bucket and rope)
- ◯ Earth Dam (non-equipped)
- ◯ Sand/Sub Surface Dam (non-equipped)
- ◯ Rock Catchment (non-equipped)
- ◯ Spring (non-equipped)
- ◯ WSP Water Kiosk/StandPipe

Name of WSP owning/managing the Water Kiosk

- ◯ Kitui Water and Sewerage Company
- ◯ Kiambere-Mwingi Water and Sewerage Company
- ◯ Other
- ◯ Don't Know

Enter name of WSP owning/managing the Water Kiosk

Number of Respondents/Participants present

Count all respondents over 18 years of age present for the interview

---

* Introduction: Good morning, my name is and I am carrying out a survey of water schemes/systems in Kitui County.

Please smile and make eye contact...

- ◯ OK

* Topic and Funding: We are researching drinking water supplies in rural areas. The research is a partnership between the Kitui County Government, UNICEF, Oxford University, FundiFix and Rural Focus Ltd., through the REACH programme and supported by the US Government (USAID).

Please smile and make eye contact...

- ◯ OK

* Partners: We are working closely with the Kitui County Government, Sub-County Water Offices and the Kitui County Administrators at all levels and have already spoken with them regarding this survey. In addition, if you ever have any questions about the study or are dissatisfied at any time with any aspect of the study, you could contact the Kitui County Government- Water Department.

Please smile and make eye contact...

- ◯ OK

* Participation: The survey will take several hours as we would like to go into detail about the infrastructure and the management of your water scheme. We would like to meet with the members of the current management committee who are available. Participation is voluntary and is much appreciated as your views are very important. Data will be shared with the County Government and used for water policy development, water investments planning and implementation purposes. You can choose to participate anonymously if you prefer.

Please smile and make eye contact...

- ( ) OK

Do you all (respondent/s) give your informed consent to participate in the survey?

- ( ) Yes
- ( ) No

Can you confirm that there is no Enumerator present for the interview?

Select 'Yes' to confirm AND proceed with the audit. Select 'No' to End this survey.

- ( ) Yes
- ( ) No

» Respondent Details

The Water Audit Tool (Don't know = 8888; No response = 9999)

» Section 1.0: Water Point Location Details

1.1 Name of Water System/Point?

Enter the full name, where relevant as registered.

_____

1.2 Select Sub-County

- ( ) Mwingi West
- ( ) Mwingi Central
- ( ) Kitui West
- ( ) Kitui Rural
- ( ) Kitui Central
- ( ) Kitui East
- ( ) Kitui South

1.3 Select Ward

1.4 Select Village

Specify Other

_____

1.5 Water Point Code (Use the format: Source code/Count to Date. e.g. BH/01)

Options: BH = Borehole; PS = Piped Scheme; SW = Shallow well; SSD = Sand/sub-surface dam; ED = Earth dam/pan; RC = Rock catchment; HP = HandPump; WK = Water Kiosk; SP = Spring

_____

1.6 Group Sketch of the Water Infrastructure

Map the extent of the scheme on a sheet of paper with the participants. Include KEY infrastructure; pipe network, key villages other water sources etc. This should be a quick and dirty sketch and not to scale to save time.

- OK

1.7 What are the main water infrastructure components/features?

Tick all that apply

- [ ] Earth Dam/Water Pan
- [ ] Sand/Sub-Surface Dam
- [ ] Borehole
- [ ] Shallow Well
- [ ] Rock Catchment
- [ ] River/Stream
- [ ] Spring
- [ ] Rainwater Harvesting
- [ ] Infiltration Gallery
- [ ] Treatment/Dosing plant
- [ ] Generator
- [ ] Solar system
- [ ] Wind Power/Generator system
- [ ] National Grid/KPLC
- [ ] Submersible pump
- [ ] Surface pump
- [ ] Bucket and Rope
- [ ] Break Pressure tank
- [ ] Storage tank
- [ ] Cattle trough
- [ ] Distribution Pipeline
- [ ] Water Kiosk
- [ ] Standpipe
- [ ] Meter
- [ ] Piped Connection
- [ ] None
- [ ] Other
- [ ] Don't Know
- [ ] No response

1.8 GPS Location of main site - Borehole site, Generator house etc.

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

latitude (x.y °)

longitude (x.y °)

altitude (m)

accuracy (m)

1.8a Enter longitude (E/W) from Garmin GPS in case tablet GPS is not functioning or inaccurate (>15m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

1.8b Enter latitude (N/S) from Garmin GPS in case tablet GPS is not functioning or inaccurate (>15m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

1.9 Take a picture of the main/source point

1.10 Photo of paper sketch

1.11 Enter GSM Signal strength for Safaricom (enter -dBm units only)

From your android mobile, go to Settings>General>About device>Status

1.12 Enter GSM Signal strength for Airtel (enter -dBm units only)

From your android mobile, go to Settings>General>About device>Status

» Section 2.0: Construction

2.1 In which year was constructed?

yyyy

2.2 What is the source of this information?

- ( ) Actual, from memory
- ( ) Actual, from documentation
- ( ) Estimated
- ( ) Other
- ( ) Don't know
- ( ) No response

Specify other

2.3 Who funded/financed the construction of ?

Tick all that apply

- [ ] Kitui County Government
- [ ] User Community
- [ ] TANATHI Water Services Board
- [ ] World Vision
- [ ] JICA
- [ ] WSTF
- [ ] Constituency Fund (CDF)
- [ ] CARITAS /Catholic Church
- [ ] National Drought Management Authority
- [ ] Ministry of development of Arid lands and Northern Kenya
- [ ] Action Aid Kenya
- [ ] National Water & Pipeline Conservation
- [ ] Kenya Government (GOK)
- [ ] UNICEF
- [ ] DANIDA
- [ ] Anglican Development Services (ADS)
- [ ] Adventist Development Relief Agency (ADRA)
- [ ] Other NGO
- [ ] Other Government
- [ ] Other Donor
- [ ] Other Church/Well Wishers
- [ ] Don't know
- [ ] No response

Specify Other

Please type in name of Other Donor/NGO/Government

2.4 Who were the Contractors Involved in the Construction of ?

Please Tick All Contractors that were engaged.

