

APPENDIX 3. WATER COMMITTEE DOCUMENT

Water Committee User Manual

<This is the working document that is given to the Water Committee>

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I. Introduction: Responsibilities, Policies, and Roles

II. Treasurer

III. A. Water Administration and Conservation Plan

B. Physical System

I. Water Committee Responsibilities, Policies, and Roles :

• Water Committee Responsibilities

1. Develop a document stating the policies. The community should make these decisions, but the committee is responsible for bringing them up in a community meeting and recording the decisions in an official water document. Eventually, these should be put into a pamphlet that the water committee will “publish” and distribute (as stated at the end of the *Management Plan* document).
2. Maintain system: Inspect and repair the system regularly. Test and clean tanks yearly.
3. Plan and oversee new installation and repairs of the system. Assure that the materials used are adequate and consistent with what's currently in place.
4. Hold a monthly meeting at which,
 - a. The monthly water fee is collected and recorded by the treasurer.
 - b. The committee reports on the system (problems, changes, ask for reports from community members?) and on the budget (total funds, expenditures, late fees?). The Secretary records minutes.
5. Keep records (see Secretary and Treasurer):
 - users
 - repairs, changes/ improvements, cleanings, inspections, and test results
 - meeting minutes
 - financial records (by treasurer)

• Seven Basic Policies

1. How is the water committee chosen and how long are terms? Suggest at least two year term and staggering changes membership.
2. The New User Agreement: how does someone become a member of the system?
3. What will be the regular monthly fee? How and when will it be collected?
4. Under what circumstances will the community assess a one-time fee (ex. for a big project)?
5. Is the plumber or anyone else to be compensated? How?
6. What happens if
 - someone does not pay
 - someone intentionally damages the system

- someone wastes water and what does it mean to waste water (ex. have the tap on with nobody around). How will this be enforced?

7. Regular maintenance schedule: When will the tanks be cleaned and the Leak Tests 1 and 2 and the tank flow test performed (1x per year)? When will the inspections (4x per year) be done?

- **Roles**

- **President:**

1. Make sure the Water Committee is functioning properly: For example, if the system is broken and does not get fixed, if community members have complaints that are not heard, or if the accounting is not being documented adequately then SOMEONE is not doing their job or SOMETHING is wrong. It's the President's job to figure out the problem and get on someone's case or address the issue. The President is ultimately responsible.
2. Make sure that the water committee is on the agenda at monthly community meetings. Assure that fees are collected and that the finances are reported to the community. Sign treasurer's ledger
3. Visioning and Planning (budgeting for future projects or expansion)
4. Coordinate with community leaders to plan (ex. meetings, mingas, budgeting, etc.)

- **Vice President:**

- The Vice-President can fill in the role of any member of the Water Committee who is absent. Therefore it is important that the Vice-President know about everyone's jobs and assist the treasurer training to be able to use the treasurer's ledger.

- **Secretary:**

1. Record meeting minutes (acta): Date of meeting, decisions made, vote outcomes, reports or news given.
2. Dates and descriptions of any system work including additions, repairs, tests, and cleanings
3. Keep official documents: List of Users, Policies, Plans/ Maps

- **Treasurer:**

1. Record all finances in a finance book.
2. MAKE RECORDS PUBLIC: ANYONE HAS ACCESS TO SEE THEM ANY COMMUNITY MEETING
3. Collect the monthly fee
4. Give monthly report to community on the finances at each meeting: total funds, recent expenditures.
5. Train future treasurers

Presentation Ideas:

-Do example income and expenditure with the community

-Skit where X is accused of not paying his monthly fee because he was not at the meeting. They go to the treasurer to look it up and find that he had already paid the month before because he knew he would be gone.

- **Maintenance Person (Operador/ Gaspitero)**

1. Regular System inspections, tests, and cleaning
2. Repair any problems with the system.
3. Oversee any installations or changes to the system.
4. Train future maintenance people

II. Treasurer Training

Here is an example of the money collection chart and the expenses/ revenues chart.