- [ ] Davis & Shirtliff Ltd
- [ ] Living Water International
- [ ] National Water & Pipeline Conservation
- [ ] Center for Alternative Technologies
- [ ] Drilling for Life
- [ ] Biselex Ltd
- [ ] Kisima Ltd
- [ ] Insta Pumps Ltd
- [ ] Wortech Ltd
- [ ] Other Contractor
- [ ] None (drilled by the Local Community/Individual)
- [ ] Don't know
- [ ] No response

Specify other

2.5 What was the TOTAL Cost of Constructing in Ksh

Key in all values in Kenya Shillings

2.6 What is the source of the cost data

- ( ) Actual, from memory
- ( ) Actual, from documentation
- ( ) Estimated
- ( ) Other
- ( ) Don't know
- ( ) No response

Specify other

2.7 Take a picture of any signboards/branding visible on site

» Section 3.0: Functionality Details

3.1 Which of the following best represents 's operational status?

- ◯ Operational
- ◯ Partly Operational (Sub-optimal)
- ◯ Not-operational
- ◯ Under Construction

3.2 Provide reason why the scheme is partly or non-operational

Please provide as much detail as possible

3.3 Overall condition of the infrastructure of

Please make observation

- ◯ New/Excellent
- ◯ Well Maintained
- ◯ Poorly Maintained
- ◯ Don't Know

3.4 Which specific infrastructure components at are NOT operational or are functioning sub-optimally?

Tick all that apply

- [ ] Earth Dam/Water Pan
- [ ] Sand/Sub-Surface Dam
- [ ] Borehole
- [ ] Shallow Well
- [ ] Rock Catchment
- [ ] River/Stream
- [ ] Spring
- [ ] Rainwater Harvesting
- [ ] Infiltration Gallery
- [ ] Treatment/Dosing plant
- [ ] Generator
- [ ] Solar system
- [ ] Wind Power/Generator system
- [ ] National Grid/KPLC
- [ ] Submersible pump
- [ ] Surface pump
- [ ] Bucket and Rope
- [ ] Break Pressure tank
- [ ] Storage tank
- [ ] Cattle trough
- [ ] Distribution Pipeline
- [ ] Water Kiosk
- [ ] Standpipe
- [ ] Meter
- [ ] Piped Connection
- [ ] None
- [ ] Other
- [ ] Don't Know
- [ ] No response

3.4 Which specific Handpump parts at are NOT operational or are functioning sub-optimally?
Tick all that apply

- [ ] U-Seal
- [ ] Rod-Centralisers
- [ ] O-Rings
- [ ] Rising Main Pipes
- [ ] Bush Bearings
- [ ] Plunger Rods
- [ ] Foot Valve
- [ ] Manilla Rope
- [ ] Pump Rods
- [ ] Fulcrum Pin
- [ ] Hanger Pin
- [ ] Pump Head
- [ ] Pump Pedestal
- [ ] Other

Specify Other

3.5 Please explain current problem with the selected or other components
Explain current issue

3.6 What is the estimated cost of repairing all defects observed (Ksh)

- ◯ No Repairs needed
- ◯ Minor repair, <Ksh 50,000
- ◯ Major repair, >Ksh 50,000

3.7 Please enter any other detail observed on functionality of
Free Text

» Section 4.0: Source Details

4.0.1 What is the water source for

Tick all that apply

- [ ] Earth dam/Water Pan
- [ ] Sand/Sub-Surface Dam
- [ ] Borehole
- [ ] Rock Catchment
- [ ] Shallow Well
- [ ] River/Stream
- [ ] Spring
- [ ] WSP Trunk/Main Pipeline
- [ ] Other

» » Section 4.1: Borehole - Machine drilled

4.1.1 Which Drilling Contractor/Company was engaged for this Borehole?

- ( ) Davis & Shirtliff Ltd
- ( ) Living Water International
- ( ) National Water & Pipeline Conservation
- ( ) Center for Alternative Technologies
- ( ) Drilling for Life
- ( ) Biselex Ltd
- ( ) Kisima Ltd
- ( ) Insta Pumps Ltd
- ( ) Wortech Ltd
- ( ) Other Contractor
- ( ) None (drilled by the Local Community/Individual)
- ( ) Don't know
- ( ) No response

Specify Other

_____

4.1.2 What was the cost of the Drilling only in Ksh?

Excluding all equipping and network works.

_____

4.1.3 What is the Borehole depth (in meters)?

1 Inch = 25.4mm or 2.54cm, 1 Meter = 3.2 Feet

_____

4.1.4 What is the source of your depth data?

- Actual, from memory
- Actual, from documentation
- Estimated
- Other
- Don't know
- No response

4.1.5 Diameter of Borehole casing (in Inches)

1 Inch = 25.4mm or 2.54cm, 1 Meter = 3.2 Feet

4.1.6 What is the water capacity/yield of the Borehole (in M3/Hr)

Don't know = 8888; No response = 9999

4.1.7 Does the borehole have a fixed gantry?

Observe

- Yes
- No

4.1.8 Take a Photo of the source

4.1.9 Map location of the Borehole source

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

latitude (x.y °)

_____

longitude (x.y °)

_____

altitude (m)

_____

accuracy (m)

_____

4.1.9a Enter longitude (E/W) from Garmin GPS in case tablet GPS is not functioning/inaccurate (>15m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

_____

4.1.9b Enter latitude (N/S) from Garmin GPS in case tablet GPS is not functioning/inaccurate (>15m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

_____

» » Section 4.2: Well

4.2.1 Which Drilling Contractor/Company was engaged for this Well?

If manually drilled, select the 'None' option.

- ◯ Davis & Shirtliff Ltd
- ◯ Living Water International
- ◯ National Water & Pipeline Conservation
- ◯ Center for Alternative Technologies
- ◯ Drilling for Life
- ◯ Biselex Ltd
- ◯ Kisima Ltd
- ◯ Insta Pumps Ltd
- ◯ Wortech Ltd
- ◯ Other Contractor
- ◯ None (drilled by the Local Community/Individual)
- ◯ Don't know
- ◯ No response

Specify Other

4.2.2 What was the cost of Drilling only in Ksh?

Excluding cost of all equipping and network works.

4.2.3 What is the Well depth (in meters)?

1 Inch = 25.4mm or 2.54cm, 1 Meter = 3.2 Feet

4.2.4 What is the source of your depth data?

- Actual, from memory
- Actual, from documentation
- Estimated
- Other
- Don't know
- No response

4.2.5 Diameter or Length/Width of the Well (in meters)

1 Inch = 25.4mm or 2.54cm, 1 Meter = 3.2 Feet

4.2.6 Capacity/Yield - how many Seconds does it take you to fill a 20l jerry can

Don't know = 8888; No response = 9999

4.2.7 Does the Well have a fixed gantry?

Observe

- Yes
- No

4.2.8 Take a Photo of the source

4.2.9 Map location of the Well source

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

latitude (x.y °)

_____

longitude (x.y °)

_____

altitude (m)

_____

accuracy (m)

_____

4.2.9a Enter longitude (E/W) from Garmin GPS in case tablet GPS is not functioning/inaccurate (>15m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

_____

4.2.9b Enter latitude (N/S) from Garmin GPS in case tablet GPS is not functioning/inaccurate (>15m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

_____

» » Section 4.3: Sand/Sub-surface dams, Rock catchments, Water pans and Earth dams, Rainwater harvesting

4.3.1 Storage capacity of in M3

In Cubic Meters

_____

4.3.2 Storage capacity data source

- ◯ Actual, from memory
- ◯ Actual, from documentation
- ◯ Estimated
- ◯ Other
- ◯ Don't know
- ◯ No response

4.3.3 Is enough water available all year round?

- ◯ Yes
- ◯ No
- ◯ Don't Know
- ◯ No Response

4.3.4 Which months is there inadequate water availability?

Tick all that apply

- [ ] January
- [ ] February
- [ ] March
- [ ] April
- [ ] May
- [ ] June
- [ ] July
- [ ] August
- [ ] September
- [ ] October
- [ ] November
- [ ] December

4.3.6 Siltation level

Observe

- ( ) No Siltation
- ( ) Quarter Silted
- ( ) Half Silted
- ( ) Three-Quarters Silted
- ( ) Fully Silted
- ( ) Don't Know

4.3.7 Take a Photo of the source

4.3.8 Map location of the Source

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

latitude (x.y °)

longitude (x.y °)

altitude (m)

accuracy (m)

4.3.9a Enter longitude (E/W) from Garmin GPS in case tablet GPS is not functioning/inaccurate (>15m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

4.3.9b Enter latitude (N/S) from Garmin GPS in case tablet GPS is not functioning/inaccurate (>15m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

» » Section 4.4: River/Stream and Springs

4.4.1 Name of the River or Spring

Enter the Official name given.

4.4.2 Estimate the current total available flow from the water source (M3/Hr)

In Cubic Meters per Hour

4.4.3 Source of flow estimate data

- ◯ Actual, from memory
- ◯ Actual, from documentation
- ◯ Estimated
- ◯ Other
- ◯ Don't know
- ◯ No response

4.4.4 Does the water source contain water year-round?

- ◯ Yes
- ◯ No
- ◯ Don't Know
- ◯ No Response

If NO, then during what months does the source have water

- ☐ January
- ☐ February
- ☐ March
- ☐ April
- ☐ May
- ☐ June
- ☐ July
- ☐ August
- ☐ September
- ☐ October
- ☐ November
- ☐ December

4.4.5 Does the flow of water regularly decrease during parts of the year?

- ◯ Yes
- ◯ No
- ◯ Don't Know
- ◯ No Response

4.4.6 During what months does the flow or water level decrease?

- [ ] January
- [ ] February
- [ ] March
- [ ] April
- [ ] May
- [ ] June
- [ ] July
- [ ] August
- [ ] September
- [ ] October
- [ ] November
- [ ] December

4.4.7 Is the quality of the water good enough to use year round?

- ( ) Yes
- ( ) No
- ( ) Don't Know
- ( ) No Response

4.4.8 During what months is the quality NOT good enough to use?

- [ ] January
- [ ] February
- [ ] March
- [ ] April
- [ ] May
- [ ] June
- [ ] July
- [ ] August
- [ ] September
- [ ] October
- [ ] November
- [ ] December

4.4.9 Take a Photo of the source

4.4.10 Map location of the source

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

latitude (x.y °)

longitude (x.y °)

altitude (m)

accuracy (m)

4.4.10a Enter longitude (E/W) from Garmin GPS in case tablet GPS is not functioning/inaccurate (>15m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

4.4.10b Enter latitude (N/S) from Garmin GPS in case tablet GPS is not functioning/inaccurate (>15m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

» » Section 4.5: Alternative Sources of Water

4.5.1 How many alternative sources of water are available to your community

Don't know = 8888; No response = 9999

» » » 4.5.2 Details of the Alternative source/s

» Section 5.0: Power Details

5.0.1 Is the power source system a hybrid system?

Hybrid: Two or more power sources used to provide main and backup power.