2010

Username	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	total
Alfonso													
Fue													
ThaiMua													
Laurie													
total													

Date	Revenue	Expense	Balance		Paid to	Service/Product	Receipt #	Signature of President
November			850	00				
Aug 1	44	--	<u>+44</u>	<u>00</u>	--	Monthly fee	--	signature
			=894	00				
Aug 1	--	5	<u>-5</u>	<u>00</u>	Maintenance person	Monthly pay	--	
			=889	00				
Aug 12	--	2,45	<u>-2</u>	<u>45</u>	Kimpet's Hardware	½" GS spigot	1	
			776	55				
Aug 26	--	440	<u>-440</u>	<u>00</u>	Kimpet's Hardware	GS tap materials, cement, rebar	2	
			336	55				
Sept 1	42	--	<u>+42</u>	<u>00</u>		Monthly fee	--	signature
			378	55				
Sept 1	--	5	<u>-5</u>	<u>00</u>	Maintenance Person	Monthly pay	--	
			373	55				
More examples								

2011

Username	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	total
Alfonso													
Fue													
ThaiMua													
Laurie													
total													

Date	Revenue	Expense	Balance	Paid to	Service/Product	Receipt #	Signature of President
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III. Water Administration Plan

A. The Water Committee and the Users must:

1. Establish the system rules and form a water committee in accordance with the topics above (the rest of this document).
2. Make sure that all members of the community have the right to be part of the system and if there is not enough water for everyone to try to find solutions (new sources, more storage, etc.)
3. Assure that the rules are followed.
4. Publish a pamphlet with all of the information that a user might need: The rules, how to pay, who are the water committee members and until when, etc.
5. Explain how the community should conserve water and make sure that everyone does conserve
Water conservation – is the efficient and appropriate use of water without waste.
 - A. System water conservation is the responsibility of the water committee
 1. Assure that all community lines are in good repair.
 2. Assure that tanks are not leaking
 3. Make sure that no one is wasting water.
 4. Assure that all users have properly installed and operating tap lines, spigots and meters.
 5. The committee should provide the user with education on water conservation.
 - B. Family water conservation
 1. Each family is responsible for the maintenance of their tap line, spigot and meter.
 2. Each family must make sure that they do not waste water by letting spigots run or excessive use of water for non-household uses.

B. Administration of the Physical System:

Components include pipelines, storage and pressure tanks, diversion or capture structures, valves, and tap stands or basins. The committee,

The operator (or maintenance person), with the support of the community and the water committee, is responsible for...

1. Making sure that the system components are maintained regularly: inspections, cleaning the tanks, system tests.
2. Make sure the problems like pipe breaks get reported and fixed quickly.
3. Make sure the pipe is buried well
4. Responsible for any construction. This includes replacement of old system parts and expansions or improvements of the system.

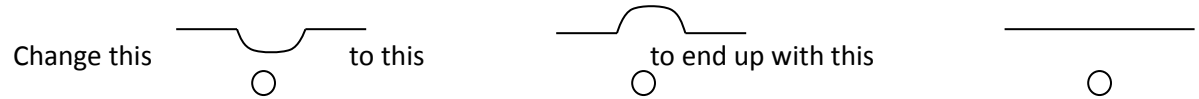
Guidelines for construction and maintenance of system components.

1. Pipeline – keep pipe covered
 - a. All pipe is to be buried a minimum 50 cm below the ground surface.
 - b. Any pipe that is not buried at 50cm should be fixed using one of these methods.
 1. Dug up and reburied
 2. Rock bridge constructed around the pipe and then buried with dirt to protect the pipe.



or

- c. If there is a depression around the pipe (trench) path it should be filled with dirt until a “mound” is created.



2. Pipeline – repairing breaks and new construction
 - a. PVC primer and glue should be used on all PVC pipe joints
 - b. Compression fitting should be use on all black plastic pipe (HDPE)
 - c. Leaks in the system should be immediately reported and repaired. It is the responsibility of everyone in the community to report problems.
 - d. All construction and repairs should supervised by the trained maintenance person.
 - e. Only high quality materials approved by the maintenance person can be used repair the system. Materials are purchased by the water committee or the maintenance person.
 - f. Installation of new taps should be supervised by the maintenance person to assure it is done correctly. Only use quality materials similar to those used in the rest of the system.
 - g. The water committee should help homeowners repair poorly installed or broken taps
3. Storage and pressure break tanks.
 - a. If the flow needs to be turned off, on, or adjusted only the water committee, maintenance person or a person assigned to the job can adjust valves.
 - b. All tanks should have tight sealing lids.
 - c. Only the maintenance person should remove the tank lid. Children should not play on the tank.
4. Spring and stream diversions
 - a. All spring or stream sources should be protected from human or animal contamination.
 - b. If possible the source structure should be covered with a sealed lid.
 - c. An area at least five meters from all edges of the diversion structure should be fenced to keep animals away from the source.
 - d. It is recommended that a considerably larger area above (upstream or at a higher surface elevation) be protected from potential animal contamination and erosion.
 - e. It is recommended that the area around the sources be planted with native trees.