- ◯ Yes
- ◯ No

5.0.2 What is the source of power for

- [ ] Generator
- [ ] Solar system
- [ ] National Grid/KPLC
- [ ] Wind Power/Generator
- [ ] Other

5.0.3 Is there a changeover system?

- ◯ Yes
- ◯ No

5.0.4 Is the changeover system operational?

- ◯ Yes
- ◯ No

» » Section 5.1: Generator Details

5.1.1 Generator installation date

Enter the year the current genset was installed

yyyy

5.1.2 Is there a control panel?

Check cabling for connection to panel

- ◯ Yes
- ◯ No

5.1.3 Generator make

Enter Genset brand name

- ◯ Lister Petter
- ◯ Airman
- ◯ Dayliff
- ◯ Parkins
- ◯ Yannan
- ◯ Honda
- ◯ Cummins
- ◯ Powercraft XD
- ◯ Other

Specify other make

Enter Genset brand name

5.1.4 Generator model
Enter model Name/Number

5.1.5 Generator power rating (KVA)
Check the Genset name plate for details

5.1.6 Generator functional hours per day (dry season)
Enter the average number of hours used per day

5.1.7 Generator functional hours per day (wet season)
Enter the average number of hours used per day

5.1.8 Generator's date of last service
Enter date in the format mmm/yyyy

yyyy-mm

5.1.9 Generator frequency of service, every?

- Daily
- Weekly
- Monthly
- Annualy
- Rarely
- Never

5.1.10 Map location of the Generator

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

latitude (x.y °)

longitude (x.y °)

altitude (m)

accuracy (m)

5.1.10a Enter longitude (E/W) from Garmin GPS in case tablet GPS is not functioning/inaccurate (>15m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

5.1.10b Enter latitude (N/S) from Garmin GPS in case tablet GPS is not functioning/inaccurate (>15m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

5.1.10c Photo of the Generator

5.1.11 Please include any other details about the Generator

Free text.

» » Section 5.2: Solar System Details

5.2.1 Solar installation year

Enter the year the current solar system was installed

yyyy

5.2.2 Original number of panels/modules (when they were installed)
Don't know = 8888; No response = 9999

5.2.3 Current number of panels/modules
Please count to confirm

5.2.4 Reason for the missing panels/modules
Tick all that apply

- [ ] Vandalism
- [ ] Theft
- [ ] Structural failure
- [ ] Other
- [ ] None

Specify Other

5.2.5 What is the total solar power rating (Watts)
Sum total Watt rating of individual panel/modules

5.2.6 Solar panels make
Brand Name

- ( ) Shell Solar
- ( ) Yingli
- ( ) Dayliff
- ( ) Lorentz
- ( ) Grundfos
- ( ) Yungi
- ( ) Other
- ( ) Don't Know

5.2.7 Specify Other

5.2.8 Please select connection type

Inspect interconnections between modules, if possible.

- ◯ Series Connection
- ◯ Parallel Connection
- ◯ Don't Know
- ◯ No response

5.2.9 Mounting elevation/height above ground (meters above ground)?

Enter zero (o) for modules at ground level

_____

5.2.10 Is there a battery?

- ◯ Yes
- ◯ No

5.2.11 Battery capacity (Voltage)

_____

5.2.12 Is there an inverter/control box

- ◯ Yes
- ◯ No

5.2.13 Make of the inverter/control box

- ◯ Shell Solar
- ◯ Yingli
- ◯ Dayliff
- ◯ Lorentz
- ◯ Grundfos
- ◯ Yungi
- ◯ Other
- ◯ Don't Know

Specify Other

_____

5.2.14 Is there a Solar PV disconnect switch (isolator)?

- ◯ Yes
- ◯ No

5.2.15 Functional hours per day (dry season)

Enter the average number of hours that sufficient solar irradiation is available.

_____

5.2.16 Functional hours per day (wet season)
Enter the average number of hours that sufficient solar irradiation is available.

5.2.17 Have you ever experienced any of the following in relation to the solar system?
Tick all that apply

- [ ] Vandalism
- [ ] Theft
- [ ] Structural failure
- [ ] Other
- [ ] None

Specify Other

5.2.18 Are the solar panels secure? e.g. high up, secured with bolts/locks etc.
Make observation and answer based on your judgement.

- ( ) Yes
- ( ) No

5.2.19 Please include any other observed detail about the solar system
Free text.

5.2.20 Take a photo of the solar panels

5.2.21 Take a photo of the mounting structure

5.2.22 Take a photo of the other solar components/accessories
Inverters, Disconnect switch etc.

5.2.23 Please collect GPS coordinates of the solar system location

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

latitude (x.y °)

longitude (x.y °)

altitude (m)

accuracy (m)

5.2.23a Enter longitude (E/W) from Garmin GPS in case tablet GPS is not functioning/inaccurate (>10m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

5.2.23b Enter latitude (N/S) from Garmin GPS in case tablet GPS is not functioning/inaccurate (>10m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

» » Section 5.3: National Grid Power

5.3.1 When was connected to the national grid?

yyyy

5.3.2 When there is a problem with the power supply/electricity meter, who fixes it?

- [ ] Kenya Power Ltd
- [ ] Local Fundi/Electrician
- [ ] Sub-County Officer
- [ ] Kitui County Water Officer
- [ ] Other
- [ ] Don't Know

5.3.3 Has ever been disconnected for not paying the electricity bill on time?

- ( ) Yes
- ( ) No

5.3.4 Roughly how many days in a week do you experience power outage?
Average days per week

5.3.5 How many hours long are the outages on average per day
Average hours per day

5.3.6 Please include any other observed detail about the National Grid power source
Free text.

5.3.7 Take a photo of the control box/meter/other relevant infrastructure

» » Section 5.4: Wind Power/Generator

5.4.1 Wind mill/power installation date
Enter the year the windmill plant was installed

yyyy

5.4.2 Wind mill/power make
Enter Wind power/generator brand name

5.4.3 Wind mill/power power rating (KVA)
Check the Wind power/generator name plate for details

5.4.4 Wind mill/power functional hours per day
Enter the average number of hours used per day

5.4.5 Windmill's date of last service
Enter date in the format mmm/yyyy

yyyy-mm

5.4.6 Wind mill/power frequency of service, every?

- ◯ Daily
- ◯ Weekly
- ◯ Monthly
- ◯ Annualy
- ◯ Rarely
- ◯ Never

5.4.7 Map location of the Generator

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

latitude (x.y °)

longitude (x.y °)

altitude (m)

accuracy (m)

5.4.7a Enter longitude (E/W) from Garmin GPS in case tablet GPS is not functioning/inaccurate (>15m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

5.4.7b Enter latitude (N/S) from Garmin GPS in case tablet GPS is not functioning/inaccurate (>15m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

5.4.8 Photo of the Generator

5.4.9 Please include any other details about the Generator

Free text.

» Section 6.0: Pumping Mechanism

6.0.1 Total number of Surface Water Pumps currently installed at
Currently installed or Connected to network.

1

6.0.2 Total number of Submersible Water Pumps currently installed at
Currently installed or Connected to network.

» » Section 6.1: Submersible Pump

» » Section 6.2: Surface Pump

» Section 6.3: Handpump

6.3.1 Type of handpump
Inspect HP Name plate for details

- ○ Afridev
- ○ India Mark II
- ○ Blue Pump
- ○ Other

Specify Other type

6.3.2 Pump installation depth (in metres)
1 Inch = 25.4mm or 2.54cm, 1 Meter = 3.2 Feet

6.3.3 Number of rods installed
Don't know = 8888; No response = 9999

6.3.4 Who manages this

- ◯ Community-based organisation/Self-Help group
- ◯ Private Owner
- ◯ Contracted Private Operator
- ◯ Water Service Provider
- ◯ School
- ◯ Clinic or Hospital
- ◯ External supporting partner or NGO
- ◯ County Government
- ◯ National Government
- ◯ Other

6.3.5 Approximately how many Households/people on average use this Handpump?
Don't know = 8888; No response = 9999

_____

6.3.6 Please select User units

- ◯ Individuals
- ◯ Households

6.3.7 Does the Handpump supply water year-round (source reliability) ?
Assuming the pumping mechanism is working.

- ◯ Yes
- ◯ No

6.3.8 If no, in which months is there inadequate/decreased water supply?
Tick all that apply

- ☐ January
- ☐ February
- ☐ March
- ☐ April
- ☐ May
- ☐ June
- ☐ July
- ☐ August
- ☐ September
- ☐ October
- ☐ November
- ☐ December

6.3.9 Please include any other details about the handpump

Free text.

6.3.10 Take a picture of the full Handpump structure

Photo of Handpump

6.3.11 GPS location of the Handpump

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

latitude (x.y °)

longitude (x.y °)

altitude (m)

accuracy (m)

6.3.11a Enter longitude (E/W) from Garmin GPS in case tablet GPS is not functioning/inaccurate (>15m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

6.3.11b Enter latitude (N/S) from Garmin GPS in case tablet GPS is not functioning/inaccurate (>15m)

Ensure Datum is set at WGS 84 and units are in decimal degrees (format dd.ddddd)

» Section 7.0: Pipeline and Metering

7.1 Is there a Main/Bulk meter installed?

- ◯ Yes
- ◯ No

7.2 Location of main/bulk meter

- Inside pumphouse
- Outside pumphouse (Housed)
- Outside pumphouse (NOT Housed)
- Other

Specify Other main meter location

7.3 Size of the meter (in Inches)

1 Inch = 25.4mm or 2.54cm, 1 Meter = 3.2 Feet

7.4 Current reading of the meter (in cubic meters)

Observe to Confirm. Read Black digits only!!

7.5 Take a photo of the Bulk/Main meter

7.6 How often are readings taken and recorded?

- Daily
- Weekly
- Monthly
- Annualy
- Rarely
- Never

7.7 Do you have records of the main meter readings for the past year?

- Yes
- Yes - Partial
- Yes, but Not Available
- No

7.8 Bulk/Main meter readings for the last one Year

Please enter main/bulk meter reading for the 1st of the month.

2017-11-01 00:00:00

2017-10-01 00:00:00

2017-09-01 00:00:00

2017-08-01 00:00:00

2017-07-01 00:00:00

2017-06-01 00:00:00

2017-05-01 00:00:00

2017-04-01 00:00:00

2017-03-01 00:00:00

2017-02-01 00:00:00

2017-01-01 00:00:00

2016-12-01 00:00:00

2016-11-01 00:00:00

2016-10-01 00:00:00

7.9 Total length of the scheme pipeline in Kilometres

Estimated total length from start to end node.

7.10 Pipe material used to construct

Tick all that apply

- [ ] uPVC
- [ ] Galvanised Iron
- [ ] PPR pipes
- [ ] HDPE/PE pipes
- [ ] Other Pipe
- [ ] Don't Know

7.11 Water distribution pressurised by

- ( ) Pumping
- ( ) Gravity flow
- ( ) Combination of Both

7.12 How many non-return valves are installed?

Don't know = 8888; No response = 9999

7.13 Total number of client/user/customer meters installed at

Both Functional and Non-functional meters installed, excluding the main/bulk meter.