NOTE: Doing these will help protect your water from contamination and stabilize a spring.
5. Maintenance and system checkup schedule
 - a. At least four times a year inspect the source diversion, pipelines, tanks, and all taps.
 - b. Each year drain and clean all tanks.
 - c. At least four time a year inspect tank inlet, outlet and overflow pipes and valves. Make sure that overflow is not causing erosion.
 - d. Every two years the tanks and pipelines should be disinfected with a shock chlorination. See the attached document for an appropriate procedure.

- e. Each year test the distribution system for broken lines or over use by performing a flow test. Keep records.

Example of a Flow Test.

Tap Test:

Measure the flow rate from each tap. Using a watch with a second hand, measure how long it takes to fill a 10 liter bucket. Divide 10 liters by the time to get the flow in liters per second. Example: During your test it takes 1 minute and 14 seconds (74 seconds) to fill a 10 liter bucket. The flow rate is $10/74 = .135$ liters per second. Keep a record of the tap location (name), date, time of day the test was performed, size of bucket, time to fill the bucket, and flow rate.

Water Use Tank Test:

1. Close the inflow valve to the storage tank so that no water is entering the tank.
2. Measure the distance from the opening in the top of the tank down to the water surface. Record the time and distance measured to the water surface in centimeters.
3. Wait 24 hours and repeat the water level measurement. Record the time and distance.
4. Open the inflow valve.
5. Compute the volume of water used during this period.
Volume = (final distance measurement – initial distance measurement)/10 x (storage volume in 10cm of tank). This will give the volume used during the 24 hour test in liters. The storage volume in 10cm of tank will be provided by EWB or can be computed.
6. Divide the volume by the number of taps that are in use to get the average household use.
7. Do these numbers seem reasonable? Could there be a break in the line or is all of the water used during the test accounted for by reasonable use at the taps?

Leak Test 1 – Transmission system piping:

1. Cut the transmission line just below the valve below the source and insert a tee fitting with a vertical stand pipe. Support the stand pipe. The stand pipe should be at about 1.5 m. in height.
2. Close the valve at the storage tank (village) or the valve before the first tap. And make sure that the pipeline is full of water from the valve up to the source.
3. Close the valve at the source. This isolates the transmission pipeline.
4. Pour water into the vertical stand pipe to the very top.
5. Wait as long as possible (at least eight hours) and then look into the standpipe. Is there water visible in the standpipe? If you can see the water in the stand pipe this means that there are only very small leak(s) and no repairs are needed. If you can't see water in the standpipe, there may be larger leak(s) that need repaired.
6. If you cannot see the water level in the standpipe you must work your way downstream until you find the point where there is water in the pipe. This can be done by going downstream some distance (say 100 m) dig up a two meter length of the trench and tap and shake the pipe. Do you feel water? If you are not sure then cut the pipe, see if there is water at that point, then fix the cut pipe with a coupler fitting. Move downstream and repeat this process until you

find the water surface. If you get to a 1000 m downstream and still have not found the water surface this means that you have lost about 2000 liters (500 gallons) during the test period. Decide if this is a serious enough problem to continue the process until you find the leak.

7. When the test is complete cap the standpipe or put a screen over it to keep out debris. Open all valves.

Leak Test 2 – Distribution system piping:

1. Start this test at night after people are through using water, (10:00 pm).
2. Close the inflow valve to the storage tank so no water is entering the tank.
3. Measure the distance from the opening in the top of the tank down to the water surface. Record the time and distance measured to the water surface in centimeters.
4. Return to the tank very early the next morning before people start using water (4:30 am). Measure the distance from the opening in the top of the tank down to the water surface. Record the time and distance measured to the water surface in centimeters.

Very little water should have been used during this period. If the measurements indicate a significant change in water