7.14 Number of Kiosks + Standpipes connected

Don't know = 8888; No response = 9999

7.15 How many of the # Kiosks + Standpipes have WORKING meters?

Don't know = 8888; No response = 9999

7.16 Number of Schools connected
Don't know = 8888; No response = 9999

7.17 How many of the # school connections have WORKING meters?
Don't know = 8888; No response = 9999

7.18 Number of Clinics/Dispensaries/Hospitals connected
Don't know = 8888; No response = 9999

7.19 How many of the # clinics/dispensaries/hospitals have WORKING meters?
Don't know = 8888; No response = 9999

7.20 Number of Private/Household connections
Don't know = 8888; No response = 9999

7.21 How many of the # private/household connections have WORKING meters?
Don't know = 8888; No response = 9999

7.22 What is the total number of meters not operational at ?
Don't know = 8888; No response = 9999

7.23 Please include any other details about the meters
Free text.

7.24 Please include any other details about the pipeline/distribution grid
Free text.

» Section 8.0: Storage Tanks

8.1 How many storage tanks are in the scheme?
Don't know = 8888; No response = 9999

» » 8.2 Storage Tank Details

» Section 9.0: Water Kiosks and Stand Pipes

9.1 Total number of kiosks in
Don't know = 8888; No response = 9999

9.2 Number of Kiosks operational
Don't know = 8888; No response = 9999

9.3 Total number of standpipes in
Don't know = 8888; No response = 9999

9.4 Number of operational Standpipes
Don't know = 8888; No response = 9999

» » Section 9.5: Water Kiosks

» » Section 9.6: Standpipes

» Section 10: Maintenance History

10.1 What operational tasks do you carry out on a regular basis?
Do Not Prompt: Select all that apply.

- [ ] Pump Operation
- [ ] Generator operation
- [ ] Cleaning of Kiosks and pumphouse
- [ ] Record keeping
- [ ] Water distribution/Valves operation
- [ ] Water treatment
- [ ] Other
- [ ] None

Specify the other tasks
Free text.

10.2 What preventive maintenance tasks do you carry out on a regular basis?
Do Not Prompt: Select all that apply.

- [ ] Servicing of Genset
- [ ] Cleaning of solar panels/
- [ ] Check for defects in pumphouse and fuel storage
- [ ] Servicing of pump
- [ ] Reading and recording current or voltage to pump
- [ ] Pipeline inspection for leaks
- [ ] Inspection and reading of water meters
- [ ] Storage tanks inspection for defects and leaks
- [ ] Other
- [ ] None

Specify the other tasks
Free text.

10.3 Do you choose to close/stop operations at certain times of year?

- ◯ Yes
- ◯ No

10.4 In which months do you choose to close the supply system?

- [ ] January
- [ ] February
- [ ] March
- [ ] April
- [ ] May
- [ ] June
- [ ] July
- [ ] August
- [ ] September
- [ ] October
- [ ] November
- [ ] December

10.5 Why do you choose to close the system at this time?
DO NOT PROMPT: SELECT ALL THAT APPLY

- [ ] Other sources of water available
- [ ] Low demand
- [ ] Source depletion
- [ ] Operator Leave/Holiday
- [ ] Can't afford to keep system running
- [ ] Other

10.6 Do you have any spare parts available?

- ◯ Yes
- ◯ No

10.7 What spare parts do you have? (Spare Part 1)
DO NOT PROMPT

10.8 What spare parts do you have? (Spare Part 2)
DO NOT PROMPT

10.9 What spare parts do you have? (Spare Part 3)
DO NOT PROMPT

10.10 What spare parts do you have? (Spare Part 4)
DO NOT PROMPT

10.11 What spare parts do you have? (Spare Part 5)
DO NOT PROMPT

How many scheme breakdowns have you experienced in the last 2 years?

» » 10.12 Beginning with the most recent, provide details of the last # breakdowns/interruptions

» Section 11.0: Water Quality

11.1 How is the appearance of the water supplied by ?

- ◯ Clear
- ◯ Very Cloudy
- ◯ Slightly Cloudy
- ◯ Deep Brownish
- ◯ Slightly Brownish
- ◯ Don't Know
- ◯ No sample available

11.2 How is the taste of the water supplied by ?

1-Good 2-Average 3-Bad

11.3 Do you or anybody else monitor the water quality from this scheme?
i.e. periodically collects samples and tests for chemical/biological characteristics

- ◯ Yes
- ◯ No

11.4 Who monitors the water quality?

- ☐ Current Management Committee
- ☐ Sub-County officials
- ☐ County officials
- ☐ National officials
- ☐ NGO or development partner
- ☐ Other

Specify Other quality monitor

11.5 Do you consider the water from this source safe for drinking?

- ◯ Yes
- ◯ No

11.6 Are you aware of any water quality concerns from this source?

- ◯ Yes
- ◯ No

11.7 Please provide details of these water quality concerns

Please enter details here.

11.8 Is the water treated before distribution to users/people?

- ◯ Yes
- ◯ No

11.9 What treatment techniques are used?

Select all that apply

- ☐ Reverse Osmosis
- ☐ Chlorination
- ☐ Filtration
- ☐ Flocculation (Alum treatment)
- ☐ Sedimentation
- ☐ Other

11.10 Take a sample of water and test it for EC (milliSiemen)

1000microS = 1milliS

11.11 Take a sample of water and test it for TDS (ppt)

1000ppm = 1ppt

11.12 Take a sample of water and test it for pH

Ph Units, use the meter provided

11.13 Take a sample of water and test it for Temperature (Degrees centigrade)

Use the meter provided, Enter units of measure

» Section 12.0: Management

12.1 Who manages/operates the scheme/water project?

Select all that apply. Manages/operates means overseeing operations, repair, maintenance etc.

- ◯ Community-based organisation/Self-Help group
- ◯ Private Owner
- ◯ Contracted Private Operator
- ◯ Water Service Provider
- ◯ School
- ◯ Clinic or Hospital
- ◯ External supporting partner or NGO
- ◯ County Government
- ◯ National Government
- ◯ Other

If other, include details here

12.2 What is the name of the Water Service Provider?

Enter official name

12.3 Is there a management committee?

- ◯ Yes
- ◯ No

» » 12.4 Management Committee Details

12.4.1 How long has this committee been in place? (years)

12.4.2 How many women are in the management committee?
Don't know = 8888; No response = 9999

12.4.3 How many men are in the management committee?
Don't know = 8888; No response = 9999

12.4.4 In the past year, how many meetings did the committee hold to discuss matters relating to this water scheme?
Don't know = 8888; No response = 9999

12.4.5 Date of last meeting
Please enter 1st of the month if unsure of exact day/date

yyyy-mm

12.4.6 Are the Minutes from last meeting available?

- Yes
- No

12.4.7 Ask to see the minutes and take a photo
Take a photo of the document

12.4.8 Ask to see the minutes and take a photo
Take a photo of the document

12.4.9 Ask to see the minutes and take a photo
Take a photo of the document

» » 12.5 CBO / Self-Help Group Details

12.5.1 What is the name of the CBO/Self-Help group?
Enter official name

12.5.2 Does the CBO/Self-Help group have a registration certificate?

- ◯ Yes
- ◯ No

12.5.3 Does the CBO/Self-Help group have a constitution?

- ◯ Yes
- ◯ No

12.5.4 Ask to see the Registration Certificate/Constitution and take a photo

12.5.5 Do you have an annual budget and plan for the water scheme?

- ◯ Yes
- ◯ No

12.5.6 Ask to see the Annual Plan/Budget and take a photo

12.5.7 Does the water scheme have members or shareholders?

- ◯ Yes
- ◯ No

12.5.8 How many members or shareholders are there in total?

Don't know = 8888; No response = 9999

_____

12.5.9 How do you communicate with members and other water users?

DO NOT PROMPT. Select all that apply

- ☐ Members (special) meetings
- ☐ SMS/Letters to individual members
- ☐ Posters/Notices
- ☐ Word of mouth
- ☐ Annual General Meeting
- ☐ Other
- ☐ No communication

12.5.10 When was the last members meeting?

Please enter 1st of the month if unsure of exact day/date

yyyy-mm

_____

12.6 Who currently owns the land that the infrastructure is situated on?
DO NOT PROMPT. Select all that apply

- [ ] Community-based organisation/Self-Help group
- [ ] Private Owner
- [ ] Contracted Private Operator
- [ ] Water Service Provider
- [ ] School
- [ ] Clinic or Hospital
- [ ] External supporting partner or NGO
- [ ] County Government
- [ ] National Government
- [ ] Other

12.7 Include any details or disputes/issues of ownership arrangements
E.g.. CBO is in land disputes with private individuals, or owes them money from pending land purchase.

12.8 Has the system been expanded since installation?

- ( ) Yes
- ( ) No

12.9 Add details of any such expansion
E.g.. no. of new connections, km of new pipeline, no. of new kiosks

12.10 Are there plans to expand the system?

- ( ) Yes
- ( ) No

12.11 Add details of the planned expansion
E.g.. no. of new connections, km of new pipeline, no. of new kiosks, new villages served

12.12 How many people are employed in operating the ?
Don't know = 8888; No response = 9999

» » 12.13 Staff Details

12.14 Is there an active (in use) bank account for ?

- ◯ Yes
- ◯ No

12.15 What is the current balance in the bank account/savings?

Enter the value in Kenyan shillings

_____

12.16 Take photo 1 of the constitution

Take photos of these documents

12.16a Take photo 2 of the constitution

Take photos of these documents

12.16b Take photo 3 of the constitution

Take photos of these documents

12.17 Please can I see the registration certificate?

Take photos of these documents

12.18 Please can I see the bank statement?

Take photos of these documents

» Section 13.0: Users (For numeric answers, Don't know = 8888; No response = 9999)

13.1 What is the water collected from used for by users?

Select all that apply

- ☐ Drinking
- ☐ Cooking
- ☐ Bathing
- ☐ Washing
- ☐ Livestock
- ☐ Irrigation
- ☐ Brick-making or construction
- ☐ Other

Other water use

13.2 How many people use this water supply
Total/Sum of all users

13.3 Please select the unit of measure

- ◯ Individuals
- ◯ Households

13.4 How many villages use this water supply
Total/Sum of all villages

13.5 What is the average/estimated population of each Village
Estimated population of each Village

13.6 What is the furthest distance (one-way, Km) that people travel from?
For distance, enter '0' if a piped/yard connection

13.9 How many Camels use this water supply?
Estimated average heads of livestock

13.10 How many Donkeys use this water supply?
Estimated average heads of livestock

13.11 How many Cattle use this water supply?
Estimated average heads of livestock

13.12 How many Sheep/goats use this water supply?
Estimated average heads of livestock

13.13 Other Animals served and their number
Estimated average heads of livestock

13.14 How many days per week is water available?
Answer for an average week with no breakdowns

13.15 How many hours per day is water available?
Answer for an average day with no breakdowns

13.16 Please provide any other detail on water users.
Free text.

» Section 14.0: Commercial Operations

14.1 What tariffs are charged for water to MEMBERS?
Please enter the amount in Kenyan shillings

14.2 Please provide the unit of measure for MEMBERS

- ◯ Per 20l Jerry can
- ◯ Per Month
- ◯ Per Year
- ◯ Per Visit to water source
- ◯ Per Cubic meter (m3)
- ◯ Per other measure

Specify Other unit of measure for MEMBERS

14.3 What tariffs are charged for water to NON-MEMBERS?

Please enter the amount in Kenyan shillings

14.4 Please provide the unit of measure for NON-MEMBERS

- ◯ Per 20l Jerry can
- ◯ Per Month
- ◯ Per Year
- ◯ Per Visit to water source
- ◯ Per Cubic meter (m3)
- ◯ Per other measure

Specify Other unit of measure for Non-Members

14.5 Tariff for Cattle (head) in Ksh

Please enter the amount in Kenyan shillings

14.6 Please provide the unit of measure for Cattle

- ◯ Per Cattle = 20l
- ◯ Per Cattle per Month
- ◯ Per Cattle per Month
- ◯ Per Cattle per Visit
- ◯ Per Cubic meter (m3)
- ◯ Per other measure

Specify Other unit of measure for cattle here

14.7 Tariff for Sheep/goat (head) in Ksh
Please enter the amount in Kenyan shillings

14.8 Please provide the unit of measure for Sheep/Goat

- ◯ Per Shoat = 20l
- ◯ Per Shoat per Month
- ◯ Per Shoat per Year
- ◯ Per Shoat per Visit
- ◯ Per Cubic meter (m3)
- ◯ Per other measure

If other, enter the unit of measure for shoats here

14.9 Tariff for Private connection in Ksh
Includes Schools and Institutions connected.

14.10 Please provide the unit of measure for a Private Connection

- ◯ Per 20l
- ◯ Per Month
- ◯ Per Year
- ◯ Per Cubic meter (m3)
- ◯ Per other measure

If other, enter the unit of measure for private connections here

14.11 What is the average monthly income of the water scheme?
Please enter the amount in Kenyan shillings

14.12 Is it possible for users to buy water on credit and pay later?

- ◯ Yes
- ◯ No

14.13 What percentage (%) of total revenues are collected each month?

Ask the respondents to provide an estimate based on their knowledge of water sold vs payments at kiosks, by schools, clinics and private household

- ◯ 81-100 Percent
- ◯ 61-80 Percent
- ◯ 41-60 Percent
- ◯ 21-40 Percent
- ◯ 0-20 Percent
- ◯ Don't Know

14.14 In an average month, how much do you spend on Wages and Salaries (Ksh)

Don't know = 8888; No response = 9999

_____

14.15 In an average month, how much do you spend on Diesel/electricity (Ksh)

Don't know = 8888; No response = 9999

_____

14.16 In an average month, how much do you spend on Maintenance (minor repairs/replacements)

e.g. pipe bursts, valve repairs, servicing (ksh)

_____

14.17 In an average month, how much do you spend on Administration (ksh)

e.g.. books, pens, transport, phone etc.

_____

14.18 In an average month, how much do you spend on Committee/Management costs (Ksh)

e.g.. meeting allowances, dividends etc.

_____

14.19 In an average month, how much do you spend on Chemicals (Ksh)

e.g.. chlorine, Soda, Alum

_____

14.20 Other expense (Ksh)

Don't know = 8888; No response = 9999

_____

Specify Other expense category

_____

14.21 Are all expenditures above supported by receipts or vouchers???

- ◯ Yes
- ◯ No

14.22 In an average month, how much money do you save (Ksh)?

Balance after paying for all expenses in a given month

_____

14.23 Where do you keep/store your savings?

- ☐ Bank Account
- ☐ Mpesa/Mshwari Account
- ☐ Cash stored by Committee
- ☐ Cash stored by local Administrator
- ☐ Cash stored in a Safe
- ☐ Community Savings Group/Merry-go-round
- ☐ Other

Specify Other savings approach used

_____

If in Bank/Mpesa Account, please provide Bank name and branch and the Account No

_____

If in a Bank/Mpesa, how regularly do you deposit money/revenue collection to your bank account??

Please type in details provided. For Mpesa, enter till/paybill/sim number.

- ◯ Daily
- ◯ Weekly
- ◯ Monthly
- ◯ Annualy
- ◯ Rarely
- ◯ Never

14.24 In the last year/12months, how much did you spend on Major repairs/replacements
e.g. of pump, genset, motor etc. (Do not include any external funding e.g.. Unicef, County Government)

_____

14.25 In the last year/12months, how much did you spend on Loan repayments
Don't know = 8888; No response = 9999

_____

14.26 In the last year/12months, how much did you spend on Expansion of the network
i.e. new pipeline/extensions

_____

14.27 Do you keep records/accounts of your income and expenditure?

- ◯ Yes
- ◯ No

14.28 Is there a regular audit to establish correctness of the scheme's income and expenditure record, by an independent party?
Independent verification by someone other than the one who collects and/or spends.

- ◯ Yes
- ◯ No

14.29 Who conducts such audits
Someone other than the one who collects and/or spends.

- ◯ Scheme Members
- ◯ Scheme Committee Members
- ◯ Village/Ward administrator
- ◯ sub-County Water Office
- ◯ Independent Auditor
- ◯ Other

Specify Other Auditor

_____

14.30 What is the frequency at which the audits are conducted?
Select One

- ◯ Daily
- ◯ Weekly
- ◯ Monthly
- ◯ Bi-Annual
- ◯ Annual
- ◯ Random/Irregular

14.31 Please could I see your income and expense records and take a photo of them?

Photo of financial records

14.32 Photo of financial records

Photo of financial records

14.33 Photo of financial records

Photo of financial records

14.34 Photo of financial records

Photo of financial records

14.35 Photo of financial records

Photo of financial records

» Section 15.0: FundiFix Limited

15.1 Have you heard of the maintenance services company - FundiFix Ltd.?

- Yes
- No

Introduction: FundiFix limited is a local company that carries out repairs and maintenance of water systems, including handpumps, generators, pipeline, submersible pumps, solar systems etc. In partnership with the County Government, they are already offering maintenance services for water systems to individuals, institutions and communities in Kitui County. FundiFix also provides training for operators and regular servicing of gensets, electricals and pumps which makes them last much longer. would pay about one third of monthly revenues for the service, and FundiFix would repair regular system breakdowns on time. The County Government and other Donors would top up your contribution to cover the full cost of the repairs. Here is the Contact information of FundiFix Office and feel free to call them any time.

Dish out the FundiFix business card.

- OK

15.2 Would you be interested in the FundiFix maintenance service?

- Yes
- No

15.3 Are you willing to pay approximately a third of your revenues on a monthly basis for maintenance and repairs services?

Provide an example - say, if a scheme collects Ksh 30,000 in revenues monthly, a third will be equivalent to Ksh 10,000

- Yes definitely
- Yes but cost too high
- No

15.4 How much would you be willing to pay Monthly for this service? (in Kshs)

Don't know = 8888; No response = 9999

Thank you for your responses. If you are interested, FundiFix staff will contact you soon to discuss more.

- OK

End of the Survey

Cross-checks: Make sure your have taken photos of ALL infrastructure components and GPS coordinates where required. If not, please scroll back and forth to update all information on the questionnaire.

- OK

Conclusion: Thank the participants for their time and help with this survey. Please let participants know that the information they have provided will be used to inform improved water services delivery by the Kitui County Government. Submit your survey form and move to the next water scheme.

- OK

Conclusion: Thank the participants, if present, for their time and help with this survey then Submit this form and travel to the next water scheme/source.

- OK